



# The Power of Information to Motivate Change

COMMUNICATING THE ENERGY EFFICIENCY  
OF TODAY'S COMMERCIAL BUILDINGS

WORKSHOP SUMMARY, FINDINGS,  
AND NEXT STEPS

FEBRUARY 2009

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# EXECUTIVE SUMMARY

Improving the energy efficiency of our office, school, government, and other commercial buildings is one of the most cost-effective ways to address the challenges of high or volatile energy prices, energy security and independence, air pollution, and global climate change. Commercial buildings use nearly 20 percent of the total energy consumed in the United States and contribute almost the same proportion of greenhouse gas emissions. Many studies show the potential for cost-effective energy efficiency is substantial across the national building stock—in existing buildings as well as new buildings. Better information on how much energy buildings use and how buildings compare to one another is critical to fulfilling this potential.

The use of building-level energy use information as an effective energy management tool is growing. Almost fifteen percent of the commercial square footage has been assessed for its efficiency through the end of 2008 using a standardized assessment tool developed by the U.S. Environmental Protection Agency (EPA). Now several state and local governments have taken action—or are considering legislation—to make information on the energy efficiency of public and private commercial buildings available to key stakeholders, such as prospective buyers or tenants, government managers, or the public. Many of these initiatives leverage EPA's energy performance rating system as the basis for their energy efficiency information. To help meet the challenges of developing and disclosing this information, EPA convened a workshop on December 9 and 10, 2008, to identify priority actions necessary to support state and local efforts and facilitate partnerships among government agencies, private businesses, trade associations, and others. This report summarizes the major discussions and key findings from the workshop.

## THE POWER OF INFORMATION

The United States has a long history of empowering people with information so that they can pursue important goals: nutrition labels help us choose healthier food to eat, and energy guides on appliances and fuel economy labels on cars help us compare these products' efficiency and chose models with lower energy bill costs. But in the world of commercial buildings, energy use information is typically not available. Moreover, even when energy use information is available, it can be hard to understand and compare to other alternatives; for example, in many cases the reported energy efficiency for commercial buildings is based on estimated rather than measured energy data.

Providing key energy and environmental information to the right audiences has been an important part of EPA's ENERGY STAR® program for commercial buildings since the late 1990s. Based on the success of thousands of ENERGY STAR partners, EPA has identified the following elements as essential to the success of energy measurement and carbon emission reductions:

- ▶ Analysis of the whole building to capture interactions among building systems.
- ▶ A focus on measured performance, which goes beyond design intent and estimated or extrapolated energy use.

- ▶ Transparent, credible methods for measuring results at the whole-building level.

Presentations and discussions at the workshop reinforced the importance of these elements.

Successful initiatives to motivate improvements in building energy use through disclosure of energy use information—in public forums or to support private transactions—must be grounded in standardized, comparable metrics that are easy to access and understand. Well designed and implemented initiatives can help ensure that new buildings use significantly less energy than average existing buildings and have the design, technology, and management features to be as efficient as possible over the long term. Perhaps more importantly, they can focus needed attention and effort on existing buildings, which will continue to present substantial opportunities for low-cost energy efficiency improvement and greenhouse gas reductions for many years to come.

## KEY FINDINGS AND NEXT STEPS

Several important findings emerged from the workshop:

- ▶ Simple, comparable energy performance benchmarks for commercial buildings can be powerful motivators for change, leading to substantial energy efficiency improvements within public and private organizations.
- ▶ A growing number of local and state governments are addressing the existing building stock by calling on commercial building owners/operators to benchmark the energy performance of their buildings and make the results available to the public and/or upon sale or lease of the building.
- ▶ Easy-to-understand, broad metrics should be the first layer of information for all stakeholders, regardless of where/when this information is available (e.g., building lobby, Web site, upon sale or lease of the building).
- ▶ The EPA energy performance rating works well as a way to inform people about the energy efficiency of commercial buildings on a consistent basis, and it should be the primary information provided in the first layer.
- ▶ The draft “Energy Performance Statement” presented by EPA during the workshop contains the appropriate type and amount of first-layer information.
- ▶ Additional layers of information specific to the building should be available for those who want or need more details.
- ▶ Several improvements to the EPA rating system would help local and state governments—as well as building owners—as they design and implement benchmarking and disclosure initiatives. Key improvements include:
  - ▶ The ability to generate standard reports containing the first-layer information.
  - ▶ Ratings for more types of buildings.
  - ▶ Enhanced sharing features.
  - ▶ Data verification options.

- ▶ Additional, robust survey data for commercial buildings are needed to enable EPA to develop ratings for more types of buildings.
  - ▶ Increased support is needed for the Energy Information Administration’s Commercial Buildings Energy Consumption Survey (CBECS)—as well as the residential and manufacturing surveys—to allow for including additional building types, water data, and greater depth in certain geographic regions.
  - ▶ In the absence of a rating, EPA provides weather-normalized energy use intensity (EUI), which can be compared to the average EUI for the building type.
  - ▶ Building energy codes do not account for a significant proportion of energy use in many types of buildings, and therefore do not offer a way to assess the energy use and benchmark building types not currently included in the EPA system.
  
- ▶ There is a lack of consistency in policies and metrics applied to new versus existing buildings, but some progress is being made in this area. For example, a representative from Canada reported on the country’s efforts to pursue policies that base new building energy codes on the measured performance of existing buildings.

These findings emphasize the need for EPA to continue to support and enhance its energy performance rating system, and they are reflected in the priorities for EPA listed at the end of this report. EPA will work in the coming months and years to address these priorities.

# INTRODUCTION

The economic issues facing the nation mean that savings from smart, informed energy efficiency strategies are more important than ever for the nation's economic and environmental health. To realize the energy efficiency potential of the nation's building stock, owners, managers, and design teams need access to different energy information than they typically rely on today; to meet the needs of occupants without wasting energy and money, they need whole building energy performance metrics that allow apples-to-apples comparisons with similar buildings.

Until recently, most policies aimed at energy waste in buildings have focused on new construction. Now organizations across the country are looking to innovative policies that will affect the stock of existing buildings, which today contribute almost 20 percent of U.S. greenhouse gas emissions and will continue to emit the lion's share of emissions from buildings for years to come. Increasingly, these new policies call for the disclosure of whole-building energy performance.

