

# Energy Labeling for Commercial Buildings in Canada

What property and facility managers need to know!



**A White Paper**

Prepared by

Light House Sustainable Building Centre

**March 2013**

<b>INTRODUCTION.....</b>	<b>1</b>
What is Energy Labeling .....	1
Why Energy Labeling of Commercial Buildings? .....	1
<b>ENERGY LABELING PROGRAMS .....</b>	<b>2</b>
Energy Star for Buildings and Manufacturing Plants .....	2
ASHRAE Building Energy Quotient .....	4
CaGBC’s GreenUp Program .....	4
<b>TECHNICAL CONSIDERATIONS .....</b>	<b>5</b>
Source and Site Energy.....	5
Weather Normalization.....	6
<b>GETTING YOUR ENERGY LABEL .....</b>	<b>6</b>
Labeling Procedures .....	6
<b>BENEFITS OF ENERGY LABELING .....</b>	<b>7</b>
<b>HOW CAN LIGHT HOUSE HELP .....</b>	<b>8</b>
<b>APPENDIX A: COMPARISION OF ENERGY LABELING TOOLS .....</b>	<b>9</b>
<b>APPENDIX B: METRICS IN PORTFOLIO MANAGER.....</b>	<b>10</b>
<b>APPENDIX C: RESULTS FROM PORTFOLIO MANAGER .....</b>	<b>12</b>
<b>APPENDIX D: REGULATORY CONTEXT .....</b>	<b>13</b>

## INTRODUCTION

This White Paper provides a summary of energy labeling programs, labeling procedures, available resources, and tools to help building owners start labeling their buildings.

### *What is Energy Labeling*

An energy label is a numerical or alphabetical rating that indicates how energy efficient a building is compared to other buildings. Energy labeling is a simple and effective method for building owners to understand and communicate how well their buildings are performing.

Obtaining an energy label requires benchmarking a building by collecting operational data and energy use (gas, electricity, fuel oil, diesel fuel, propane, steam, etc) for a building over a period of time (typically 12 months minimum), normalized for building type, occupancy and weather region. Benchmarking and ongoing monitoring helps building owners manage energy usage and ultimately make informed decisions towards reducing both energy costs and the associated greenhouse gases that are accelerating climate change.

The three main building energy labeling programs available in Canada are Natural Resources Canada's Energy Star Portfolio Manager, ASHRAE's building Energy Quotient (bEQ) and the Canada Green Building Council's Green Up program. In addition to offering a building label disclosing a building's energy performance rating, each program offers

- unique recommendations for energy efficiency and improvements to prompt good asset and operational management.
- a professional assessment and a the opportunity for a level one ASHRAE energy

audit of the building and its equipment as well as technical support for analysis of the data collected during the audit.

- helpful online support and general recommendations for energy management strategies and low-lying fruit energy retrofits.

Collection of quality building performance data is crucial to energy labeling in that it allows building owners to compare their building relative to similar buildings nationwide. There are energy performance datasets for each building type which accounts for weather variations as well as changes in key physical and operating characteristics of each building. The most comprehensive dataset available in North America is the Commercial Building Energy Consumption Survey (CBECS – 2003) from the US Department of Energy. The CBECS was first conducted in 1979; the tenth, and most recent survey, will be fielded starting in April 2013 to provide data for calendar year 2012. CBECS is currently conducted on a quadrennial basis. ENERGY STAR and bEQ reference the CBECS-2003 survey for building benchmarking. To note, the 2007 survey included water usage data.

### *Why Energy Labeling of Commercial Buildings?*

It is due diligence to consider the fuel economy of a vehicle prior to purchase as well as the energy efficiency of household appliances; the same due diligence should be applied prior to purchasing or leasing a building. Building energy benchmarking and labeling, similar to measuring fuel consumption in a vehicle is a useful tool to help owners, operators and managers understand how much energy their facility is using and how that compares

to other similar buildings on a local and national scale.

Canada's commercial building sector accounts for 14% of end-use energy consumption and 10% of the country's carbon emissions<sup>1</sup>. In 2006, the NRTEE<sup>2</sup> set an emissions reduction target of 53Mt CO<sub>2</sub> per year by 2050 or 66% below business-as-usual levels for all new and existing commercial buildings in Canada. In order to meet this necessary and ambitious goal, the NRTEE *Geared for Change* report found mandatory energy benchmarking and labeling to be one of the most effective policy instruments noting the cost-effectiveness of this approach and its high potential impact on emissions reduction as a result of reductions in energy consumption.

Globally, public labeling of building energy performance is becoming increasingly common as government and property managers look to reduce energy usage as part of carbon reduction strategies. In 2008, the EU enacted the *Energy Performance of Buildings Directive* (EPBD), which requires all EU Member States to tighten their building energy regulations and to introduce energy certification schemes for buildings. Australia has developed the national program Commercial Building Disclosure under the *Building Energy Efficiency Disclosure Act 2010* requiring building energy efficiency certificates. More recently, major U.S. cities such as Austin, Texas, New York, Washington D.C., Seattle, San Francisco, Philadelphia, as well as the states of California and Washington have established requirements for commercial buildings to determine and disclose operational energy usage. Closer to home, in British Columbia the City of

Vancouver is considering establishing building labeling as part of the renovation permit process. See Appendix D for a summary of the regulatory context for energy labeling.

## ENERGY LABELING PROGRAMS

The following is a summary of the three energy labeling tools available in Canada. *Appendix A* provides further information on the steps required to earn a label, verification process, building types, and costs involved.

### *Energy Star for Buildings and Manufacturing Plants*

The labeling tool ENERGY STAR® for Buildings and Manufacturing Plants allows building owners to utilize the energy benchmarking software ENERGY STAR® Portfolio Manager™ to track, compare and rate building energy use, energy intensity and greenhouse gas emissions normalized for weather, building type, occupancy and hours of operation. Portfolio Manager has over 20,000 ENERGY STAR-labeled buildings in the USA and 4,000 buildings in Canada representing over three billion square feet of building space making this the largest building benchmarking dataset available in America. Of the US states and cities that have enacted legislation for specific benchmarking, rating and disclosure requirements, all employ Portfolio Manager as the required rating tool.

The tool allows a building owner to rate the energy performance of their building on a scale of 1-100 relative to similar buildings nationwide. An ENERGY STAR label is awarded to those buildings that perform better than 75% of all similar buildings.

Noteworthy is that the ENERGY STAR benchmark is a moving target. Buildings are compared to their peers rather than to what may be technically

<sup>1</sup> (NRTEE 2009) *Geared for Change: Energy Efficiency in Canada's Commercial Building Sector*.

<sup>2</sup> In March 2013, the Harper Government closed the NRTEE. As a parting shot, it offered Canadians the clearest report yet on where the country stands – namely, falling short the Conservative government's own goal of reducing emissions by 17% from 2005 levels by 2020.

achievable in terms of energy intensity (energy use per area per year).

