

Background Paper #3

Existing

Canada – U.S.

Collaboration on

Green Building

This paper was prepared as an independent third party contribution to the North American Workshop on Sustainable Consumption and Production and Green Buildings (31 January – 1 February 2011, Ottawa, Canada) by the One Earth Initiative Society and with contributions by contacts listed below.

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Background Paper #3: Existing Canada – U.S. Collaboration on Green Building

This document provides an overview of: existing Canada – U.S. efforts on green building, parallel mandates for greening federal building stock, and a key international green building initiative. The chart below provides a summary of these efforts, mandates, and initiatives. The intent of this report is not to provide an exhaustive list, but to inform dialogue, stimulate conversation, and discuss next steps for Canada-U.S. cooperation in green building.

The goal of the North American Workshop on Sustainable Consumption and Production and Green Building (31 January - 1 February, 2011, Ottawa, Canada) is to have a multi-stakeholder dialogue promoting bi-national collaboration on green building as an important application of international sustainable consumption and production efforts. A number of studies show that three consumption clusters -- housing, food and drink, and mobility/transportation -- drive 70 - 80% of the ecological impacts in developed economies, and promoting green building is a high-leverage option to help transform production and consumption patterns for sustainability.

This chart below is a tool for discussing the strengths and weaknesses of current initiatives, identifying potential areas for additional work, forging linkages, and forming new partnerships. Subsequent pages provide more detailed descriptions of the initiatives, key websites and links, and relevant contact information.

SUMMARY CHART

Initiative and Organization	Description	Key Elements
1) Global Superior Energy Performance (GSEP) Partnership – Governments of Canada, the European Commission, France, India, Japan, Korea, Mexico, Russia, South Africa, Sweden, and the U.S.	Accelerate energy efficiency improvements throughout industrial facilities and large buildings.	<ul style="list-style-type: none"> • Continuous energy performance improvements in industrial facilities and large buildings • Public-private partnerships for cooperation in individual energy-intensive sectors
2) Life Cycle Inventory (LCI) Database – the National Renewable Energy Library (NREL) in conjunction with the Athena Institute	Individual accounting of the energy and material flows into and out of the environment that are associated with producing a material or component in the U.S.	<ul style="list-style-type: none"> • Maintain data quality, transparency, compatibility, and accessibility • Cover commonly used materials, products, and processes in the U.S. • Support the expanded use of LCA
3) Commission for Environmental Cooperation (CEC) – the North American Free Trade Agreement (NAFTA)	<i>Green Building in North America: Opportunities and Challenges</i> – identifies challenges to and opportunities for green building.	<ul style="list-style-type: none"> • 3 primary recommendations for advancing the green building agenda: 1) Develop a Lasting and Achievable Vision; 2) Set Targets to Enhance Performance; 3) Implement Strategies to

		Drive Change
	<i>Supporting the Growth of Energy Efficient Buildings: Tri-national Workshop to Discuss Opportunities to Harmonize Energy Efficiency Metrics</i> – identifies opportunities for energy efficient building metrics in North America, with particular reference to the commercial and institutional building sector.	<ul style="list-style-type: none"> • Ensure Mexico is making progress towards implementing green building policies, programmes, and practices. • Implementation of database, benchmarking, rating, and labelling systems in Canada, the U.S., and Mexico. • Identify the drivers and barriers to the uptake of ENERGY STAR for Buildings.
	<i>2010 Green Building Project Operational Plan</i> – to foster green building markets in North America.	<ul style="list-style-type: none"> • Host an expert workshop on green building. • Host a technical workshop on green building.
4) Evaluation and Comparison of Office Buildings in Canada and the U.S. – National Research Council (NRC)	Gather data to help the building community improve the design and performance of both green and conventional buildings and provide a stronger scientific basis for green-rating schemes.	<u>2 parts of the project:</u> <ul style="list-style-type: none"> • A measurement of the building's physical environment, including acoustics, lighting, thermal conditions, and air quality. • A questionnaire for occupants to determine perceptions of the building's environment, overall job satisfaction in that workspace, health, and commuting patterns.
5) The Leadership in Energy and Environmental Design (LEED) Rating System – U.S Green Building Council (USGBC) and Canada Green Building Council (CaGBC)	LEED is a third-party certification program and an internationally accepted benchmark for the design, construction, and operation of high performance green buildings. It provides building owners and operators with a concise framework for identifying and implementing practical and measurable green solutions.	<ul style="list-style-type: none"> • The CaGBC collaborates closely with USGBC on using LEED in the Canadian real estate and construction market in 2 ways: 1) LEED Canada Rating Systems and 2) Global Uptake of LEED via Regional Approaches.
6) Government Affairs and Advocacy Committee – American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)	The Advocacy Committee works to promote more sustainable practices with respect to the built environment. There are a number of Canadian representatives on this committee.	<ul style="list-style-type: none"> • Outreach, education, and lobbying on more energy efficient and sustainable systems and processes.

