Project 8: Accelerating Adoption of ISO 50001 Program Certifications in North America	Operating Year(s): 2015–2016				
Planned Budget for Two Years: C\$300,000					
Year 1: C\$80,000					
Year 2: C\$220,000					
Strategic Priority/Subtheme:					
Green Growth / Clean Energy					
How will this project address the cross-cutting themes?					

• Enhancing information sharing, transparency, capacity building and communication:

The goal of this project is to position ISO 50001 and the Superior Energy Performance program (SEP) as key mechanisms for reducing greenhouse gas emissions and improving energy efficiency in the industrial and commercial sectors in North America. ISO 50001 and SEP adoption represents a strategic investment in sustainability and profitability. The industrial sector alone accounts for more than one-third of the world's energy use and, according to the International Energy Agency (IEA), the potential to improve energy efficiency in that sector is large.

ISO 50001 provides a proven and internationally recognized system for planning, managing, measuring, and continually improving energy performance in any organization that uses energy. ISO 50001 is proving to be an effective strategy for governments and industries to cost-effectively reduce energy use. The SEP provides guidance, tools, and protocols to drive deeper and more sustained energy savings from ISO 50001. To become SEP certified, facilities must meet the ISO 50001 standard and demonstrate improved energy performance; i.e., a SEP-certified facility has both the ISO 50001 energy management system (EnMS) and energy performance improvement verified by a third-party auditor. To date, ISO 50001 and SEP-certified facilities in the United States have averaged a 12-percent improvement in energy performance over three years. Having a common North American approach that is built upon globally relevant standards will support accelerated uptake of energy efficiency measures in North American industrial and commercial facilities.

Currently, across the region, there is weak workforce capacity to enable widespread adoption of ISO 50001 and SEP. A key emphasis of this project is to build this workforce capacity by establishing common personnel-certification schemes, training future instructors, and teaching end-users at pilot-project facilities in order to demonstrate the value of ISO 50001 and SEP in key sectors across North America. A trilateral effort focused on expanding the availability of highly skilled energy management professionals across the region will not only help accelerate the development of a qualified energy efficiency workforce but help multinational companies more easily identify qualified employees and consultants, resulting in increased confidence and assurance of ISO 50001 and SEP outcomes. In addition, because the SEP program provides third-party verification of facility energy performance improvement, it thus helps to verify greenhouse gas emission reductions. Using a standardized approach to verifying energy performance improvements can help governments and organizations track progress towards energy, sustainability, and climate goals.

Engaging a range of key stakeholders—national governments, standards bodies, private sector representatives, accreditation and certification bodies, and trained and certified professionals—is vital to creating a robust and high-quality infrastructure for implementing ISO 50001 and SEP. This program will help establish a healthy dialogue among these stakeholders at the national and regional level to enable sharing of best practices in developing ISO 50001 and SEP infrastructure and building harmonized programs.

Project Summary (including a clear statement of project goal)

This project is intended to accelerate energy and cost savings and greenhouse gas emission reductions in North America's industrial and commercial sectors by helping to grow the workforce needed to implement ISO 50001 and the Superior Energy Performance® program in Canada, Mexico, and the United States; demonstrating the economic and environmental benefits of ISO 50001 and SEP implementation; and fostering a North American approach to ISO 50001 and SEP adoption.

The project's first task will be to establish common requirements for personnel-certification in the region and train energy management professionals to become Certified Practitioners in Energy Management Systems (CP EnMS). These newly certified individuals will be qualified to receive additional coaching and hands-on training experience by serving as "apprentice instructors" during training sessions for the staff of pilot facilities (see second-phase pilot program below). These individuals can eventually go on to become instructors for ISO 50001 and SEP.

