

Energy Efficiency and Solid Waste Diversion Activities within the Quebec Sustainable Community



This Project Document (PD) was developed by Will Solutions Inc., formerly Gedden, in collaboration with ICF Marbek and Certi-Conseil Inc.

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Project's Index (Partial index of the methodology VM0018)

Adjusted-baseline energy	Non-Routine Adjustments
Alternative Processing	Primary Data
Baseline Adjustments	Process Emissions
Baseline Energy	Producer
Baseline Period	Project Unit
Biodegradability	Recycling
Client Facility	Routine Adjustments
Composting	Secondary Data
Confidence Level	Static Factors
Disposal	Sustainable Community
Diversion	Sustainable Community Service Promoter
Energy Conservation Measure (ECM)*	Territory
Functional Equivalence	Unit of Productivity
Grouped Projects	Verified Data Feedback Loop
ICT	Waste
Landfill Gas (LFG)	Waste Management
Measurement Boundary	Waste Transformation

1 PROJECT DETAILS

1.1 Summary Description of the Project

This Energy Efficiency and Solid Waste Diversion Activities within the Quebec Sustainable Community project document was prepared by Will Solutions Inc. (formerly Gedden) to allow Will Solutions as project proponent (Sustainable Community Service Promoter (SCSP)), to quantify and originate GHG emission **reductions** in conformance with VCS Methodology VM0018 Energy Efficiency and Solid Waste Diversion Activities within a Sustainable Community (Version 1.0). This project targets a large range of "Client Facilities", all located inside the Province of Quebec, mainly small to medium sized companies, part of the industrial, commercial or institutional sector, and/or property of several and different owners and grouped together inside a "Sustainable Community" or "cluster".

The aggregated GHG emissions from small final emitters (SFE) of GHGs (warehouses, supermarkets, restaurants, shops, governmental and municipal buildings and offices, etc.) make up a significant component of regional GHG emissions; they also pose a significant opportunity to reduce real GHG emissions. Towards the objective of enabling SFE's participate in offset origination activities, this project is defined as a "Grouped Project"¹ enabled through Will Solutions proprietary Information and Communication Technology (ICT) as well as the use of an electronic tracking platform.

This project is a grouped project², where energy efficiency and solid waste diversion activities have been initiated by a Sustainable Community Service Promoter for an assortment of Client Facilities grouped and located inside the Province of Quebec. The SCSP will use a consolidated Information and Communication Technology-enabled data monitoring and collection system to track project activity data. Even though the activities of Client Facilities vary, energy consumption and waste management are similar across many businesses and organizations. This project is meant to work with and support the provision of single window reporting and measurement provided by a third party to capture the information required to quantify emissions reductions.

This project has been designed to be simple, yet rigorous to apply, measure, and monitor. Even though the activities of SFEs vary, energy consumption and waste disposal are similar across many businesses and organizations. The main Project objectives are:

- i. To gradually group together inside a "Sustainable Community or cluster", up to 10,000 Clients Facilities, located inside the Province of Quebec, that will achieve together a potential 22 852 000 tCO₂e of GHG emission reductions for the period 2010-2020;
- ii. To stimulate and reward Industrial Commercial Institutional (ICI) business units – large or small facilities – for their efforts to reduce GHG emissions, by giving them access to the internationally recognized voluntary carbon credits market;
- iii. To collect ground data in real time, and consequently, stimulate and enhance Industrial Commercial and Institutional (ICI) facilities for a better sustainable behaviour;
- iv. This approach stimulates and rewards all the small actions carried out by the ICI sites: to divert industrial and commercial waste from landfill, for a more efficient waste recovery and for increasing energy efficiency in buildings.

¹ Voluntary Carbon Standard, 2011, Section 3.10.

² See Verified Carbon Standard, October 2012, Section 3.4 for grouped project requirements.

To overcome the inherent monitoring and measurement challenges of aggregating small energy efficiency and waste diversion activities, this project relies on advanced data gathering technology. Will Solutions has constructed this project to use its increased ability, through its electronic tracking platform, to collect data from Client Facilities. Will Solutions' system involves collecting ground data, activity per activity or event per event, in real time to calculate carbon emissions from a large number GHG Small Emitters. To do so, Gedden uses an amalgam of ICT technologies that provide automated ground data collection with minimum human intervention: Radio Frequency Identification (RFID), Wi-Fi or cellular network and web portals. Will Solutions' technology is scalable to support automated and manual data gathering along with off line data entry transaction. This will simplify third party auditing and control (monitoring) as well as data activities paramount to the emission reductions quantification.

1.2 Sectorial Scope and Project Type

The Sectorial Scopes are 3, 13 and it is a grouped project.

1.3 Project Proponent

Will Solutions Inc. (formerly Gedden) is the project proponent. Will Solutions Inc. will be a Sustainable Community Service Promoter (SCSP): An independent entity that provides essential services to stimulate greenhouse gas (GHG) reduction activities such as energy efficiency and waste handling to Client Facilities. SCSP adds value to Client Facilities by implementing ICT enabled electronic tracking platform, monitoring technologies, and emission reduction activities. In providing services to Client Facilities, SCSPs contractually maintain ownership of the environmental attributes associated with actions that reduce the Client Facilities overall GHG emissions.

In addition, as an important environmental positive impact, 10% of project proponent's net income, after taxes and depreciation, will be returned to the local community in support of sustainable projects. It's reinvesting awareness into sustainable action.

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1.4 Other Entities Involved in the Project

Will Solutions Inc. will be the sole project proponent and promoter as per the Sustainable Community implementation and project operation in the same territory; the Province of Quebec, Canada. The Sustainable Community (Client Facilities) will group together over time up to 10, 000 Clients Facilities and maybe more, if the demand is there. All Clients Facilities will be located inside the Province of Quebec.

1.5 Project Start Date

The project starting date is January 1st 2010.

1.6 Project Crediting Period

The project crediting period is 10 years, renewable for 10 years. The starting date is January 1st 2010 and will end December 31rd 2019, *renewable for another 10 years*.

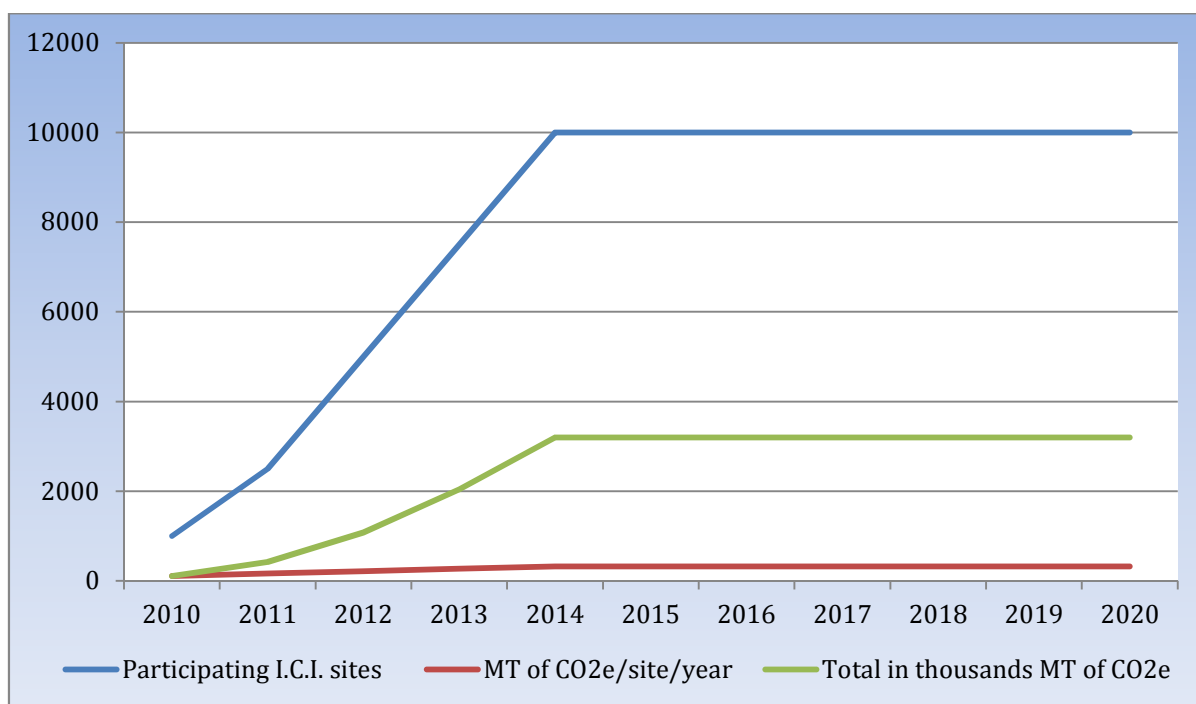
1.7 Project Scale and Estimated GHG Emission Reductions

This project will group together gradually inside a "Sustainable Community", up to 10,000 Clients Facilities by the end 2014 and will be stabilized up to the year 2020. All Client Facilities will be located inside the Province of Quebec. The number of Clients Facilities might go beyond 10,000, if the demand and the driving force are there. The blue line on Figure 1 represents the growing participation of ICI's Client Facilities.

This Sustainable Community of Clients Facilities all based in Quebec will achieve an estimated potential of 22 852 000 tCO₂e of GHG emission **reductions** for the period starting January 1st 2010 and finishing December 31, 2019. It is possible that this average GHG reduction per Client Facility changes and potentially increases beyond 2014. The green line on Figure 1 represents the yearly Sustainable Community, as a whole, volume of the GHG emission **reductions**.

The average GHG emission **reductions** are estimated to start at 112 tCO₂e per Client Facility/year. Grouping together all potential energy efficiency and waste diversion activities reductions could rise to 340 tCO₂e per Client Facility by 2014. The red line on Figure 1 represents the growing yearly Sustainable Community, as a whole, volume of the GHG emission **reductions**.

Figure 1: Yearly evolution of number of Client Facilities (ICI sites), the GHG reductions average per site and the total cumulated GHG reductions for the Sustainable Community for the entire period of 2010-2020.



Project	
Large project	X

The crediting period of the project is 10 years, renewable for another 10 years. The following Table presents the total and yearly estimated emissions reduction during the crediting period.

Years	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 2010	112 000
Year 2011	420 000
Year 2012	1 080 000
Year 2013	2 040 000
Year 2014	3 200 000
Year 2015	3 200 000
Year 2016	3 200 000
Year 2017	3 200 000
Year 2018	3 200 000
Year 2019	3 200 000
Total estimated ERs	22 852 000
Total number of crediting years	10
Average annual ERs	2 285 200

1.8 *Description of the Project Activity*

The main goal of this Energy Efficiency and Solid Waste Diversion Activities within the Province of Quebec and grouped together inside a Sustainable Community is to establish a synergy between the Community of Clients Facilities as optimizing their energy use and resources – or so called "Community ecology". This optimization may be occurring by the introduction of new clean technology's and/or by a significant change in their behaviour while operating their facilities.

This project is applicable to "Grouped Project" for the quantification of direct and indirect GHG emission reductions arising from energy-efficiency and waste-diversion activities at Client Facilities. Projects could be located in residential, commercial, institutional, or industrial buildings/facilities.

The project proponent will demonstrate right of use in respect of the project's GHG emission reductions including securing rights of use from Client Facilities per VM0018.

ENERGY EFFICIENCY

This project is applicable to Energy Conservation Measure (ECM) where the project activity is the construction of new facilities, the retrofit of existing facilities, or process/management changes of existing facilities that result in a reduction of energy use per unit of productivity. ECMs will occur for maintenance, and aiming at Energy Conservation and Heat recovery in conjunction with the following:

- Building envelope modifications;
- Heating, ventilation and air conditioning (HVAC);
- Heat generation (including industrial thermal energy systems);
- Chilling/cooling systems;
- Lighting and lighting control;
- Building mechanical infrastructure;
- Appliances and industrial processes (including heating and cooling requirements and process modification);
- Electric motors;
- Equipment optimization;

All ECMs have been regrouped in 3 categories:

- Existing buildings: in existing building the baseline line is the total energy balance sheet before the implementation of the technology and after, eventually with integration of fuel switching;
- New construction; for new construction the baseline is the prescribed energy performance of the CCQ (appendix 4) and/or LEED Canada 2009 (Appendix 4) and the SC combustible mix compared to the actual energy mix.

Waste diversion: for waste diversion, the baseline is the actual waste management of Client Facility and the reduction of methane avoidance induced by the technologies.