<p>7) D.C. Embassies Greening Forum – U.S. Department of State, Earth Day Network, and an Advisory Board of member embassies</p>	<p>Allows foreign embassies to share best practices, challenges, and experiences on green facility renovations and sustainable business operations for their missions in D.C., as well as information on “green” initiatives in their home countries.</p>	<ul style="list-style-type: none"> • Identify new innovations that might be applicable to Forum members. • The Forum convenes on a quarterly basis. Potential topics for the next meeting include: green purchasing, organic foods, e-waste, and recycling.
<p>8) Green Buildings Initiative – Asia-Pacific Economic Cooperation (APEC)</p>	<p>A two year project, funded through private sector support, the APEC Trade Investment Liberalization Fund and USAID to identify areas of cooperation in standardization and conformity assessment for products and materials included in Green Buildings.</p>	<ul style="list-style-type: none"> • A survey of APEC member economies’ standards, policies, rating systems, codes, and regulations • Two workshops: the first will be held in Washington, DC, March 3-4, 2011. • Two cases studies on Green Buildings to be completed by November 2011.
<p>Federal Initiatives</p>		
<p>9) Greening Federal Buildings – Governments of Canada and the U.S.</p>	<p><u>U.S.</u> Federal Agencies shall implement high performance sustainable Federal building design, construction, operation and management, maintenance, and deconstruction as well as advance regional and local integrated planning.</p>	<p><u>U.S.</u></p> <ul style="list-style-type: none"> • Increased efficiency of buildings using various energy saving methods. • Creation of minimum requirements for integrated design, energy performance, water conservation, indoor environmental quality, and materials.
	<p><u>Canada</u> To accelerate the greening of the government’s operations by establishing government-wide priorities, accountabilities, targets, timelines, and reporting requirements to become a model of environmental excellence in its own operations.</p>	<p><u>Canada</u> The greening of government operations encompasses a wide range of activities including:</p> <ul style="list-style-type: none"> • Reducing energy resources consumption. • Reducing the environmental footprint of its buildings • Reducing greenhouse gas and other air polluting emissions. • Green procurement. • Waste management. • Environmental performance of the vehicle fleet.
<p>International Initiative</p>		
<p>10) Sustainable Buildings and</p>	<p>Present a united voice from</p>	<ul style="list-style-type: none"> • Provide a common platform

<p>Climate Initiative (SBCI) – hosted by United Nations Environment Program (UNEP)</p>	<p>building sector stakeholders on buildings and climate change, while drawing on UNEP’s unique capacity to provide a global platform for collective action.</p>	<p>for stakeholders.</p> <ul style="list-style-type: none"> • Develop tools and strategies. • Establish baselines for reporting. • Demonstrate advantages of sustainable buildings through pilot projects.
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DETAILED DESCRIPTIONS

1) Global Superior Energy Performance (GSEP) Partnership – Governments of Canada, the European Commission, France, India, Japan, Korea, Mexico, Russia, South Africa, Sweden, and the U.S.

On July 20, 2010, at the Clean Energy Ministerial in Washington, D.C., government and corporate leaders announced a new initiative to accelerate energy efficiency improvements throughout industrial facilities and large buildings. The purpose of the Global Superior Energy Performance (GSEP) Partnership is to significantly cut global energy use by:

1. Spurring continuous energy performance improvements in industrial facilities and large buildings, which together account for almost 60% of global energy use; and,
2. Promoting public-private partnerships for cooperation in individual energy-intensive sectors.

