

Quantification Protocol for Commercial & Institutional Green Building Projects

Alberta Protocol Stakeholder Consultations ~ January 2008
Baseline Emissions Management Inc.

Commercial & Institutional Green Building Projects

- Seed Materials
 - Good Practice Guidance
 - CDM protocols
 - Project evaluations
- Technical Review
 - Alberta process with gov't and industry stakeholders
- Two streams of protocols
 - Generic

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- **Project Condition**
 - Implementation of new building methods, and facility retrofits that result in overall efficiencies in energy use per unit of productivity
- **Baseline Condition**
 - Existing buildings
 - Average, new buildings

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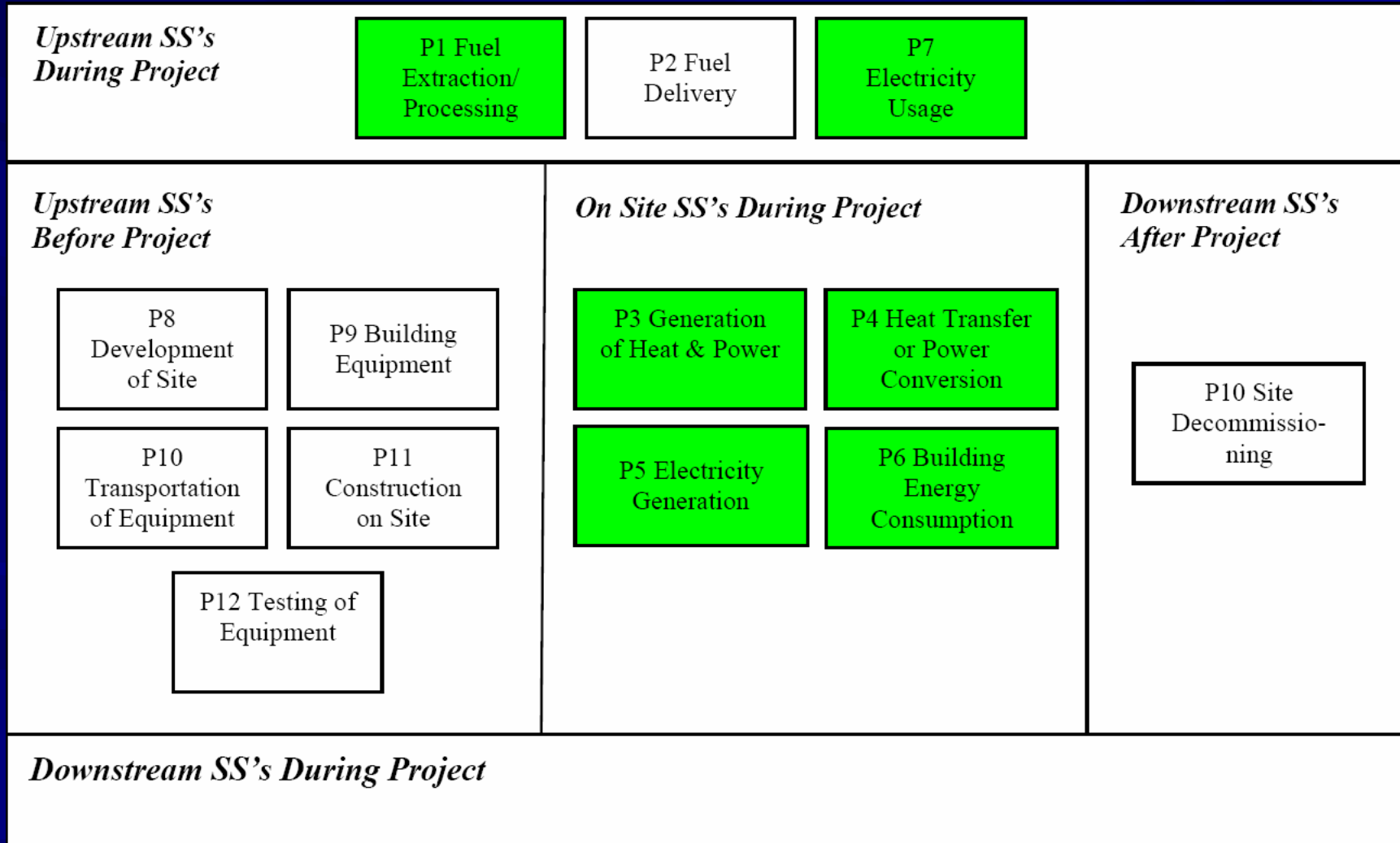
- Functional Equivalence
 - Equivalent energy production
 - No change to the product or service
- Emission Reduction Mechanisms
 - Reduce use of fossil-fuel derived energy in building usage
 - Implementation of new building methods, and facility retrofits that result in overall efficiencies in energy use per unit of productivity
- Applicability criteria
 - New buildings must exceed the ASHRAE 90.1 standard;
 - Retrofits to existing buildings must improve emission performance as established by the difference between pre- and post-retrofit energy audit;
 - The quantification of reductions achieved by the project is based on actual measurement conducted in energy audits.
 - Existing buildings: include both a pre-project and post-project energy audit.
 - New buildings: based on a post-project energy audit and compared to the established baseline energy consumption levels for new buildings from ASHRAE 90.1 standard.