As buildings across the country become more efficient, the standard to achieve ENERGY STAR becomes higher; conversely, if most buildings of a certain type are very inefficient or become less efficient, the standard is easier to achieve.

ENERGY STAR® is a widely recognized energy-labeling tool in North America and it is also a tool employed as part of ASHRAE's building Energy Quotient program.

Originally only available in the United States, the tool is now being adapted for Canada and will be offered in June 2013 by Natural Resources Canada. The adapted tool will include the following features to facilitate the Canadian-user experience:

- Canadian source energy
- Canadian greenhouse gas emissions factors
- Canadian 1-100 ENERGY STAR energy performance scales for K-12 schools and commercial office space (other building types will be added over time)
- Enhanced Canadian weather data (over 150 Canadian weather stations)
- Metric units
- French language
- Automatic selection of the closest weather station, based on the postal code of the building



Figure 1: Energy Star label indicating the building is in top 75% of its class

### *Data and Reporting with Portfolio Manager*

Portfolio Manager is an interactive energy management tool for tracking and assessing building energy and water consumption in a secure online environment.

Numerous comparisons, indicators and performance metrics are available through preloaded and customizable reports in the Portfolio Manager software. Energy managers, building owners and operators are able to benchmark a single facility or an entire fleet of buildings for site energy, source energy, energy intensity, utility costs, comparisons to national average, performance over multiple years, greenhouse gas emissions and many other indicators. A complete list is included in *Appendix B*.

Portfolio Manager data lets owners and operators understand how much site and source energy their building is consuming and whether the building qualifies for an ENERGY STAR rating. Portfolio Manager also lets owners conduct year over year comparisons with the national average and set performance targets for energy usage, greenhouse gas emissions and the 1-100 ENERGY STAR performance rating. Examples are included in *Appendix C*.

## ASHRAE Building Energy Quotient

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) administers the building energy labeling program: Building Energy Quotient (bEQ) and has developed the building audit and the In Operation Workbook upon which bEQ is based. bEQ lets commercial building owners zero in on opportunities to lower building operating cost and make informed decisions to increase a building's value by improving the interior environment for occupants.

To ensure consistency and quality of data, only ASHRAE-certified Building Energy Assessment Professionals (BEAPs) can register for bEQ, conduct the level 1 energy audit and complete the **In Operation** workbook. The resulting energy

performance rating applies an easily understood scale to compare a commercial building's energy use with similar buildings. What makes bEQ unique is that it uses a performance metric and results in a letter grade based on energy performance. This letter grade system has zero net energy as the top A+ grade, which clearly displays the ultimate goal of building performance – to reduce energy usage to a net zero energy level! This letter grade label is similar to the European Union mandated energy performance certificate (EPC) for buildings.

## CaGBC's GreenUp Program

The Canada Green Building Council (CaGBC) has developed the GREEN UP® program based on a national building performance database and an information system that allows building owners and managers to improve the energy and environmental performance of their buildings.



Figure 3: Canada Green Building Council's GREEN UP program

The program is available for the following building types: office, multi-family, long-term healthcare, hotel, retail, K-12 school, and government buildings. The program also uses the ENERGY STAR rating.

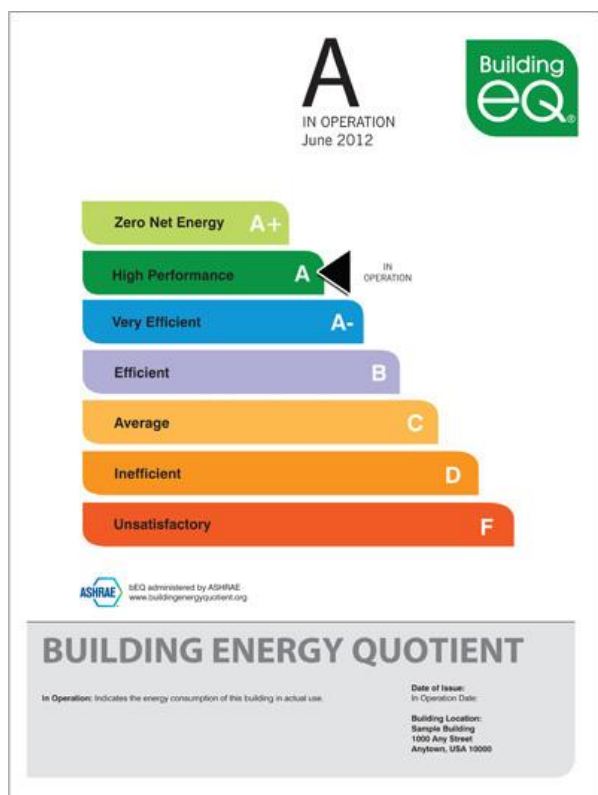


Figure 2: The bEQ program uses a label that is easily understood by the public. (American Society of Heating, Refrigeration and Air Conditioning Engineers, 2013)

## TECHNICAL CONSIDERATIONS

### *Source and Site Energy*

ENERGY STAR uses source energy to calculate its ratings as they have demonstrated this to be the most equitable unit of evaluation. **Source energy** represents the total amount of raw fuel that is required to operate the building. It incorporates all transmission, delivery, and production losses, thereby enabling a complete assessment of energy efficiency in a building. In comparison, **site energy** is simply the amount of energy used by a building as determined by each meter reading (gas, electricity, etc.).

For each fuel type, a source-site ratio is employed to calculate the final energy usage index as shown in Table 1 (US Environmental Protection Agency, 2011).

The use of national source-site ratios ensures that no specific building will be credited (or penalized) for the relative efficiency of its utility provider.

At first, it will appear that a building is using three to four times the actual energy used, however this is due to the application of the ratio of source-site energy for the calculations. This ratio is applied consistently to all buildings; therefore, it does not affect the overall building rating. Users who are familiar with site energy are still able to compare a single building or a fleet of buildings using site energy; source energy is used to get the Energy Star rating.

Table 1: Source-Site Ratios for all Portfolio Manager Fuels	
Fuel Type	Source-Site Ratio
Electricity (Grid Purchase)	3.34
Electricity (on-Site Solar or Wind Installation)	1.0
Natural Gas	1.047
Fuel Oil (1,2,4,5,6, Diesel, Kerosene)	1.01
Propane & Liquid Propane	1.01
Steam	1.21
Hot Water	1.28
Chilled Water	1.05
Wood	1.0
Coal/Coke	1.0
Other	1.0

## *Weather Normalization*

Weather normalization is the process of correcting annual energy data to account for the impacts of cold and hot seasons. The reason behind this is that energy use can vary drastically from year to year and in order to properly measure if operational and capital energy improvements are effective in a building, the impact of what industry calls heating and cooling degree-days must be normalized.