The following guidance provides further clarification on energy efficiency activities, approach and applicability:

- Since different ECMs have different useful life periods, the project proponent must document the useful life and remaining useful life and ensure that the project crediting period does not exceed the ECM's useful life. If capital stock equipment that was originally measured in the baseline for a given project crediting period is replaced during a project crediting period, it can only be considered additional, and thus, be able to generate GHG credits, if it was retired prior to its natural capital stock rotation as indicated in the initial documentation of useful life. If capital stock enters the end of its useful life prior to the end of a project crediting period and is replaced, any emission reductions attributable to this replacement technology must not be considered towards generating credits, and shall lower the facility baseline by a sum equal to the difference in emissions between the previous capital stock equipment and the replacement capital stock equipment;
- By reducing energy consumption, applicable projects will reduce GHG emissions associated with the conversion of primary energy sources to secondary forms of energy (e.g., electricity, heat, mechanical energy, etc.);
- This project is also applicable to activities generating GHG emission reductions related to improvements in combustion efficiency³. This applies to projects involving switching from one energy generation method to a less GHG-intensive energy generation method. In this case, this project only quantifies emission reductions from fuel switching that occur within the project boundary.
- Fuel switching associated with large energy suppliers, which have emission reductions that

³ *There must not be double counting between activities related to improvements in combustion efficiency and any energy efficiency activities within the project.*

exceed the established threshold of this project, are not intended to be quantified using this protocol. Only small on-site power sources, with emission reductions within the threshold limit of this project, are applicable for inclusion within the project. A net emission reduction and efficiency improvement would be achieved by such activities so long as a net reduction in overall greenhouse gas emissions per unit of productivity is achieved. The production of energy, particularly from fossil energy sources, has significant associated GHG emissions (typically combustion-related), including both direct and indirect sources;

- Biological or chemical components of the operation must not yield any increase in non-biogenic greenhouse gas emissions compared to the baseline scenario, unless these are accounted for under the applicable flexibility mechanisms as indicated by an affirmation from the project proponent.

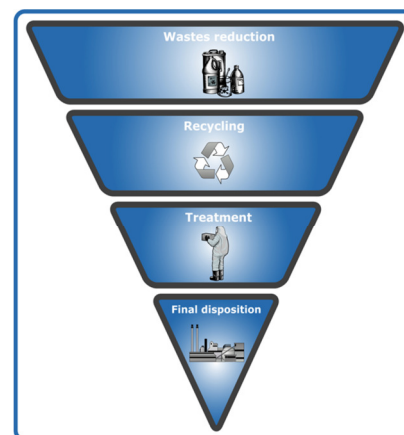
WASTE DIVERSION

This project will cover activities of waste diversion's from reaching a landfill for other productive uses and alternative processing disposal options. Alternative processing, as defined in the VM0018 refers to recycling, reusing, reduction and re-processing activities which are applied as part of the project to divert waste from reaching a landfill. These activities are presented schematically in a hierarchy diagram in the Waste Management Cycle Figure 2 below. This project will address all waste reduction activities on site,, waste recovering and reuse inside the facilities or exchange of wastes with other facilities so they use them as input material in their production line, as defined as recycling. This synergy will be possible through the spreading of an electronic portal that stimulates and generates group opportunities through waste exchange. Quebec's Regulation for Landfill Waste (Lois et règlements liés à la gestion des matières résiduelles c. Q-2, r. 19 -Règlement sur l'enfouissement et l'incinération de matières résiduelles).

WASTE MANAGEMENT CYCLE

- **Waste reduction** – how to reduce the amount of waste generated less production, reuse, re-processing, etc.;
- **Recycled waste** – inside a market place; realized on facility site, or exchanging the waste between Client Facilities or sending them to a recycling commercial site;
- **Treatment**; such as incineration;
- **Final disposal**, such as landfill site.

This project is only applicable to quantify emission reductions associated with methane avoidance. It is not approved for quantifying emission reductions associated with landfill gas flaring or electricity/energy production.



This project is applicable to the following activities:

- Cardboard, pulp, paper, textiles, wood, wood products and straw recycling or reuse;
- Organic composting;
- Aerobic decomposition.

See Appendix 1 section 9 – Waste Diversion.

An initial list of 2 generic Project Activity Instances (PAI) are presented in following Table. They correspond to PAI I and II. Details are available in Annex 9. PAI I is an energy conservation measure (a fuel switching activity), which is classified in scope 3. PAI II is a methane avoidance activity which is classified in scope 13.

A list of additional PAI (PAI III to X) listed in Appendix 9 would be documented at a later stage and would follow the same attributes. Once the additional PAIs are assessed for their attributes related to scope 3 and 13, they will be integrated as generic project activities as per the same way as the two first PAI mentioned earlier.

No	Generic designation	EE	WM	Description
I	Energy conservation measure (fuel stitching)	x		Biomass project is defined as a thermal conversion processes using heat as the dominant mechanism to convert biomass into energy
II	Methane emission avoidance		x	Waste diversion from landfill to recycling activities

For each of these generic projects activities, more detailed information is available in Appendix 9. Their baseline will be determined ex-ante or ex-post and each project activity being considered additional in reference to all project activity instance defined in Appendix 9.

Other project activities related to the generic one (Appendix 9) will be eligible if they meet the following criteria:

- Located inside the Quebec territory, see appendix 10;
- Be implemented after January First 2010;
- Be a registered member of the SCSP project;
- Having or using a similar technologies or measures as the generic PAI based on scope 3 and 13
- Be auditable and verifiable;
- Project unit GHG reduction are inferior to 5 000 MT eCO₂/year.

For such projects activities, baseline will be determined ex-ante or ex-post, each project activity being considered additional in reference to all project activity instance defined in Appendix 9.

Other project activities not covered by the generic one (Appendix 9) will be documented as a new project activity instances to be further reference as above.

For such activity, Baseline and Additionality will be demonstrated.

An homogeneous emission factor for fossil combustibles and identifiable emission factor for the electricity grid can be applied, and is supplied by the authorized governmental entity of the Quebec government (Ministère des Ressources Naturelles et Faune, Québec) see Appendix 6).

ELECTRONIC TRACKING PLATFORM

This Energy Efficiency and Solid Waste Diversion Activities within the Province of Quebec will be achieved by the use of an amalgam of existing Information Communication Technology (ICT) – Web portals, tracking software, wireless communication network – that once grouped and optimized together can stimulate and measure, in real time opportunities, environmental performance, and by all means, ICI facilities' participation to sustainable development. ICT is applied through an **electronic tracking platform** for each Client Facility. An electronic account and the effective electronic link between all Client Facilities inside a territory will help to stimulate, to support and to measure their GHG related activities. SCSP (Will Solutions) will employ an ICT enable GHG monitoring system.

1.9 Project Location

All ICI's Clients Facilities associated to the project will be located inside the province of Quebec's territory in Canada. This grouping of Client Facilities bind them to a common geographic cluster (the territory of Province of Quebec), where the regional conditions (i.e. electricity source, climate, waste processing schemes, etc.) and regulations (i.e. waste and emission regulations, etc.) are similar for the different Clients Facilities.

The geographical map shown here represents the Province of Quebec and its territory. This Province shares more than 12,000 km of lands, rivers, and marine borders with Ontario, Nunavut, Newfoundland and Labrador, Prince Edward Island, New Brunswick, Nova Scotia, and United States.



The polygon defining the Quebec's limit territory is available on Appendix 10. Detailed information (Sections 1 to 7) is available in Appendix I describing the homogeneity of the Province of Quebec as a common geographic cluster.

1.10 Conditions Prior to Project Initiation

In 2008, as per the inventory of the Ministère du Développement Durable, de l'Environnement et des Parcs du Québec (MDDEP), the total GHG emissions in the Province of Quebec were 82.7 million tCO₂e, or 10.7 t per inhabitant or 11.2% of the total Canadian emissions (734 million tCO₂e). In 2009, the total Quebec GHG emissions were at 81.8 million tCO₂e. The breakdown of the 2008 GHG emissions for Quebec is as follows:

- Transportation (road, air, maritime, rail and off-road) was the sector that produced the highest amount of GHG emissions in Quebec. The GHG emissions were about 35.8 million tCO₂e or 43.2% of the emissions; Road transport by itself represented 77.8% of the GHG emissions from this sector of activity, or 33.7% of the total GHG emissions;
- The industrial sector followed with 24.7 million tCO₂e or 29.9% of the total GHG emissions;
- Residential, commercial and institutional (ICI) sector (building's heating) emitted 10.3 million tCO₂e or 12.5% of the emissions;
- The other emissions were generated by the agriculture, waste and electricity sectors, with 6.4 (7.7%), 5.0 (6.1%) and 0.4 (0.5%) million tCO₂e respectively.

Figure I in Appendix VIII shows the distribution of Quebec's 2008 GHG emissions by sector. As per the Ministère du Développement Durable, de l'Environnement et des Parcs du Québec, about 25 million of tCO₂e or 30% of the GHG emissions were generated by the large emitters, those who emitted more than 25,000 tCO₂e and that are under the Quebec Regulation Respecting Cap-and-Trade System for GHG allowance (December 15th, 2011):

- De facto in 2008, 70% of the GHG emissions were generated by those facilities who emitted less than 25,000 tCO₂e per year;
- In 2008, the residential, commercial, institutional and waste sector generated together about 48.5% of Quebec's GHG emissions. It is in these particular sectors, which grouped together represent more than 220,000 Client Facilities that the promoter will carry out the GHG reduction emissions associated to this project.

The current status for the project for the 3 categories is:

- For existing building base which are or will be part of SC, this means low energy efficiency and use of high GHG intensity fossil combustible;
- For new buildings base, the existing status would be to strictly conform to CCQ and/or Leed Canada 2009 requirements;
- Waste management base is landfilling or controlled landfilling depending on site locations.

The project will create permanent and measurable GHG reductions. It has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction.

The SC project is an agglomeration of small GHG reduction related to ECM and Waste Management: the related project units are related to Client Facilities with processes and production. The Project units are the outcome of decisions made by management to address Client Facility efficiency while contributing to environmental citizen concerns. No Client Units would be in a position to get an economic gain for the sole sale of the related GHG reductions.

In addition, the client facilities covered by the SC project are doing GHG reductions beyond Quebec regulations. The analysis of the Quebec legal framework related to GHG emissions is available at section 1.11 and on Appendix 4.

Detailed information (section 7) is available in Appendix I describing the homogeneity of the Province of Quebec as a common geographic cluster.

1.11 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project will meet all Canadian Federal and Provincial requirements standards and regulations. All GHG reductions will be carried out on a voluntary based beyond all regulations applicable related to the field of the project: energy efficiency and waste management.

Since 2006, Quebec has had a Green Plan; the PACC 2006-2012, to achieve the objective of the Kyoto protocol on climate change. The Ministère du Développement durable, de l'Environnement et des Parcs du Québec (MDDEP) is primarily responsible for implementing environmental policy. On November 23, 2009, Premier Jean Charest has announced targets for reducing greenhouse gases during the United Nations Climate Change Conference in Copenhagen. Quebec will cut its emissions by 20% by the year 2020 compared to international reference of 1990.

The adoption (December 15th 2011) of the new Regulation Respecting Cap-and-Trade System for GHG Allowance materialize a first step towards Quebec's ambitious plan of cutting its emissions by 20% by the year 2020. Should this regulation come into effect and impact the additionally of the emissions reductions claimed herein the claim of reductions will be adjusted to ensure on those reductions deemed additional to the regulation are claimed.

The SC project is an agglomeration of small GHG reduction related to ECM and Waste Management: the related project units are related to Client Facilities with processes and production. The Project units are the outcome of decisions made by management to address Client Facility efficiency while contributing to environmental citizen concerns. No Client Units would be in a position to get an economic gain for the sole sale of the related GHG reductions.

1.12 Ownership and Other Programs

1.12.1 Right of use

The SCSPs contractually will maintain ownership of the environmental attributes associated with actions that reduce the Client Facilities overall GHG emissions. The promoter will sign a standard contract of 10 years with each of the Client Facilities. Sample contract can be found in Appendix 2.

This contract will specify that the Client Facility assigns and transfers his title in all benefits arising from reductions in greenhouse gas emissions ("GHG"), arising from its membership and its participation at this project by the use of the SCSP' solution. That means, the use of the ICT platform and all SCSP' service and support, including title in the carbon credits generated by these reductions. Upon signing the membership, the Client Facility acknowledges and confirms that he is the sole owner of their GHG reductions aimed by the SCSP for the duration of this agreement.

1.12.2 Emissions Trading Programs and Other Binding Limits

The SCSP intends to agglomerate and sale all carbon credits generated by this project over the worldwide voluntary markets. Since mid-2009, the SCSP has preliminary interest, and agreement in place with a worldwide carbon credits broker to sell all the 22,852,000 tCO₂e of GHG emission reductions on the voluntary market.

As mentioned earlier, the adoption (December, 15th 2011) of a new Regulation Respecting Cap-and-Trade System for GHG Allowance materializes the first step towards Quebec's ambitious plan of cutting its emissions by 20% by the year 2020 compared to international reference of 1990.

There are no regulations which address minimum energy efficiency performance at the client facility covered by the SC. These projects are doing GHG reductions beyond Quebec regulations. The analysis of the Quebec legal framework related to GHG emissions is available at section 1.11 and on Appendix 4.

1.12.3 Participation under Other GHG Programs

No participation under other GHG programs.