Governments launching the GSEP Partnership include Canada, the European Commission, France, India, Japan, Korea, Mexico, Russia, South Africa, Sweden, and the U.S.

GSEP will help businesses, governments, and other owners and operators of industrial facilities and large buildings to identify and follow money-saving pathways to reduce energy use and greenhouse gas emissions. Within GSEP, there will initially be three working groups: the Certification Working Group, the Power Working Group, and the Steel Working Group.

The Certification Working Group will develop a network of harmonized government-sanctioned certification programs to encourage continuous energy performance improvements in industrial manufacturing facilities (including power generation facilities) and commercial buildings (i.e. offices, hospitals, stores, etc.).

The Power Working Group will employ public-private partnerships to work on efficiency and environmental performance improvements at existing power plants; loss reduction in electricity transmission and distribution (T&D); and the improvement of demand-side management (DSM) for the power sector.

The Steel Working Group will create a framework through which governments and companies can collaborate to implement clean technologies among steel-producing countries.

For additional information, see: <http://www.cleanenergyministerial.org/GSEP/index.html>

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2) Life Cycle Inventory (LCI) Database – the National Renewable Energy Laboratory (NREL) in conjunction with the Athena Institute

In conjunction with the Athena Institute and other partners, the National Renewable Energy Laboratory and its partners created the U.S. Life Cycle Inventory (LCI) Database to help life cycle assessment (LCA) practitioners answer questions about environmental impact. This database provides individual gate-to-gate and cradle-to-gate accounting of the energy and material flows into and out of the environment that are associated with producing a material or component in the U.S.

The goals of the U.S. LCI Database project are:

- Maintain data quality and transparency.
- Cover commonly used materials, products, and processes in the U.S. with up-to-date, critically reviewed LCI data.
- Support the expanded use of LCA as an environmental decision-making tool.
- Maintain compatibility with international LCI databases.
- Provide exceptional data accessibility.
- Be fully and sustainably supported.
- Support U.S. industry competitiveness.

For additional information, see:

NREL database links (<http://www.nrel.gov/lci/>, <http://www.nrel.gov/lci/database/default.asp>)

Athena Institute LCA (<http://www.athenasmi.org/about/lcaModel.html>)

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3) Commission for Environmental Cooperation (CEC) – the North American Free Trade Agreement (NAFTA)

The CEC has three primary collaborative green building initiatives:

1. The ***Green Building in North America: Opportunities and Challenges*** Report, which identified major challenges related to green building, as well as opportunities for green building to play a transformational role in addressing a number of environmental challenges.

Opportunities for green building include:

- An estimated growth in green building market interest of 5 –10% by 2010.
- 15,700 member organizations with the USGBC.
- A value of \$12 billion in the U.S. green building sector.
- There are enormous energy improvements and GHG reductions are possible using *existing* and emerging technologies.
- A rapid adoption of energy-saving technologies that could result in 1,700 fewer megatons of CO₂

emissions annually by 2030.

- Proven economic, environmental, and health benefits: routine energy savings up to 50%, carbon emissions cut by 35%, reduce water use by 30 to 50%, waste disposal cost savings of 50 to 90%, health and productivity benefits.

Barriers to green building include:

- Separate operating and capital budgets.
- Split incentives.
- Higher perceived—or actual—first costs.
- Risk and uncertainty.
- Lack of experienced workforce.
- Lack of coordination and consistency in policies.
- Lack of research investments.

The CEC put forth 3 primary recommendations for promoting the green building agenda: 1) creating a common vision for green building in North America, 2) setting firm targets for enhancing building performance, and 3) establishing strategies for helping to drive profound change in the North American building sector.

For additional information on this initiative, see: www.cec.org/Storage/61/5386_GB_Report_EN.pdf

2. The *Tri-national Workshop to Discuss Opportunities to Harmonize Energy Efficiency Metrics: Supporting the Growth of Energy Efficient Buildings*, which aimed to explore and identify opportunities for energy efficient building metrics in North America, with particular reference to the commercial and institutional building sector.