The second task will consist of a pilot program. Canada, Mexico, and the United States will identify about five companies/organizations per sector to participate in an ISO 50001 and/or SEP pilot program. Priority will be given to companies/organizations with facilities in all three countries, with special consideration given to those within the North American truck and bus supply chain. In exchange for participating in the North American pilot program, employees in the pilot facilities ("end users") will receive training on ISO 50001 and/or SEP implementation. Each sector-specific training series will take place in one of the three countries and will consist of approximately three multi-day training sessions over the course of 12 months. The training series will be led by experienced energy consultants. Local professionals who have recently received the necessary qualifications to serve as instructors and have practical experience will shadow the lead instructors and be mentored to become future instructors.

The third task will focus on sharing lessons learned during the pilot program and facilitating dialogue among relevant stakeholders in Canada, Mexico, and the United States, with the goal of creating a more harmonized approach to ISO 50001 and SEP adoption across North America, in part through laying the groundwork for establishing peer-learning networks.

Short-term Outcomes (at halfway point), year 1 of project Four professionals trained as Certified Practitioner in Energy Management Systems (CP EnMS) Three professionals qualified to train end users on ISO 50001and/or SEP Fifteen pilot programs established; three cohorts of five facilities; one cohort-training series in each country: Canada, Mexico and the US

Long-term Outcomes (by the end of the project), year 2 of project

Forty-five trained end users of ISO 50001 and/or SEP (three trainees at each of the 15 pilot facilities) Three case studies of ISO 50001 and/or SEP implementation at pilot facilities (one per country) Nine pilot facilities and buildings ISO 50001 and/or SEP certified

Longer-term, Environmental Outcome (post-project)

Third-party verified energy savings

Energy-related greenhouse gas emission reductions verified by third-party auditors

Performance Measures (quantified SMART measures)

Energy performance improvement measured and verified by SEP verification bodies at five North American facilities and buildings by end of 2017, yielding a source energy savings of 10 percent.

Tasks necessary to reach the environmental outcome:

1) Establish common personnel certification schemes and conduct "train-the-trainer" activities to increase the number of instructors qualified to train future ISO 50001 and SEP practitioners.

2) Implement pilot projects in priority sectors across North America to demonstrate value of ISO 50001 and SEP.

3) Convene key stakeholders to exchange best practices, foster harmonization, and lay the groundwork for peer networking opportunities.

Task #1) Conduct "train-the-trainer" activities to increase the number of instructors qualified to train future ISO 50001and SEP practitioners

Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (C\$) (activities)
1.1 Energy management professional training: Consultants will provide training to energy management professionals with high potential to go on to become local trainers of ISO 50001 and SEP. The focus will be on building up local expertise in Canada and Mexico and to fill gaps in the US as needed.	Certification of at least 4 CP EnMSs	 Lack of Certified Practitioner in Energy Management Systems (CP EnMS) professionals is a barrier to greater deployment of ISO 50001 and SEP. At least three CP EnMSs will be needed to carry out pilot projects for this project, in addition to the lead trainers. 	Year 1: At least one CP EnMS training session	Year 1: \$30,000 Year 2: \$0

Task #2) Implement pilot projects in priority sectors across North America to demonstrate value of ISO 50001 and SEP				
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (C\$) (activities)
2.1 Train-the-implementer at pilot facility: There will be three parallel training series on ISO 50001 and/or SEP implementation. Each training series will focus on one sector. One training series will be held in each country. Each training series will consist of approximately three multi- day training sessions over the course of 12 months. Sessions will be open to companies in Canada, Mexico, and the US.	 End-user training for 15 facilities (about 5 per sector) ISO 50001 or SEP Certification for 9 facilities (about 3 per sector) 	 Encourages early adoption of ISO 50001 and SEP in priority sectors. 	 Year 1: First training session of each sector specific training series (3 sessions in total) Year 2: Second and third (final) sessions of each sector-specific series (6 sessions in total) 	Year 1: \$40,000 Year 2: \$80,000
2.2 Apprentice instructor: Local CP EnMS professionals will shadow trainers and serve as assistant trainers. It is likely that these trainers-in- training will have participated in the train-the- trainer activities in Task 1 of this project, given the currently low number of qualified professionals.	At least 3 CP EnMS professionals serving as assistant trainers and receiving coaching from lead trainers	 Builds local capacity for training more energy management professionals in ISO 50001 and SEP. 	•	Year 1: \$10,000 Year 2: \$25,000
2.3 Case studies: Case studies will be developed for at least one	 At least 3 case studies (1 case study per sector) 	Conveys the value of ISO 50001 and SEP to early adopters, with the goal of spurring greater adoption	Year 2: Case study development	Year 1: \$0 Year 2: \$40,000