To support the growing interest in energy use disclosure efforts, EPA invited representatives from the public, private, non-governmental, and financial sectors to participate in a 2-day workshop to determine how the Agency can facilitate meeting the demand for energy information and help achieve energy efficiency goals. The first day of the workshop provided examples of the many voluntary and legislative initiatives underway across the country to motivate change by sharing simple, standardized information about the energy efficiency of commercial buildings. Participants heard from representatives of the following organizations (see Appendix B for a link to all of the presentations given at the workshop, and Appendix D for Web site URLs for many of the programs and initiatives mentioned):

- ▶ Council Rock School District in Pennsylvania, which has seen tremendous improvement in its energy efficiency thanks to a strong energy management program that includes energy performance benchmarking as a key component. The District's buildings improved from an average EPA energy performance rating of 16 to an average rating of 55 in just 2 years.
- ▶ JCPenney, which has benefited from communicating each store's standardized energy performance rating across the management chain. The company ranks each store and region by energy use and shares the information with store and regional managers, as well as corporate managers. The company has also begun to link incentives to energy performance.
- ▶ The Building Owners and Managers Association, which uses the EPA energy performance rating as the corner stone of its 7-Point Challenge. The goal of the Challenge is to reduce energy use in commercial buildings by 30 percent by 2012.
- ▶ CoStar, a real estate information services company, which now displays the ENERGY STAR on its commercial building property listings for those buildings that have earned the designation. CoStar presented information on the higher relative value of ENERGY STAR qualified buildings.

- ▶ The office of District of Columbia Councilmember Cheh, whose leadership resulted in legislation requiring commercial buildings to rate their energy performance and disclose these ratings to the public.
- ▶ The State of California, which now requires commercial buildings to rate their energy performance and disclose the rating upon sale or lease of the building.
- ▶ The City of New York, which is considering an energy disclosure mandate and has recently held hearings on draft legislation.

Also on the first day of the workshop, EPA presented an overview of ENERGY STAR and the EPA energy performance rating system. The following details from that presentation provided important background information for the workshop:

- ▶ Energy performance ratings are available for over 60 percent of the U.S. commercial building market.
- ▶ More than 70,000 buildings, representing 9.5 billion square feet, have been rated for their energy performance (through June 2008) using EPA's Portfolio Manager tool.
- ▶ As the presentations from Council Rock School District, JC Penney, BOMA, and CoStar attest, public and private organizations spanning the commercial building sector find value in the EPA rating system by using it to help them improve their energy efficiency.
- ▶ EPA uses data on the energy use and operating characteristics of the existing building stock (from the Department of Energy's Commercial Buildings Energy Consumption Survey) to develop the rating system and updates the ratings as the building population changes and improves.
- ▶ Ratings for each building are based on that building's actual energy data over a 12 month period, normalized for weather and business activity (e.g., number of workers, hours of operation).
- ▶ EPA provides on its ENERGY STAR Web site full documentation of the technical aspects of the rating system, including the regression techniques and the steps applied to compute a rating, which enables others to replicate the ratings.

On the second day of the workshop, participants heard the results of recent consumer research concerning the redesign of the Energy Guide for appliances and the Fuel Economy label for new vehicles. Drawing on this research, EPA presented a sample "Energy Performance Statement" for participants to review. Throughout the day, they engaged in lively and productive discussions around issues such as potential audiences and uses for disclosure, data criteria and selection, verification, and accessibility. Workshop participants shared their organizations' experiences with these issues and their ideas on the most effective ways to disclose energy use information to stakeholders and the public.

The following sections summarize the discussions and the resulting priorities for EPA:

### **NEAR-TERM CHALLENGES WITH ENERGY USE DISCLOSURE**

- ▶ Deciding on the Information To Disclose/Display
- ▶ Verifying the Information Being Disclosed
- ▶ Making the Information Accessible

### **PRIORITIES FOR EPA AND NEXT STEPS**

- ▶ Broadly Support Benchmarking Initiatives
- ▶ Expand Benchmarking Features and Reports in Portfolio Manager
- ▶ Support Verification of Energy Information in Portfolio Manager



# NEAR-TERM CHALLENGES WITH ENERGY USE DISCLOSURE

This section reviews the presentations and discussion that occurred on the second day of the workshop, which focused on overcoming the challenges states and local governments face as they enact policies for disclosure of commercial building energy use information.

## DECIDING ON THE INFORMATION TO DISCLOSE/DISPLAY

This session began with presentations on recent efforts to redesign the Energy Guide label for appliances and the Fuel Economy label for new vehicles. These examples provide lessons learned as state and local government agencies consider energy use disclosure options for commercial buildings. In both cases, the responsible agencies conducted consumer research to inform their decisions on label design. Hampton Newsome of the Federal Trade Commission (FTC) provided the following lessons learned from the research on the Energy Guide:

- ▶ Make sure the label is simple and easy to understand for consumers. Experts are not the target audience, so test the label's simplicity with consumers or other focus groups.
- ▶ The label alone is not an educational tool, so consumer education needs to accompany the certification or rating system.
- ▶ If the source of the information isn't clear to consumers, consumers will often be skeptical of the data being presented.
- ▶ Be aware and concerned about unintended consequences, such as misinterpretation of the data.

Roberts French of EPA's Office of Transportation and Air Quality (OTAQ) emphasized the following points that emerged from the focus groups conducted as part of the Fuel Economy label redesign:

- ▶ Do not build obsolescence into the label by mandating too many specific requirements.
- ▶ Clearly identify the source of the information.
- ▶ Understand that logos can add important value.
- ▶ Include a way for consumers to get more information.
- ▶ Beware of fine print, which consumers rarely read or assume is unimportant.
- ▶ Avoid dramatic changes to distinctive elements that consumers already know and trust.
- ▶ Find the balance between giving too much and not enough information.
- ▶ Accept that there is a limited amount of time to convey information.

French concluded that consumers in the OTAQ focus groups reacted positively to attractive graphics, a professional-looking layout, and simplified information.

