SPECIFIED GAS EMITTERS REGULATION

QUANTIFICATION PROTOCOL FOR ENERGY EFFICIENCY PROJECTS

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Version 1

Alberta ENVIRONMENT

ALBERTANS & CLIMATE CHANGE

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1.0 PROJECT AND METHODOLOGY SCOPE AND DESCRIPTION

This quantification protocol is written for those familiar with process change and energy efficiency projects. Some familiarity with, or general understanding of, the operation of these practices and processes is expected.

The opportunity for generating carbon offsets with this protocol arises from the direct and indirect reductions of greenhouse gas (GHG) emissions resulting from the implementation of industrial, commercial and agricultural process changes and facility retrofits that result in overall efficiencies in energy use per unit of productivity. Process changes may include the mechanical, biological and/or chemical components of the operation and may impact upon on-site heat, electrical and power requirements.

1.1 PROTOCOL SCOPE AND DESCRIPTION

This protocol does not prescribe the configuration or nature of the process changes, but instead serves as a generic 'recipe' for project developers to follow in order to meet the measurement, monitoring and GHG quantification requirements. **FIGURE 1.1** offers a typical process flow diagram for a typical project.

It should be noted that while this protocol is mainly targeted at farm operations, some procedures in this protocol may be transferable to other types of energy efficiency projects (i.e. Transportation, Residential, etc.), there could be considerable differences which would lead to inaccuracy in the quantification of the GHG emission reductions.

Protocol Approach:
The baseline condition for this protocol is defined as the process configuration prior to the changes or facility retrofits. The baseline energy and associated direct and indirect emissions footprint, per unit of production, would be established as part of an energy project assessment or similar method. Guidance for completing this process is available from the International Performance Measurement and Verification Protocol (IPMVP – available at www.evo-world.org).

The unit of production, or other applicable unit that effectively describes any non-production sensitive components, must be thoroughly justified in its application of functional equivalence. **FIGURE 1.2** offers a process flow diagram for a typical baseline configuration.

Protocol Applicability:
To demonstrate that a project meets the requirements under this protocol, the project developer must provide evidence that:

1. The process changes or facility retrofits must rely on functionally equivalent inputs and outputs from the modified process as indicated by an affirmation from the project developer;

FIGURE 1.1: Process Flow Diagram for Project Condition

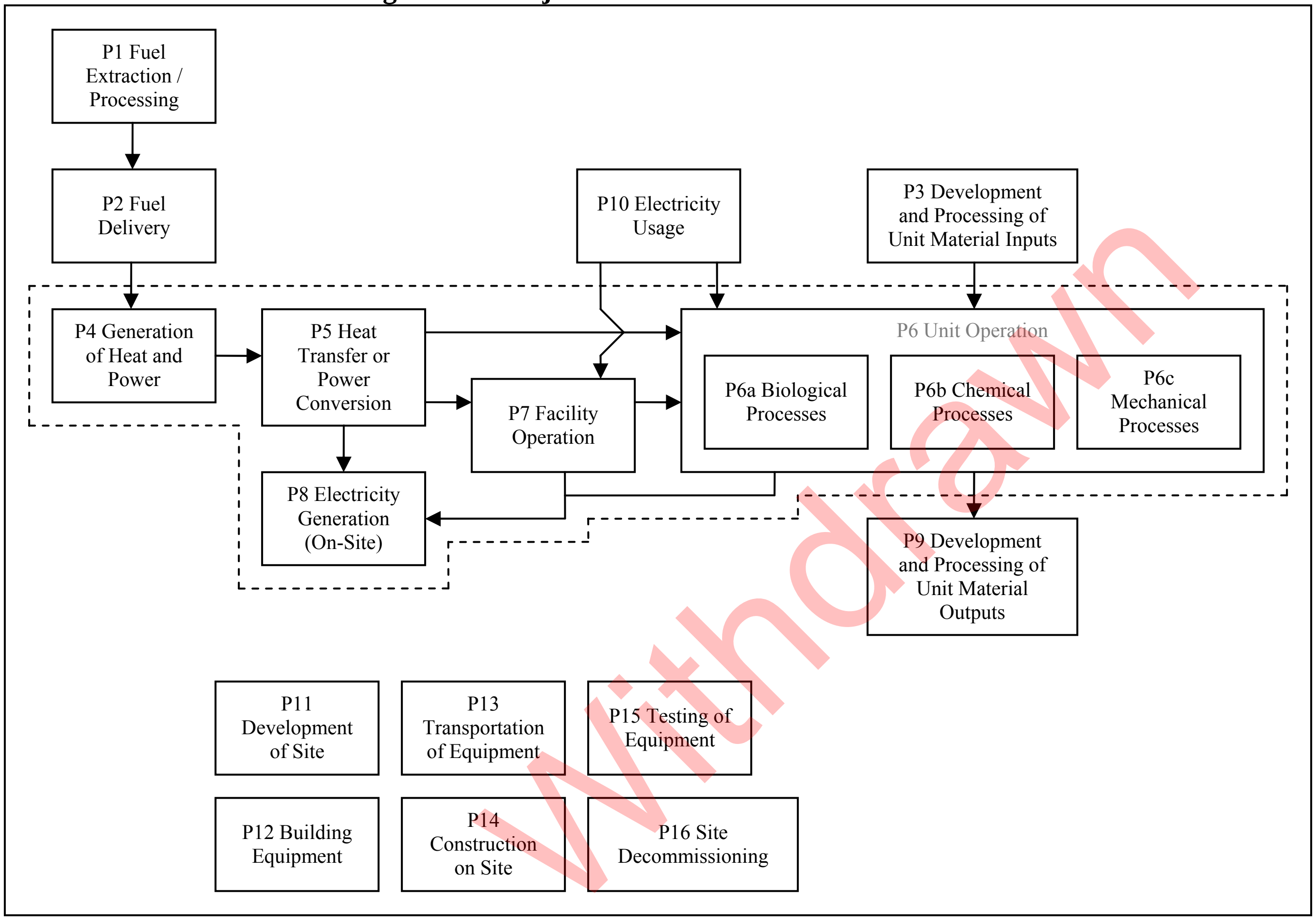
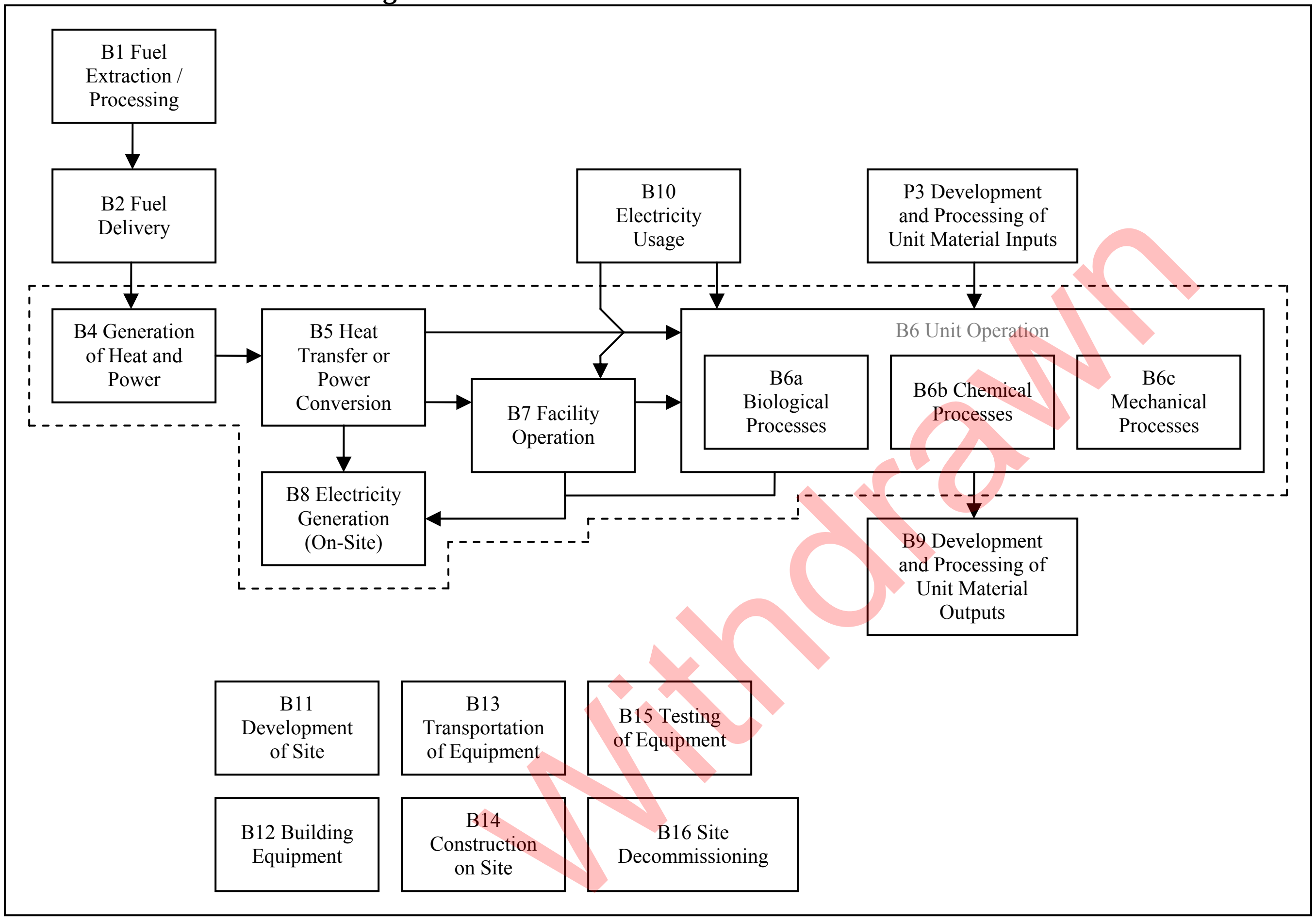