pilot project per country/sector.		across North America.			
Task #3) Convene key stakeholders to exchange best practices, foster harmonization, and lay the groundwork for peer networking opportunities					
Subtask	Project outputs	How does the subtask/output move the project towards the environmental outcome	Timing	Budget (C\$) (activities)	
3.1 Convene stakeholders such as national governments, standards bodies, private sector representatives, accreditation and certification bodies, trained and certified energy management professionals, to enable the sharing of best practices in creating a robust ISO 50001 and SEP infrastructure; create harmonized programs to lay groundwork for peer learning networks.	One workshop and additional webinars and conference calls as needed	 A range of key stakeholders must be engaged in order to create a robust and high-quality infrastructure for implementing ISO 50001 and SEP. This program will help establish a healthy dialogue. 	Year 2: One workshop	Year 2: \$75,000	

Explain how this project meets the selection criteria adopted by Council in the Strategic Plan (see below)

The goal of all projects funded by the CEC will be to support the efforts of the Parties to conserve, protect and/or enhance the North American environment. The following criteria will guide the Secretariat, Working Groups, Committees, and other appropriate officials of the Parties in considering cooperative activities for Council approval under operational plans. These selection criteria do not apply for activities to be funded through the NAPECA grant program.

• How does the project contribute to achieving Council's strategic objectives as described within the current Strategic Plan, or as related to other priorities subsequently confirmed by Council?

Engaging a range of key stakeholders—national governments, standards bodies, private sector representatives, accreditation and certification bodies, and trained and certified professionals—is vital to creating a robust and high-quality infrastructure for implementing

ISO 50001 and SEP. ISO 50001 provides a proven and internationally recognized system for planning, managing, measuring, and continually improving energy performance in any organization that uses energy. ISO 50001 is proving to be an effective strategy for governments and industries to cost-effectively reduce energy use. SEP provides guidance, tools, and protocols to drive deeper and more sustained energy savings from ISO 50001.

This program will help establish a healthy dialogue among stakeholders at the national and regional level to enable the sharing of best practices in developing a strong ISO 50001 and SEP infrastructure and building harmonized programs.

The United States, Canadian, and Mexican governments have all supported the development of resources such as case studies, guide books, and software tools to support industry implementation of ISO 50001. A key component of this project is to facilitate increased sharing of these resources. Another core project component is to establish common personnel-certification schemes and have ISO 50001 and SEP experts conduct training sessions for professionals from Canada, Mexico and the US on how to perform audits that conform to the ISO 50001 standard—internationally recognized as the best practice for implementing a holistic energy management system. Following the training sessions, participants will take a exams to earn relevant certifications. Finally, this project will support information sharing by working with private sector companies to develop case studies on pilot projects as a way to share lessons learned and demonstrate the value of ISO 50001 and SEP implementation.

ISO 50001 and SEP adoption in the industrial sector represents a strategic investment in sustainability and profitability. The industrial sector accounts for more than one-third of the world's energy use, and according to the IEA, the potential to improve energy efficiency in the industrial sector is large. Businesses can use ISO 50001 and SEP to achieve and sustain large energy savings, optimize processes, boost competitiveness, and reduce risk. This project will aim to establish ISO 50001 and SEP as a mainstream sustainable business practice in North America that can demonstrate cost-effective energy efficiency improvements of 10 to 30 percent in varied industrial and commercial installations.