Discussion at the Workshop focused on:

- Moving towards a common label (Trinational recognition).
- Harmonization between the labels and norms for energy performance.
- Consulting key stakeholders and understand their needs. Programs will not work or be used (especially voluntary ones) if stakeholder needs are not met.
- Show people in Mexico why they should care about emissions (i.e. costs savings on energy bill).
- Start at a scale that is manageable but keep long term goals in mind.

Next Steps were identified with respect to commercial and institutional buildings:

- Facilitate an informal expert review of the draft certification program to ensure that it provides the basic elements Mexico needs to move forward in putting in place a certification program and ultimately adapting ENERGY STAR methodologies.
- Assist in developing a program plan for the development and implementation of database, benchmarking, rating, and labelling systems.
- Under the guidance of Mexican authorities, convene an expert, technical workshop sometime in the fall of 2010 to review in detail the ENERGY STAR methodology and to identify ways that Mexico could adapt this methodology to suit its domestic needs.
- In late 2010, begin development of a short paper with experts from Mexico, the U.S., and Canada that will identify the drivers and barriers to the uptake of ENERGY STAR for Buildings in the U.S. and Canada and what are likely drivers and barriers in Mexico.
- Canadian and U.S. representatives committed to providing background documentation that may be useful and relevant to Mexico in preparation of their certification action plan, business plan, and

detailed work plan. In addition, U.S. representatives committed to reviewing the data on existing Mexican buildings within portfolio manager that they are able to share and which may be useful in this process. Both country representatives agreed to provide comments on Mexico's Draft Certification Program Outline as soon as possible.

3. The **2010 Green Building Project Operational Plan** outlines key actions that took place in 2010 (future work in this field is still to be determined). The objective of the project is twofold:

- To foster green building markets in North America with particular reference to align regional standards (the term 'standard' refers to voluntary standards for rating a building's performance) and/or rating systems for energy efficiency in buildings used to assess green building performance.
- Although this project concentrates on energy efficiency, in general term green building refers to the use of environmentally preferable practices and materials in the design, location, construction, operation, and disposal of buildings. This applies to both renovation and retrofitting of existing buildings and construction of new buildings.

Key activities of the project include:

- Host an expert workshop to support a common understanding among government agencies and other stakeholders on the potential benefits, opportunities, and challenges of developing and facilitating the application of regional green building rating systems for a specific building sector.
- Based on the outcome of the expert workshop, host a technical workshop with key experts to develop a platform to adopt regional metrics and rating systems for energy efficiency in commercial and residential buildings.

For additional information on this initiative, see:

www.cec.org/Storage/85/8126_Operational_Plan_2010_en.pdf

For additional information on the CEC, see: <http://www.cec.org/>

Contact:

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4) Evaluation and Comparison of Office Buildings in Canada and the U.S. – National Research Council (NRC)

To make a proper assessment of green building performance, Dr. Newsham and Dr. Thompson are leading a project that will evaluate and compare equivalent conventional and green office buildings across Canada and the northern U.S. The goal is to gather data to help the building community improve the design and performance of both green and conventional buildings and provide a stronger scientific basis for green rating schemes. To achieve this objective, NRC researchers have designed and built devices to measure a building's physical environment, including acoustics, lighting, thermal conditions, and air quality. A mobile cart of instruments will take "snapshot" measurements of physical variables such as air speed, temperature, humidity, the concentration of various gases (i.e. carbon-dioxide and carbon-monoxide), airborne particulates, and light distribution. These measurements will be repeated at multiple locations in a building over one or more days. The research team will also use six indoor "weather stations" to capture data on a subset of variables, including light and noise levels, temperature, and carbon dioxide concentration; these monitors will be used to provide both short- and long-term measures of the conditions.

NRC-IRC is working with several partners, including the federal and provincial governments, utility and office-furniture companies, and green building organizations, to identify office buildings that could participate in the study (they have around 40 candidates so far). The study is expected to be completed by 2012.

In addition to collecting physical data, the research team has also prepared a questionnaire for occupants, which includes their perceptions of the building's environment, their overall job satisfaction in that workspace, their health and their commuting patterns.