FIGURE 1.2: Process Flow Diagram for Baseline Condition



2. A suitable unit of production, or other applicable unit that effectively describes any non-production sensitive components, can be defined for incorporating equivalence within the calculation methodology as indicated by reasoned qualitative and quantitative analysis;
3. Biological or chemical components of the operation must not yield any increase in non-biogenic greenhouse gas emissions compared to the baseline condition, unless these are accounted for under the applicable flexibility mechanisms as indicated by an affirmation from the project developer;
4. The quantification of reductions achieved by the project is based on actual measurement and monitoring (except where indicated in this protocol) as indicated by the proper application of this protocol; and,
5. The project must meet the requirements for offset eligibility as specified in the applicable regulation and guidance documents for the Alberta Offset System.

Protocol Flexibility:
Flexibility in applying the quantification protocol is provided to project developers in eight ways:

1. The project developer must provide and justify an appropriate model for any biological or chemical processes altered at the facility. However, if these processes do not exist or are not altered, the project developer may exclude these SS's under this protocol;
2. The requirement for an energy assessment for the project may be waived in situations were the baseline energy use per unit of production can be justified using available records;
3. New processes and/or facilities may be included under this protocol where a justification of a baseline condition can be made with reasonable certainty based on current industry practise, per unit of production;
4. Sources and sinks that can be shown to be equivalent or not applicable for the project can be excluded from the analysis;
5. Project proponents may link to external ambient temperature data as a means of adjusting for equivalence;
6. The process changes may occur within a single unit or across multiple units. Further, the affected units may include multiple processes, equipment, etc. Defining the units that are altered is to be justified by the project developer;
7. Site specific emission factors may be substituted for the generic emission factors indicated in this protocol document. The methodology for generation of these emission factors must ensure accuracy; and
8. The process changes may impact the production efficiency and gross production. However, the project developer must justify any changes in this regard and ensure that the impact of these changes are appropriately considered as part of the per-unit-production means of calculation.

If applicable, the proponent must indicate and justify why flexibility provisions have been used.

1.2 GLOSSARY OF NEW TERMS

Functional Equivalence
The Project and the Baseline should provide the same function and quality of products or services. This type of comparison requires a common metric or unit of measurement (such as the mass of beef produced, land area cropped, energy use/per unit of product) for comparison between the Project and Baseline activity (refer to the Project Guidance Document for the Alberta Offset System for more information).

Energy Project Assessment
A detailed analysis completed by an independent, competent professional of the efficiency of heating, cooling, ventilation and other energy systems within a facility. The analysis must be systematic, replicable, verifiable and reasonable encompassing all components of the facility included within, and directly related to, the project unit.