Canada, Mexico and the United States are in a position to facilitate wider adoption of ISO 50001 and SEP in their respective countries by developing a harmonized North American approach to energy management systems that includes coordinated training, workforce professional credentialing, and pilot demonstrations. Regional harmonization will send a strong signal to North American manufacturing sectors, supply chains, and the commercial sector about the importance of robust and high-quality implementation of ISO 50001 to help reduce greenhouse gas emissions and increase competitiveness across the supply chain and in the overall economy.

• Are the proposed objectives North American in scope? In other words, how are the proposed results relevant to protecting the environment in North America? (For example, what would Council members announce to the press at the successful completion of this project?)

The proposed objective is North American in scope. The proposed objective is to accelerate energy and cost savings in North America's industrial and commercial sectors by facilitating dialogue among relevant stakeholders in all three countries, conducting pilot projects in industries of strategic importance to all three countries, and holding "train-the-trainer" activities to help build a qualified energy-efficiency workforce in all three countries. Some of the companies participating in the pilot program will have operations in

Canada, Mexico, and the United States. A harmonized North American approach to ISO 50001 and SEP helps ensure that ISO 50001 certification in the US means the same thing as ISO 50001 certification in Canada and Mexico (and vice versa).

The measureable results will come from having multiple corporations achieving ISO 50001 and SEP certification across North America whose energy savings and greenhouse gas emissions will be verified by third parties. The project will also build capacity and begin to create the required infrastructure necessary to scale implementation of ISO 50001 and SEP across various economic sectors.

• What specific, clear and tangible results will be achieved and how will progress toward each result be measured over time? Identify performance measures to be used to indicate success at reaching all outcomes and/or performance.

Outcomes	Measures	Target	Indicator	
Increased number of Certified Energy Management Practitioners	Number of professionals trained as Certified Practitioner in Energy Management Systems (CP EnMS)	4 professionals trained (Y1)	Increased number of trained professionals	
Increased number of qualified professionals to train end users on ISO 50001 and SEP	People qualified to train end users on ISO 50001 and/or SEP	3 people qualified (Y1) 45 people qualified (Y2)	Increased number of trained professionals	
Establishment of ISO 50001 and/or SEP pilot programs in Mexico, Canada and the US	Number of pilot projects established	15 pilots established (Y1)	Increased number of pilot projects	
Increased ISO 50001 and/or SEP-certified pilot projects	Number of certified pilot projects	9 pilot facilities and buildings ISO 50001 and/or SEP certified (Y2)	Increase in certified pilot projects	
Increased third-party verified energy savings	Energy performance improvements measured and verified by SEP verification bodies	Average 10 percent source energy savings (or 100,000 MM Btu source energy per year) at 5 North American facilities and buildings by end of 2017	Increased energy savings	

Increased energy-related greenhouse gas emission reductions	Energy-related greenhouse gas emission reductions extrapolated from SEP measurement and verification results.	Average ~5500 metric tons of carbon dioxide equivalent reductions for 5 North American facilities and buildings by end of 2017 ¹	Increased greenhouse gas emission reductions
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• Explain why the CEC is the most effective vehicle for the Parties to use in undertaking the project, considering these points:

- o The value-added of doing it under the CEC cooperative program
 - CEC support would be tremendously helpful in ensuring that program staffs have the resources needed to support
 collaborative work and to encourage the participation of key national stakeholders such as accreditation and standards
 bodies and the private sector.
- Any other public, private or social organizations that work on such activities
 - This project would be conducted in close coordination with the Global Superior Energy Performance (GSEP) initiative. GSEP was launched in 2010 by the Clean Energy Ministerial (CEM) and International Partnership for Energy Efficiency Cooperation (IPEEC). Through GSEP's Energy Management Working Group (EMWG), government officials worldwide share best practices and leverage their collective knowledge and experience to create high-impact national programs that accelerate the use of energy management systems in industry and commercial buildings. Canada, Mexico, and the United States are key partners in GSEP work to promote a globally harmonized certification scheme for ISO 50001 Auditors (one of GSEP's marquis activities).
 - GSEP works closely with a number of donor and international organizations that promote energy efficiency worldwide, including the World Bank and UNIDO. These and other organizations have active programs to promote uptake of energy management systems in a number of countries, and GSEP helps support their work through technical input and sharing of best practices, resources, tools, guidance, and training materials.
 - This project will build off of a commitment to trilateral collaboration on ISO 50001 and SEP that is expected to be announced following the North American Energy Ministerial held 15 December 2014 in Washington, D.C.
 - Major multinational corporations in the manufacturing and commercial sectors (3M, Cummins, General Dynamics, Nissan, Schneider Electric, Marriott Hotels, Hilton Hotels, and others) are looking to implement and promote ISO 50001 throughout their North American operations and supply chains. A harmonized approach to promoting the ISO 50001 standard among countries will help facilitate private sector adoption.