The evaluation will supplement initial findings from other studies. For instance, one trend has shown a decrease in satisfaction with acoustics in green buildings. Introducing daylight through the use of both open-plan offices with lower partition heights between cubicles and hard surfaces to promote air quality can lead to more complaints about speech privacy and noise.

Building managers can use the results of the evaluation to make improvements or modifications to physical space. As well, green building councils or similar building-certification organizations could rely on the information to develop post-occupancy evaluation tools or revise their rating schemes.

For additional information, see: <http://www.nrc-cnrc.gc.ca/eng/projects/irc/post-occupancy.html> and <http://www.nrc-cnrc.gc.ca/eng/news/nrc/2010/03/01/green-building.html>

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5) The Leadership in Energy and Environmental Design (LEED) Rating System – U.S Green Building Council (USGBC) and Canada Green Building Council (CaGBC)

Developed and maintained by the U.S. Green Building Council, the LEED® Green Building Rating System accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria. LEED is a third-party certification program and an internationally accepted standard for the design, construction and operation of high performance green buildings. It provides building owners and operators a holistic framework for identifying and implementing practical and verifiable green solutions.

The Canada Green Building Council collaborates closely with USGBC on using LEED in the Canadian real estate and construction market in 2 ways:

1. Adaptation of LEED Canada Rating Systems
2. Global Uptake of LEED via Regional Approaches

LEED Canada Rating Systems

For years, USGBC and CaGBC have been collaborating on the mutual goal to advance the use of LEED in Canada. For that reason, the Canadian LEED rating systems are an adaptation of the USGBC LEED rating systems, and are tailored specifically for Canadian climates, construction practices, standards and regulations. The rating systems are adapted to the Canadian market through an inclusive process that engages stakeholders and experts representing the various sectors of the Canadian industry.

The following LEED Rating Systems have been adapted for use in Canada:

- LEED Canada for New Construction and Major Renovations
- LEED Canada for Commercial Interiors
- LEED Canada for Core and Shell
- LEED Canada for Homes
- LEED Canada for Existing Buildings: Operations and Maintenance

Global Uptake of LEED via Regional Approaches

Given the breadth of varying national circumstances across the world, USGBC is working to address the challenges of an international market for green building by creating an “International LEED,” which will focus on broader applicability of LEED on a regional basis as opposed to tailoring LEED on a country by country basis. USGBC’s international partners, including CaGBC, have been critical to the collaborative process of developing the LEED International Program, which is centered on three priority strategies:

- Global Consistency: Maintaining consistency of the technical stringency and certification process of LEED across the world.
- Regional Approach to Reference Standards: Providing opportunity for countries to collaborate on the establishment of alternative compliance paths to LEED requirements that meet the unique needs of a particular region or country.
- Local Support and Outreach: Building relationships with knowledgeable organizations to provide resources, education, training, and support for LEED at a local scale, while acknowledging the possibility of local adaptations in the future. CaGBC delivers a comprehensive LEED Canada Program including education, training, advocacy, project certification and technical and public policy support in two languages (English & French) since 2004.

Of particular importance to North American collaboration is “Regional Approach to Reference Standards.” CaGBC is currently participating in the LEED International Roundtable, where representatives from around the world work together to address LEED credits that present challenges to project teams outside the U.S. To address these obstacles, LEED rating systems with international options will provide alternative paths toward earning credits and achieving certification, and will be available in 2011.

As with U.S. projects, the [Green Building Certification Institute \(GBCI\)](#) oversees the certification process of international projects and administers the LEED Professional Credentials. GBCI oversees professional accreditation and credentialing in Canada. CaGBC is responsible for certification of projects registered under the LEED Canada rating systems.

For additional information, see:

U.S. Green Building Council (<http://www.usgbc.org/>)

Canada Green Building Council (<http://www.cagbc.org/>)

Contact:

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6) Government Affairs and Advocacy Committee – the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

The Mission of ASHRAE Government Affairs is to establish ASHRAE as a leading source for expertise in the built environment and a resource for policy-makers in the development of legislation and regulations affecting the public, the HVAC&R community, and the engineering profession.