Degree-days are a measure of how much the temperature varies in a given year from a set point. The set point in a building would ideally be the outdoor air temperature at which a building's mechanical system switches from heating to cooling, however for simplicity degree-day data is collected and normalized by government's using 18 degree's Celsius (°C) as a baseline.

The number of degree-days for a region is calculated as the hours that the temperature varied from 18°C; above 18°C are considered cooling degree-days and below 18°C are heating degree-days. For Vancouver the average is around 260 heating degree-days and 100 cooling degree-days (The Weather Network, 2013).

Portfolio Manager simplifies this process, by automatically accounting for degree-days when generating the energy usage and Energy Star ratings for a facility. This allows building owners and operators to compare how much energy or cost a building would have used in a given year to how much energy it actually used in a given year.

For additional information on weather normalization check out Abraxas Energy: <http://www.abraxasenergy.com/articles/intro-weather-correction/>

## GETTING YOUR ENERGY LABEL

### *Labeling Procedures*

The general steps required to get a label on your building are as follows:

**Step 1:** Compile actual energy and water performance based on 12 months of utility bills.

**Step 2:** Enter utility data in a building benchmarking tool that will normalize the data for weather such as ENERGY STAR Portfolio Manager or ASHRAE's building Energy Quotient.

**Step 3:** Generate the energy usage index (ekWh/m<sup>2</sup>/year), comparison to other similar buildings, and Energy Star or bEQ rating analysis.

**Step 4:** Conduct analysis of building operations relating to illumination, ventilation and thermal comfort for compliance with ASHRAE guidelines.

**Step 5:** Provide a building energy efficiency recommendations report and plan for the implementation of the recommendations. Continued energy data analysis and benchmarking will provide actual energy savings from the energy efficiency upgrades completed for the building.

It is important to note that measuring complex and mixed-use buildings with various occupancy types is complicated and sub-meters or space exemption may be required.



## BENEFITS OF ENERGY LABELING

### Case study example: Saskatchewan

A large property manager and owner organization in Saskatchewan had been building their buildings to the LEED standard for new construction and operating existing buildings using the BOMA BEST standard. It was common practice for the organization to design its buildings to exceed the Model National Energy Code for Buildings (MNECB 1997) by 25% to 45%.

Energy labeling and building benchmarking of their building stock allowed the property manager to discover that few buildings were performing to their design requirements and that some buildings were even failing to meet the MNECB 1997. Building benchmarking also allowed them to compare similar buildings in their own portfolio and compare building designs to actual performance. The energy management team was able to effectively communicate these issues of poor building performance throughout the organization, leading to performance targets for the organization as well as individual buildings, which prompted re-commissioning of buildings. In one building they found gas use had doubled in one year (additional cost of \$35,000), and then doubled again the next year (additional cost of \$70,000), after accounting for weather normalizing. With the building benchmarking data in hand the energy manager was able to pinpoint the following reasons for the spike in energy usage:

1. changes to set points (water heater and parkade temperature and ventilation)
2. changes to set back schedules (holidays and weekends had been reset and set backs were not functioning in the building automation system)
3. a gas leak

In short, "You can't manage what you don't measure!"

From the above case study, it is easy to understand the idea that "what gets measured gets done". Benchmarking your building's energy performance is mandatory for getting an energy label and is a key first step to help you understand and make informed decisions about how to save energy and reduce your building's carbon footprint.

### *Improve Your Building's Bottom Line*

Your operational costs may be your largest but most controllable expense. With the results of an energy audit and the energy efficiency upgrade

recommendations provided by a professional, you can make informed decisions regarding easy short term improvements as well as long-term investments. This will help building owners and property managers identify energy conservation measures and to calculate simple paybacks on energy conservation measures.

### *Support Third Party Certification*

If your building is seeking certification or is certified to LEED BD+C, LEED EBOM, or BOMA BEST rating tools, there are credits and mandatory requirements in each of these programs for using Portfolio Manager software to track and benchmark building performance. Obtaining an energy label assures you are meeting these requirements.

### *Competitive Advantage*

Savvy tenants now want better performing buildings because they cut operational costs and also provide a better indoor environment for employees. By providing an energy label with comparison to other buildings of the same type, you can demonstrate the performance of your building and increase tenant satisfaction and engagement.

### *Reduce Risk*

Buildings with higher performance are less likely to have unforeseen costs due to retrospective government regulations. In the UK where energy labeling is mandatory, buildings with low ratings have “earlier than expected obsolescence”, have sold for significantly reduced prices, and have been required to upgrade before a sale went through. Energy performance certificates have also been reported to affect access to capital with poor ratings being included in debt negotiations.<sup>3</sup>

### *Better for the Environment*

By measuring your building’s performance, you are equipped to start reducing your carbon footprint and decreasing your energy and water usage – needless to say, this is great for the environment!

## HOW CAN LIGHT HOUSE HELP

### *ENERGY STAR Portfolio Manager*

- One of our professional engineers will conduct a walk-through energy audit and collect operational information that impact the building’s indoor environment and energy performance.
- Employ the ENERGY STAR Portfolio Manager software tool to produce a validated Statement of Energy Performance which includes the energy and water usage index (ekWh/m<sup>2</sup> and m<sup>3</sup>/m<sup>2</sup> annual) as well as information on industry standards for indoor environmental conditions.
- Submit the ENERGY STAR application to the US EPA until July 2013, after which time the application will be submitted to Natural Resources Canada.
- Discuss with you the ENERGY STAR rating and the final building energy efficiency recommendations report.

**Optional:** ASHARE’s BEQ certification and occupant surveys.

### **Contact Curtis Dorosh to find out more about Light House Energy Labeling Services.**

Curtis Dorosh P.Eng. MA. LEED AP  
Manager Green Building Services  
Light House  
Direct: 604 677 3728  
Curtis@lhsbc.com  
2060 Pine Street, Vancouver, BC, V6J 4P8  
<http://www.sustainablebuildingcentre.com>

---

<sup>3</sup> IIGCC. Protecting Value in Real Estate 2013.