Jim Clark of Natural Resources Canada, the government agency charged with ensuring the responsible development of natural resources, detailed Canada's efforts to develop a national system for communicating building energy performance. Canada's Council of Ministers has requested proposals of options for a national voluntary energy labeling system and mandated the development of a new national energy code. The label will rely on actual energy use and will likely use the ENERGY STAR performance rating methodology and 1-100 scale. Mr. Clark anticipates gradual implementation at the provincial and territorial levels. Other jurisdictions have also used building energy rating systems to support regulated activities at key points in the sales cycle. With respect to code development, an independent steering committee endorsed an energy target approach (similar to the approach the European Union is taking to its 2015 code update). Mr. Clark pointed to potential synergies and linkages between the labeling and code development activity.

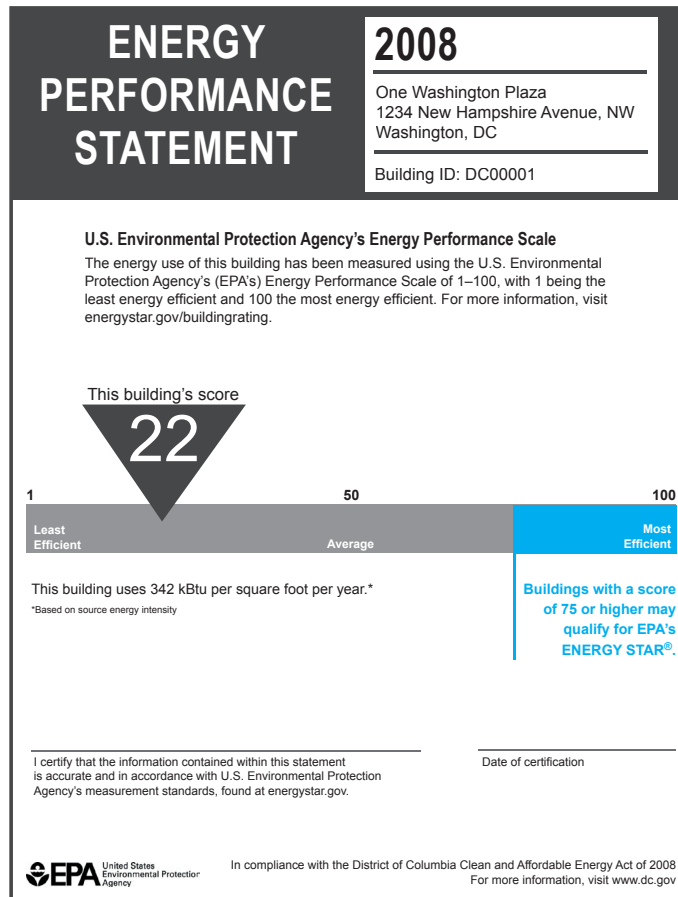
Jean Lupinacci of EPA discussed the important issues to consider in presenting commercial building energy use information in a way that is understandable to all target audiences. These issues include defining the audience(s), establishing the location for displaying the energy use information, determining what information to include in each layer, and developing a consumer awareness campaign to accompany the disclosure. Potential audiences for this information include the following:

- ▶ Building owners and managers.
- ▶ Building engineers and support staff.
- ▶ Building occupants.
- ▶ Real estate and brokerage firms.
- ▶ Prospective buyers and tenants.
- ▶ The community and public.

By way of comparison, Ms. Lupinacci quickly reviewed the Energy Guide and vehicle Fuel Economy labels presented on the first day of the workshop. She also displayed the European Union's recent building Display Energy Performance Certificate, noting that its A to G scale is well known to European consumers because it is the same scale long used on the European appliance energy label (comparable to the U.S. Energy Guide label). Ms. Lupinacci then presented an example "Energy Performance Statement," shown in Figure 1. The information in the example reflects many of the lessons learned from the FTC and EPA OTAQ consumer research. The following are the Statement's important elements, noted by Ms. Lupinacci:

- ▶ The EPA energy performance rating is prominently displayed.
- ▶ A scale for comparison is included.
- ▶ The scale is robust and flexible, ensuring relevance in the short and long term.
- ▶ Fine print is limited.
- ▶ A Web site address is given for more information.
- ▶ The format includes a simple presentation of data and a professional-looking, clean layout.

**Figure 1:** Example “Energy Performance Statement” presented by EPA



The discussion, summarized below, focused on a set of questions related to Ms. Lupinacci's presentation.<sup>1</sup>

### **Q: WHAT ARE THE CRITICAL PIECES OF INFORMATION?**

Several participants mentioned the value of the EPA energy performance rating as a common metric that is understandable and should be the “top layer and gateway to more detailed information.” They agreed that any energy information displayed should be based on measured energy use, rather than energy use estimated by computer models or other means. Many also pointed to the value of showing how the rating changes over time, which was not displayed on the example “Energy Performance Statement.”

Ms. Lupinacci asked if the information should be presented as an absolute measurement (i.e., kBtu/sq.ft./yr.), comparatively (on a scale, as in the example), or categorically (using a system of 1 to 5 letters or stars). Organizations that support categorical labels on appliances recommended this approach for buildings. One of the participants pointed out that what starts as a relatively simple categorical system may expand once in

<sup>1</sup> Each of the presentations summarized in this section, available at the address noted in Appendix B, included a set of questions. Not all of these questions were discussed during the workshop. The questions in this section of the report are those that participants discussed during the workshop.

use—in Australia, for example, the system started with five stars, but eventually the number of ratings doubled because implementers added increments of 0.5 stars. The European Union has started to add pluses (+’s) and minuses (–’s) to its A-G letter rating system. Most participants expressed support for the approach in the example EPA provided.

Many participants agreed that better data are needed on which to base new energy performance ratings for additional building types. Funding for the U.S. Department of Energy’s Commercial Buildings Energy Consumption Survey (CBECS), as well as for residential and industrial surveys, is low for the value the data provide, participants stated.