To this end the ASHRAE Washington D.C. office will:

- Build relationships between the Society and all levels of government in the U.S. and with the appropriate international community representatives.
- Facilitate the transfer of technical counsel and assistance on matters affecting the public, engineering profession, and ASHRAE professional community.
- Collect, digest, and disseminate to members and staff relevant information regarding current or anticipated government actions.
- Pursue technology transfer and government funding opportunities independently or jointly with other appropriate organizations.

For additional information, see: <http://www.ashrae.org/advocacy/>

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7) D.C. Embassies Greening Forum – U.S. Department of State, Earth Day Network, and an Advisory Board of member embassies

For the 40th anniversary of Earth Day, Secretary of State, Hilary Rodham Clinton, launched the D.C. Embassies Greening Forum. The Forum's quarterly events provide foreign embassies with the opportunity to share best practices in sustainable operations. Ambassadors and upper management learn of experiences on green facility renovations and sustainable business operations for their missions in D.C., as well as information on "green" initiatives in their home countries. The Forum also engages non-governmental and private sector organizations to identify applicable innovations of interest to Forum members. Over the past year, the Forum has successfully attracted over 75 participating member countries.

The Forum has had two events since its launch in April 2010. The first event was hosted by Finnish Ambassador Pekka Lintu at the Embassy of Finland. Under Secretary of State for Management, Patrick F. Kennedy, delivered the keynote address, highlighting issues of climate change and good environmental stewardship as essential components of the Department's operations. The second event, held at the Embassy of Canada, featured two skill-workshop sessions; one on benchmarking energy performance of embassy buildings within the District of Columbia, and the second on Energy Savings Performance Contracting (ESPC). The Embassy of Canada highlighted its success with an ESPC, which saved 250 tons of greenhouse gas emissions annually through retrofits. The next Forum event will take place in March 2011, and will focus on topics of green purchasing, organic foods, e-waste, and recycling.

The Forum is coordinated by the U.S. Department of State, Earth Day Network, and an Advisory Board of member embassies in Washington, D.C. With this strong leadership, the Forum will continue to

galvanize the diplomatic community in taking an active role in conserving the world's biodiversity, implementing sustainable practices, and reducing greenhouse gas emissions.

For additional information, see:

United States Department of State (<http://www.state.gov/r/pa/prs/ps/2010/06/142955.htm>)

Earth Day Network (<http://www.earthday.org/press-release/embassies-work-together-green-facilities-and-promote-energy-efficiency-throughout-di-0>)

Film: <http://www.earthdaytv.net/> (see D.C. Embassy Greening Forum)

Embassy of Canada: (<http://www.canadainternational.gc.ca/washington/events-evenements/earthday2010.aspx?lang=eng#dc2>)

Contact:

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8) Green Buildings Initiative – Asia-Pacific Economic Cooperation (APEC)

This project seeks to support several sustainability and conservation priorities and initiatives established within APEC (APEC Leaders, Ministers Responsible for Trade, APEC Economic Leaders, Energy Working Group (EWG), Environmental Goods and Services Information Exchange (EGSIG)) and among multilateral organizations (i.e. United Nations Environment Program's Sustainable Building and Climate Initiative (see #10 below), World Bank) by gathering, discussing, and distributing information from the APEC economies relevant to energy and water conservation and sustainability in commercial construction and operation. The project will seek to complement specific studies and efforts on specific components of Green Buildings in the Expert Group on Energy Efficiency and Conservation (EGEE&C) and the Expert Group on Renewable Energy Technologies (EGRET).

The main objectives of the project are:

- Through a survey, 1) identify member economies' current practices, policies, and regulations as well as those being developed or contemplated, with a view to use this early information exchange as a way to potentially reduce or minimize technical barriers to trade among APEC Members; 2) better understand member priorities for understanding the various aspects of green building standardization.
- Based on the survey's needs assessment, conduct a workshop to enhance knowledge about, and options for, implementing and evaluating energy efficiencies and conservation in commercial buildings. The goal of the project is to minimize or avoid regulations and policies that cause unnecessary technical barriers to trade in environmental goods and services related to "green buildings."
- If common objectives are identified by APEC members through this project, the project will seek to achieve those objectives in APEC and other relevant international fora, such as UNEP or World Bank.

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9) Greening Federal Buildings – Governments of Canada and the U.S.

U.S.