## APPENDIX A: COMPARISON OF ENERGY LABELING TOOLS

	Steps to Earn a Label	Data Collection	Verification	Building Types?	Cost to certify?	Website Address
<b>ENERGY STAR</b>	<p><b>Step 1:</b> Use Portfolio Manager to rate your buildings' performance. Buildings that rate 75 or greater on the 1-to-100 scale meet the ENERGY STAR performance target.</p> <p><b>Step 2:</b> The building's indoor environment must be verified by a Licensed Professional (Professional Engineer or Registered Architect) as meeting industry standards for lighting levels, ventilation, thermal comfort, and control of indoor air pollutants. Additional requirements may apply depending on primary space type. Have the Licensed Professional sign and seal your Statement of Energy Performance, indicating that your building meets these standards.</p> <p><b>Step 3:</b> Send the verified Statement of Energy Performance and a letter of agreement to EPA. The letter must be received by EPA within 4 months of the year ending date on the Statement of Energy Performance. EPA will review your letter of agreement and, upon approval, designate your building as an ENERGY STAR building. Award of the ENERGY STAR is not final until approval is received from EPA.</p>	<p>Building utility data is entered into the Portfolio Manager software tool. The building must score in the top 75% in its category and a Professional Engineer or Registered Architect must verify the building data and performance. The verifier must also confirm the building meets ASHRAE requirements for thermal comfort (ANSI/ASHRAE Standard 55: Thermal Environmental Conditions for Human Occupancy), ventilation (ANSI/ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality) and IESNA Lighting Handbook illumination levels. In others words you can't just not turn on the heat or lights and keep employees in cave-like conditions and achieve the Energy Star standard.</p>	<p>To validate the Statement of Energy Performance, a licensed professional must be a Professional Engineer or Registered Architect and possess a current license and be in good standing. The licensed professional should also have:</p> <ul style="list-style-type: none"> <li>• A license in a discipline related to commercial building systems (e.g. mechanical engineering or commercial architecture)</li> <li>• Working knowledge of building systems, ASHRAE Standard 55, ASHRAE Standard 62.1, and the IESNA Lighting Handbook.</li> </ul>	<p>The building must have at least 50% of its gross area (excluding parking) classified as: Bank/Financial Institution, Courthouse, Data Center, Hospital (General Medical and Surgical), Hotel, House of Worship, K-12 School, Medical Office, Municipal Wastewater Treatment Plant, Office, Residence Hall/Dormitory, Retail Store, Senior Care Facility, Supermarket, Warehouse (refrigerated and non-refrigerated) Library, restaurants cannot by &gt;10% area.</p>	<p>Cost associated with hiring a verifier to verify the data and upload to the Portfolio Manager.</p>	<p><a href="http://www.energystar.gov/">http://www.energystar.gov/</a></p>
<b>ASHRAE Beq Program</b>	<p><b>Step 1:</b> The certified assessor will contact the building owner/manager and schedule time to meet for an introductory meeting and building walk-through</p> <p><b>Step 2:</b> The certified assessor will meet with the building owner, conduct the walk-through and gather (or obtain access to) energy data. The downloadable workbook includes all forms required for earning an ASHRAE bEQ In Operation rating as well as instructions for completion.</p> <p><b>Step 3:</b> The certified assessor will complete the bEQ In Operation Workbook, pay the registration fee, and submit to ASHRAE for development of the label materials. The submittals include the bEQ excel workbook, a signed terms and conditions and documentation of the metered/measured data used to calculate the rating on Form 2. This information may be recorded on the appropriate Metered Data Worksheet or provided as separate documents.</p> <p><b>Step 4:</b> ASHRAE will produce the rating and transmit materials to the certified assessor.</p>	<p>General information compiled from the audit by the BEAP:</p> <ul style="list-style-type: none"> <li>• Building Characteristics</li> <li>• Enter billed energy use and cost by fuel type</li> <li>• Use Portfolio Manager to obtain the annual normalized source EUI</li> <li>• IEQ screening</li> <li>• Water meter data</li> </ul> <p>The following information is provided from the bEQ worksheets:</p> <ol style="list-style-type: none"> <li>Normalized Source EUI (kBtu/ft<sup>2</sup>-yr)</li> <li>Building EQ rating/quotient – To be displayed on building Plaque and dashboard</li> <li>Energy cost index (ECI)(\$/ft<sup>2</sup>-yr)</li> <li>EPA ENERGY STAR Portfolio Manager (scale of 1-100)</li> </ol>	<p>To receive an In Operation rating, building owners must engage the services of professionals who have earned the ASHRAE-Certified Building Energy Assessment Professional (BEAP) designation to verify indoor environment quality conditions, use utility bills and other documentation to calculate the building's energy usage and highlight potential energy conservation measures. ASHRAE has developed the Building Energy Assessment Professional (BEAP) certification program in collaboration with representatives from ASHRAE's Building Energy Quotient (bEQ) program, IESNA, NIBS, SMACNA, and TABB. The purpose of verifier certification is to ensure the quality control of the bEQ program particularly with respect to assessing indoor air quality, ventilation, illumination and thermal comfort standards.</p>	<p>The building must have at least 50% of its gross area (excluding parking) classified as: Bank/Financial Institution, Courthouse, Data Center, Hospital (General Medical and Surgical), Hotel, House of Worship, K-12 School, Medical Office, Municipal Wastewater Treatment Plant, Office, Residence Hall/Dormitory, Retail Store, Senior Care Facility, Supermarket, Warehouse (refrigerated and non-refrigerated) Library, restaurants cannot by &gt;10% area.</p>	<p>The registration fee for bEQ is \$500. This fee, which typically will be included among the fees charged by the certified assessor, covers registration and program administration and will enable the assessor to provide the building owner with:</p> <ol style="list-style-type: none"> <li>1. bEQ Workbook</li> <li>2. bEQ Certificate</li> <li>3. bEQ Dashboard</li> <li>4. Graphic file for preparing a bEQ Plaque for public display showing the designated rating.</li> </ol> <p>Cost of assessment is separate.</p>	<p><a href="http://buildingenergyquotient.org/">http://buildingenergyquotient.org/</a></p>
<b>Green Up</b>	<p><b>Step 1:</b> Measure your real estate portfolio's energy and water use.</p> <p><b>Step 2:</b> Compare your buildings to those of your peers and within your own portfolio.</p> <p><b>Step 3:</b> Set building performance targets and implement projects.</p> <p><b>Step 4:</b> Track savings from retrofit, operational, and occupant improvement programs.</p>			<p>Office, multi-family, long-term healthcare, hotel, retail, K-12 school, and government buildings</p>	<p>Subscription.</p> <p><b>Basic Package one:</b> Subscription covers up to 4 buildings and includes access to program for up to 5 users. Cost: \$1,790</p> <p><b>Basic Package two:</b> Subscription covers up to 8 buildings and includes access to program for up to 5 users. Cost: \$3,390</p> <p><b>Additional buildings:</b> Subscription covers energy bill uploads and benchmarking. Cost: \$400 per building</p>	<p><a href="http://www.cagbc.org">http://www.cagbc.org</a></p>

## APPENDIX B: METRICS IN PORTFOLIO MANAGER

The following is a full list of available metrics that you can include in a custom report template.