Facility
The facility is defined as the collection of units, excluding the Project Unit. As such, the greenhouse emissions from the facility are defined to remain constant as only the project unit is impacted by the project. Where the Project Unit encompasses the entire site, there may be no components defined as the Facility at the site.

Project Unit
The project unit is defined as the equipment, processes and facilities that are being serviced and impacted by the energy efficiency project. The project unit must be clearly defined and justified by the project proponent. All non-project unit items are covered under the heading of facility operation.

Unit of Productivity
The unit of productivity is to be defined by the project proponent as a basis for incorporating functional equivalence within the calculation methodology. Examples of units of productivity could be: energy requirements per mass of beef/pork/chicken from feeding operations, per resident over 6 years of age for residential buildings, per square foot of front of house commercial space, per kg/L/m^2/m^3 of output

from manufacturing facilities, etc. The unit of productivity should be defined to account for any non-production sensitive components. In all cases the project proponent must thoroughly justify their assessment of the appropriate unit of productivity.

2.0 QUANTIFICATION DEVELOPMENT AND JUSTIFICATION

The following sections outline the quantification development and justification.

2.1 IDENTIFICATION OF SOURCES AND SINKS (SS'S) FOR THE PROJECT

SS's were identified for the project by reviewing the seed protocol document and relevant process flow diagram. This process confirmed that the SS's in the process flow diagrams covered the full scope of eligible project activities under the protocol.

Based on the process flow diagrams provided in **FIGURE 1.1**, the project SS's were organized into life cycle categories in **FIGURE 2.1**. Descriptions of each of the SS's and their classification as controlled, related or affected are provided in **TABLE 2.1.**