The current primary mandates to green Federal buildings derive from Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, signed in 2009, and two laws (the Energy Independence and Security Act (EISA) of 2007 and Energy Policy Act (EPAct) of 2005). The Executive Order also incorporates the *Guiding Principles of Federal Leadership in High Performance and Sustainable Buildings* adopted through the [2006 Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding \(MOU\)](#) signed by 21 Federal agencies in 2006.

The requirements of Executive Order 13514 state that Federal Agencies shall implement high performance sustainable Federal building design, construction, operation and management, maintenance, and deconstruction by:

- Beginning in 2020 and thereafter, ensuring that all new Federal buildings that enter the planning process are designed to achieve zero-net-energy by 2030;
- Ensuring that all new construction, major renovation, or repair and alteration of Federal buildings complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, (Guiding Principles);
- Ensuring that at least 15% of the agency's existing buildings (above 5,000 gross square feet) and building leases (above 5,000 gross square feet) meet the Guiding Principles by fiscal year 2015 and that the agency makes annual progress toward 100% conformance with the Guiding Principles for its building inventory;
- Pursuing cost-effective, innovative strategies, such as highly reflective and vegetated roofs, to minimize consumption of energy, water, and materials;
- Managing existing building systems to reduce the consumption of energy, water, and materials, and identifying alternatives to renovation that reduce existing assets' deferred maintenance costs;
- When adding assets to the agency's real property inventory, identifying opportunities to consolidate and dispose of existing assets, optimize the performance of the agency's real-property portfolio, and reduce associated environmental impacts; and
- Ensuring that rehabilitation of federally owned historic buildings utilizes best practices and technologies in retrofitting to promote long-term viability of the buildings.

And advance regional and local integrated planning by:

- Ensuring that planning for new Federal facilities and leases consider sites that are pedestrian friendly, near existing employment centers, and accessible to public transport; and emphasize existing central cities and, in rural communities, existing or planned town centers.

The Executive Order adopts and mandates that Federal facilities meet the *Guiding Principles of Federal Leadership in High Performance and Sustainable Buildings*, which provide minimum requirements in the areas of integrated design, energy performance, water conservation, indoor environmental quality, and materials. These mandates cover all new Federal buildings and at least 15% of existing Federal buildings by 2015.

Numerous Federal agencies have their own green building requirements and, in some cases, mandate that (usually newly constructed) buildings meet various levels of the U.S. Green Building Council's LEED standard. For example, the US General Services Administration recently raised its requirement for new buildings from LEED Silver to LEED Gold.

For additional information, see: http://www.wbdg.org/references/fhpsb_policy.php

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Canada

The Office of Greening Government Operations' (OGGO) is housed within the Department of Public Works and Government Services Canada (PWGSC). The OGGO's mandate is to accelerate the greening of government operations by working closely with other federal departments, particularly the Treasury Board Secretariat and Environment Canada.

The OGGO establishes government-wide priorities, accountabilities, targets, timelines, and reporting requirements to assist the Government in its commitment to become a model of environmental excellence in its own operations. The greening of government operations encompasses a wide range of activities including:

- Reducing energy resources consumption
- Reducing the environmental footprint of its buildings
- Reducing greenhouse gas and other air polluting emissions
- Green procurement
- Waste management
- Environmental performance of the vehicle fleet

The mandate of Real Property Branch within PWGSC is to provide office accommodation for all federal government departments and agencies. The department, through the Branch, manages 23% of the federal portfolio where buildings account for 85% of federal GHG emissions.

Building on existing commitments in the Sustainable Buildings area, OGGO and PWGSC's Real Property Branch supported two major policy initiatives in 2010: 1) the establishment of the PWGSC Sustainable Buildings Policy and 2) the establishment of Sustainable Building targets under the new Federal Sustainable Development Strategy (FSDS). These initiatives consolidated and built on existing commitments made by the Government of Canada.

Federal Sustainable Development Strategy (FSDS)

The FSDS was developed by Environment Canada (in consultation with other departments) and tabled in Parliament in October 2010. Theme IV 'Shrinking the Environmental Footprint – Beginning with Government' established targets for the achievement of industry-recognized level of high environmental performance in the following building areas:

- New construction/major renovations,
- Building performance for buildings over 1000m²,
- Leases over 1000m², and
- Fit-up/refit projects.