### Building Information

Facility Name (Required)  
Address 1  
Address 2  
Year Built  
Administrator  
Building ID (Required)  
Facility Owner  
Building Profile Status  
Facility Type  
City  
Country Name  
County  
State  
Zip Code  
eGrid Region  
Power Plant  
Last Modified Date  
Service and Product Provider  
Shared By  
Unique Building Identifier  
Notes  
Metering Configuration  
Total Floor Space (Sq. Ft.)  
Agency  
Department/Region  
Federal Campus  
Federal Real Property ID  
Federal Sustainability Checklist Completion Percentage  
Electric Distribution Utility  
Emissions Factor (kg CO<sub>2</sub>e/MBtu)

### Data Center Metrics

Baseline Data Center Source PUE  
Baseline PUE-PDU Input  
Baseline PUE-UPS Output  
Baseline Site IT Equipment Input Energy (kWh)  
Baseline Site PDU Input Energy (kWh)  
Baseline Site PDU Output Energy (kWh)  
Baseline Site UPS Output Energy (kWh)  
Baseline Source IT Energy (kBtu)  
Current Data Center Source PUE  
Current PUE-PDU Input  
Current PUE-UPS Output  
Current Site IT Equipment Input Energy (kWh)  
Current Site PDU Input Energy (kWh)  
Current Site PDU Output Energy (kWh)  
Current Site UPS Output Energy (kWh)  
Current Source IT Energy (kBtu)  
National Average PUE

### Comparisons to Energy and Water Baselines

Change from Baseline: Adjusted Energy Use (%)  
Change from Baseline: Adjusted Energy Use (kBtu)  
Change from Baseline: Adjusted Energy Use Intensity (kBtu/Sq. Ft.)  
Change from Baseline: Energy Use Intensity (kBtu/Sq. Ft.)  
Change from Baseline: Energy Use (kBtu)  
Change from Baseline: Indoor Water Use (%)  
Change from Baseline: Indoor Water Use (kGal)  
Change from Baseline: Indoor Water Use Intensity (kGal/sqft)  
Change from Baseline: Other Water Use (%)  
Change from Baseline: Other Water Use (kGal)  
Change from Baseline: Outdoor Water Use (%)  
Change from Baseline: Outdoor Water Use (kGal)  
Change from Baseline: Total Water Use (%)  
Change from Baseline: Total Water Use (kGal)

### ENERGY STAR Application Information

Eligibility for ENERGY STAR  
ENERGY STAR Application Status  
Energy Use Alerts  
Full Year  
Space Use Alerts  
Year(s) Labeled  
Approval Date - Last ENERGY STAR

### Financial Indicators

Annual Energy Cost (US Dollars (\$))  
Cumulative Investment in Facility Upgrades (US Dollars (\$))  
Cumulative Investment per Sq. Ft. (US Dollars (\$))  
Total Energy Cost per Sq. Ft. (US Dollars (\$))  
Financial Indicators - Annual Fuel Costs  
Annual Energy Cost - Electricity (Grid Purchase) (US Dollars (\$))  
Annual Energy Cost - Electricity (On-Site Solar) (US Dollars (\$))  
Annual Energy Cost - Electricity (On-Site Wind) (US Dollars (\$))  
Annual Energy Cost - Natural Gas (US Dollars (\$))  
Annual Energy Cost - Fuel Oil (No. 2) (US Dollars (\$))  
Annual Energy Cost - District Steam (US Dollars (\$))  
Annual Energy Cost - Wood (US Dollars (\$))  
Annual Energy Cost - Propane (US Dollars (\$))  
Annual Energy Cost - Liquid Propane (US Dollars (\$))  
Annual Energy Cost - Other (US Dollars (\$))  
Annual Energy Cost - Kerosene (US Dollars (\$))  
Annual Energy Cost - Fuel Oil (No. 1) (US Dollars (\$))  
Annual Energy Cost - Fuel Oil (No. 5 and No. 6) (US Dollars (\$))  
Annual Energy Cost - Diesel (US Dollars (\$))  
Annual Energy Cost - Coal (anthracite) (US Dollars (\$))  
Annual Energy Cost - Coal (bituminous) (US Dollars (\$))  
Annual Energy Cost - Coke (US Dollars (\$))  
Annual Energy Cost - Fuel Oil (No. 4) (US Dollars (\$))  
Annual Energy Cost - District Hot Water (US Dollars (\$))  
Annual Energy Cost - District Chilled Water (US \$)

### GHG Emissions

Baseline Direct GHG Emissions (MtCO<sub>2</sub>e)  
Baseline Indirect GHG Emissions (MtCO<sub>2</sub>e)  
Baseline Total GHG Emissions (MtCO<sub>2</sub>e)  
Change from Baseline: GHG Emissions (MtCO<sub>2</sub>e)  
Current Direct GHG Emissions (MtCO<sub>2</sub>e)  
Current Indirect GHG Emissions (MtCO<sub>2</sub>e)  
Current Total GHG Emissions (MtCO<sub>2</sub>e)

### Period Ending Dates

Baseline Energy Period Ending Date  
Current Energy Period Ending Date  
Baseline Water Period Ending Date  
Current Water Period Ending Date

### Rating

Baseline Rating (1-100)  
Current Rating (1-100)  
Target Rating (1-100)

### Renewable Energy

Baseline Total On-Site Renewable Electric Use (kWh)  
Current Total On-Site Renewable Electric Use (kWh)  
Percent of Electricity from On-Site Renewable (%)  
Total Avoided GHG Emissions from Green Power (MtCO<sub>2</sub>e)  
Total On-Site Electric Generation (kWh)  
Total Green Power Purchased (MWh)  
Total Renewable Energy Sold to Grid (kWh)  
Total Revenue From Energy Sold to the Grid (US Dollars (\$))

### Site Energy

Baseline Site Energy Intensity (kBtu/Sq. Ft.)  
Baseline Total Site Energy Use (kBtu)  
Current Site Energy Intensity (kBtu/Sq. Ft.)  
Current Total Site Energy Use (kBtu)  
National Median Site EUI (kBtu/Sq. Ft.)  
Target Site Energy Intensity (kBtu/Sq. Ft.)  
Weather Normalized Site EUI (kBtu/Sq. Ft.)  
% Difference from National Median Site Energy per Square Foot (%)

### Site Energy - Temporary Data Flags

Temporary Data Flag - Electricity (Grid Purchase)  
Temporary Data Flag - Electricity (On-Site Solar)  
Temporary Data Flag - Electricity (On-Site Wind)  
Temporary Data Flag - Natural Gas  
Temporary Data Flag - Fuel Oil (No. 2)  
Temporary Data Flag - District Steam  
Temporary Data Flag - Wood  
Temporary Data Flag - Propane  
Temporary Data Flag - Liquid Propane

Temporary Data Flag - Other  
Temporary Data Flag - Kerosene  
Temporary Data Flag - Fuel Oil (No. 1)  
Temporary Data Flag - Fuel Oil (No. 5 and No. 6)  
Temporary Data Flag - Diesel  
Temporary Data Flag - Coal (anthracite)  
Temporary Data Flag - Coal (bituminous)  
Temporary Data Flag - Coke  
Temporary Data Flag - Fuel Oil (No. 4)  
Temporary Data Flag - District Hot Water  
Temporary Data Flag - District Chilled Water