1.12.4 Other Forms of Environmental Credit

No other forms of Environmental Credit.

1.12.5 Projects Rejected by Other GHG Programs

The project was not submitted to other GHG programs.

1.13 Additional Information Relevant to the Project Eligibility Criteria

This Energy Efficiency and Solid Waste Diversion Activities within the Province of Quebec project is applicable for grouped projects for the quantification of direct and indirect reductions of GHG emissions arising from energy efficiency and waste management project activity instances at Client Facilities (Project Units). The requirements of this project have been designed to meet micro energy efficiency and/or waste diversion project activity instances where the maximum emission reduction from an individual instance is 5 000 tCO₂e/year. Therefore, through a combination of energy efficiency and waste management activities, instances within a grouped project, it could have a maximum combined abatement threshold of 10,000 tCO₂e/year⁴. While each Client Facility, or instance, may only contribute a modest abatement (10,000 tCO₂e/year or less), the total sum of abatement from all instances within this entire grouped project may exceed the combined threshold of 10,000 tCO₂e/year.

This methodology is applicable for grouped projects for the quantification of direct and indirect reductions of GHG emissions arising from energy-efficiency and waste-diversion activities at Client Facilities. Projects could be located in residential, commercial, institutional, or industrial buildings/facilities.

The project proponent will demonstrate right of use in respect of the project's GHG emission reductions including securing rights of use from Client Facilities per VM0018.

Leakage Management

Not applicable at the Client Facilities sites level. Section 3.3 demonstrates that this project document assesses the likelihood of leakage based on the specific project activities.

Commercially Sensitive Information

The information produced inside this Project description document (PD) is considered public information. The only aspect that might be considered as sensitive information is related to the item 1.12.2. As mentioned earlier, the SCSP has already started preliminary discussions with several Ministers of this government regarding a potential sale as well as the use of some of the VCU title coming from this project.

Further Information

⁴ An individual project activity instance could achieve a maximum of 5,000 tCO₂e/year from waste diversion instance and a maximum of 5,000 tCO₂e/year from energy efficiency instances for a total maximum of 10,000 tCO₂e/year from the two combined project activity categories.

General and complementary information is available upon request.

2 APPLICATION OF METHODOLOGY

2.1 Title and Reference of Methodology

The title of the selected methodology is the VM0018, version 1.0; Energy Efficiency and Solid Waste Diversion Activities within a Sustainable Community. It is a new VCS methodology released in 2012.

2.2 Applicability of Methodology

The project meets the applicability conditions of the Energy Efficiency and Solid Waste Diversion Activities VCS methodology.

As project activities evolve and proliferate we will prove this at verification.

2.3 Project Boundary

This project covers a forward series of activities some identified some that will evolve. The Project Sinks and Sources are defined in the VCS Methodology VM0018 Energy Efficiency and Solid Waste Diversion Activities within a Sustainable Community (Version 1.0) Section 5.0. This project targets a large range of "Client Facilities", all located inside the Province of Quebec, mainly small to medium sized companies, part of the industrial, commercial or institutional sector, and/or property of several and different owners and grouped together inside a "Sustainable Community" or "cluster".

The type and size of project units entail limited investments and therefore limited purchase and disposal of equipment. By default GHG emissions related to such installation and disposal of equipment will be consider de minimus.

Source		Gas	Included?	Justification/Explanation
Baseline	B1 Development and Processing of Unit Material Inputs	CO ₂	Excluded	Excluded as they must be functionally equivalent to allow for the application of the methodology element.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B2 Building Equipment	CO ₂	Excluded	Excluded since emissions from building of the equipment are expected to be negligible over the lifetime of the project.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B4 Commissioning of Site	CO ₂	Excluded	Excluded since emissions from site development are expected to be negligible given the minimal site development typically required.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B5 Fuel Production & Delivery	CO ₂	Excluded	Excluded since emissions from fuel production and delivery are expected to be greater under the baseline condition.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B6 Electricity Generation & Delivery	CO ₂	Excluded	Excluded since emissions from electricity generation and delivery are expected to be greater under the baseline condition.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B7 Building/System Energy Consumption (without ECMs)	CO ₂	Included	Must be included as part of baseline if Energy Efficiency actions are included in the project activity since this SS is fundamental to quantifying the baseline for EE emission reductions under this methodology.
		CH ₄	Included	
		N ₂ O	Included	
	B8 Maintenance	CO ₂	Included	Can be excluded if pre and project operations would involve immaterial difference in energy consumed for maintenance activities.
		CH ₄	Included	
		N ₂ O	Included	
	B9 Unit Operation: Biological/Chemical/Mechanical Processes	CO ₂	Included	Can only be excluded if prescribed to be functionally equivalent.
		CH ₄	Included	
N ₂ O		Included		
B10 Energy Consumption from Waste Processing	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with waste diversion activities and if the ECM activities would not affect the energy consumed for waste processing at the Territory level.	
	CH ₄	Included		
	N ₂ O	Included		
B11 Disposal of	CO ₂	Excluded	Excluded since emissions from disposal of	

Source		Gas	Included?	Justification/Explanation
	Equipment	CH ₄	Excluded	equipment are expected to be negligible.
		N ₂ O	Excluded	
	B12 Development and Processing of Unit Material Outputs	CO ₂	Excluded	Excluded as they must be functionally equivalent to allow for the application of the methodology element.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	B14 Waste Decomposition and Methane Release	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with waste diversion activities and if the ECM activities would not affect the amount methane emitted from decomposition.
		CH ₄	Included	
		N ₂ O	Included	
	B15 Decommission of Site	CO ₂	Excluded	Excluded since emissions from equipment disposal are expected to be negligible.
		CH ₄	Excluded	
		N ₂ O	Excluded	
Project	P1 Development and Processing of Unit Material Inputs	CO ₂	Excluded	Excluded as they must be functionally equivalent to allow for the application of the methodology element.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P2 Building Equipment	CO ₂	Excluded	Excluded since emissions from building of the equipment are expected to be negligible over the lifetime of the project.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P4 Commissioning of Site	CO ₂	Excluded	Excluded since emissions from site development are expected to be negligible given the minimal site development typically required.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P5 Fuel Production & Delivery	CO ₂	Excluded	Excluded since emissions from fuel production and delivery are expected to be greater under the baseline condition.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P6 Electricity Generation & Delivery	CO ₂	Excluded	Excluded since emissions from fuel production and delivery are expected to be greater under the baseline condition.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P7 Building/System Energy Consumption (with ECMs)	CO ₂	Included	Must be included as part of baseline if Energy Efficiency actions are included in the project activity.
		CH ₄	Included	
		N ₂ O	Included	
	P8 Maintenance	CO ₂	Included	Can be excluded if pre and project operations would involve immaterial difference in energy
		CH ₄	Included	

Source		Gas	Included?	Justification/Explanation
		N ₂ O	Included	consumed for maintenance activities. If however maintenance activities included major overhauls that would not have been included in the baseline scenario, evidence must be provided by the project proponent to show the SS is below the negligible emissions threshold.
	P9 Unit Operation: Biological/Chemical/Mechanical Processes	CO ₂	Included	Can only be excluded if prescribed to be functionally equivalent.
		CH ₄	Included	
		N ₂ O	Included	
	P10 Energy Consumption from Waste Processing	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with waste diversion activities and if the ECM activities would not affect the energy consumed for waste processing.
		CH ₄	Included	
		N ₂ O	Included	
	P11 Disposal of Equipment	CO ₂	Excluded	Excluded since emissions from disposal of equipment are expected to be negligible
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P12 Development and Processing of Unit Material Outputs	CO ₂	Excluded	Excluded as they must be functionally equivalent to allow for the application of the methodology element.
		CH ₄	Excluded	
		N ₂ O	Excluded	
	P14 Waste Decomposition and Methane Release	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with waste diversion activities and if the ECM activities would not affect the amount methane emitted from decomposition.
		CH ₄	Included	
		N ₂ O	Included	
	P16 Energy Consumed from alternative processing of waste / use	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with alternative processing of waste / use in the project scenario at the Territory level.
		CH ₄	Included	
		N ₂ O	Included	
	P17 Process Emissions from Alternative Processing of Waste	CO ₂	Included	Can only be excluded if the facility or group of facilities is not quantifying emission reductions associated with the alternative processing of waste at the Territory level.
		CH ₄	Included	
		N ₂ O	Included	
	P18 Decommission of Site	CO ₂	Excluded	Excluded since emissions from decommissioning are not expected to differ highly between the baseline and project conditions.
		CH ₄	Excluded	
		N ₂ O	Excluded	

2.4 **Baseline Scenario**

The following paragraphs have been organised to address baseline scenario and additionality at the Client Facility level and at the Project Proponent level. The text here below is a narrative of some of the representative activities: the exhaustive list of activities and demonstration of combined baseline and additionality tool is listed in Appendix 9.

AT THE CLIENT FACILITY LEVEL

The analysis of the combined baseline and additionality will address seven general points described as follow: the 3 barriers which have been identified and tested against the different scenarios. More detailed analysis are available in Appendix 9 Section B.

AT THE PROJECT PROPONENT (PP)

The SC project is taking place in the Quebec province. Technologies and behaviour change that are used are those listed in paragraph 1.8 and described in details in the Appendix 9/Section A. The analysis of additionality at the SCPP is justified by:

- The role of the project proponent is key to the achievement of the present project. The project is taking place in a defavorable environment:
 - a. The price of energy, specifically electricity, is one of the lowest in the World (at 0,045\$CDN/Kwh). This is a major handicap to overcome when promoting energy efficiency;
 - b. The low density of the population (1,7 inhabitants/km) compared to 80-100 inhabitants/km in France, has dictated business practices. Transport is hampering numerous projects, specifically biomass when transport overpasses 200 km, not to say the absence of waste management for all remote villages and cities, the current practice being local landfilling;
 - c. In this context, the leadership role of Will, the project proponent, was to consistently and tirelessly promote the need to address climatic changes to reduce fossils combustibles consumptions and the possibility to improve project economics with carbon credits revenues;
 - d. Since 2007 stimulated by a potential carbon revenue, an ecosystem on small scales project activities instances has emerged to address the needs to improve corporation's productivity;
 - e. Will, as project proponent has promoted an original approach to make these changes happen.
- The demonstration of baseline scenario and demonstration of additionality⁵.
The demonstration of baseline scenario and additionality are based upon initial generic project activities instances are those include and listed in Appendix 9 and in the following Table.

⁵ *VCS Standard; Version 3 Requirements document, 4 October 2012, v3.3, section 3.4.3*

No	Generic designation	EE	WM	Baseline. More detailed information and analysis in Appendix 9.
I	Energy conservation measures (Biomass energy project)	x		Ex-ante
II	Methane emission avoidance		x	Ex-ante

- a. The baseline scenario is determining by analyzing, at minimum, the following potential alternatives:
 - i. Each business owner proactively exceeds the current regulations and decreases their per unit energy consumption. Additionally, each business owner could also purchase new capital equipment prior to the natural turnover rate of their existing stock, for the purposes of energy efficiency savings, without installing the added monitoring equipment as required to quantify GHG emission reductions. This step is essentially the implementation of the energy efficiency project activity without carbon financing;
 - ii. Each business owner proactively puts into place a system to treat waste in a manner other than anaerobic decomposition in a landfill. This step is essentially the implementation of the waste diversion project activity without carbon financing;
 - iii. The government or industrial sector enforces minimum building codes, not only for new facilities but for the current stock of buildings. These codes could mandate certain levels of efficiency or waste handling that could achieve the anticipated results of this protocol without the use of VCUs;
 - iv. The continuation of the current situation (ie, no project activity or other alternatives undertaken). Comparable outputs of the project – constant energy intensity per production unit and anaerobic decomposition of waste in landfill – will continue. Currently, technologies/ practices that provide outputs/services of comparable qualities, properties and application areas as the proposed project activity, are not incentivized and are not introduced to the market for dispersed client facilities. These facilities do not have the economies of scale necessary to develop and operate the necessary monitoring systems to achieve affordable gains similar to the goals of this protocol.

- b. Baseline scenario for each Project Unit is done:
 - i. Perimeter of the project unit;
 - ii. Determination of Unit of productivity;
 - iii. Collection of data related to GHG emissions, being energy consumption, biomass usage, methane formation avoidance;
 - iv. In case of new buildings, the baseline scenario will be the actual CCQ and/or Leed Canada 2009 energy performance requirement.
- c. Furthermore a baseline scenario will be done for each ICI site Client Facility with an ex ante audit 12 to 24 months.

New Facility (built after 2010) LEED Canada 2009 (reference to a benchmark)

- New Facilities will have to meet the Code Construction du Quebec – LEED Canada 2009

Therefore, each generic project activity instance, described in precedent Table is additional. Moreover, each time the Project activity is dependant from the one which has been demonstrated additional, the additionality could be derived from the initial project unit, the additionality being inherited by the subordination of one another activities.