**Q: WHERE SHOULD THE ENERGY PERFORMANCE STATEMENT BE DISPLAYED?**

The workshop participants mentioned different ways that existing initiatives handle these placement options. Discussion included the following questions: Should buildings be required to display a disclosure statement/energy use statement at all times, for example, or just to release the rating when a major transaction occurs, such as the sale or lease of the building? Should the information be available on the building premises or housed on a Web site? Should the requirements be different for different types of buildings (e.g., office buildings, supermarkets, etc.)? Participants expressed different views on these questions, but generally agreed that the goal of the initiative and the target audience(s), among other factors, must be considered in answering them. For example, participants agreed that when public disclosure of building energy use is required, such as in the District of Columbia, a well-designed Web site housing the information is necessary (at minimum).

**Q: SHOULD THE ENERGY PERFORMANCE STATEMENT INCLUDE CARBON AND/OR COST DATA?**

Many participants stated that carbon is important, but raised the difficulty of including carbon in a first layer of information because of its regional and time-dependent nature. Similarly, many agreed that cost is important but not necessary on the first layer of information, especially because it is difficult to compare costs across different buildings. Energy costs and rates vary from building to building. The attendees agreed that those particularly interested in cost data would obtain this information in other ways (e.g., as part of due diligence).

## VERIFYING THE INFORMATION BEING DISCLOSED

Alexandra Sullivan of EPA provided an overview of the current verification steps and data quality controls of the EPA system as well as the challenges of verifying data. EPA provides electronic data quality control and requires third party verification for buildings applying for the ENERGY STAR. There are three ways in which EPA ensures the integrity of the data: (1) by requiring a professional engineer to conduct a site visit and confirm the findings; (2) by checking applications for extremely high or low values and requiring an explanation for atypical data; and (3) by conducting regular random audits on a small sample of ENERGY STAR qualified buildings. The primary reasons EPA requires third-party verification and conducts data quality checks itself are to ensure accuracy in the data being used to compare buildings; to resolve data entry errors; and to deter the falsification of data, thereby maintaining public trust in both the Agency and rating system. Besides basic alerts to minimize data entry errors, there is no verification or data quality review for the other buildings whose owners or managers are using Portfolio Manager to benchmark and track energy use.<sup>2</sup>

To address the role and capabilities required of Portfolio Manager in a system of public energy use disclosure, Ms. Sullivan noted the importance of addressing the following issues: identifying who would be responsible for data quality and verification, deciding what levels of quality and verification are needed, and addressing how to assess the integrity of data coming from different sources. The reporting organization (e.g., building owners, facility managers), the entity requiring the data (e.g., the city mandating disclosure), a neutral third party (e.g., a professional engineer), and public utilities could all possibly have roles in quality control and verification of the data. Ms. Sullivan suggested that one way EPA could assist would be to add a self-check process to Portfolio Manager that enables users to screen data for possible errors.

The discussion, summarized below, focused on a set of questions related to Ms. Sullivan's presentation.

### **Q: HOW DOES THE LEVEL OF DATA QUALITY CONTROL AND VERIFICATION CHANGE BASED ON THE PURPOSE OF THE DISCLOSURE (POINT OF SALE VERSUS ANNUAL DISCLOSURE, ETC.)?**

Several participants supported the idea of implementing several levels of quality control and verification so that an individual looking at the data could know to what degree the data had been verified—from an individual inside the building performing a basic check to the utility directly providing the data to a professional engineer signing off on the information given. A multi-level process would not only enable users of the data to estimate its accuracy but also give building owners and facility managers a multi-step process to establish data integrity.

The participants agreed that there might be different verification priorities as benchmarking becomes mandatory instead of voluntary. Participants noted that it will be important to establish data quality control and verification procedures as the market moves toward a regulatory framework or if entities such as CoStar continue to show that

<sup>2</sup>Note, however, that there are basic data requirements in order for a building to receive a rating, such as entry of a full year's worth of energy data and consistent time periods for gas and electric data.

a good rating adds significant value. Others agreed that verification should be part of due diligence, especially to establish the value of a real estate transaction. One participant observed that EPA's random auditing has a positive effect in deterring people from misrepresenting the energy efficiency of buildings that earn the ENERGY STAR.

#### **Q: IS THERE VALUE IN A SELF-CHECK AND SCREENING PROCESS IN PORTFOLIO MANAGER?**

The participants agreed that a useful first step would be to add a pre-assessment step in Portfolio Manager, either in the form of a checklist that users can follow to initially check their data or a "check my building" feature that runs on command to identify outliers or atypical data. This would provide a basic standardized quality check at the outset.

Participants noted that time series data could help in the verification process. If the performance rating rapidly increased before the sale of a building, it could be flagged and checked for accuracy. To complement the time-series data, many supported the idea of a journal to explain changes in the performance rating over time. Ms. Sullivan confirmed that EPA is considering adding a feature in Portfolio Manager that will allow users to add notes to explain data changes.

#### **MAKING THE INFORMATION ACCESSIBLE**

After discussing the information to be disclosed and possible verification processes, participants delved into ways of making the information accessible to different stakeholders, including the general public. Cindy Jacobs of EPA presented several dissemination methods, using the ENERGY STAR Web site ([www.energystar.gov](http://www.energystar.gov)) as the primary example.

Resources are limited both for EPA and for state and local organizations interested in energy disclosure efforts. Workshop participants agreed that making the information widely accessible will require strategic use of these limited resources. They also agreed that an educational campaign for all stakeholders about the practicality and availability of the information will be important to the success of energy disclosure efforts.

Ms. Jacobs posed questions to spark discussion about the different options for making energy use information available to stakeholders:

#### **Q: WHERE SHOULD THE ENERGY STATEMENT BE POSTED?**

The location of an "Energy Performance Statement" came up repeatedly throughout the second day of the workshop. Many participants mentioned the need to have the statement posted prominently (e.g., in the building lobby). Others, however, noted that for certain building types, such as luxury hotels, their management and potentially some building users/occupants might view such a statement as unattractive. In addition, some

participants felt that the disclosure is appropriate only at the point of sale or lease of a building.

The prominence of the statement needs to be considered in the context of the overall goal and target audience(s). If the statement is posted in a prominent area, many participants suggested that including information demonstrating improvement over time in the first layer might alleviate some concerns about having a low rating posted in public view.