FIGURE 2.1: PROJECT ELEMENT LIFE CYCLE CHART

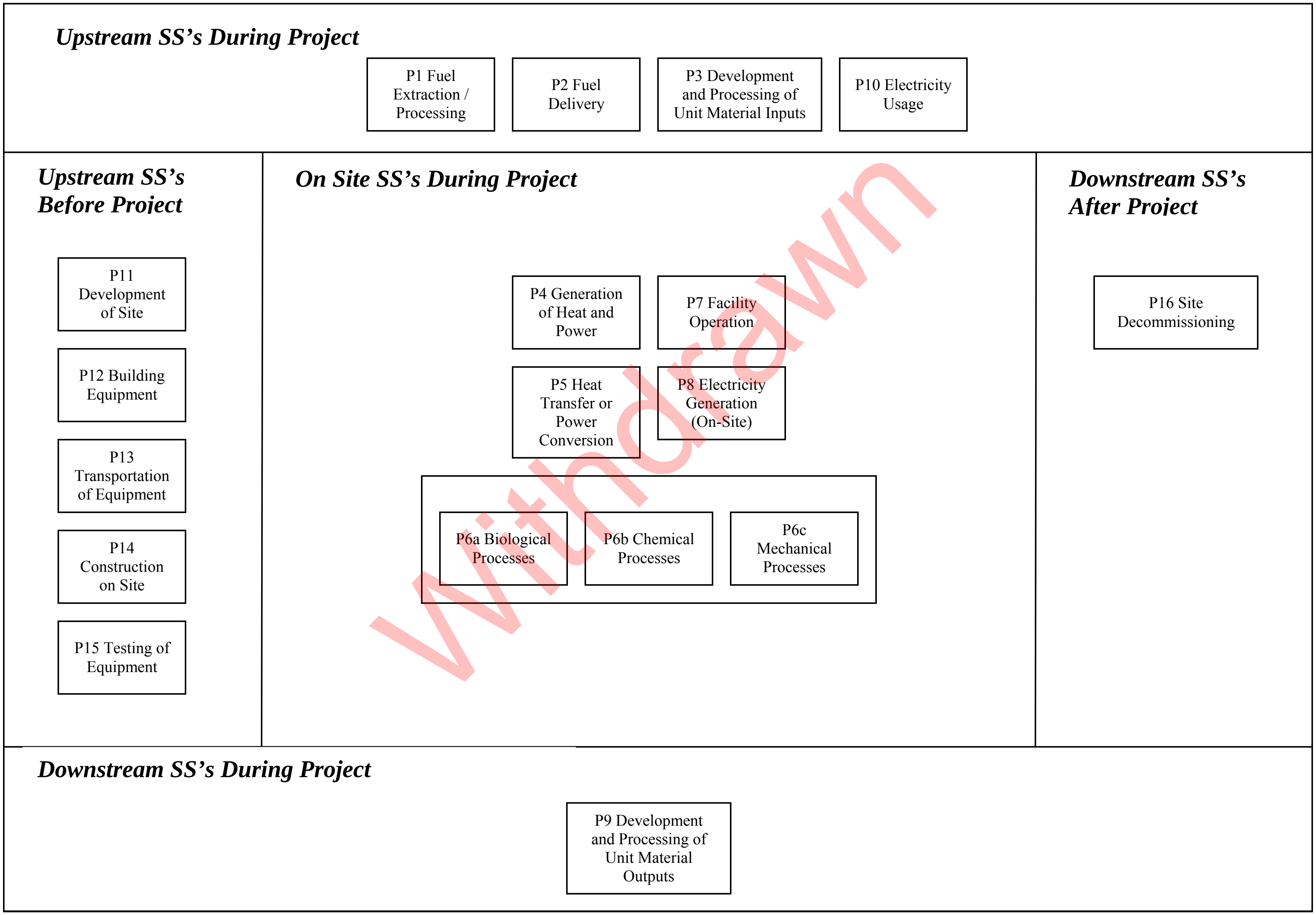


TABLE 2.1: Project SS's

1. SS	2. Description	3. Controlled, Related or Affected
Upstream SS's during Project Operation		
P1 Fuel Extraction and Processing	Each of the fuels used throughout the project will need to sourced and processed. This will allow for the calculation of the greenhouse gas emissions from the various processes involved in the production, refinement and storage of the fuels. The total volumes of fuel for each of the SS's are considered under this SS. Volumes and types of fuels are the important characteristics to be tracked.	Related
P2 Fuel Delivery	Each of the fuels used throughout the project will need to be transported to the site. This may include shipments by tanker or by pipeline, resulting in the emissions of greenhouse gases. It is reasonable to exclude fuel sourced by taking equipment to an existing commercial fuelling station as the fuel used to take the equipment to the sites is captured under other SS's and there is no other delivery.	Related
P3 Development and Processing of Unit Material Inputs	The material inputs to the unit process need to be transported, developed and/or processed prior to the unit process. This may require any number of mechanical, chemical or biological processes. All relevant characteristics of the material inputs would need to be tracked to prove functional equivalence with the baseline scenario.	Related
P10 Electricity Usage	Electricity may be required for operating the Project Unit. This power may be sourced either from internal generation, connected facilities or the local electricity grid. Metering of electricity may be netted in terms of the power going to and from the grid. Quantity and source of power are the important characteristics to be tracked as they directly relate to the quantity of greenhouse gas emissions.	Related
Onsite SS's during Project Operation		
P4 Generation of Heat and Power	The generation of heat and power may be for the project site. This generation could require the combustion of fossil fuels precipitating greenhouse gas emissions. Volumes and types of fuels are the important characteristics to be tracked.	Controlled
P5 Heat Transfer or Power Conversion	Mechanical or other processes may be required to transfer the heat and power to a usable form at the project site. All relevant characteristics of the heat transfer or power conversion would need to be tracked including volumes and types of fuels are the important characteristics to be tracked.	Controlled
P6a Unit Operation: Biological Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the biological processes within the unit at the project site. All relevant characteristics of the biological processes would need to be tracked.	Controlled
P6b Unit Operation: Chemical Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the chemical processes within the unit at the project site. All relevant characteristics of the chemical processes would need to be tracked.	Controlled

P6c Unit Operation: Mechanical Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the mechanical processes within the unit at the project site. All relevant characteristics of the mechanical processes would need to be tracked.	Controlled
P7 Facility Operation	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the overall facility. This may include running vehicles and facilities at the project site. Quantities and types for each of the energy inputs would be tracked.	Controlled
P8 Electricity Generation	Electricity may be generated to meet internal project demand or for export from the project site. The generation of this electricity may yield incremental greenhouse gas emissions. Quantities and types for each of the energy inputs would be tracked.	Controlled
Downstream SS's during Project Operation		
P9 Development and Processing of Unit Material Outputs	The material inputs to the unit process need to be transported, developed and/or processed subsequent to the unit process. This may require any number of mechanical, chemical or biological processes. All relevant characteristics of the material outputs would need to be tracked to prove functional equivalence with the baseline scenario.	Related
Other		
P11 Development of Site	The site of the facility may need to be developed. This could include civil infrastructure such as access to electricity, gas and water supply, as well as sewer etc. This may also include clearing, grading, building access roads, etc. There will also need to be some building of structures for the facility such as storage areas, storm water drainage, offices, vent stacks, firefighting water storage lagoons, etc., as well as structures to enclose, support and house the equipment. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment required to develop the site such as graders, backhoes, trenching machines, etc.	Related
P12 Building Equipment	Equipment may need to be built either on-site or off-site. This includes all of the components of the storage, handling, processing, combustion, air quality control, system control and safety systems. These may be sourced as pre-made standard equipment or custom built to specification. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment for the extraction of the raw materials, processing, fabricating and assembly.	Related
P13 Transportation of Equipment	Equipment built off-site and the materials to build equipment on-site, will all need to be delivered to the site. Transportation may be completed by truck, barge and/or train. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels to power the equipment delivering the equipment to the site.	Related
P14 Construction on Site	The process of construction at the site will require a variety of heavy equipment, smaller power tools, cranes and generators. The operation of this equipment will have associated greenhouse gas emission from the use of fossil fuels and electricity.	Related

P15 Testing of Equipment	Equipment may need to be tested to ensure that it is operational. This may result in running the equipment using test anaerobic digestion fuels or fossil fuels in order to ensure that the equipment runs properly. These activities will result in greenhouse gas emissions associated with the combustion of fossil fuels and the use of electricity.	Related
P16 Site Decommissioning	Once the facility is no longer operational, the site may need to be decommissioned. This may involve the disassembly of the equipment, demolition of on-site structures, disposal of some materials, environmental restoration, re-grading, planting or seeding, and transportation of materials off-site. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment required to decommission the site.	Related

2.2 IDENTIFICATION OF BASELINE

The baseline condition for this protocol is defined as the process configuration prior to the process changes or facility retrofits. The energy and emissions footprint, per unit of production, of the baseline configuration would be established as part of an energy project assessment or similar method. The unit of production must be thoroughly justified in its application of incorporating functional equivalence across the calculations of emissions under the baseline and project conditions.

The approach to quantifying the baseline will be projection based as there are suitable models for the applicable baseline condition that can provide reasonable certainty. The baseline scenario for this protocol is dynamic as the emissions profile for the baseline activities would be expected to change materially relative to the defined unit of production which may fluctuate relative to supply and demand dynamics, as well as other market conditions.

The baseline condition is defined, including the relevant SS's and processes, as shown in **FIGURE 1.2**. More detail on each of these SS's is provided in Section 2.3, below.

2.3 IDENTIFICATION OF SS'S FOR THE BASELINE

Based on the process flow diagrams provided in **FIGURE 1.2**, the project SS's were organized into life cycle categories in **FIGURE 2.2**. Descriptions of each of the SS's and their classification as either 'controlled', 'related' or 'affected' is provided in **TABLE 2.2.**