2.5 Additionality

Each generic project activity instance, described in the following Table is additional. Moreover, each time the Project activity is dependant from the one which has been demonstrated additional, the additionality could be derived from the initial project unit, the additionality being inherited by the subordination of one another activities:

1. At the client facility level:

The combined analysis of baseline and additionality has been documented in the paragraph 2.4.1, please refer to this paragraph. The demonstration of additionality is based upon initial project activity instance⁶. The initial generic project activities instances are those include and listed in Appendix 9 and in the following Table.

No	Generic designation	EE	WM	Additionality. More detailed information in Appendix 9
I	Energy conservation measures (Biomass energy project)	x		Additional, see Appendix 9 at Section B
II	Organic methane emission avoidance		x	Additional, see Appendix 9 at Section B

2. At the project proponent (PP):

- The SC project is taking place in the Quebec province. Technologies and behaviour change that are used are those listed in paragraph 1.8 and described in Appendix 9/Section A. The analysis of additionality at the SCPP is justified by: The role of the project proponent is key to the achievement of the present project. The project is taking place in a not favorable environment:
 - a. The price of energy, specifically electricity, is one of the lowest in the World (at 0,045\$CDN/Kwh). This is a major handicap to overcome when promoting energy efficiency;

⁶ VCS Standard; Version 3 Requirements document, 4 October 2012, v3.3, section 3.4.3

- b. The low density of the population (1,7 inhabitants/skm) compared to 80-100 inhabitants/skm in France, has dictated business practices. Transport is hampering numerous projects, specifically biomass when transport overpasses 200 km, not to say the absence of waste management for all remote villages and cities, the current practice being local landfilling;
 - c. In this context, the leadership role of Will, the project proponent, was to consistently and tirelessly promote the need to address climatic changes to reduce fossils combustibles consumptions and the possibility to improve project economics with carbon credits revenues;
 - d. Since 2007, an ecosystem on small scales project activities instances has emerged to address the needs to improve corporations productivity;
 - e. Will, as project proponent, has promoted an original approach to make these changes happened.
- From a methodological standpoint, Will, as project proponent is fulfilling the additionality requirement.
 - a. Step 0; as such the Sustainable Community project is not a first of its kind: in fact GHG reduction projects have been carried out in Québec;
 - b. Step 1: alternative scenario:
 - S.0 : statut quo, no projects are carried out and the level of emission is line with productivity output;
 - S.1 : closing down of factories, for those encountering economic difficulties in their market. De facto, in certain sectors, these have been the case with the closing of Pulp and Paper manufactories;
 - S.2 : replacement of technology at the end of equipment life expectancy;
 - S.3 : setting-up industries clusters to reach critical volume: this could be implemented with government incentives, with vehicle such as Green Fund to promote green technologies.
 - c. Step 2: Barriers analysis: as such there is no insurmountable, the Sustainable Community project being the demonstration that vision, will and resilience can overcome every obstacle. Therefore, no alternative scenarios are discarded;
 - d. Step 3: the financial IRR of Will is straightforward. The investment made over the last 5 years would generate no revenues in case of no carbon credits revenues: $IRR = -\infty\%$. With carbon credit revenues the IRR is 8%, refer to Appendix 9, Section C pages 50 to 52;
 - e. Step 4: without being a first of its kind, the Sustainable Community approach is original: in no case it corresponds to common practice. The baseline scenario is therefore the most attractive scenario;
 - f. The sale of registered GHG reductions is the sole economic return the SCPP has: the SC project finances all the efforts to spark GHG small reductions in Project Units, to track them, to agglomerate them, to have them verified and to sell them. At no point in this sequence of efforts, there is any return other than the sale of GHG reductions. Absence of GHG reduction sale will bring SC project closure;
 - g. Finally, 10% of project proponent's net income, after taxes and depreciation, will be returned to the local community in support of sustainable projects;
 - h. For all this reason Will, as project proponent is fulfilling the additionality requirement.

2.6 Methodology Deviations

Not applicable.

3 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

3.1 Baseline Emissions

- i. The general and per capita references for GHG will come from the yearly National inventory of GHG emission (sink, source) Environment Canada and the Conference Board of Canada;
- ii. All emission factors used for the calculation, the quantification and the aggregation of the GHG emission reductions related to the industrial waste recycling (industrial ecology) projects will come from a study produced in 2005 for Environment Canada.(Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions, 2005 Update by ICF Consulting for Environment Canada and Natural Resources Canada) All updates concerning the emission factors will be recognized by the university and the appropriate scientific community;
- iii. All emission factors used for the calculation, the quantification and the aggregation of the GHG emission reductions related to building energy saving, will come from the Agence d'Efficacité Énergétique du Québec (AEEQ) <http://www.aee.gouv.qc.ca/en/the-aee/>. All updates on the emission factors will be recognized by the university and the appropriate scientific community;
- iv. Emissions Adjusted Baseline EE = the energy efficiency activities related baseline emissions plus any adjustments needed to adjust it to the conditions of the monitoring period;
- v. Emissions Adjusted Baseline EE = Emissions Adjusted Building/System Energy Consumption w/o ECM + Emissions Adjusted Maintenance + Emissions Adjusted Unit Operation;
- vi. Emissions Adjusted Building Energy Consumption w/o ECM = Emissions under SS **B7** Adjusted Building/System Energy Consumption (w/o ECMs);
- vii. Emissions Adjusted Maintenance = Emissions under SS **B8** Adjusted Maintenance;
- viii. Emissions Adjusted Unit Operation = Emissions under SS **B9** Adjusted Unit Operation: Biological/Chemical/Mechanical Processes;
- ix. Emissions Adjusted Baseline WASTE = the waste related baseline emissions plus any adjustments needed to adjust it to the conditions of the monitoring period;
- x. Emissions Adjusted Baseline WASTE = Emissions Adjusted Energy Consumption from Waste Processing + Emissions Adjusted Waste Decomposition and Methane Release;
- xi. Emissions Adjusted Energy Consumption from Waste Processing= Emissions under SS **B10** Adjusted Energy Consumption from Waste Processing;
- xii. Emissions Adjusted Waste Decomposition and Methane Release= Emissions under SS **B14** Adjusted Waste Decomposition and Methane Release.

All calculations supporting the baseline emission are detailed for each generic project activities instances and are available in Appendix 9 as follow:

No	Generic designation	EE	WM	Baseline emissions
I	Energy conservation measures (Biomass energy project)	x		Calculations are in Appendix 9
II	Methane emission avoidance		x	Calculations are in Appendix 9

3.2 Project Emissions

- i. Emissions Project EE = sum of the energy efficiency related emissions under the project scenario;
- ii. Emissions Project EE = Emissions Building/System Energy Consumption with ECM + Emissions Maintenance + Emissions Unit Operation;
- iii. Emissions Building Energy Consumption with ECM = Emissions under SS **P7** Building/System Energy Consumption (with ECMs);
- iv. Emissions Maintenance = Emissions under SS **P8** Maintenance;
- v. Emissions Unit Operation = Emissions under SS **P9** Unit Operation Biological/Chemical/Mechanical Processes;
- vi. Emissions Project WASTE = sum of the waste related emissions under the project scenario;
- vii. Emissions Project WASTE = Emissions Energy Consumption from Waste Processing + Emissions Waste Decomposition and Methane Release + Emissions Energy Consumed from Alternative Processing of Waste Use + Emissions Process Emissions from Alternative Processing of Waste;
- viii. Emissions Energy Consumption from Waste Processing = Emissions under SS **P10** Energy Consumption from Waste Processing;
- ix. Emissions Waste Decomposition and Methane Release = Emissions under SS **P14** Waste Decomposition and Methane Release;
- x. Emissions Energy Consumed from alternative processing of waste / use = Emissions under SS **P16** Energy Consumed from alternative processing of waste / use;
- xi. Emissions Process Emissions from Alternative Processing of Waste = Emissions under SS **P17** Process Emissions from Alternative Processing of Waste.

All calculations of project emission are detailed for each generic project activities instances and are available in Appendix 9 as follow.

No	Generic designation	EE	WM	Project emissions
I	Biomass energy project	x		Calculations are in Appendix 9
II	Methane emission avoidance		x	Calculations are in Appendix 9

3.3 Leakage

The project proponent must assess the likelihood of leakage based on the specific project activities. If it cannot be shown that no plausible material leakage would occur based on the specific project activities, then this methodology shall not be applied.

• Financial

- Link between the Quebec Gross Domestic Product (GDP) and the GHG economical value;
- As per the inventory from the Ministère du Développement Durable, de l'Environnement et des Parcs, Quebec generated total emissions of 82.7 million tCO₂e in 2008, representing \$827 million at \$10/tCO₂e⁷;
- Quebec's GDP is equal to CAN \$300 billion;
- So for Quebec, the inclusion of the estimated carbon price represents ~ 0.28% of the GDP, that is < to 1%. Since this project involves thousands of Client Facilities, we do not believe that the impact of this new estimated carbon price will create a movement to close or to move Client Facilities outside of Quebec causing a significant leakage outside the territory of Quebec. To the contrary, we believe that the participation of thousands of Client Facilities will create a significant and a positive driving effect to target emission reductions anticipated by this project.

⁷ The Quebec minimum allowance price used in its new regulation is established at \$10/tCO₂e.

- **Mass Balance**
 - Will be available by the recording and the keeping of the data, event per event, for each Client Facility through the use of ICI tracking platform;
 - In terms of waste, the monitoring of all waste streams from their generation towards external management sites (commercial sites) occurred at each Client Facility will provide a solid mass balance. This procedure will enforce and ensure that effort in methane avoidance is real for each project and do not cause leakage (by simply moving of waste diverted from one landfill to another one);
 - For energy efficiency, the use and the accounting of all energy invoices will, without any doubt, prevent leakage (simply by changing from one source of energy to another one).
- At project unit level, the leakage are de minimus.

3.4 Summary of GHG Emission Reductions and Removals

Each project activity instance will be added to the grouped project as follow:

- Project activities listed in the PD, as described in Appendix 9/Section A. These project activities will be analysed to ensure that they fulfil the eligibility criteria, namely:
 1. They are located inside the polygon corresponding to the project location (corresponding to the Province of Quebec) and described in Appendix X;
 2. They have been implemented after 2007;
 3. They are auditable;
 4. They are measurable, either with Option A or Option B.
- Project activity instance not yet listed in the PD. The project proponent will be including them in the grouped project within two years of the project activity instance start date.

Ex-ante calculation (estimate) of baseline emissions/removals, project emissions/removals, leakage emissions and net emission reductions and removals, using the table below:

Years	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission removals (tCO ₂ e)
Year 2010	224 000	112 000	<0,1%	112 000
Year 2011	840 000	420 000	<0,1%	420 000
Year 2012	2 160 000	1 080 000	<0,1%	1 080 000
Year 2013	4 080 000	2 040 000	<0,1%	2 040 000
Year 2014	6 400 000	3 200 000	<0,1%	3 200 000
Year 2015	6 400 000	3 200 000	<0,1%	3 200 000
Year 2016	6 400 000	3 200 000	<0,1%	3 200 000
Year 2017	6 400 000	3 200 000	<0,1%	3 200 000
Year 2018	6 400 000	3 200 000	<0,1%	3 200 000
Year 2019	6 400 000	3 200 000	<0,1%	3 200 000
Total	45 704 000	22 852 000	<0,1%	22 852 000

Notes The estimated baseline emissions are done individually, per site, using a site average. The generic project activity instances are listed in Appendix 9.

The above figures and related emissions have been assessed and endorsed by the Government of Quebec: the confirmation, which is confidential, and it is available in Appendix CAR15. The above estimates have been determined on the actual emissions and reductions of the existing client facilities registered in the Sustainable Community which represent the 10 reference Project Activity Instances, of which PAI I and II are validated.: PAls representation depends of its mathematical expectation (market penetration by market size of each sector).

4 MONITORING

4.1 *Data and Parameters Available at Validation*

The methodology for the direct calculation of emission reductions is as follow:

1. Ex-ante Audit conducted at Project Units/Client Facility premises;
2. Validation of Audits findings and results;
3. Determination for each project unit:
 - Unit of productivity and baseline level;
 - Justification of baseline adjustment;
4. Project Unit data collection;
5. Validation of Project Unit Data;
6. Determination of Routine and Non-Routine adjustment;
7. Direct calculation of GHG reduction as per equations.

The following data units/parameters are referred in the methodology. Actual measurements or local data are to be used when available. If not available, regional data must be used. The data sources for each parameter are offered below, however; in their absence, IPCC defaults can be used from the most recent version of the IPCC Guidelines for National Greenhouse Gas Inventories.