**Q: IS THERE AN EXISTING WEB SITE FOR ADDITIONAL LAYERS OF INFORMATION? OR IS A NEW WEB SITE NECESSARY?**

Certain audiences will want or need access to information that is more detailed than what can or should be displayed on an “Energy Performance Statement.” This second (or deeper) layer information is important for more detailed analyses of building performance, including those needed for real estate transactions. The American Society of Heating, Refrigerating, and Air Conditioning Engineers’ (ASHRAE) proposed certificate is an example of the type of information that could be included in a second layer (see Appendix E).

Many participants suggested that additional layers of information be made available on a publicly accessible Web site rather than on the disclosure statement itself, to avoid complicating the “Energy Performance Statement.” Some current Web sites, such as the ENERGY STAR Web site, do provide registries of building energy use information, but EPA does not have the resources to maintain a Web site for potentially thousands of buildings tracked through different disclosure initiatives. Many participants noted that resources are also limited at the state and local levels. EPA confirmed that ENERGY STAR would continue to provide energy performance ratings and related information through [www.energystar.gov](http://www.energystar.gov). Others suggested that while a Web site could be an effective tool, it is not in and of itself an educational campaign directed to stakeholders. Other educational materials would need to supplement whatever Web site(s) is developed, with the educational materials tailored to different audiences, such as building tenants, employees, and customers. No general consensus was reached regarding the nature of these materials.

**Q: WHO POSTS THE INFORMATION TO THE WEB SITE AND WHO MAINTAINS IT?**

It was suggested that EPA’s role would be to provide all of the necessary energy use information and energy performance ratings through Portfolio Manager for state and local disclosure efforts. Participants agreed that it would be useful if the information were provided through the ENERGY STAR program because that would also lend credibility. There was a general consensus that EPA could support efforts at the state and local levels by developing ready-made reports in Portfolio Manager that others could then use to analyze energy performance, financial performance, or other important metrics.

EPA currently offers automated benchmarking services, which allow service providers, utilities, and other

organizations to electronically transfer energy data to Portfolio Manager and receive building ratings within their own systems. EPA will continue to support and expand automated benchmarking, which could help facilitate transfer of information between local/state governments and EPA.

By providing robust data transfer and reporting options, EPA can make it easier for other organizations to meet their own disclosure goals. Some participants suggested that EPA's role should be to provide the energy use information, while the goal of other organizations should be to effectively communicate successes and educate stakeholders. As part of these outreach efforts, organizations could link to [www.energystar.gov](http://www.energystar.gov) or possibly some other EPA Web site so that their stakeholders could learn more about the background information pertaining to energy efficiency in buildings.



# PRIORITIES FOR EPA AND NEXT STEPS

Listed below are proposed priority actions for EPA that emerged from the workshop. EPA plans to pursue all of these actions over the coming year (subject to funding levels).

## **BROADLY SUPPORT BENCHMARKING INITIATIVES**

- ▶ Facilitate partnerships among governments, building owners, non-profit organizations, trade associations, professional societies, and others to make the information needed for energy use disclosure efforts available on a consistent basis.
- ▶ Continue to enhance Portfolio Manager and automated benchmarking services for the transfer of data because many local and state governments are using Portfolio Manager as the basis of their benchmarking and disclosure initiatives.
- ▶ Communicate and work together with other government agencies that have addressed or are addressing the same issues, such as the European Union governments, to learn from their experiences.

## **EXPAND BENCHMARKING FEATURES IN PORTFOLIO MANAGER**

- ▶ Create a reporting function in Portfolio Manager, so users can generate a set of standard reports. Initially, EPA will provide a small set of reports, the number of which may increase over time. Eventually, users will be able to generate customized reports. The initial set of reports may include:
  - ▶ A “first layer” report similar to the example “Energy Performance Statement.”
  - ▶ Time series data for building energy use.
  - ▶ Target Finder and Designed to Earn the ENERGY STAR information to demonstrate an “as designed” energy performance rating.
  - ▶ Other data that Portfolio Manager users have requested.
- ▶ Increase the types of buildings eligible for ratings (dependent on availability of data).
- ▶ Improve data sharing functions in Portfolio Manager.
- ▶ Improve current method for benchmarking the energy use intensity of buildings not eligible for an EPA rating.

## **SUPPORT VERIFICATION OF ENERGY INFORMATION IN PORTFOLIO MANAGER**

- ▶ Add verification functions and/or information to Portfolio Manager. This could include:
  - ▶ Self-verification options, such as a “Check My Buildings” feature that would identify anomalies in the data.
  - ▶ A checklist for quality control.
  - ▶ A notation on whether data have undergone a level of verification; for example, when data have been supplied by a utility.
- ▶ Add a notes field to Portfolio Manager, where users can keep track of changes that might affect their building’s rating and other information.

# APPENDICES



# The Power of Information to Motivate Change

COMMUNICATING THE ENERGY EFFICIENCY OF TODAY'S COMMERCIAL BUILDINGS

## A G E N D A

### NATIONAL PRESS CLUB

529 14th Street, NW  
Washington, DC 20045

December  
**Tuesday 9<sup>th</sup>**

**12:00 – 1:00 pm Registration**

**1:00 – 1:15 pm Introduction**

**1:15 – 2:35 pm Better Management through Better Measurement**

- Benchmarking toward Energy Efficiency — *Robert Schoch, Director of Business Administration, Council Rock School District, PA*
- Campaigns to Improve Efficiency — *Karen Penafiel, Vice President, Advocacy, BOMA International*
- Motivating Change within JCPenney — *Robert Keller, Director, Energy Management & Engineering Services, JCPenney*
- Update on ENERGY STAR and Portfolio Manager — *Jean Lupinacci, Chief, Commercial and Industrial Buildings Branch, U.S. EPA*

**2:35 – 2:55 pm Giving the Market the Information**

- Tapping the Power of the Market to Drive Change — *Andrew Florance, Founder, Director, Chief Executive Officer and President, CoStar Group, Inc.*

**2:55 – 3:10 pm Break**

**3:10 – 3:30 pm Keynote Address**

*Washington, DC Councilmember Mary Cheh*

**3:30 – 4:30 pm Giving the Public the Information**

Government-Sponsored Policies

- *Cliff Majersik, Program Director, Institute for Market Transformation*
- *Douglas Mahone, Principal, Hescong Mahone Group and Chair, California Benchmarking Work Group*
- *Laurie Kerr, Senior Policy Advisor on Sustainability, Mayor's Office, City of New York*