FIGURE 2.2: Baseline Element Life Cycle Chart

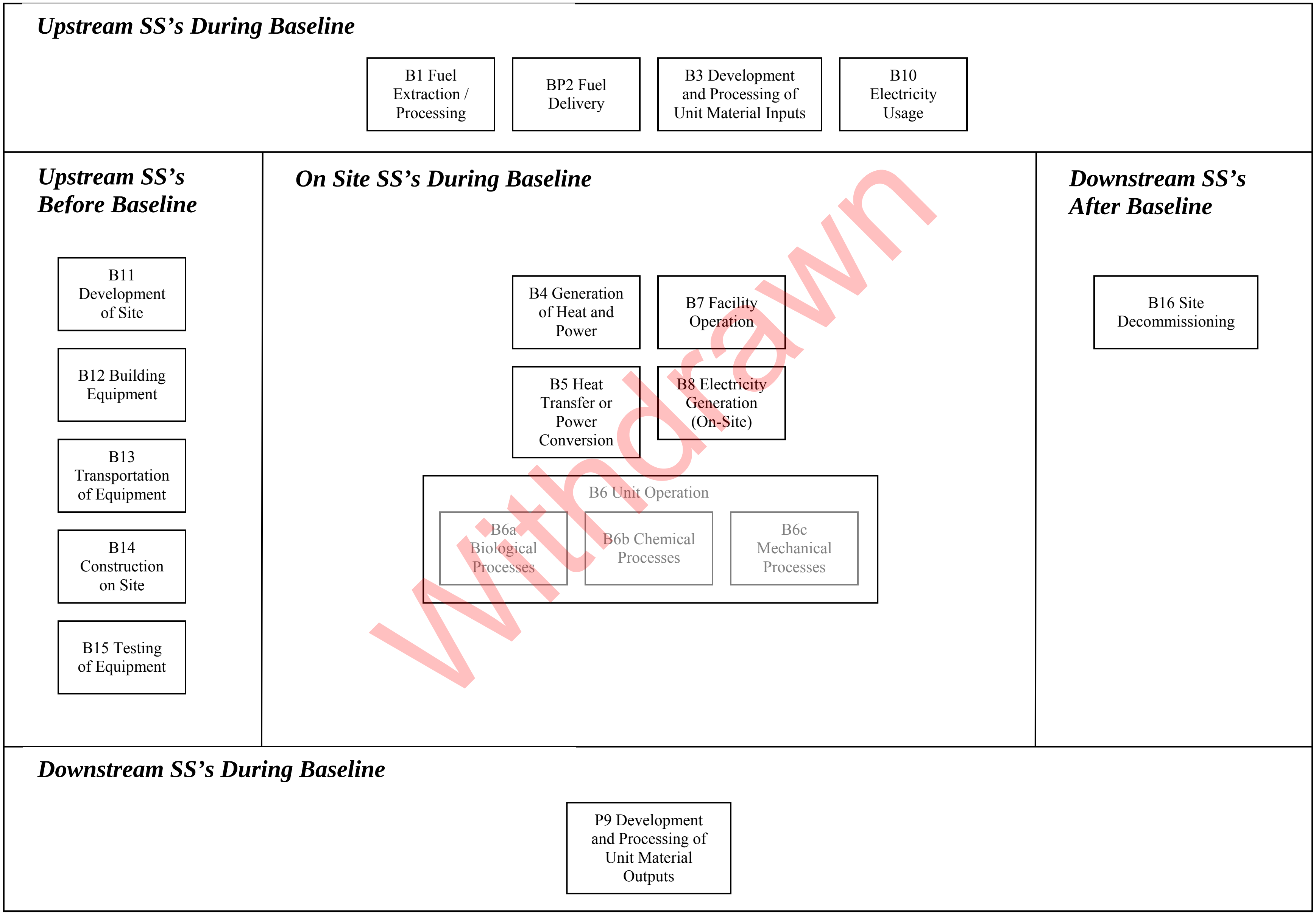


TABLE 2.2: Baseline SS's

1. SS	2. Description	3. Controlled, Related or Affected
Upstream SS's during Baseline Operation		
B1 Fuel Extraction and Processing	Each of the fuels used throughout the unit process will need to sourced and processed. This will allow for the calculation of the greenhouse gas emissions from the various processes involved in the production, refinement and storage of the fuels. The total volumes of fuel for each of the SS's are considered under this SS. Volumes and types of fuels are the important characteristics to be tracked.	Related
B2 Fuel Delivery	Each of the fuels used throughout the unit process will need to be transported to the site. This may include shipments by tanker or by pipeline, resulting in the emissions of greenhouse gases. It is reasonable to exclude fuel sourced by taking equipment to an existing commercial fuelling station as the fuel used to take the equipment to the sites is captured under other SS's and there is no other delivery.	Related
B3 Development and Processing of Unit Material Inputs	The material inputs to the unit process need to be transported, developed and/or processed prior to the unit process. This may require any number of mechanical, chemical or biological processes. All relevant characteristics of the material inputs would need to be tracked to prove functional equivalence with the project scenario.	Related
B10 Electricity Usage	Electricity may be required for operating the Project Unit. This power may be sourced either from internal generation, connected facilities or the local electricity grid. Metering of electricity may be netted in terms of the power going to and from the grid. Quantity and source of power are the important characteristics to be tracked as they directly relate to the quantity of greenhouse gas emissions.	Related
Onsite SS's during Baseline Operation		
B4 Generation of Heat and Power	The generation of heat and power may be required for facility operation. This generation could require the combustion of fossil fuels precipitating greenhouse gas emissions. Volumes and types of fuels are the important characteristics to be tracked.	Controlled
B5 Heat Transfer or Power Conversion	Mechanical or other processes may be required to transfer the heat and power to a usable form at the site. All relevant characteristics of the heat transfer or power conversion would need to be tracked including volumes and types of fuels are the important characteristics to be tracked.	Controlled
B6a Unit Operation: Biological Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the biological processes within the unit at the site. All relevant characteristics of the biological processes would need to be tracked.	Controlled
B6b Unit Operation: Chemical Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the chemical processes within the unit at the site. All relevant characteristics of the chemical processes would need to be tracked.	Controlled
B6c Unit Operation: Mechanical Processes	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the mechanical processes within the unit at the site. All relevant characteristics of the mechanical processes would need to be tracked.	Controlled
B7 Facility Operation	Greenhouse gas emissions may occur that are associated with the operation and maintenance of the overall facility. This may include running vehicles and facilities at the site. Quantities and types for each of the energy inputs would be tracked.	Controlled