Parameter:	EF Thermal Energy _{CO2e}
Data unit:	Kg CO ₂ e per GJ
Description:	CO ₂ e emissions factor for local generation of thermal energy
Source of data:	For the Territory of interest, the project proponent must identify the most appropriate CO ₂ e emission factor for the source of thermal energy used under the project scenario. Regional data (for example: US Department of Energy's Form EIA-1605 Appendix N. Emission factors for Steam and Chilled/Hot Water) shall be used. In its absence, IPCC defaults must be used from the most recent version of IPCC Guidelines for National Greenhouse Gas Inventories providing they are deemed to reasonably represent local circumstances. The project proponent must choose the values in a conservative manner and justify the choice.
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	Thermal Energy generation characteristics are likely to remain relatively stable over a year's time.
Any comment:	No comments

Parameter:	EF Fuel _{i N2O}
Data unit:	Kg N ₂ O per L, m ³ , or other
Description:	N ₂ O emissions factor for combustion of each type of fuel (EF Fuel _{i N2O})
Source of data:	For both mobile and stationary fuel combustion for the Territory of interest, the project proponent must identify the most appropriate emission factors for the source of thermal energy used under the project condition. Regional data (for example: EPA's AP 42, Compilation of Air Pollutant Emission Factors) shall be used. In its absence, IPCC defaults must be used from the most recent version of IPCC Guidelines for National Greenhouse Gas Inventories providing they are deemed to reasonably represent local circumstances. The project proponent must choose the values in a conservative manner and justify the choice.
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	This is one of the most comprehensive fuel emission factor databases available.

Any comment:	No comments
Parameter:	EF Fuel _{i CH₄}
Data unit:	Kg CH ₄ per L, m ³ , or other
Description:	CH ₄ emissions factor for combustion of each type of fuel (EF Fuel _{i CH₄})
Source of data:	For both mobile and stationary fuel combustion for the Territory of interest, the project proponent must identify the most appropriate emission factors for the source of thermal energy used under the project scenario. Regional data (for example: EPA's AP 42, Compilation of Air Pollutant Emission Factors) shall be used. In its absence, IPCC defaults can be used from the most recent version of IPCC Guidelines for National Greenhouse Gas Inventories providing they are deemed to reasonably represent local circumstances. The project proponent must choose the values in a conservative manner and justify the choice.
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	This is one of the most comprehensive fuel emission factor databases available.
Any comment:	No comments

Parameter:	EF Fuel _{i CO2}
Data unit:	Kg CO ₂ per L, m ³ , or other
Description:	CO ₂ Emissions Factor for combustion of each type of fuel (EF Fuel _{i CO2})
Source of data:	For both mobile and stationary fuel combustion for the Territory of interest, the project proponent must identify the most appropriate emission factors for the source of thermal energy used under the project scenario. Regional data (for example: EPA's AP 42, Compilation of Air Pollutant Emission Factors) shall be used. In its absence, IPCC defaults can be used from the most recent version of IPCC Guidelines for National Greenhouse Gas Inventories providing they are deemed to reasonably represent local circumstances. The project proponent must choose the values in a conservative manner and justify the choice.
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	This is one of the most comprehensive fuel emission factor databases available.
Any comment:	No comments

Parameter:	φ
Data unit:	-
Description:	Model correction factor to account for model uncertainties (0.9)
Source of data:	This factor is determined using the CDM's "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (Version 05.1.0)" (CDM, 2011).
Justification of choice of data or description of measurement methods and procedures applied:	The most used tool for calculation landfill gas emission reductions.

Parameter:	OX
Data unit:	-
Description:	Oxidation factor (reflecting the amount of soil or other material covering the waste)
Source of data:	This factor is determined using the CDM's "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (Version 05.1.0)" (CDM, 2011)..
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	The most used tool for calculation landfill gas emission reductions.
Any comment:	No comments

Parameter:	DOC ₁
Data unit:	-
Description:	Fraction of degradable organic carbon (DOC) that can decompose
Source of data:	This factor is determined using the CDM's "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (Version 05.1.0)" (CDM, 2011)..
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. All reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	The most used tool for calculation landfill gas emission reductions.
Any comment:	No comments

Parameter:	DOC _j
Data unit:	-
Description:	Fraction of degradable organic carbon (by weight)
Source of data:	This factor is determined using the CDM's "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (Version 05.1.0)" (CDM, 2011)..
Justification of choice of data or description of measurement methods and procedures applied:	The most used tool for calculation landfill gas emission reductions.
Any comment:	No comments

Parameter:	MCF
Data unit:	-
Description:	Methane correction factor
Source of data:	This factor is determined using the CDM's "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (Version 05.1.0)" (CDM, 2011).
Value applied	All emission factors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. If reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	The most used tool for calculation landfill gas emission reductions.
Any comment:	No comments

Parameter:	k _i
Data unit:	-
Description:	Decay rate for the waste type j
Source of data:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Table 3.3)
Value applied	All emissionfactors (EF) required and used to the calculation of this item are described inside the Appendix 9 for each generic project activity instance of this project. If reference to the use of EF are described in the Appendix 6. These EF are taking account of the CH ₄ , N ₂ O and CO ₂ emissions. All values applied and used for to the calculations are described for each generic project activity instance in the Appendix 9.
Justification of choice of data or description of measurement methods and procedures applied:	Apply the following default values for the different waste types j

Waste type <i>j</i>		Boreal and Temperate (MAT ≤ 20°C)		Tropical (MAT > 20°C)	
		Dry (MAP/PET < 1)	Wet (MAP/PET > 1)	Dry (MAP < 1000mm)	Wet (MAP > 1000mm)
Slowly degrading	Pulp, paper, cardboard (other than sludge), textiles	0.04	0.06	0.045	0.07
	Wood, wood products and straw	0.02	0.03	0.025	0.035
Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17
Rapidly degrading	Food, food waste, beverages and tobacco (other than sludge)	0.06	0.185	0.085	0.40

NB: MAT – mean annual temperature, MAP – Mean annual precipitation, PET – potential evapotranspiration. MAP/PET is the ratio between the mean annual precipitation and the potential evapotranspiration.

If a waste type, prevented from disposal by the proposed CDM project activity, cannot clearly be attributed to one of the waste types in the table above, project participants choose among the waste types that have similar characteristics that waste type where the values of DOC_j and k_j result in a conservative estimate (lowest emissions), or request a revision of / deviation from this methodology.

Document in the CDM-PDD the climatic conditions at the SWDS site (temperature, precipitation and, where applicable, evapotranspiration). Use long-term averages based on statistical data, where available. Provide references.

Any comment:	No comments
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4.2 Data and Parameters Monitored

The following data units/parameters are directly related to sources, sink and reservoirs emissions. The parameters, emission factors (E.F.) of CH₄, N₂O and CO₂ applied to fuel, electricity's grid and waste (see in Appendix 6). These emission factors (E.F.) are used in Appendix 9. The data units/parameters are monitored on a regular/continuous basis or on an event/occurrence basis:

Data Unit / Parameter:	Volume or Quantity of Fuel _i
Data unit:	L, m ³ , kg or MT
Description:	Volume or weight of each type of fuel combusted. This volume or weight of fuel is adjusted for both functional equivalence and units of productivity.
Source of data:	The volume of fuel is determined by supplier meters (which are regularly calibrated) and reported on bill of lading and invoices, consolidated monthly or at each tanking.
Description of measurement methods and procedures to be applied:	The Bill of Lading and the Invoice of each Fuel delivery is consolidated. End of period residual fuel volume evaluation could be estimated.
Frequency of monitoring/recording:	At each delivery, or a monthly basis, the volume or quantity of Fuel is measured and recorder. Evidences will be recorded on Bill of Lading and Invoices.
Value applied:	-
Monitoring equipment:	The monitoring equipment includes: Flow meters installed on tanker. By law, such flow

	meters are to be calibrated regularly. Supplier sealed flow meters installed at client facility, such gaz meter.
QA/QC procedures to be applied:	The SPSC system applies the following QC/QA procedures: - Data comparison with past performance - Data comparison with similar Project Unit - Data comparison with standard benchmark (Ashrae 90.1, Model National Energy Code for Building MNECB,...) - Data comparison with sector association. - Project Unit Investigation for root cause analysis of data profile if outside range Project Unit Physical audit to validate the measurement devices conditions and collect related evidence.
Calculation method:	In case where fuels are tanked, end of period adjustment would be assessed with Client Facility internal gauge: the incertitude linked to this assessment is reduced by the number of time the tank is filled during the period. In case Project Unit is supplied by Client Facility tank, the apportion is justified by evidences.
Any comment:	No comments

Data Unit / Parameter:	Electricity
Data unit:	kWh
Description:	The amount of electricity consumed from the grid.
Source of data:	The amount of electricity consumed from the grid is determined by the supplier calibrated kWh meter.
Description of measurement methods and procedures to be applied:	The Bill of Lading and the Invoice of each Fuel delivery is The amount of electricity consumed from the grid is determined by the Hydro-Québec calibrated kWh meter
Frequency of monitoring/recording:	Monthly or bi monthly, with consumption statement. Evidences will be recorded on Invoices.
Value applied:	-
Monitoring equipment:	The monitoring equipment includes: Electric meters installed at the entry of Client Facility/Project Unit electricity supply. By law, such electric meters are sealed and are to be calibrated regularly.
QA/QC procedures to be applied:	The SPSC system applies the following QC/QA procedures: - Data comparison with past performance - Data comparison with similar Project Unit - Data comparison with standard benchmark (Ashrae 90.1, Model National Energy Code for Building MNECB,...) - Data comparison with sector association. - Project Unit Investigation for root cause analysis of data profile if outside range - Project Unit Physical audit to validate the measurement devices conditions and collect related evidence.
Calculation method:	If internal meters are required for the Isolation Parameter Measurement option, electrical consumption is determined by meters which are calibrated as per the manufacturer's

	schedule. Alternatively the energy consumed by the related electrical devices will be equal to nominal power of the devices over the time of operations.
Any comment:	No comments

Data Unit / Parameter:	Quantity of waste
Data unit:	Kg or MT
Description:	Weight of waste which is diverted from landfill for being recycled, re-use.
Source of data:	The weight is determined by scale at recycling premises and/or at Project Unit. The weight is reported on the Bill of Lading for each shipment.
Description of measurement methods and procedures to be applied:	The weight of waste is reported on the Bill of Lading and the Invoice of each shipment.
Frequency of monitoring/recording:	At each shipment or a monthly basis. Evidences will be recorded on Invoices.
Value applied:	-
Monitoring equipment:	The monitoring equipment includes: Weighting balance.
QA/QC procedures to be applied:	The SPSC system applies the following QC/QA procedures: - Data comparison with past performance - Data comparison with similar Project Unit - Data comparison with Data comparison with sector association. - Project Unit Investigation for root cause analysis of data profile if outside range - Project Unit Physical audit to validate the measurement devices conditions and collect related evidence.
Calculation method:	Waste weight could be expressed in other than SI units, such ST, Lbs: conversion is made to have waste weight expressed in Kg or MT.
Any comment:	No comments

The following data units/parameters are monitored to increase the interval confidence on the emission reduction calculation:

Data Unit / Parameter:	Length
Data unit:	m
Description:	Length.
Source of data:	The determination of unit of productivity may be related to building surface/volume. At the time of SCPS registration audit surfaces may be metered in absence of reliable sources.
Description of measurement methods and procedures to be applied:	Project Unit critical dimension may be metered with manual meter or laser device (with calibration certificate).
Frequency of monitoring/recording:	The dimensions will be confirmed at the time of the registration audit.
Value applied:	-
Monitoring equipment:	The monitoring equipment includes: • Manual meter tape • Laser measurement tape.
QA/QC procedures to be applied:	The SPSC system applies the following QC/QA procedures: • Calibration procedures of the measurement device.
Calculation method:	-
Any comment:	No comments

Data Unit / Parameter:	Pressure
Data unit:	Kg/m ²
Description:	Pressure of gas or liquid flowing into pipings:
Source of data:	Manual or electronic pressure captor
Description of measurement methods and procedures to be applied:	Operators to ensure that pressure is within limits of the process • At the time of starting the process • On-going surveillance once the process is running..
Frequency of monitoring/recording:	• Continuous surveillance
Value applied:	-
Monitoring equipment:	The monitoring equipment includes: • Calibrated captors.
QA/QC procedures to be applied:	The SPSC system applies the following QC/QA procedures: • Project Unit QC/QA to address all non-conformities arising from measurement device failure.
Calculation method:	-
Any comment:	No comments

4.3 Description of the Monitoring Plan

The monitoring plan will be applied to all Project Units as follow:

Sustainable Community: monitoring

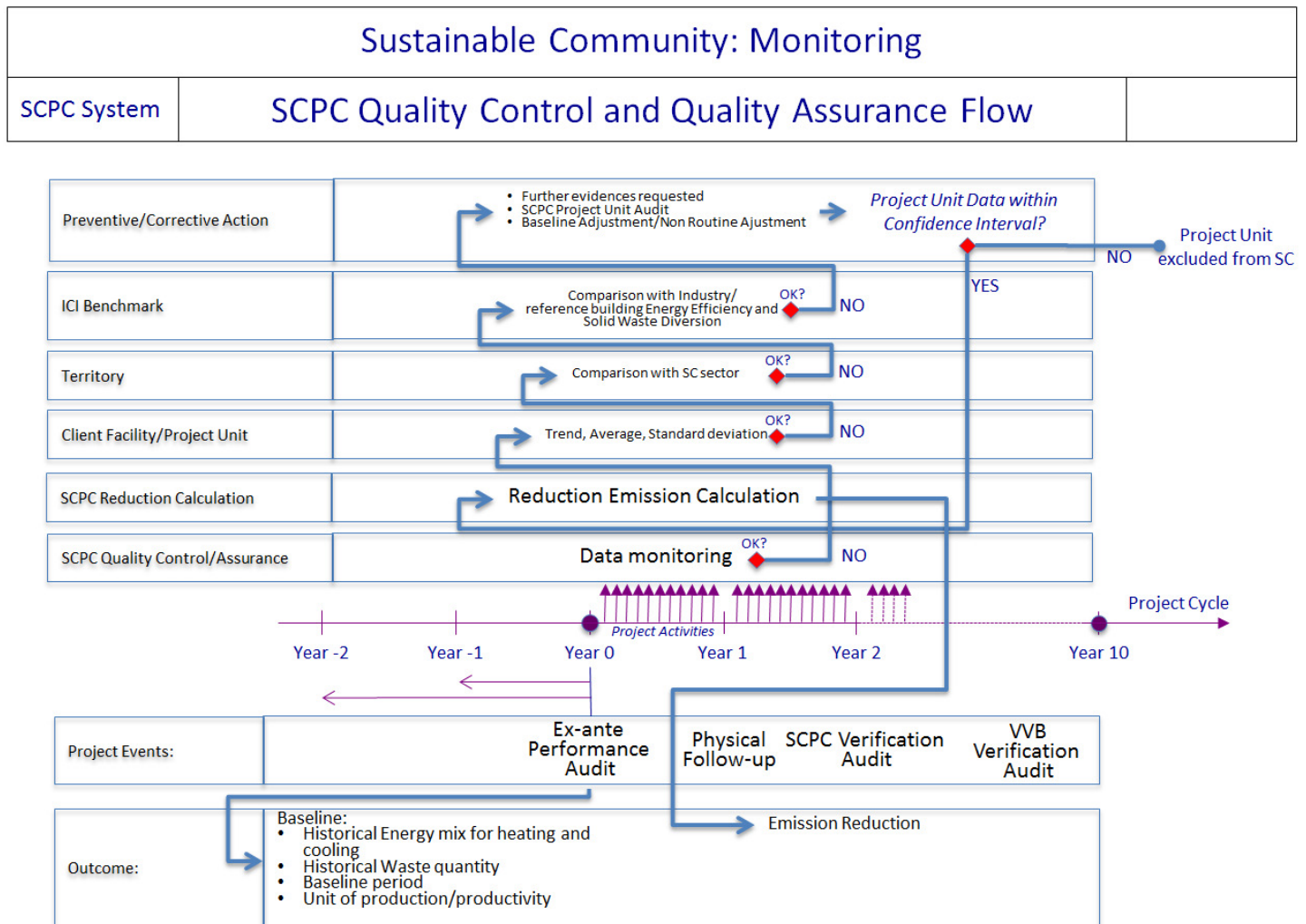
Category	Activity	Measure Option	Project					Impact on reduction	Adjustment
			Baseline Adjustment	Parameter	Instrument	Frequency	Incertitude		
Fuel switching	Biomass boiler	Option B		Mass of processed biomass	loader bucket	consolidation every week	estimate of the average mass in the bucket	none	Process Yield
	Heat Recovery: process	Option A	Process yield	Volume of fuel	Volume/Quantity on invoice*	continuous	negligible as measure devices calibrated	none	
Energy Efficiency	Heat Recovery: process	Option B	Process Yield	T° and Debit (Enthalpy)	Thermometer Debitmeter	continuous	negligible as measure devices calibrated	none	
	Heat Recovery: process	Option A		Volume of fuel	Volume/Quantity on invoice* when tanking	transaction based	Residual inventory at the end of the period	materiality, decrease with tank filling turnover, compensate on the next period	
Energy Efficiency: building heating	Energy Efficiency: building heating	Option A	Unit of productivity	Volume of fuel	Volume/Quantity on invoice*	continuous	negligible as measure devices calibrated	none	Commercial building: unit of productivity
	Energy Efficiency: building HVAC	Option A/Option B	Unit of productivity	Volume of fuel/energy	Volume/Quantity on invoice*	continuous	negligible as measure devices calibrated	none	Commercial building: unit of productivity
	Energy Efficiency: envelope enhancement	Option A	Unit of productivity	Volume of fuel/energy	Volume/Quantity on invoice*	continuous	negligible as measure devices calibrated	none	Commercial building: unit of productivity
	Energy Efficiency: envelope enhancement	Option B	Unit of productivity	Volume of fuel	Volume/Quantity on invoice* when tanking	transaction based	Residual inventory at the end of the period	materiality, decrease with tank filling turnover, compensate on the next period	Commercial building: unit of productivity
Waste	Waste diversion	Option B	Light intensity	Nominal Wattage	Manufacturer technical data	at the time installation	negligible as measure devices calibrated	none	
	Waste reduction: substitution of single wood pallets by reusable carboard pallet	Option B		Waste mass/volume	mass: balance volume: container	transaction based	weight calculation from volume	materiality as company charged on container	
				Number of pallets and reuseage	Number of travel written on palette/Bill of Lading	Monthly consolidation	wood pallet end of life at point of destination	Max: energy substitution if burn	

*Energy suppliers have to have their debitmeters regusrlay calibrated: th invoice is then based on the calibrated debitmeter reading

In addition a Quality Control of the data will be performed as follows:

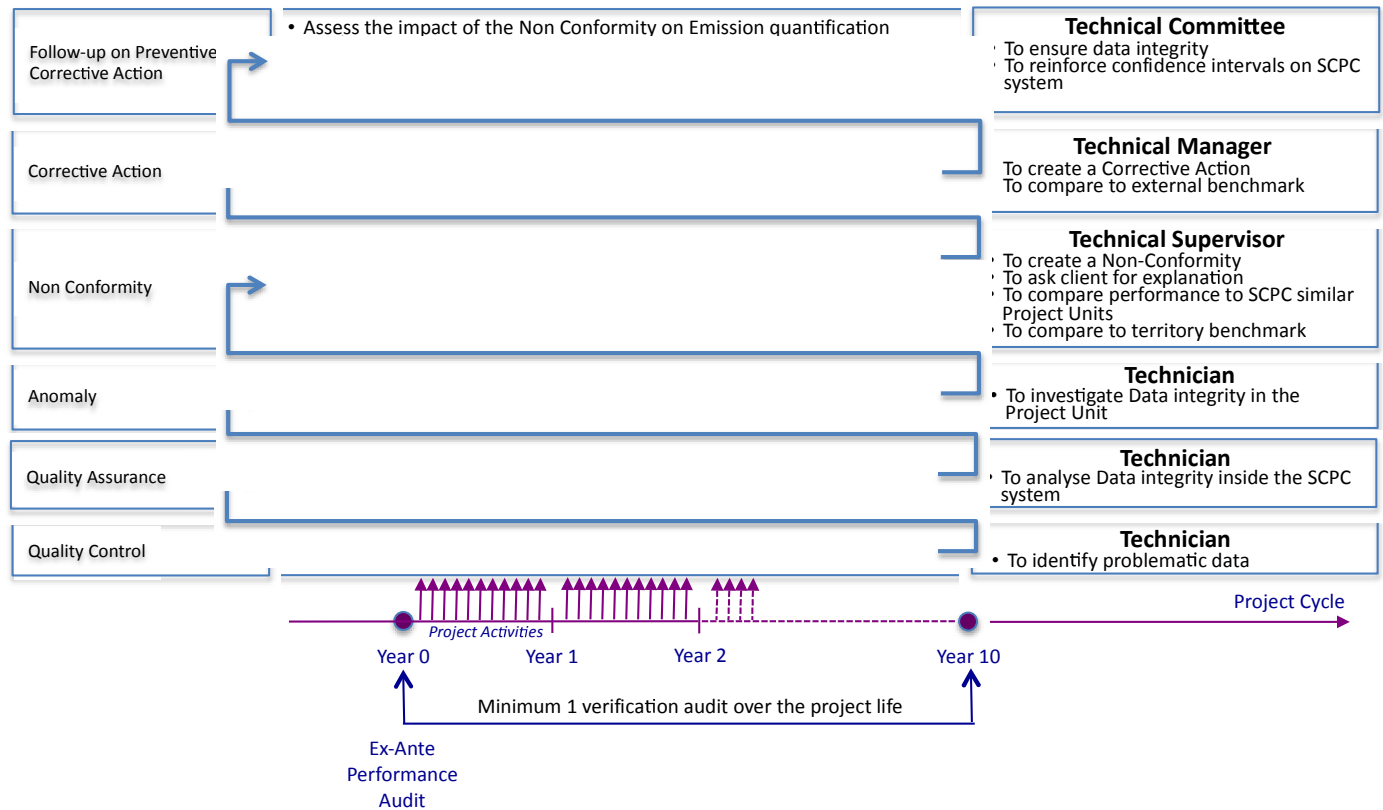
- At the time of registration the project unit: a physical audit of the Project Unit premises takes place, and physical evidence necessary to determine the baseline scenario will be collected;
- At each entry in the SCPC system, controls will be run to compare entry to historical data, sectorial SCPC benchmark and to external benchmark;
- Investigation may be necessary to get physical evidences of the data entered into the SCPC system;
- Impact of a possibly recurrent issue will be looked at for all the concerned Project Units;
- For each baseline period, a random sample of Project Units will be audited during the course of the project. The sample size will be the square root of the Project Units participating to the SCPC system. Evidence of the audit are kept: discrepancies will be analysed as well as potential impact on related Project Units;

The figure below provides the SCPC validation/verification data workflow:



In terms of organization, there are six levels that potential problems can be escalated, with different level of responsibility of the organization. Should the system require, a recourse/appeal will be set in place.

SCPC System	SCPC Anomalies, Non-Conformities and Corrective Actions	
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From an operational stand point, data is stored in a distributed computer network.

Quality assurance/Quality control shall also be applied to add confidence that all measurements and calculations have been made correctly. These include, but are not limited to:

- Protecting monitoring equipment (sealed meters and data loggers);
- Protecting records of monitored data (hard copy and electronic storage);
- Checking data integrity on a regular and periodic basis (manual assessment, comparing redundant metered data, and detection of outstanding data/records);
- Comparing current estimates with previous estimates as a 'reality check';
- Provide sufficient training to operators to perform maintenance and calibration of monitoring devices;
- Establish minimum experience and requirements for operators in charge of project and monitoring; and
- Performing recalculations to make sure no mathematical errors have been made.

Requirements for sampling eligibility of a Territory within a Sustainable Community:

- Project Units in the Territory, connected to the Sustainable Community and which apply all or part of the Sustainable Community activities (identified as ECM and/or Waste Diversion) are applicable for sampling as long the Sustainable Community data are collected and stored in the SCSP system.
- The SCSP data collection and storage shall be centrally controlled and administered.

- The SCSP shall demonstrate its capacity to identify Project Units with data that inappropriately affects the confidence interval of the Sustainable Community; these Project Units shall either be audited or excluded from the Sustainable Community.

Confidence Interval requirements:

- The Confidence Interval shall be set to 95%, where applicable.

Sampling size requirements:

- The sample shall be partly selective based on factors, such as importance of activities and GHG reduction volume, range of activities being conducted, exceptional performance (beyond Territory and sectoral performance).
- The sample shall be partly nonselective, with at least 20% of the sample being selected at random.
- The SCSP shall have a documented procedure for determining the sample to be taken when verifying project sites and submit to the validation/verification body.
- When necessary, stratified random sampling shall be conducted on homogeneous sub-populations. The criteria for sub-population grouping are based on appropriate economic sectors. The criteria are based on an official territory authority classification or an internationally recognized equivalent (examples include the North American Industry Classification System (NAICS) or Statistical Classification of Economic Activities in the European Community (NACE8)).

For a Territory, there are three different levels of sampling:

- Normal: the size of the sample shall be the square root of the number of Territory Project Units connected to the SCSP, rounded to the upper whole number.
- Reduced: the size of the sample shall be the square root of the number of Territory Project Units connected to the SCSP reduced by a coefficient (max. 0.6) when the overall interval confidence of the Sustainable Community data overpass the target value.
- Reinforced: the size of the sample shall be the square root of the number of Territory Project Units connected to the SCSP increased by a coefficient (max. 1.3) when the overall interval confidence of the Sustainable Community data is below the target value.