# The Power of Information to Motivate Change

COMMUNICATING THE ENERGY EFFICIENCY OF TODAY'S COMMERCIAL BUILDINGS

December  
**Wednesday** 10<sup>th</sup>

Addressing Near-Term Challenges with Building Energy Use Disclosure

**8:30 – 10:00 am** **Deciding on the Information**

Review of Other Efforts

- *Hampton Newsome, Attorney, U.S. Federal Trade Commission*
- *Roberts French, U.S. EPA Office of Transportation and Air Quality*
- *Jim Clark, Senior Officer, Program Development, Buildings Division, Natural Resources Canada*

Presentation of Options — *Maura Beard, U.S. EPA ENERGY STAR*

**10:00 – 10:30 am** **Break**

**10:30 – 12:00 pm** **Deciding on the Information (continued)**

Discussion of information and options

**12:00 – 1:00 pm** **Lunch**

Remarks from Hines and the National Association of State Energy Officials

**1:00 – 2:00 pm** **Verification**

- Verification Process for ENERGY STAR — *Alexandra Sullivan, U.S. EPA ENERGY STAR*
- Discussion of verification options for disclosure

**2:00 – 3:00 pm** **Making Information Accessible**

- Presentation of Options — *Cindy Jacobs, U.S. EPA ENERGY STAR*
- Discussion

**3:00 – 4:00 pm** **Priorities for EPA Based on Previous Discussions**

Food and Refreshments provided by Hines and the National Association of State Energy Officials.



# The Power of Information to Motivate Change

COMMUNICATING THE ENERGY EFFICIENCY OF TODAY'S COMMERCIAL BUILDINGS

**NATIONAL PRESS CLUB**  
529 14th Street, NW  
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December **Tuesday 9<sup>th</sup>**

December **Wednesday 10<sup>th</sup>**

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# The Power of Information to Motivate Change

COMMUNICATING THE ENERGY EFFICIENCY OF TODAY'S COMMERCIAL BUILDINGS

## Participants (continued)

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All presentations can be found at [www.energystar.gov/decembermeeting](http://www.energystar.gov/decembermeeting).

### APPENDIX C: COMMENTS FROM DAVID ZVENYACH, CHIEF OF STAFF FOR WASHINGTON, DC COUNCILMEMBER MARY CHEH

#### **ENERGY STAR Benchmarking Workshop: “Motivating Change through Information”**

Thank you for inviting Councilmember Cheh to speak today. It’s an honor to be among a group of such dedicated and distinguished professionals at this pivotal time, where the way we measure and value energy performance is about to undergo significant change. I’m glad to see so many others from other jurisdictions, non-profit groups, and the federal government, all interested in how we can promote policies that will give greater information on this long-hidden piece in the complex bundle of factors that a building represents. And it’s good to see representatives of DC Government here to learn the principles of benchmarking so that we can apply the practice to our own buildings.

#### **What Clean & Affordable requires**

Councilmember Cheh was invited to speak to you because—in addition to being conveniently located across the street—of her role in drafting and passing the District’s Clean & Affordable Energy Act of 2008. This law will dramatically change how energy efficiency and renewable energy programs are developed and implemented in the District. In addition to creating a third-party contractor for energy programs, it increases renewable energy standards, establishes a rebate program, allows commercial buildings to submeter tenants, and requires both public and, eventually, private buildings to benchmark and disclose energy performance. This last part is key. The commercial building sector comprises about two-thirds of the District’s electricity consumption and the represents the most significant opportunity for efficiency gains.

People look for many things in selecting a lease, and energy is almost nonexistent on that list. For a long time, it simply hasn’t been part of the equation. The crux of this policy is to make a distinction about a factor that has always been taken for granted.

The Clean & Affordable Energy Act serves to change that. It requires the District government to benchmark 10 buildings using the ENERGY STAR Portfolio Manager and disclose the information on the District Department of Environment website. By next October, the same will apply for all DC Government buildings over 10,000 square feet for which an ENERGY STAR profile exists.

Here in DC, we are beginning with some of the largest and most prominent buildings, like the Judiciary Square building and the Wilson building (our City Hall). But we're also emphatic that the schools become involved in this process of gaining energy awareness. We have 15 schools from across the District participating in a program called "Saving Energy in DC Schools," run by the Alliance to Save Energy, one of the many energy-related organizations headquartered here in the District. As the early panelists clearly demonstrated: it's impossible to manage what we don't measure, so we're encouraging those participating schools to be among the first to undergo the benchmarking process.

Beginning in 2010, these benchmarking provisions will apply to privately owned buildings, starting with those greater than 200,000 square feet and then to 50,000 square feet in 2013 and later. So it's entirely possible that the high school students involved in analyzing their schools today can find a job in the energy management field when they graduate.

But while we're on the leading edge, we're not alone. It's encouraging that cities around the country are looking into energy analysis and disclosure. This is an important way to increase transparency and accountability for our own operations.

Again, you can't manage what you don't measure. For too long, the costs of energy were hidden—in both a very broad and a narrow sense. In a broad sense, the costs of energy use and even waste are hidden insofar as we don't see asthmatic children or melting glaciers when we flip on a light switch. In the narrow sense, many leases in DC include energy as part of the deal; the costs are assigned pro rata rather than on an individual basis.

Policymakers and, for that matter, all District employees need to realize that every dollar we spend on just providing for basic operations is a dollar we can't spend elsewhere: on education, infrastructure, or the public welfare.

### **Early Credit & Green Recognition**

Beyond assuring greater value and informed choice for building tenants, there are other compelling reasons to move towards requiring and disclosing greater information about building energy.

One of these is the ability to register and verify emissions levels in preparation for ultimate regulation of greenhouse gas emissions. In a positive light, this allows recognition for conscientious firms to demonstrate their forward-thinking ways. More practically, it allows firms to legitimately claim credit for efforts to save energy and reduce the carbon footprint.