B8 Electricity Generation	Electricity may be generated to meet internal demand or for export from the site. The generation of this electricity may yield incremental greenhouse gas emissions. Quantities and types for each of the energy inputs would be tracked.	Controlled
Downstream SS's during Baseline Operation		
B9 Development and Processing of Unit Material Outputs	The material inputs to the unit process need to be transported, developed and/or processed subsequent to the unit process. This may require any number of mechanical, chemical or biological processes. All relevant characteristics of the material outputs would need to be tracked to prove functional equivalence with the project scenario.	Related
Other		
B11 Development of Site	The site of the facility may need to be developed. This could include civil infrastructure such as access to electricity, gas and water supply, as well as sewer etc. This may also include clearing, grading, building access roads, etc. There will also need to be some building of structures for the facility such as storage areas, storm water drainage, offices, vent stacks, firefighting water storage lagoons, etc., as well as structures to enclose, support and house the equipment. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment required to develop the site such as graders, backhoes, trenching machines, etc.	Related
B12 Building Equipment	Equipment may need to be built either on-site or off-site. This includes all of the components of the storage, handling, processing, combustion, air quality control, system control and safety systems. These may be sourced as pre-made standard equipment or custom built to specification. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment for the extraction of the raw materials, processing, fabricating and assembly.	Related
B13 Transportation of Equipment	Equipment built off-site and the materials to build equipment on-site, will all need to be delivered to the site. Transportation may be completed by truck, barge and/or train. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels to power the equipment delivering the equipment to the site.	Related
B14 Construction on Site	The process of construction at the site will require a variety of heavy equipment, smaller power tools, cranes and generators. The operation of this equipment will have associated greenhouse gas emission from the use of fossil fuels and electricity.	Related
B15 Testing of Equipment	Equipment may need to be tested to ensure that it is operational. This may result in running the equipment using test anaerobic digestion fuels or fossil fuels in order to ensure that the equipment runs properly. These activities will result in greenhouse gas emissions associated with the combustion of fossil fuels and the use of electricity.	Related
B16 Site Decommissioning	Once the facility is no longer operational, the site may need to be decommissioned. This may involve the disassembly of the equipment, demolition of on-site structures, disposal of some materials, environmental restoration, re-grading, planting or seeding, and transportation of materials off-site. Greenhouse gas emissions would be primarily attributed to the use of fossil fuels and electricity used to power equipment required to decommission the site.	Related

2.4 SELECTION OF RELEVANT PROJECT AND BASELINE SS'S

Each of the SS's from the project and baseline condition were compared and evaluated as to their relevancy using the guidance provided in Annex VI of the "Guide to Quantification Methodologies and Protocols: Draft", dated March 2006 (Environment Canada). The justification for the exclusion or conditions upon which SS's may be excluded is provided in **TABLE 2.3** below. All other SS's listed previously are included.

TABLE 2.3: Comparison of SS's

1. Identified SS	2. Baseline (C, R, A)	3. Project (C, R, A)	4. Include or Exclude from Quantification	5. Justification for Exclusion
Upstream SS's				
P1 Fuel Extraction and Processing	N/A	Related	Include	N/A
B1 Fuel Extraction and Processing	Related	N/A	Include	
P2 Fuel Delivery	N/A	Related	Exclude	Excluded as the emissions from transportation are likely greater under the baseline condition.
B2 Fuel Delivery	Related	N/A	Exclude	
P3 Development and Processing of Unit Material Inputs	N/A	Related	Exclude	Excluded as by definition, they must be functionally equivalent to allow for the application of the protocol.
B3 Development and Processing of Unit Material Inputs	Related	N/A	Exclude	
P10 Electricity Usage	N/A	Related	Include	N/A
B10 Electricity Usage	Related	N/A	Include	
Onsite SS's				
P4 Generation of Heat and Power	N/A	Controlled	Include	N/A
B4 Generation of Heat and Power	Controlled	N/A	Include	
P5 Heat Transfer or Power Conversion	N/A	Controlled	Include	N/A
B5 Heat Transfer or Power Conversion	Controlled	N/A	Include	
P6a Unit Operation: Biological Processes	N/A	Controlled	Exclude	Excluded as prescribed to be functionally equivalent unless incorporated into the protocol under a flexibility mechanism.
B6a Unit Operation: Biological Processes	Controlled	N/A	Exclude	
P6b Unit Operation: Chemical Processes	N/A	Controlled	Exclude	Excluded as prescribed to be functionally equivalent unless incorporated into the protocol under a flexibility mechanism.

B6b Unit Operation: Chemical Processes	Controlled	N/A	Exclude	
P6c Unit Operation: Mechanical Processes	N/A	Controlled	Include	N/A
B6c Unit Operation: Mechanical Processes	Controlled	N/A	Include	
P7 Facility Operation	N/A	Controlled	Exclude	Excluded as the facility operation is defined to cover the elements of operations at the site that are not impacted by the implementation of the project and as such the baseline and project conditions will be functionally equivalent.
B7 Facility Operation	Controlled	N/A	Exclude	
P8 Electricity Generation	N/A	Controlled	Include	N/A
B8 Electricity Generation	Controlled	N/A	Include	
Downstream SS's				
P9 Development and Processing of Unit Material Outputs	N/A	Related	Exclude	Excluded as by definition, they must be functionally equivalent to allow for the application of the protocol.
B9 Development and Processing of Unit Material Outputs	Related	N/A	Exclude	
Other				
P11 Development of Site	N/A	Related	Exclude	Emissions from site development are not material given the long project life, and the minimal site development typically required.
B11 Development of Site	Related	N/A	Exclude	Emissions from site development are not material for the baseline condition given the minimal site development typically required.
P12 Building Equipment	N/A	Related	Exclude	Emissions from building equipment are not material given the long project life, and the minimal building equipment typically required.
B12 Building Equipment	Related	N/A	Exclude	Emissions from building equipment are not material for the baseline condition given the minimal building equipment typically required.
P13 Transportation of Equipment	N/A	Related	Exclude	Emissions from transportation of equipment are not material given the long project life, and the minimal transportation of equipment typically required.
B13 Transportation of Equipment	Related	N/A	Exclude	Emissions from transportation of equipment are not material for the baseline condition given the minimal transportation of equipment typically required.
P14 Construction on Site	N/A	Related	Exclude	Emissions from construction on site are not material given the long project life, and the minimal construction on site typically required.

B14 Construction on Site	Related	N/A	Exclude	Emissions from construction on site are not material for the baseline condition given the minimal construction on site typically required.
P15 Testing of Equipment	N/A	Related	Exclude	Emissions from testing of equipment are not material given the long project life, and the minimal testing of equipment typically required.
B15 Testing of Equipment	Related	N/A	Exclude	Emissions from testing of equipment are not material for the baseline condition given the minimal testing of equipment typically required.
P16 Site Decommissioning	N/A	Related	Exclude	Emissions from decommissioning are not material given the long project life, and the minimal decommissioning typically required.
B16 Site Decommissioning	Related	N/A	Exclude	Emissions from decommissioning are not material for the baseline condition given the minimal decommissioning typically required.