¹ Based on rough estimates of verified energy savings per facility of 100,000 MM Btu source energy per year; GHG equivalency calculated using EPA use Gas Equivalencies Calculator: <u>http://www.epa.gov/cleanenergy/energy-resources/calculator.html</u>.

- Opportunities to cooperate and/or leverage resources with such organizations
 - Private sector companies have expressed interest in expanding their ISO 50001 and SEP activities across their North American facilities. The CEC project would help to demonstrate government leadership in motivating early adopting companies to accelerate their energy management activities. Existing GSEP work on the ISO 50001 lead auditor harmonization, as well as case study development, will assist and leverage with the CEC project.
 - GSEP and Mexico have already been in dialogue with several donor and international organizations working in Mexico about coordinating efforts through this proposed CEC project. The World Bank and UNIDO are interested in supporting this project in a number of ways; for instance, these organizations can provide funds to support the development of resources for sector-specific pilot projects and deeper on-the-ground technical assistance. Further dialogue to clearly define collaboration parameters will be conducted.

• Does the project propose a clear timeline for implementation of the activities, including a target end-date for the CEC involvement? Where applicable, describe how the work will continue after CEC involvement ends.

- Work will continue after CEC involvement through the established peer-learning network. Peer-learning networks have been shown to be effective in facilitating implementation through sharing of best practices and positive peer pressure. Peer networks can be established among North American companies by sector, supply chain, size, etc.
- Train-the-trainer activities are also intended to have a long-lasting impact and lead to a greater number of certifications.

• Where applicable, identify with reasonable specificity:

- Linkages with other relevant CEC projects such as the North American truck and bus supply chain project, past or present, in order to create synergies, capitalize on experience, or avoid duplication
 - Companies/facilities that are part of the North American truck and bus supply chain will be selected as priorities for pilot facilities as a part of this project.
- The target audience, as well as its receptivity and capacity to use the information that may be produced as a result of the project
 - Accreditation, certification, and standards bodies (American National Standards Institute, ANSI-ASQ National Accreditation Board, *Entidad Mexicana de Acreditación*, Standards Council of Canada)
 - Private sector corporations with facilities in Canada, Mexico and the US
 - Public sector municipalities and cities with water and wastewater facilities
 - Energy management system professionals with the potential to become qualified instructors
- The beneficiaries of capacity building activities that the project may include
 - Energy managers

- Sustainability managers: corporate and public sector
- Compliance managers
- ISO management system experts
- Utility energy-efficiency program managers
- Management representatives
- Aspiring third-party ISO 50001auditors
- Operations staff in pilot facilities
- The relevant stakeholders, with particular attention to communities, academia, NGOs and industry, and their involvement and contribution to a successful outcome
 - Accreditation, certification, and standards bodies (American National Standards Institute, ANSI-ASQ National Accreditation Board, *Entidad Mexicana de Acreditación*, Standards Council of Canada)
 - Private sector corporations with facilities in Canada, Mexico and the US
 - Municipal waste water facilities
 - World Bank
 - United Nations Industrial Development Organization
 - Institute for Industrial Productivity
 - Manufacturing trade associations