Sample Defect requirements:

- The sample size shall be enlarged to a maximum of 160% of the initial size if the reported values for one or more GHG reduction activities is beyond the acceptable range (defect) and the number of defects exceeds the acceptable quality level.
- The sample size shall be reduced to a maximum of 60% of the initial size if all Client Facility reported values are within the acceptable range (no defects) for five consecutive samplings.

5 ENVIRONMENTAL IMPACT

The project proponent believes that this Energy Efficiency and Solid Waste Diversion Activities within the Province of Quebec will contribute sensitively to improve the quality of the environment as well as the economic and the social sustainability inside Quebec's territory (Canada) as described in the following:

At project proponent level, there is no Environmental Impacts Assessment (EIA) required. This is supported by the fact that it's the entire responsibility of the facility operator to implement project activity instance including to obtain all environmental authorization when required, not the project proponent. The project proponent will only add a new project activities instances to the Community for aggregation of its GHG reductions with the confirmation from the client facilities, that the facility operator respect the Quebec EIA regulation.

The project activities instances subject to EIA are significant ones: these are projects which have a significant impacts on the environment. These projects are regulated and a list of such project is available in Appendix 11 the Quebec EIA regulation (article 2). Projects related to Energy efficiency and methane avoidance are not listed.

In the case of the Sustainable Community Project activities instances for the vast majority of cases, there is no EIA requirements. In some instances, EIA may be required. In such cases, a copy of the related permit/ authorization will be kept on file. In addition, most of the Client facility for which EIA is required are existing premises, the stakeholder consultation is acquired at the Client facility has been prospering for a long time.

5.1 Environmental Sustainability:

- The project will meet all Canadian Federal and Provincial requirements, standards and regulations;
- The project will produce real and measurable GHG emission reductions;
- The project will contribute to the optimization of energy use. Resources may be occurring by the introduction of new clean technologies and/or by a significant changes in Client Facilities' operating behaviour;
- The participation of all Client Facilities to this Sustainable Community will optimize their sustainable environmental performance beyond energy use and resources – so called "industrial ecology" concept;
- As an important environmental positive impact, 10% of project proponent's net income, after taxes and depreciation, will be returned to the local community in support of sustainable projects. It's reinvesting awareness into sustainable action.

5.2 Economic Sustainability:

The projects will use the most efficient ICT technologies to stimulate opportunities creating a potential return of investment (ROI) for the participating ICI Client Facilities. This potential ROI is based on:

- Cost-saving for the disposal of industrial residues and waste, and consequently, a considerable decrease in tax fees;
- Reduction of management costs when there is industrial exchange between the community members;
- Cost-saving resulting from lower cost of raw material (reduction, reuse and recovering);
- Group economy from the purchase of combined environmental services;
- Energy conservation associated to the reduction of industrial waste transport;
- Reduction of energy use per unit of production.

5.3 Social Sustainability:

The project will:

- Improve the quality of life for all the cities surrounding the Province of Quebec through the use of the Sustainable Community Solution;
- Enhance the companies behaviour, since the more they act, the more they change their behaviour in a sustainable way;
- Maintain and motivate the ongoing ICI's behaviour for a better awareness of the sustainable development requirements;
- Directly involve all the ICI and canalize their desire to participate in sustainable development initiatives project;
- As an important corporate social responsibility, 10% of project proponent's net income, after taxes and depreciation, will be returned to the local community in support of sustainable projects. It's reinvesting awareness into action, a kind of sustainable loop.

6 STAKEHOLDER COMMENTS

For the type and size of project activity, at client facilities, the stakeholders are limited to those directly linked to the project facility. Whenever necessary external stakeholder commentary is required it will be assumed directly by the client facility operator.

Our main comments, as the project proponent are on three specific areas are:

- We are proud to participate in a new concept that groups together several type of facilities (different in nature and operated by different owners), mainly small final emitters (SFE) of GHG, in a Community approach to stimulate changes in their behaviour and by optimizing their operations in several activities such as energy efficiency, waste diversion and beyond. What we call "Community Ecology";

By grouping together several small businesses or organizations using a "Sustainable Community" approach, lasting behaviour change can be stimulated. It does so by providing a framework to stimulate and generate small GHG reductions. The following should be considered in regards to SFEs:

- They represent 80% of companies and organizations world-wide;
- There is an opportunity to increase and encourage their desire to take GHG reducing actions;
- They can involve their employees as well as their supply chain contractors, and customers;
- SFEs can be grouped together into Sustainable Community projects.

This project it is the first one based on a new VCS methodology element. It also has the potential to be applied in a wide variety of clusters in many regions of the world. We strongly believe in this sustainable optimization (energy and resources) by the introduction of new clean technologies and/or by a significant change in their operational behaviour.

In this project description document (PD), provisions have been provided to quantify emission reductions associated with energy efficiency and improved waste handling and disposal systems. Following the project's implementation, it might be possible that the SCSP add other project activities instances, namely, optimization of transport, solvent optimization and ODS reduction. In this case, SCSP will submit an addendum to the accepted methodology by VCSA or by producing and submitting a separate PD applied for the same Community of Client Facilities in the territory of Quebec:

- Only for the transport optimization, we estimated a supplemental GHG reduction potential of 5,713,000 tCO₂e, for the period of 2110-2020. This supplement will allow us to reach our corporate objective of 28,565,000 tCO₂e in 2020;
- We also estimated a supplemental potential of 10 % at the 28,565,000 tCO₂e from other project activities instances, namely, water treatment, solvents and ODS reductions. This will give us, in 2020, total reductions of about 31,422,000 tCO₂e for all Community's Client Facilities.

Declaration

The participation of all ICI and Will Solutions Inc. (formerly Gedden) is in accordance with ISO-14064 Standard for all identification, quantification and certification of all reduction of GHG emissions and described in this Projects Description and it is voluntary under VCS. The information provided in this PD is true and correct.

All Canadian ICI facilities using the Sustainable Community Solution are free from any litigation pertaining to the project in the Canada and overseas.

July 5th, 2013



Signature of CEO
Martin Clermont, Eng. M.Sc.Env., B.Tech. Mec.
PDG/CEO / Will Solutions Inc. (formerly Gedden)

7 APPENDIX 1

PROVINCE OF QUEBEC:

7.1 Portrait of Québec

Extract of the official web site of the Government of Quebec, January 2012.

<http://www.gouv.qc.ca/portail/quebec/pgs/commun/portrait/?lang=en>

"Unique" is a great way to describe Québec. The province is in a class of its own, with its immense territory and distinctive personality, thanks to its majority French-speaking, multicultural population. Quebec, the largest Canadian province, is the only one where French is the population's first language!

A modern and solidary society with a universal, free healthcare system and a highly developed education system, Québec is known for its exceptional quality of life and for its democratic political system. Its diversified economy is powered by abundant natural resources and an expanding information technology sector and other cutting-edge industries.

This portrait of Québec is presented from a government perspective. This profile features how the Québec State intervenes, manages and structures each sector of activities.

Through this satellite view, we can locate Province of Quebec and see main summits and associated height above sea. Some phenomenon are illustrated by photographs while others by interpretation keys.



7.2 **Territory**

Extract of the official web site of the Government of Quebec, January 2012.

<http://www.gouv.qc.ca/portail/quebec/pgs/commun/portrait/?lang=en>

Québec's territory is made up of lands, freshwater bodies and courses, and a marine environment that takes in the fleuve Saint-Laurent and the golfe Saint-Laurent as well as the coastline of Baie James, Hudson Bay, Hudson Strait, and Ungava Bay. In Québec, privately-owned lands represent only a small portion of the territory. Everything else is public land.

7.2.1 **Privately-owned Land:**

- Covers nearly 8% of the territory (116,910 km²);
- Is located in southern Québec, which contains most of the population lives in the lowlands of the Saint-Laurent, around Gaspésie and Lac Saint-Jean, and in Abitibi;
- Is subdivided into nearly 3.5 million lots represented by the cadastre.

7.2.2 **Public Land:**

- Covers more than 92% of the territory, which includes:
 - land and inland water: 1,396,969 km² ;
 - a marine environment: 153,562 km² ;
- Lies mainly in the center and northern parts of Québec, which are sparsely populated;
- Constitutes a major heritage, exceptional natural environment, and basin of natural resources essential to the socioeconomic development of all regions of Québec.

The manager of this public land is the Ministère des Ressources naturelles et de la Faune. The Department is responsible for developing the territory as well as natural resources including forestry, mineral, energy, and wildlife resources.

7.3 **Parliament and Government**

The Parliament of Québec consists of the Lieutenant Governor and the National Assembly. The Lieutenant Governor, appointed by the Federal Government, is the Queen's representative in each of the Canadian Provinces. The Lieutenant Governor only assents to Acts. He does not participate in debates.

The National Assembly

The National Assembly is composed of 125 Members, representing the 125 electoral divisions. The Parliament Members are elected by the population. The voting procedure is based on the principle of first-past-the-post system in each riding. The role of the National Assembly is to pass legislation, in other words to lay down compulsory standards in the areas recognized as coming under provincial jurisdiction in the Canadian constitution.

In the Québec's parliamentary system, inspired from Great Britain, the Parliament and the Government represent separate powers :the legislative power and the executive power.

The Parliament

The Parliament examines proposed legislation submitted to it in the form of bills by the Government and either accepts or rejects them. Parliament also oversees the Government's application of laws and supervises all government activities (legislative power).

The Government

The Government is formed of certain elected representatives of the party holding the majority of the seats in the National Assembly. Its function is to provide the political management of Québec. In the parliamentary system, the executive power is accountable to the Parliament.

Almost all bills are conceived and drafted by the Government, in other words the Premier and the Cabinet. Although we tend to associate the Government with the notion of "power", in a legal sense the Government stems from, and is controlled by, Parliament.

The Prime Minister

Formally designated by the Lieutenant-Governor, the Prime Minister is in fact chosen by the electorate when it elects a majority of Members from the same party. The Premier, in turn, selects the Members who will form the Cabinet (Executive Council), and holds power for as long as he or she retains the confidence of a majority of Members. Convention also requires each minister to support the decisions made by the Cabinet, or resign, in keeping with the principle of ministerial responsibility.

The Action Plan on climate change (PACC)

In June 2006, Québec confirmed its leadership ambitions in the area of continent-wide sustainable development when it released its 2006-2012 Action Plan on climate change (PACC). Quebec implemented an Action Plan to move forward by adding funds and measures to the Action Plan, ensuring that Québec will contribute to the objectives of the Kyoto Protocol. Through this revised Action Plan that follows The Sustainable Development Act (managed by the MDDEP), The Québec Energy Strategy 2006-2015 (managed by the MRNF) and The Québec Public Transit Policy, the government means to build a Québec that is concerned about both the welfare of current generations and the development of the generations to come. Several Quebec's Ministères and Agencies are working to implement this Plan, such as MDDEP, MRNF, MDEIE and others.

Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP)

The mission of the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP) is to protect the environment and natural ecosystems for the benefit of current and future generations. This Ministère is in charge of the climate change issue, such the adoption (December 15th 2011) the new regulation respecting Cap-and-Trade system for GHG allowance.

Ministère des Ressources naturelles et de la Faune

The mission of the Ministère des Ressources naturelles et de la Faune is to promote knowledge acquisition and to ensure the development and optimal use of land, energy, forestry and mineral resources in Québec from a sustainable development perspective, for the benefit of the entire population.

7.4 Economy

Extract of the official web site of the Government of Quebec, January 2012.

<http://www.gouv.qc.ca/portail/quebec/pgs/commun/portrait/?lang=en>

The largest province in Canada by surface area, Québec ranks second on the basis of population with 7.8 million people (in 2009). The active population represents 4.2 million people. Québec strong and diversified economy ranks among the 50 most important in the world. Its economic vitality is due to a number of factors including:

- Its strategic position in North America;
- Abundant natural resources;
- Hydro-electric power;
- Innovative and dynamic R&D as shown by the excellence in advanced technologies;
- Exportation of products across the world.

See the Table about Energy, page 33 from Québec Handy Numbers, Institut de la Statistique du Québec, Edition 2011.

7.5 **Gross Domestic Product**

Extract of the official web site of the Government of Quebec, January 2012.

<http://www.gouv.qc.ca/portail/quebec/pgs/commun/portrait/?lang=en>

Québec Gross Domestic Product (GDP) (total production of goods and services) is more than \$300 billion, representing almost 20 % of Canada's economy. Québec's GDP per capita holds the 28th rank worldwide and is comparable to that of countries such as Italy, France and Japan.

Quebec is listed among the top 20 best tourist destinations in the world. Approximately ten millions tourists visit the province each year. In 2009, tourism industry generated more than ten billion in revenues. Tourism accounts for some 3 % of the total Québec's gross domestic product (GDP).

See the Table Economic activity by sector (NAICS), page 46 from Québec Handy Numbers, Institut de la Statistique du Québec, Edition 2011.

7.6 **Environment**

See the Summary of the Environment (GHG emission and waste management), page 9 from Québec Handy Numbers, Institut de la Statistique du Québec, Edition 2011.