### Site Energy - Fuel Totals

Baseline Site Electric Use (kWh)  
Baseline Site Natural Gas Use (therms)  
Electricity Use (kWh)  
Natural Gas Use (therms)  
Electricity Use (kBtu)  
Natural Gas Use (kBtu)  
District Steam Use (kBtu)  
Fuel Oil #1 Use (kBtu)  
Fuel Oil #2 Use (kBtu)  
Fuel Oil #56 Use (kBtu)  
Fuel Oil #4 Use (kBtu)  
Wood Use (kBtu)  
Propane Use (kBtu)  
Liquid Propane Use (kBtu)  
Other Use (kBtu)  
Kerosene Use (kBtu)  
Diesel #2 Use (kBtu)  
Coal - Anthracite Use (kBtu)  
Coal - Bituminous Use (kBtu)  
Coke Use (kBtu)  
Chilled Water - Electric Driven Use (kBtu)  
Chilled Water - Absorption Use (kBtu)  
Chilled Water - Engine Driven Use (kBtu)  
Chilled Water - Other (kBtu)  
District Hot Water (kBtu)

### Source Energy

% Difference from National Median Source Energy per Square Foot (%)  
Baseline Source Energy Intensity (kBtu/Sq. Ft.)  
Baseline Weather Normalized Source Energy Intensity (kBtu/Sq. Ft.)  
Current Source Energy Intensity (kBtu/Sq. Ft.)  
Current Weather Normalized Source Energy Intensity (kBtu/Sq. Ft.)  
National Median Source EUI (kBtu/Sq. Ft.)  
Baseline Total Source Energy Use (kBtu)  
Current Total Source Energy Use (kBtu)

### Space Attributes (Time Weighted) - Bank/Financial Institution

Bank/Financial Institution- Gross Floor Area (Sq. Ft.)  
Bank/Financial Institution- Number of PCs  
Bank/Financial Institution- Office Air-Conditioned  
Bank/Financial Institution- Office Heated  
Bank/Financial Institution- PC Density  
Bank/Financial Institution- Weekly operating hours  
Bank/Financial Institution- Workers Density  
Bank/Financial Institution- Workers on Main Shift

### Space Attributes (Time Weighted) - Courthouse

Courthouse- Gross Floor Area (Sq. Ft.)  
Courthouse- Number of PCs  
Courthouse- Office Air-Conditioned  
Courthouse- Office Heated  
Courthouse- PC Density  
Courthouse- Weekly operating hours  
Courthouse- Workers Density  
Courthouse- Workers on Main Shift

### Space Attributes (Time Weighted) - Data Center

Data Center- Annual IT Energy  
Data Center- Cooling Equipment Redundancy  
Data Center- Gross Floor Area (Sq. Ft.)  
Data Center- IT Energy Configuration  
Data Center- UPS System Redundancy  
Data Center- PDU Input Energy (kWh)  
Data Center- UPS Output Energy (kWh)

**Space Attributes (Time Weighted) - Hospital (General Medical and Surgical)**

Hospital- Gross Floor Area (Sq. Ft.)  
 Hospital- Laboratory? (Y=1, N=0)  
 Hospital- Laundry Facility? (Y=1, N=0)  
 Hospital- Maximum Number of Floors  
 Hospital- Number of Buildings  
 Hospital- Ownership Status  
 Hospital- Tertiary Care? (Y=1, N=0)  
 Full-time Equivalent (FTE) Workers  
 Number of Staffed Beds  
 Number of MRI Machines

**Space Attributes (Time Weighted) - Hotel**

Hotel- Average Occupancy (%)  
 Hotel- CommRefrig Density  
 Hotel- Floor area of full-service spas  
 Hotel- Floor area of gym/fitness center  
 Hotel- Gross Floor Area (Sq. Ft.)  
 Hotel- Hours per day guests on-site  
 Hotel- Number of Commercial Refrigeration/Freezer Units  
 Hotel- Number of Rooms  
 Hotel- Number of guest meals served per year  
 Hotel- Onsite Laundry (short tons/year)  
 Hotel- Percent Cooled  
 Hotel- Percent Heated  
 Hotel- Presence of cooking facilities? (Y=1, N=0)  
 Hotel- Quantity of laundry processed on-site annually  
 Hotel- Room Density  
 Hotel- Workers Density  
 Hotel- Workers on Main Shift

**Space Attributes (Time Weighted) - House of Worship**

House of Worship- CommRefrig Density  
 House of Worship- Gross Floor Area (Sq. Ft.)  
 House of Worship- Number of Commercial Refrigeration/Freezer Units  
 House of Worship- Number of PCs  
 House of Worship- PC Density  
 House of Worship- Presence of cooking facilities? (Y=1, N=0)  
 House of Worship- Weekly operating hours

**Space Attributes (Time Weighted) - K-12 School**

K-12 School- Gross Floor Area (Sq. Ft.)  
 K-12 School- High School? (Y=1, N=0)  
 K-12 School- Number of PCs  
 K-12 School- Number of walk-in refrigeration/freezer units  
 K-12 School- Open Weekends? (Y=1, N=0)  
 K-12 School- PC Density  
 K-12 School- Percent Cooled  
 K-12 School- Percent Heated  
 K-12 School- Presence of cooking facilities? (Y=1, N=0)  
 K-12 School- School District  
 K-12 School- Walk-in refrig density

**Space Attributes (Time Weighted) - Medical Office**

Medical Office- Gross Floor Area (Sq. Ft.)  
 Medical Office- Number of Workers  
 Medical Office- Percent Cooled  
 Medical Office- Percent Heated  
 Medical Office- Weekly operating hours

**Space Attributes (Time Weighted) - Multifamily Housing**

Multifamily Home- Dishwasher hookups in all buildings  
 Multifamily Home- Gross Floor Area (Sq. Ft.)  
 Multifamily Home- Laundry in common area  
 Multifamily Home- Laundry in each unit  
 Multifamily Home- Number of Floors  
 Multifamily Home- Number of units  
 Multifamily Home- Percent Cooled  
 Multifamily Home- Percent Heated  
 Multifamily Home- Percent of gross floor area that is common space only  
 Multifamily Home- Total Number of Bedrooms  
 Multifamily Home- Primary Hot Water Fuel Type (for units)  
 Multifamily Home- Resident Population Type  
 Multifamily Home- Government Subsidized Housing? (Y=1, N=0)