2.5 QUANTIFICATION OF REDUCTIONS, REMOVALS AND REVERSALS OF RELEVANT SS'S

2.5.1 Quantification Approaches

Quantification of the reductions, removals and reversals of relevant SS's for each of the greenhouse gases will be completed using the methodologies outlined in **TABLE 2.4**, below. A listing of relevant emission factors is provided in **Appendix A**. These calculation methodologies serve to complete the following three equations for calculating the emission reductions from the comparison of the baseline and project conditions.

$$\text{Emission Reduction} = \text{Emissions}_{\text{Baseline}} - \text{Emissions}_{\text{Project}}$$

$$\text{Emissions}_{\text{Project}} = \text{Emissions}_{\text{Fuel Extraction / Processing}} + \text{Emissions}_{\text{Gen Heat and Power}} + \text{Emissions}_{\text{Transfer / Conversion}} + \text{Emissions}_{\text{Unit Operation}} + \text{Emissions}_{\text{Electricity Generation}} + \text{Emissions}_{\text{Electricity Usage}}$$

$$\text{Emissions}_{\text{Project}} = \text{Emissions}_{\text{Fuel Extraction / Processing}} + \text{Emissions}_{\text{Gen Heat and Power}} + \text{Emissions}_{\text{Transfer / Conversion}} + \text{Emissions}_{\text{Unit Operation}} + \text{Emissions}_{\text{Electricity Generation}} + \text{Emissions}_{\text{Electricity Usage}}$$

Where:

Emissions $_{\text{Baseline}}$ = sum of the emissions under the baseline condition.

Emissions $_{\text{Fuel Extraction / Processing}}$ = emissions under SS B1 Fuel Extraction and Processing

Emissions $_{\text{Gen Heat and Power}}$ = emissions under SS B4 Generation of Heat and Power

Emissions $_{\text{Transfer / Conversion}}$ = emissions under SS B5 Heat Transfer or Power Conversion

Emissions $_{\text{Unit Operation}}$ = emissions under SS B6c Unit Operation: Mechanical Processes

Emissions $_{\text{Electricity Generation}}$ = emissions under SS B8 Electricity Generation

Emissions $_{\text{Electricity Usage}}$ = emissions under SS B10 Electricity Usage

Emissions $_{\text{Project}}$ = sum of the emissions under the project condition.

Emissions $_{\text{Fuel Extraction / Processing}}$ = emissions under SS P1 Fuel Extraction and Processing

Emissions $_{\text{Gen Heat and Power}}$ = emissions under SS P4 Generation of Heat and Power

Emissions $_{\text{Transfer / Conversion}}$ = emissions under SS P5 Heat Transfer or Power Conversion

Emissions $_{\text{Unit Operation}}$ = emissions under SS P6c Unit Operation: Mechanical Processes

$Emissions_{Electricity\ Generation}$ = emissions under SS P8 Electricity Generation
$Emissions_{Electricity\ Usage}$ = emissions under SS P10 Electricity Usage

TABLE 2.4: Quantification Procedures

1. Project / Baseline SS	2. Parameter / Variable	3. Unit	4. Measured / Estimated	5. Method	6. Frequency	7. Justify measurement or estimation and frequency
Project SS's						
P1 Fuel Extraction and Processing	$Emissions_{Fuel\ Extraction\ /\ Processing} = \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CO2})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CH4})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ N2O})$					
	$Emissions_{Fuel\ Extraction\ /\ Processing}$	kg of CO2e	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Fuel Combusted for P4 and P6 / Vol. Fuel	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Fuel Including Production and Processing / $EF\ Fuel_{CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Fuel Including Production and Processing / $EF\ Fuel_{CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Fuel Including Production and Processing / $EF\ Fuel_{N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
P4 Generation of Heat and Power	$Emissions_{Gen\ Heat\ and\ Power} = \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CO2});\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CH4})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ N20})$					
	$Emissions_{Gen\ Heat\ and\ Power}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.

	Volume of Each Type of Fuel Consumed to Generate Heat and Power / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
P5 Heat Transfer or Power Conversion	Emissions $_{Transfer / Conversion}$ = $\sum$ (Vol. Fuel $_i$ * EF Fuel $_{i\ CO2}$); $\sum$ (Vol. Fuel $_i$ * EF Fuel $_{i\ CH4}$) ; $\sum$ (Vol. Fuel $_i$ * EF Fuel $_{i\ N20}$)					
	Emissions $_{Transfer / Conversion}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel Consumed for Heat Transfer or Power Conversion / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.

	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
P6c Unit Operation: Mechanical Processes	Emissions $_{Unit\ Operation}$ = ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CO2}$); ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CH4}$) ; ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ N20}$)					
	Emissions $_{Unit\ Operation}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel for Unit Operation / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.

P8 Electricity Generation	$Emissions_{Elec\ Gen} = \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CO2}); \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CH4}) ; \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ N20})$					
	$Emissions_{Elec\ Gen}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel for Electricity Generation / Vol. $Fuel_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF $Fuel_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF $Fuel_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF $Fuel_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
P10 Electricity Usage	$Emissions_{Electricity} = Electricity * EF_{Elec}$					
	$Emissions_{Electricity}$	kg of CO2e	N/A	N/A	N/A	Quantity being calculated.
	Electricity Used at the Site for Unit Operation / Electricity	kWh	Measured	Direct metering.	Continuous metering	Continuous direct metering represents the industry practise and the highest level of detail.
	Emissions Factor for Electricity / EF_{Elec}	kg of CO2e per kWh	Estimated	From Alberta Environment reference documents.	Annual	Reference values adjusted as appropriate by Alberta Environment

Baseline SS's						
B1 Fuel Extraction and Processing	$Emissions_{Fuel\ Extraction\ /\ Processing} = \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CO2})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CH4})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ N2O})$					
	$Emissions_{Fuel\ Extraction\ /\ Processing}$	kg of CO2e	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Fuel Combusted for B4 / Vol. Fuel	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Natural Gas / $EF\ Fuel_{CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Natural Gas / $EF\ Fuel_{CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Natural Gas / $EF\ Fuel_{N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
B4 Generation of Heat and Power	$Emissions_{Gen\ Heat\ and\ Power} = \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CO2});\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ CH4})\ ;\ \sum (Vol.\ Fuel_i * EF\ Fuel_{i\ N20})$					
	$Emissions_{Gen\ Heat\ and\ Power}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel Consumed to Generate Heat and Power / $Vol.\ Fuel_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.