7.7 **Industrial, Commercial and Institutionnal sites (ICI)**

The breakdown of all ICI potentials Clients Facilities for all the Province of Quebec was estimated at 219 938 facilities using Statistics Canada information. This number is very conservative because it only identified the number of company and is not associated with the number of facilities. Many companies may have more than one facility.

Gedden - PD's approach used for the pre quantification of GHG abatement

Number of ICI - Summary of ICI breakdowns sites in all Quebec October 2009

SCIAN Code	Description (in french)	Number of industry	Number of commerce	Number of institution	Total
11	Agriculture, foresterie, pêche et chasse	13 085			13 085
21	Extraction minière, du pétrole et du gaz	314			314
22	Services publics	109			109
23	Construction	25 380			25380
31-33	Fabrication	14 986			14986
41	Commerce de gros		12 899		12899
44-45	Commerce de détail		26 989		26989
48-49	Transport et entreposage	11 177	855		12032
51	Édition (sauf Internet)	694			694
52	Industries du film et du vidéo	1 164			1 164
52	Finance et assurance			5 402	5 402
53	Industries de l'enregistrement sonore	143			143
53	Services immobiliers			7 864	7 864
54	Radiodiffusion et télédiffusion	140			140
54	Services professionnels et scientifiques			21 252	21 252
55	Télévision payante et spécialisée	7			7
55	Gestion de sociétés et entreprises			1 742	1 742
56	Services administratifs, gestion des déchets, services d'assainissement	531	1	9 857	10 389
57	Télécommunications par fil	106			106
58	Télécommunications sans fil	51			51
60	Télécommunications par satellite	22			22
61	Services d'enseignement			2 172	2 172
62	Autres services de télécommunications	111			111
62	Soins de santé et assistance sociale		8 450	8 089	16 539
64	Traitement des données et hébergement de données			97	97
65	Autres services d'information			208	208
71	Arts, spectacles et loisirs		3 278	1 296	4 574
72	Hébergement et services de restauration		17 431		17 431
81	Autres services publics (réparation automobiles, services nettoyage, organismes religieux, organismes de charité. Services funéraires, services de soins personnels, ...)		14 818	7 668	22 486
91	Administration publiques locales, provinciales et fédérales			1 550	1 550
	Total	68 020	84 721	67 197	219 938

SOURCES:

NOMBRE D'ENTREPRISES SELON LA TAILLE D'EMPLOI ET LE GROUPE D'INDUSTRIE POUR LE QUÉBEC, Décembre 2006. STATISTIQUE Canada, REGISTRE DES ENTREPRISES - TRAITEMENT PAR L'INSTITUT DE LA STATISTIQUE DU Qc.

See the detail of the Manufacturing sector, page 36 from Québec Handy Numbers, Institut de la Statistique du Québec, Edition 2011.

7.8 Additionality at project proponent level

As a complement to the project proponent additionally analysis

Sector	Sub-Group EE	Sub-Group Waste	Comments about groups	Taxes (and specifically the carbon tax after January 2015)	Subsidies all project long	Test how to prove it (subsidies)	Owner /rental sites	Rental site; others comments	2008-2010 project acceptance	2010 and over	After 2010 new green building	Technical barriers
Industrial, defined by the code SCIAN	I	IV	Defined very simply the variable which will adjust the economical intensity and provide a specific benchmark.	non additional	non additional, improve the ROI and reduce the payback and justified the project realization in a territory which energy cost are very low.	% of the PACC 2013-2020 allocated to this sector /% of their part in the Quebec PIB (300 G\$/year)	By identifying who pays the energy, the waste and transportation services.	Inside industrial condos, which cost and effort may be regrouped, how to act with this situation (sharing benefit between all users by square meters??)	Yes, with the new offsets rules defined in Quebec regulation (article 70.2) MDDEP will accept offsets from 2007	Yes	specific benchmark on new building ASHRAE 90.1 or PEBC done by MnM (Ottawa)	Quebec Energy cost is very low compared to North America. Technical resources are limited in Energy efficiency and project management. Limited cash flow available for project financing in the SME (Small medium enterprise). The awareness of all stakeholders to act in favor of behavior change are limited
Commercial, defined by the code SCIAN	II	V	Defined very simply the variable which will adjust the economical intensity and provide a specific benchmark.	non additional	non additional, improve the ROI and reduce the payback and justified the project realization in a territory which energy cost are very low.	% of the PACC 2013-2020 allocated to this sector /% of their part in the Quebec PIB (300 G\$/year)	By identifying who pays the energy, the waste and transportation services.	Inside industrial condos, which cost and effort may be regrouped, how to act with this situation (sharing benefit between all users by square meters??)	Yes, with the new offsets rules defined in Quebec regulation (article 70.2) MDDEP will accept offsets from 2007	Yes	specific benchmark on new building ASHRAE 90.1 or PEBC done by MnM (Ottawa)	Quebec Energy cost is very low compared to North America. Technical resources are limited in Energy efficiency and project management. Limited cash flow available for project financing in the SME (Small medium enterprise). The awareness of all stakeholders to act in favor of behavior change are limited
Institutional, defined by the code SCIAN	III	VI	Defined very simply the variable which will adjust the economical intensity and provide a specific benchmark.	non additional	non additional, improve the ROI and reduce the payback and justified the project realization in a territory which energy cost are very low.	% of the PACC 2013-2020 allocated to this sector /% of their part in the Quebec PIB (300 G\$/year)	By identifying who pays the energy, the waste and transportation services.	Inside industrial condos, which cost and effort may be regrouped, how to act with this situation (sharing benefit between all users by square meters??)	Yes, with the new offsets rules defined in Quebec regulation (article 70.2) MDDEP will accept offsets from 2007	Yes	specific benchmark on new building ASHRAE 90.1 or PEBC done by MnM (Ottawa)	Quebec Energy cost is very low compared to North America. Technical resources are limited in Energy efficiency and project management. Limited cash flow available for project financing in the SME (Small medium enterprise). The awareness of all stakeholders to act in favor of behavior change are limited

Non additional, it is proved by the elasticity macroeconomic definition (example of France) and reference to actual discussion in Germany (Ref. Christophe K. inside the «journal les Échos»). Same principle of the actual taxes applied on energy. Point Carbon in its edition of June 5th 2012 stated: Quebec premier unveils \$2.7 billion climate plan. SAN FRANCISCO, June 4 (Reuters Point Carbon) -- Quebec Premier Jean Charest released a climate change action plan for the Canadian province on Sunday that calls for \$2.7 billion (US \$2.6 billion) for greenhouse gas mitigation and adaptation programs through 2020 sourced from future carbon market revenues and energy taxes.

7.9 Waste Diversion

SC= Sustainable Community

	Criteria	Large landfill $\geq 50\ 000\text{TM}/\text{year}$	Small landfill in operation (no biogas capture); $\leq 50\ 000\text{TM}/\text{an}$	Small landfill in operation (with biogas capture); $\leq 50\ 000\text{TM}/\text{an}$
1	Waste management regulation Quebec . It seems to have 37 landfill sites in Quebec (Source MDDEP 2010) . We will have the list of active landfill available for the VVB and maintain every year.	Yes and up to date regulation May 2012. Each landfill site will have a SC account link to their SC members of SC.	Each of them will have a SC account link to their SC members of SC	Each of them will have a SC account link to their SC members of SC
2	Indication of biogas recuperation activity	One by one, for each landfill we will determine their operation of the biogas recuperation and their final used (flaring or Energy recovery).	n.a.	One by one, for each landfill we will determine their operation of the biogas recuperation and their final used (flaring or Energy recovery).
3	Diversion effects	Monitor at each ICI site members of SC	Monitor at each ICI site members of SC	Monitor at each ICI site members of SC
4	Emission factors with VCS methodology	Defined subcategory by using ICF factors (EC 2005) with adjustment. Ref. page 92 ICF (french) without carbon sequestration.	same as large landfill	same as large landfill
5	Discount on the methodology parameters	plus 200% because of 3 reasons a) Performance of biogas recovery rate is changing from 50% up to 98%. Ref.; GHG Institute. B) the first and year two no biogas generation . It need up 1 to 2 years to start to produce biogas. Model Scholl Canyon. C) changing in behavior arriving upstream before sending waste to a bad bioreactor (landfill) even with biogas recuperation and EE.	n.a.	same as large landfill
6	Calculation	Waste sub-category ICF Factor* 200%= final Em. Factor	same as large landfill	same as large landfill
7	Sub waste category	Organic matters (food wastes + yard trimming), all paper types regrouped , cardboard, wood, wastewater treatment sludge. Evaluated another sub category for miscellaneous.	same as large landfill	same as large landfill
8	data collection	by volume and convert in kg (waste bins LIFT UP at ICI sites (ON THEIR INVOICE BILL)	by volume and convert in kg (waste bins LIFT UP at ICI sites (ON THEIR INVOICE BILL)	by volume and convert in kg (waste bins LIFT UP at ICI sites (ON THEIR INVOICE BILL)
9	Others comments	not at this time	not at this time	not at this time

This approach will ensure no double accounting between our project and any project coming from protocol 2 of MDDEP regulation on PEDES. Mainly because the waste diverted by SC will not go to landfill and then will not generate methane.

8 APPENDIX 2

8.1 Sample Contract (English and French)

PDF DOCUMENT ATTACHED

9 APPENDIX 3**9.1 Demonstration of SC's presence and GHG reduction stimulation inside Quebec market**

The following documents demonstrate historically the presence of Sustainable Community project inside the Quebec market since 2006. This presence was done directly (facility by facility) and indirectly (through Gedden website documentation and through government authority and several large commercial partner) to the Quebec market. This presence supported simultaneously the stimulation of GHG reductions projects activities covered by our PD.

PDF DOCUMENT ATTACHED

10 APPENDIX 4**10.1 Legal framework analysis related to the project**

The following documents identifies the regulation which covert GHG emissions inside the Quebec territory market and point out the specific article related to GHG project activities converted by our PD.

PDF DOCUMENT ATTACHED

11 APPENDIX 5**11.1 Project proponent operation manual (in French)**

This operating manual is intended to support the Will Solutions operations supporting this PD. Appendix I presents the Licence Agreement to Sustainable Community signed by all our members to be part of our Sustainable Community. Appendix II shows the form used to pre quantify the GHG reductions. Appendix III presents the Referencing Audit Form used to establish the baseline scenario. Appendix IV describes the Sustainable Community Solution's Operating Diagram. It resumes all the operations performed from the contact with customer to the third parties validation. Appendix V presents the Reduction Progress Report used by our service department to follow all client's reduction efforts throughout the 10 years project. Appendix VI show some screen shots from our Sustainable Community Platform. Appendix VII presents an example of reference document used to establish the GHG reduction. Finally, since the Register Report (Appendix VIII) is for internal use only, it will be shown upon request.

PDF DOCUMENT ATTACHED

12 APPENDIX 6**12.1 List of eCO₂ emissions factors utilized for the PD**

The following documents identifies the GHG emission factors utilized by the GHG project activites covered by our PD.

PDF DOCUMENT ATTACHED

13 APPENDIX 7**13.1 SGS's certificat of quality ISO 9001:2008**

The following certificate identify the commitment of Wills solution to register as ISO 9001:2008 which will support our QA/QC monitoring efforts of the data and integrity of our information related to all GHG project activities covered by our PD.

PDF DOCUMENT ATTACHED

14 APPENDIX 8

14.1 GHG's Quebec emissions 2008 inventory per sector

PDF DOCUMENT ATTACHED

15 APPENDIX 9

15.1 The generic project activities instances

Section A – Listing of the project activities instances (PAI)

- PAI I the energy conservation measures (switching fuel) at Boisaco's facility
- PAI II Methane avoidance at Boisaco's facility

For information, partial information is already available on the PAIs III to X, however their attributes will be considered at a later stage

- PAI III Torrified Biomass Combustible
- PAI IV Saving Energy on recycling activities
- PAI V Heat Recovery
- PAI VII Energy efficiency demand side
- PAI VIII Fuel switching
- PAI IX Energy conservation
- PAI X Demand side new buildings and major renovations
- PAI XI Financial analysis (irr) at the project proponent level

Section B – Summarized Baseline and Additionality Analysis

- B.1 Combined analysis
- B.2 Baseline and additionality complementary analysed

Section C – Total and detailed calculations /PAI of GHG reductions emissions at for some facility level.

- Section C-A – Boisaco facility
- Section C-B – Recyc RPM's facilities
- Section C-C – Saint Gedeon's facilities
- Section C-D – RPM Environment facility
- Section C-E – 780 Brewster facility.

Section D – Common practice analysis

PDF DOCUMENT ATTACHED

16 APPENDIX 10**16.1 Polygon**

The updated polygon is in drop box as Appendix 10

17 APPENDIX 11

17.1 EIA Regulations

18 APPENDIX 12

18.1 Evidence to the start date

18.2 Summary of the project proponent estimation of net GHG reductions emissions