Emerging climate reporting protocols, in particular The Climate Registry, which most US states have endorsed as the comprehensive reporting, registry, and verification entity, establish the standards for businesses to report greenhouse gas emissions. Because most businesses and organizations in the District are not involved in direct energy-intensive production, most of the emissions are from purchased energy. At any given time, we import upwards of 99 percent of our electricity, much of it coal-fired from surrounding jurisdictions.



## **Information is Key...**

At the heart, then, of the policy we've advanced in this legislation—and that this workshop seeks to deepen—is the role of better information in driving consumer behavior.

This logic has been applied to many other consumer products: who here remembers the importance of “dolphin-safe tuna,” “free-range eggs,” “unleaded gasoline,” or my personal favorite “fair trade coffee.” While once marginal, almost every piece of paper packaging you pick up today has the “recycled” triangle on it. Sometimes just putting a label on something will cause consumers to consider factors they never did before. Consumers are bombarded with millions of advertising images every day.

The movement for a cleaner environment needs to compete with this marketing blitz for people's attention. When it comes to the field of energy and environment, just getting people to consider something that was always taken for granted would be a huge step.

## **A “Green Mark?”**

In the lead-up to the vote on this bill, Councilmember Cheh was heavily lobbied on the benchmarking and disclosure provision by parties who were afraid that a building's energy performance would be like a ‘black mark’ for the facility and that they would not be able to rent space. As you may expect, she disagreed. This isn't about branding a scarlet letter (“I for Inefficient, perhaps”) on the existing stock. It is, however, about making a “green mark” that coherently refers to a crucially important factor in the future operational decisions of business and government alike. We believe that those big decisions of the future are best made with more information, not less.

## **Why ENERGY STAR?**

But, even if our goal was only to present information on an important factor that had never been examined before, it does not necessarily follow that we would go with the ENERGY STAR system.

However, ENERGY STAR offered a number of attractive elements.

1. First, and importantly, the software is free and universally available through the ENERGY STAR Web site. The cost of certification under the LEED program is often cited as a reason not to adopt green building standards.
2. Second, one of the reasons for including this provision was to prime our businesses for an eventual carbon regulatory regime. As an established federal government program that has strong connections with both the EPA and Department of Energy, the principles of ENERGY STAR benchmarking and targeting should transfer neatly to an ultimate regulatory framework. While much of the regulated community might have trouble believing it, we actually tried to SAVE them some headaches with this policy.
3. Third, ENERGY STAR is one of the best-known brands in the energy conservation field, with greater saturation occurring as these factors become more important to consumers. From refrigerators to townhomes, it's a brand and label increasingly permeating the public awareness. People realize that ENERGY STAR can save them money. Like most consumers and people who aren't in this room, I don't spend my days with BTUs and kilowatt-hours. Most of the major appliances you see on the sales floor today have a direct, dollar-to-dollar comparison of annual

energy costs. We want the information coming from our legislation's requirements to be understandable to someone without a master's degree in physics. Witness the myriad competing green building standards that have arisen. All agree on one thing: any green building must start with ENERGY STAR blue.

4. Fourth, the easy to understand 0-100 scale for performance is also intuitive, allowing for a quick assessment of the building and—hopefully—a corresponding decision to choose the more energy-efficient product. Our building stock is of different ages and dispositions, and the variety of ENERGY STAR analytic tools makes it ideal to reflect the many dimensions that the building sector's energy use encompasses. It's like a miles-per-gallon rating for your office space. Except demand is likely to stay high for office space even if auto sales tank.

### **Conclusion**

DC's experience with ENERGY STAR benchmarking and reporting is still under development, but careful consideration of the policy goals to improve energy efficiency and empower consumers to take actions to curtail climate change prompted us to include these provisions in our landmark energy law.

We are motivated in our belief that public policy can require disclosure of information that is integral to the proper functioning of markets, in this case the real estate market. For a long time, the building sector has been designed to promote occupant comfort and convenience, not energy efficiency. The challenge for the future will be continuing to meet high standards of safety, convenience, and comfort in our building industry while adapting for equally pressing needs for lifecycle affordability and a minimal carbon footprint.

Of course, the truth alone will not set us free. There are major cultural changes that are still needed to make energy performance information relevant. Working with the schools and recruiting students to help teach their peers and parents is an important strategy to make energy a more meaningful and influential part of everyday decisions, particularly as we confront the economic and environmental challenges of the next century. We look forward to partnerships with the federal government to improve the performance of the building stock and more generally the quality of life for DC residents.

We all know that we live in the information age; indeed we are inundated with figures and statistics all of the time. The central challenge is not to create more information, it's to put existing information in the proper economic, social, and political context so that it actually informs and contributes to the acquisition of knowledge and corresponding rational behavior.

With the knowledge of how building energy performance influences other aspects of our lives, from environmental quality to economic competitiveness, we may get closer to making choices that are not merely informed, but wise.



**ENERGY STAR** is a U.S. Environmental Protection Agency program helping businesses and consumers fight global warming through superior energy efficiency. Learn more at [www.energystar.gov](http://www.energystar.gov).

**EPA'S PORTFOLIO MANAGER** is an interactive energy management tool that allows building owners and managers to track and assess energy and water consumption across an entire portfolio of buildings in a secure online environment. Visit [www.energystar.gov/benchmark](http://www.energystar.gov/benchmark) for more details.



**DESIGNED  
TO EARN THE  
ENERGY STAR**

The estimated energy performance for this design meets US EPA criteria. The building will be eligible for ENERGY STAR after maintaining superior performance for one year.

**EPA'S TARGET FINDER** tool helps architects and building owners set aggressive, realistic energy targets and rate a building design's estimated energy use. Use the tool to achieve Designed to Earn the ENERGY STAR. Find out more at [www.energystar.gov/targetfinder](http://www.energystar.gov/targetfinder).

**COUNCIL ROCK SCHOOL DISTRICT**, an ENERGY STAR Partner of the Year Award winner in 2008, has used Portfolio Manager and other ENERGY STAR tools and resources to improve the energy efficiency of their buildings. Visit [www.crsd.org](http://www.crsd.org), and click on Go Green/Energy Management to learn more about the district's energy management efforts.