	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
B5 Heat Transfer or Power Conversion	$\text{Emissions}_{\text{Transfer / Conversion}} = \sum (\text{Vol. Fuel}_i * \text{EF Fuel}_{i\ CO2}); \sum (\text{Vol. Fuel}_i * \text{EF Fuel}_{i\ CH4}) ; \sum (\text{Vol. Fuel}_i * \text{EF Fuel}_{i\ N20})$					
	Emissions $_{\text{Transfer / Conversion}}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel Consumed for Heat Transfer or Power Conversion / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.

	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
B6c Unit Operation: Mechanical Processes	Emissions $_{Unit\ Operation}$ = ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CO2}$); ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CH4}$) ; ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ N20}$)					
	Emissions $_{Unit\ Operation}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.
	Volume of Each Type of Fuel for Unit Operation / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
B8 Electricity Generation	Emissions $_{Elec\ Gen}$ = ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CO2}$); ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ CH4}$) ; ∑ (Vol. Fuel $_i$ * EF Fuel $_{i\ N20}$)					
	Emissions $_{Elec\ Gen}$	kg of CO_2 ; CH_4 ; N_2O	N/A	N/A	N/A	Quantity being calculated in aggregate form as fuel and electricity use on site is likely aggregated for each of these SS's.

	Volume of Each Type of Fuel for Electricity Generation / Vol. Fuel $_i$	L, m^3 or other	Measured	Direct metering or reconciliation of volume in storage (including volumes received).	Continuous metering or monthly reconciliation.	Both methods are standard practise. Frequency of metering is highest level possible. Frequency of reconciliation provides for reasonable diligence.
	CO_2 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CO2}$	kg CO_2 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	CH_4 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ CH4}$	kg CH_4 per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
	N_20 Emissions Factor for Combustion of Each Type of Fuel / EF Fuel $_{i\ N2O}$	kg N_2O per L, m^3 or other	Estimated	From Environment Canada reference documents.	Annual	Reference values adjusted annually as part of Environment Canada reporting on Canada's emissions inventory.
B10 Electricity Usage	Emissions $_{Electricity}$ = Electricity * EF $_{Elec}$					
	Emissions $_{Electricity}$	kg of CO2e	N/A	N/A	N/A	Quantity being calculated.
	Electricity Used at the Site for Unit Operation / Electricity	kWh	Measured	Direct metering.	Continuous metering	Continuous direct metering represents the industry practise and the highest level of detail.
	Emissions Factor for Electricity / EF $_{Elec}$	kg of CO2e per kWh	Estimated	From Alberta Environment reference documents.	Annual	Reference values adjusted by Alberta Environment as appropriate.

2.5.2. Contingent Data Approaches

Contingent means for calculating or estimating the required data for the equations outlined in section 2.5.1 are summarized in **TABLE 2.5**, below.

2.6 MANAGEMENT OF DATA QUALITY

In general, data quality management must include sufficient data capture such that the mass and energy balances may be easily performed with the need for minimal assumptions and use of contingency procedures. The data should be of sufficient quality to fulfill the quantification requirements and be substantiated by company records for the purpose of verification.

The project proponent shall establish and apply quality management procedures to manage data and information. Written procedures should be established for each measurement task outlining responsibility, timing and record location requirements. The greater the rigour of the management system for the data, the more easily an audit will be to conduct for the project.

2.6.1 Record Keeping

Record keeping practises should include:

a. Electronic recording of values of logged primary parameters for each measurement interval;
b. Printing of monthly back-up hard copies of all logged data;
c. Written logs of operations and maintenance of the project system including notation of all shut-downs, start-ups and process adjustments;
d. Retention of copies of logs and all logged data for a period of 7 years; and
e. Keeping all records available for review by a verification body.

2.6.1 Quality Assurance/Quality Control (QA/QC)

QA/QC can also be applied to add confidence that all measurements and calculations have been made correctly. These include, but are not limited to:

a Protecting monitoring equipment (sealed meters and data loggers);
b Protecting records of monitored data (hard copy and electronic storage);
c Checking data integrity on a regular and periodic basis (manual assessment, comparing redundant metered data, and detection of outstanding data/records);
d Comparing current estimates with previous estimates as a ‘reality check’;
e Provide sufficient training to operators to perform maintenance and calibration of monitoring devices;

f. Establish minimum experience and requirements for operators in charge of project and monitoring; and
g. Performing recalculations to make sure no mathematical errors have been made.

TABLE 2.5: Contingent Data Collection Procedures

1. Project / Baseline SS	2. Parameter / Variable	3. Unit	4. Measured / Estimated	5. Contingency Method	6. Frequency	7. Justify measurement or estimation and frequency
Project SS's						
P1 Fuel Extraction and Processing	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
P4 Generation of Heat and Power	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
P5 Heat Transfer or Power Conversion	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
P6c Unit Operation: Mechanical Processes	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
P8 Electricity Generation	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
P10 Electricity Usage	Incremental Electricity Exported from the Site / Electricity	kWh	Measured	Reconciliation of power requirements for facility as per equipment output ratings.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
Baseline SS's						
B1 Fuel Extraction and Processing	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.

B4 Generation of Heat and Power	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
B5 Heat Transfer or Power Conversion	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
B6c Unit Operation: Mechanical Processes	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
B8 Electricity Generation	Volume of Each Type of Fuel / Vol Fuel $_i$	L, m^3 or other	Measured	Reconciliation of volume of fuel purchased within given time period.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.
B10 Electricity Usage	Incremental Electricity Exported from the Site / Electricity	kWh	Measured	Reconciliation of power requirements for facility as per equipment output ratings.	Monthly	Provides reasonable estimate of the parameter, when the more accurate and precise method cannot be used.