**Space Attributes (Time Weighted) - Municipal Wastewater Treatment Plant**

Wastewater- Average Effluent BOD5 Concentration (mg/l)  
 Wastewater- Average Influent BOD5 Concentration (mg/l)  
 Wastewater- Average Influent Flow (MGD)  
 Wastewater- Trickle Filtration Process? (Y=1, N=0)  
 Wastewater- Nutrient Removal? (Y=1, N=0)  
 Wastewater- Plant Design Flow Rate (MGD)

**Space Attributes (Time Weighted) - Office**

Office- Gross Floor Area (Sq. Ft.)  
 Office- Number of PCs  
 Office- Office- Air-Conditioned  
 Office- Office- Heated  
 Office- PC Density  
 Office- Weekly operating hours  
 Office- Workers Density  
 Office- Workers on Main Shift

**Space Attributes (Time Weighted) - Other**

Other- Gross Floor Area (Sq. Ft.)  
 Other- Number of PCs  
 Other- Weekly operating hours  
 Other- Workers on Main Shift  
 Other Space Type Name

**Space Attributes (Time Weighted) - Parking**

Parking- Enclosed Floor Area (Sq. Ft.)  
 Parking- Gross Floor Area (Sq. Ft.)  
 Parking- Non-Enclosed Floor Area (w/roof) (Sq. Ft.)  
 Parking- Open Floor Area (w/o roof) (Sq. Ft.)  
 Parking- Weekly Hours of Access

**Space Attributes (Time Weighted) - Residence Hall/Dormitory**

Residence Halls/Dormitories- Percent Cooled  
 Residence Halls/Dormitories- Percent Heated  
 Residence Halls/Dormitories- Dorm Computer Lab? (Y=1, N=0)  
 Residence Halls/Dormitories- Dorm Dining Hall? (Y=1, N=0)  
 Residence Halls/Dormitories- Gross Floor Area (Sq. Ft.)  
 Residence Halls/Dormitories- Number of Rooms

**Space Attributes (Time Weighted) - Retail**

Retail- Cash Register Density  
 Retail- Exterior Entrance to the Public? (Y=1, N=0)  
 Retail- Gross Floor Area (Sq. Ft.)  
 Retail- Number of Cash Registers  
 Retail- Number of PCs  
 Retail- Number of open or closed refrigeration/freezer cases  
 Retail- Number of walk-in refrigeration/freezer units  
 Retail- Open/closed refrig density  
 Retail- PC Density  
 Retail- Percent Cooled  
 Retail- Percent Heated  
 Retail- Walk-in refrig density  
 Retail- Weekly operating hours  
 Retail- Workers Density  
 Retail- Workers on Main Shift

**Space Attributes (Time Weighted) - Supermarket/Grocery**

Supermarkets/Grocery- Gross Floor Area (Sq. Ft.)  
 Supermarkets/Grocery- Number of open or closed refrigeration/freezer cases  
 Supermarkets/Grocery- Number of registers and/or personal computers  
 Supermarkets/Grocery- Number of walk-in refrigeration/freezer units  
 Supermarkets/Grocery- Percent Cooled  
 Supermarkets/Grocery- Percent Heated  
 Supermarkets/Grocery- Presence of cooking facilities? (Y=1, N=0)  
 Supermarkets/Grocery- Walk-in refrig density  
 Supermarkets/Grocery- Weekly operating hours  
 Supermarkets/Grocery- Workers Density  
 Supermarkets/Grocery- Workers on Main Shift

**Space Attributes (Time Weighted) - Swimming Pool**

Swimming Pool- Indoor Outdoor  
 Swimming Pool- Months in Use  
 Swimming Pool- Size

**Space Attributes (Time Weighted) - Warehouse (Refrigerated)**

Warehouse (Refrigerated)- Gross Floor Area (Sq. Ft.)  
 Warehouse (Refrigerated)- Weekly operating hours  
 Warehouse (Refrigerated)- Workers Density  
 Warehouse (Refrigerated)- Workers on Main Shift

**Space Attributes (Time Weighted) - Warehouse (Unrefrigerated)**

Warehouse (Unrefrigerated)- Distribution Center? (Y=1, N=0)  
 Warehouse (Unrefrigerated)- Gross Floor Area (Sq. Ft.)  
 Warehouse (Unrefrigerated)- Number of walk-in refrigeration/freezer units  
 Warehouse (Unrefrigerated)- Percent Cooled  
 Warehouse (Unrefrigerated)- Percent Heated  
 Warehouse (Unrefrigerated)- Walk-in refrig density  
 Warehouse (Unrefrigerated)- Weekly operating hours  
 Warehouse (Unrefrigerated)- Workers Density  
 Warehouse (Unrefrigerated)- Workers on Main Shift

**Space Attributes (Time Weighted) - Water Treatment and Distribution Utility**

Water Treatment- Total Average Flow (MGD)

**Space Attributes (Time Weighted) - Senior Care Facility**

Senior Care Facility Gross Floor Area  
 Senior Care Facility Total Number of Units  
 Senior Care Facility Average Number of Residents  
 Senior Care Facility Total Resident Capacity  
 Senior Care Facility Workers on Main Shift  
 Senior Care Facility Number of PCs  
 Senior Care Facility Number of Commercial Refrigeration/Freezer Units  
 Senior Care Facility Number of Commercial Washing Machines  
 Senior Care Facility Number of Residential Washing Machines  
 Senior Care Facility Number of Residential Electronic Lift Systems  
 Senior Care Facility Percent Cooled  
 Senior Care Facility Percent Heated

**Water**

Indoor Water Cost (US Dollars (\$))  
 Indoor Water Use (kGal)  
 Indoor Water Use per Sq. Ft. (Gal/Sq. Ft.)  
 Other Water Cost (US Dollars (\$))  
 Other Water Use (kGal)  
 Outdoor Water Cost (US Dollars (\$))  
 Outdoor Water Use (kGal)  
 Total Indoor and Outdoor Water Cost (US Dollars (\$))  
 Total Indoor and Outdoor Water Use (kGal)  
 Wastewater/Sewer Cost (US Dollars (\$))  
 Wastewater/Sewer Use (kGal)  
 Water Use Alerts

**Water Utilities and Wastewater Treatment Facilities**

% Difference from National Median Source Energy per Flow (%)  
 Average Flow (MGD)  
 Baseline Site Energy per Flow (kBtu/gpd)  
 Baseline Source Energy per Flow (kBtu/gpd)  
 Baseline Weather Normalized Source Energy per Flow (kBtu/gpd)  
 Current Site Energy per Flow (kBtu/gpd)  
 Current Source Energy per Flow (kBtu/gpd)  
 Current Weather Normalized Site Energy per Flow (kBtu/gpd)  
 Current Weather Normalized Source Energy per Flow (kBtu/gpd)  
 Effluent BOD5 (mg/l)  
 Influent BOD5 (mg/l)  
 National Median Site EUI (kBtu/gpd)  
 National Median Source EUI (kBtu/gpd)  
 % Difference from National Median Site Energy per Flow (%)

# APPENDIX C: RESULTS FROM PORTFOLIO MANAGER

## Year to Year Comparison

The following table and screen capture illustrate the capabilities of Portfolio Manager to compare year over year energy data.