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- Flexibility mechanisms
 - Reductions in onsite electricity or fuel use are dealt with outside the scope of the protocol as part of the energy efficiency protocol and renewable energy protocols.
 - Site specific emission factor usage

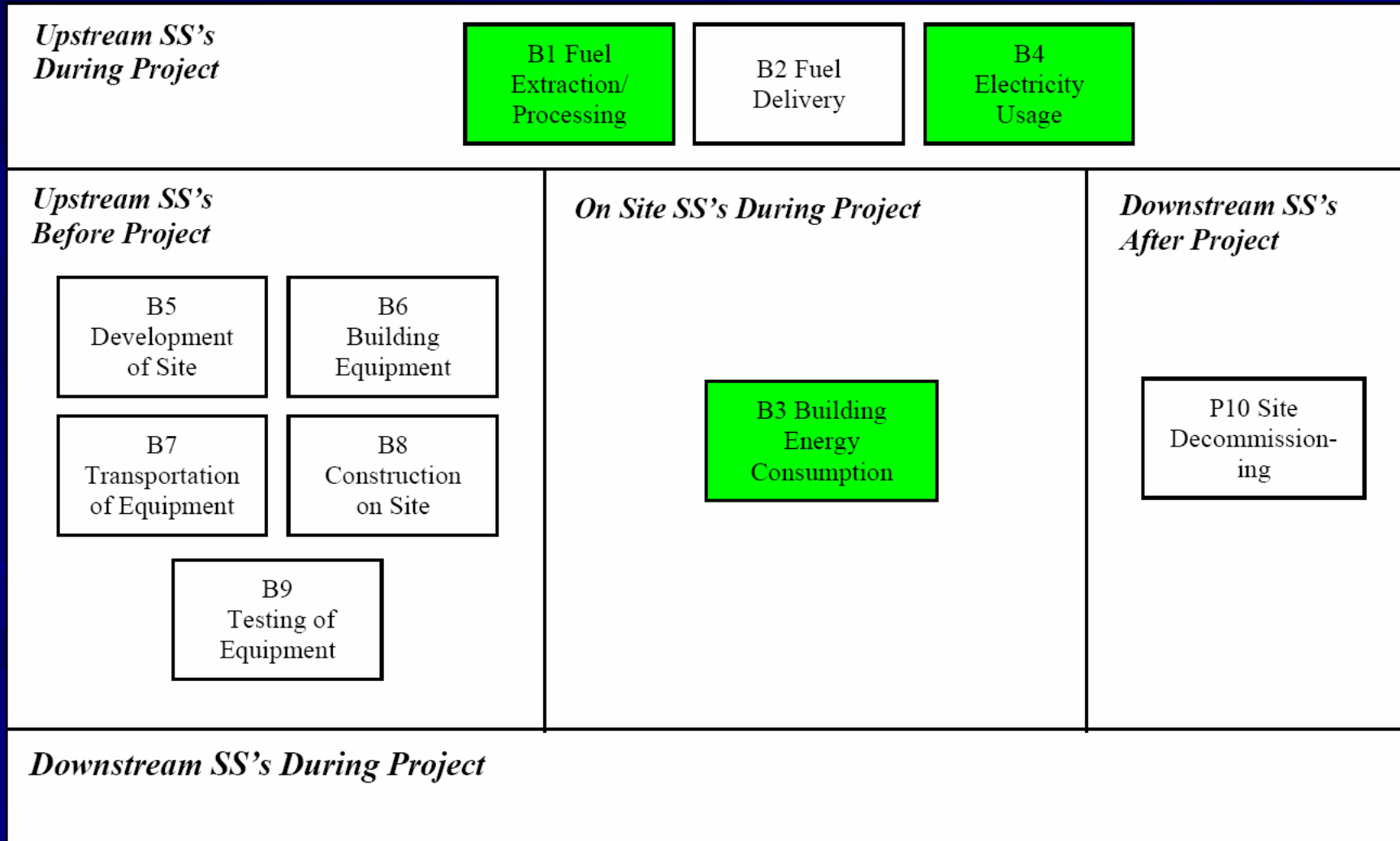
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Project Condition



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Baseline Condition



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

$$\begin{aligned} \text{Emissions}_{\text{Baseline}} &= \text{Emissions}_{\text{Fuel Extraction/Processing}} \\ &+ \text{Emissions}_{\text{Electricity Usage}} + \text{Emissions}_{\text{Building Energy Consumption}} \end{aligned}$$

$$\begin{aligned} \text{Emissions}_{\text{Project}} &= \text{Emissions}_{\text{Fuel Extraction / Processing}} + \text{Emissions}_{\text{Total}} \\ &\quad \text{Onsite Energy Use} + \text{Emissions}_{\text{Net}} \quad \text{Net Electricity Usage} \end{aligned}$$

- Data Capture
 - Volume of fossil fuel consumed
 - Amount of electricity used

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Protocol applicability changes to address potential free rider effects.

- Material Change of Occupancy

Test for building:

1. If occupancy building area change then;
2. 5% Materiality test: % area impacted of total bldg area

- Material Change of Production Activity

Test for building:

1. Activity in building that directly affects energy consumption
2. 5% Materiality test: Does activity significantly affect energy efficiency

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- Questions and Comments
 - Technical issues?
 - Policy concerns?
 - Customization questions?
 - Linkage issues?