**BOMA INTERNATIONAL** launched the Market Transformation Energy Plan and 7-Point Challenge to reduce energy consumption in commercial buildings by 30 percent by 2012. The Challenge encourages participants to Benchmark Your Energy Performance Through ENERGY STAR. Learn more at [www.BOMA.org/AboutBOMA/7pointchallenge](http://www.BOMA.org/AboutBOMA/7pointchallenge).

**COSTAR GROUP, INC.** provides information services to commercial real estate professionals in the United States and the United Kingdom. Their comprehensive online database includes a variety of data that is important for making informed decisions about real estate investment, including ENERGY STAR ratings. View the online database at [www.costar.com](http://www.costar.com).

**JCPENNEY**, an ENERGY STAR partner since July 2005, has been honored multiple times as an ENERGY STAR Partner of the Year Award winner for smart energy management practices and investments throughout its operations that resulted in significant energy and financial savings. The company became the first organization to earn the ENERGY STAR for a retail space, and its Energy Management team implemented numerous energy conservation projects and developed programs to engage associates across JCPenney's 1,000-plus stores. Learn more at [www.jcpenney.net/social\\_resp/default.aspx](http://www.jcpenney.net/social_resp/default.aspx).

Visit the following Web sites to find out more about current energy disclosure legislation.

- ▶ The City of New York's PLANYC Initiative 5:

[www.nyc.gov/html/planyc2030/downloads/pdf/full\\_report.pdf](http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf)

- ▶ The District of Columbia's Clean and Affordable Energy Act of 2008:

[www.dccouncil.washington.dc.us/images/00001/20080819161530.pdf](http://www.dccouncil.washington.dc.us/images/00001/20080819161530.pdf)

- ▶ The State of California's AB 1103, 2007 legislation:

[http://info.sen.ca.gov/cgi-bin/postquery?bill\\_number=ab\\_1103&sess=PREV&house=B&site=sen](http://info.sen.ca.gov/cgi-bin/postquery?bill_number=ab_1103&sess=PREV&house=B&site=sen)

**THE EMISSIONS & GENERATION RESOURCE INTEGRATED DATABASE (eGRID)** is a comprehensive inventory of environmental attributes of electric power systems. The eGRID 2007 files are available for download at: [www.epa.gov/cleanenergy/energy-resources/egrid/index.html](http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html)

# APPENDIX E: SAMPLES OF PERFORMANCE LABELS

## FEDERAL TRADE COMMISSION ENERGY GUIDE APPLIANCE LABEL

U.S. Government Federal law prohibits removal of this label before consumer purchase.

# ENERGYGUIDE

Refrigerator-Freezer  
 • Automatic Defrost  
 • Side-Mounted Freezer  
 • Through-the-Door Ice

XYZ Corporation  
 Model ABC-L  
 Capacity: 23 Cubic Feet

**Estimated Yearly Operating Cost**

**\$67**

Cost Range of Similar Models: \$57 to \$74

**630 kWh**  
 Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side-mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.65 cents per kWh.
- For more information, visit [www.ftc.gov/appliances](http://www.ftc.gov/appliances).

## AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS LABEL

### Building Energy Certificate

Building Information Building Type: _____ Size: _____ Year of Construction: _____ Address: _____ Owner Contact Information: _____	
<b>Asset Rating for Design Specifications</b> <b>50</b> (on a scale of 1-100) This building is <b>Asset Rated</b> as: <b>AVERAGE</b> For the Year of <b>2005</b>	<b>Operational Performance Rating for Building as Used</b> <b>50</b> (on a scale of 1-100) This building is <b>Performance Rated</b> as: <b>AVERAGE</b> For the Year of <b>2007</b>
Method Used: <b>EPA Energy Star Target Finder</b>	Method Used: <b>EPA Energy Star Portfolio Manager</b>
Estimated Annual Site Energy Usage: _____ (kBtu)	Actual Annual Site Energy Usage: _____ (kBtu)
Estimated Annual Energy Cost: _____ (\$)	Actual Annual Energy Cost: _____ (\$)
Estimated Annual Carbon Emissions: _____ (tons CO <sub>2</sub> )	Approximate Annual Carbon Emissions: _____ (tons CO <sub>2</sub> )
<b>Energy Design Features</b> Check all that apply: <input type="checkbox"/> Designed to meet minimum state energy code: <input type="checkbox"/> Designed to meet ASHRAE AEDG for building type: _____ <input type="checkbox"/> Designed for USGBC LEED rating, Rating _____ EA Points _____ <input type="checkbox"/> Designed for Green Globes, Rating: _____ <input type="checkbox"/> Designed to Earn the Energy Star <input type="checkbox"/> Designed to meet a new construction program (specify) _____	<b>Operational Features</b> Check all that apply: <input type="checkbox"/> This building earned the Energy Star Label for these years (list): _____ <input type="checkbox"/> Building systems that were commissioned or re-commissioned: Specify system and year _____ <input type="checkbox"/> This building meets EPA's Energy Star indoor environmental quality assessment requirements including temperature and humidity, illumination, outside air ventilation, and control of indoor air pollutants <input type="checkbox"/> This building has had the following energy efficiency improvements since construction: Item: _____ Date: _____ Item: _____ Date: _____
List Top Five Energy Efficiency Design Features: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____	<input type="checkbox"/> This building design has been benchmarked to ASHRAE Standard 90.1-2007 following the procedures in Informative Appendix G. This building design achieves a ____% improvement over the baseline.

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## EPA OFFICE OF TRANSPORTATION & AIR QUALITY FUEL ECONOMY LABEL

### EPA Fuel Economy Estimates

These estimates reflect new EPA methods beginning with 2008 models.

<b>CITY MPG</b> <b>18</b> Expected range for most drivers <b>15 to 21 MPG</b>	<b>Estimated Annual Fuel Cost</b> <b>\$2,039</b> based on 15,000 miles at \$2.80 per gallon	<b>HIGHWAY MPG</b> <b>25</b> Expected range for most drivers <b>21 to 29 MPG</b>
<b>Combined Fuel Economy</b>		
This Vehicle <b>21</b> 10 ————— 31 All SUVs		

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the **FREE Fuel Economy Guide** at dealers or [www.fueleconomy.gov](http://www.fueleconomy.gov)



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