Facility Name	Rating	Period Ending Date	Total Floor Space (Sq. Ft.)	Current Total Site Energy Use (kBtu)	Current Total Source Energy Use (kBtu)	Annual Energy Cost (US Dollars (\$))
Light House	70	03/31/2012	5,400	244,416	809,009	7,540
Light House	74	03/31/2011	5,400	227,659	760,382	6,028

The screenshot shows the Portfolio Manager interface with the following elements:

- Header:** ENERGY STAR PORTFOLIO MANAGER. Navigation links: Home > My Portfolio > Generate a Report. Utility icons: ACCOUNT INFORMATION, CONTACTS, FREQUENTLY ASKED QUESTIONS, CONTACT US, HELP, LOGOUT.
- Page Info:** Data Current As Of: April 3, 2013 12:30 AM.
- Report Template:** Energy Performance.
- View Options:** View Data Table (selected), View Graph. Link: Don't see what you're expecting in your report?
- Reporting Period:**
  - Single Period (one period)
  - Comparative (two periods) - Selected
  - Mar 2011, Mar 2012
  - Range (all periods within date range)
- Facilities & Groups:** Select Facilities or Groups. Input field: OR, type in the name of a single facility: [ ]
- Location:**
  - U.S. only (selected), All Countries
  - All Locations: Virginia
- Facility Type:** All Facility Types: Office
- Data Table:**

Facility Nam...	Rating	Period Endin...	Total Floor S...	Current Total...	Current Total...	Annual Ener...	Curren
Light House	74	03/31/2011	5,400	227,659.2	760,381.7	6,028.00	
Light House	70	03/31/2012	5,400	244,416.2	809,009.2	7,540.00	
- Page Navigation:** Page 1 of 1. Displaying 1 - 2 of 2.

## APPENDIX D: REGULATORY CONTEXT

### Europe

The EU's Energy Performance of Buildings Directive (EPBD 2008) requires all EU Member States to tighten their building energy regulations and to introduce energy certification schemes for buildings. The EPBD mandates that an energy performance certificate (EPC) is to be made available to the owner or by the owner whenever a building is constructed, sold or rented; as well, for buildings with a useful floor area greater than 1,000 sq.m., an EPC is to be publicly displayed.

### Australia

Australia's Commercial Building Disclosure (CBD) is a national program managed by the Australian Government and designed to improve the energy efficiency of Australia's large office buildings. Under the *Building Energy Efficiency Disclosure Act 2010*, most sellers or lessors of office space of 20,000 sq. ft. or more are required to obtain and disclose a current Building Energy Efficiency Certificate (BEEC). A BEEC is comprised of:

- a NABERS<sup>4</sup> Energy star rating for the building
- an assessment of tenancy lighting in the area of the building that is being sold or leased and
- general energy efficiency guidance

The Act, implemented through the Commercial Building Disclosure (CBD) program, forms part of a package of measures to encourage building energy

---

<sup>4</sup> The National Australian Built Environment Rating System (NABERS). (n.d.). NABERS. Retrieved August 1, 2010, from [www.nabers.com.au/](http://www.nabers.com.au/)

efficiency developed by the Australian, state and territory governments.

### USA

**California** passed Assembly Bill 1103 in October 2007. The law requires benchmarking and disclosure for nonresidential buildings involved in a financial transaction, and includes requirements on utilities to help owners by uploading energy consumption data using Energy Star Portfolio Manager.<sup>5</sup>

**Washington DC** Pursuant to the Clean and Affordable Energy Act enacted in October 2007, Washington DC requires all buildings more than 100,000 sq.ft. to submit their energy use data through Energy Star Portfolio Manager.<sup>6</sup>

**Austin, Texas** approved the Energy Conservation Audit and Disclosure Ordinance to help meet the goals of the Austin Climate Protection Plan. The Ordinance requires that any commercial facility with a gross floor area greater than 10,000 sq.m. calculate an energy benchmark rating for the facility by June 2014.<sup>7</sup>

**Washington State** introduced the Efficiency First bill which requires commercial building energy rating and disclosure using Portfolio Manager.<sup>8</sup>

---

<sup>5</sup> Building Rating.org. Policy Brief: State of California <http://www.buildingrating.org/content/policy-brief-state-california>

<sup>6</sup> Building Rating.org. Policy Brief: Washington, D.C. <http://www.buildingrating.org/content/policy-brief-washington-dc>

<sup>7</sup> Government of Austin, Texas, Austin Energy: Energy Conservation Audit and Disclosure Ordinance <http://www.austinenergy.com/about%20us/environmental%20initiatives/ordinance/index.htm>

<sup>8</sup> Building Rating.org. Policy Brief: Washington State. <http://www.buildingrating.org/content/policy-brief-washington-state>

**New York City** approved the Greener, Greater Buildings Plan in December 2009 requiring ENERGY STAR benchmarking and public disclosure using Portfolio Manager for public buildings greater than 10,000 sq. ft. and commercial and multifamily buildings greater than 50,000 sq. ft.<sup>9</sup>

**Seattle** passed an ordinance in January 2010 that requires benchmarking, energy rating and disclosure for nonresidential and multifamily buildings using Portfolio Manager, an expansion of the Green Building Capital Initiative to reduce the climate impact from Seattle's building stock..<sup>10</sup>

**San Francisco** passed the Existing Commercial Buildings Energy Performance Ordinance in February 2011 which requires annual benchmarking using Portfolio Manager, periodic energy audits and public disclosure of benchmarking information for nonresidential buildings.<sup>11</sup>

**Philadelphia** passed the Bill No. 120428 under the Greenworks Philadelphia plan mandating that all large commercial buildings use Portfolio Manager to benchmark and disclose their energy and water use using.<sup>12</sup>

## ***British Columbia***

**City of Vancouver** is considering establishing building labeling as part of the renovation permit process. They are also proposing an Energy Disclosure Standard Bylaw for 2016 that would require reporting energy use intensity (kWh/m<sup>2</sup>/yr) or prescriptive energy upgrades

---

<sup>9</sup> Building Rating.org. Policy Brief: New York City.

<http://www.buildingrating.org/content/policy-brief-new-york-city>

<sup>10</sup> Building Rating.org. Policy Brief: Seattle, WA

<http://www.buildingrating.org/content/policy-brief-seattle-wa>

<sup>11</sup> Building Rating.org. Policy Brief: San Francisco.

<http://www.buildingrating.org/content/policy-brief-san-francisco>

<sup>12</sup> Building Rating.org. Policy Brief: Philadelphia.

<http://www.buildingrating.org/content/policy-brief-philadelphia>