On a government-wide basis, specific FSDS targets and related performance indicators are being established through Departmental Sustainable Development Strategies, and will be reflected in departmental Reports on Plans and Priorities, starting in 2011–2012.

Theme IV of the FSDS also establishes commitments in other key areas that implicate building

operations:

- Reduce GHG emissions from federal operations by 17% from 2005-06 levels by 2020
- Reduce printing units to achieve an average of 8:1 ratio (employees to printing units) by 2013
- Reduce paper consumption by 20% by 2014
- Implement environmentally sound management for surplus electronic and electrical equipment by 2014
- Adopt a Green Meeting Guide 2012
- Establish green procurement targets for specific goods and services, effective April 2011
- Establish targets for green procurement training, performance measurement, and management processes, effective April 2011

PWGSC Sustainable Buildings Policy

In 2010, PWGSC established its Sustainable Buildings Policy which consolidates and builds on former real property commitments. The Policy requires real property to be managed in an environmentally responsible manner, consistent with the principles of sustainable development. The policy focuses on reducing environmental impacts in key areas such as energy, water, and waste, which have the most significant impact on the environment and align closely with the Government's broad environmental priorities and programs. The Policy will improve the environmental performance of new and existing PWGSC buildings. It applies to PWGSC Crown-owned and lease-purchase buildings, as well as leases for over 1000 rentable square metres where PWGSC is the majority lessee. Targets and performance monitoring related to the Policy implementation are being established through the Federal Sustainable Development Strategy (FSDS).

Initiatives prior to 2010

Since April 2005, PWGSC requires any new federal office building, Crown-owned, or long-term lease to be built to meet the LEED Gold performance level. Through its departmental Sustainable Development Strategies (SDS), PWGSC has committed to meet the LEED Silver performance level for major renovations. In April 2007, PWGSC began implementing the Building Owners and Managers Association of Canada's (BOMA) Go Green Plus (now BOMA BEST) environmental assessment program in order to help identify opportunities to improve the environmental performance of existing Crown-owned and new lease-purchase office buildings. PWGSC's SDSs have also contained measurable commitments to energy, water, resources, and waste management for Crown-owned buildings under its custodianship.

For additional information, see:

PWGSC, Office of Greening Government Operations (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html>)

A Federal Sustainable Development Strategy for Canada (<http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1>)

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10) Sustainable Buildings and Climate Initiative (SBCI) – hosted by United Nations Environment Program (UNEP)

SBCI's mission is to present a united voice from building sector stakeholders on buildings and climate change, while drawing on UNEP's unique capacity to provide a global platform for collective action.

Goals:

- Provide a common platform for stakeholders: Provide a global platform for dialogue and collective action from building sector stakeholders to address sustainability issues of global significance, especially climate change.
- Develop tools and strategies: Develop tools and strategies for achieving a wide acceptance and adoption of sustainable building practices throughout the world.
- Establish baselines: Establish globally acknowledged baselines based on the life cycle approach, with a first focus on energy efficiency and CO2 emissions.
- Demonstrate through pilot projects: Participate in, influence, and support policy developments recognizing the role of buildings for mitigation and adaptation to climate change at local, national, and/or global levels.

Objectives:

To meet these goals, UNEP-SBCI shall implement its work plan focused on the following corresponding objectives:

- Outreach and membership activities to raise awareness of the significant opportunities for engaging the building sector in tackling climate change and increasing participation in UNEP-SBCI.
- Contribute to UNFCCC Negotiations by providing direct advice and support to policy-makers at all levels on mitigating building-related greenhouse gas emissions.
- Support Policy Development relating to sustainable buildings through funding research that provides policy scenarios for achieving very high-efficiency and low-greenhouse gas emission buildings, with a focus on developing countries.
- Frame a Common Language for performance assessment of energy efficient and low carbon buildings, as a basis for consistent global reporting of building related greenhouse gas emissions.
- Facilitate the Pilot of Tools at city, portfolio, and individual building levels to build baselines of performance by building type and climate region.

For additional information, see: <http://www.unep.org/sbci/index.asp>