

Andrew Schulte: Good afternoon, everybody, and thanks for waiting a few extra minutes. We anticipate having a number of people on this call and I just wanted to get a critical mass online. I wanted to welcome all of you. My name is Andrew Schulte and I'm a contractor providing support to the Existing Commercial Buildings Working Group of the State and Local Energy Efficiency Action Network or SEE Action.

I'm going to be serving as your host for today's session. So as a host, I'd like to welcome you all to the second in a series of webinars that are being coordinated by DOE's Technical Assistance Program, TAP, and the SEE Action Network.

Many of you may have attended our kickoff webcast back on June 21st. That was the start of what we anticipate being a five webcast series. This series is an opportunity for state and local officials to learn about the energy efficiency strategies and policies that SEE Action is working with state and local governments to deploy, as well as the resources that are available to these entities to pursue strategies. Today's session is on benchmarking and disclosure policies for public and commercial buildings, and we are very excited to offer you a great lineup of speakers.

First though, a few quick housekeeping items. As you probably noticed, all of you are on mute. Because of the number of attendees, the risk of background noise is too great if we open up the lines.

So as we go through the presentation, we encourage you to please ask any questions via the Q&A box that should come up on your screen. That's part of the webinar platform. We will try to get to those questions as they come in. If not, we can push them to the back and we anticipate having a chunk of time for question and answer. And if by any chance we don't get to it today, we will follow-up with you offline. We will be recording this session and we'll also be making slides available to all of you afterwards. So that's the housekeeping.

Before we jump into the content of the presentation, I did just want to give a quick overview of DOE's Technical Assistance Program, which is acting as a cosponsor of this webinar series. The Technical Assistance Program or TAP, as many of you may know, provides state, local and tribal officials with the tools and resources needed to implement successful and sustainable clean energy programs. These resources include one-on-one assistance, an

extensive online resource library, the facilitation of peer exchange, which can include webcasts like the one you are attending today.

As many of you many know, DOE is currently working to define the most effective framework for TAP is a post-Recovery Act setting. Meanwhile, however, DOE continues to facilitate peer exchange efforts and certainly encourages you to get involved and to learn more via the Peer Exchange Hub. The URL for the hub is on this screen.

Of course we encourage you to stay tuned for upcoming announcement regarding further webcasts in this webcast series, as well as more information about the availability of direct technical assistance and other resources.

As I mentioned, today's webcast will be made available online at the DOE Solution Center. That will include the slides, the recording of the presentation and an audio transcript. And of course if you have any questions for the Technical Assistance Program in the meantime, you are more than welcome and encouraged to send an e-mail to the address listed on this screen.

So with that, I'd say thanks again to everybody for joining us today and we are going to jump into the main content for this presentation. To help us kick off this session, I'm going to turn things over to Cliff Majersik of the Institute for Market Transformation and also a member of the Existing Commercial Buildings Working Group of the SEE Action Network. He's going to provide an introduction to SEE Action and also provide an overview of benchmarking and disclosure policies at the state and local level nationwide.

So with that, Cliff, I will turn the mike over to you and look forward to hearing what you have to say.

Cliff Majersik:

Thank you very much, Andrew. Thank you all for joining us. I am Cliff Majersik, the Executive Director of the Institute for Market Transformation, and we're a nonprofit working out of Washington, D.C. We're actually assisting all of the cities and states that have existing benchmarking and disclosure policies that apply to privately owned commercial buildings in the country, including the folks you will hear from later today, Marshall Duer-Balkind, Washington, D.C. Department of the Environment, which administers their benchmarking law, and Barry Hooper from the City of San Francisco Department of the Environment, which administers their benchmarking law.

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The agenda today is to go over briefly what SEE Action is, to talk in general about what benchmarking disclosure policies are, and then to have specific examples from Washington and San Francisco and, finally, very briefly we'll hear about some DOE initiatives, and Cody Taylor, who leads those initiatives is on the line and available to take questions during the Q&A at the end.

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SEE Action overview. Next slide. SEE Action is a DOE-facilitated body of state and local government officials, as well as utilities, NGOs and other stakeholders. Its goal is to achieve all cost-effective energy efficiency by 2020.

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Its leadership is an executive group of more than 30 stakeholders from the groups I mentioned before, and there are eight working groups. The presentation you're going to hear now is related to the Existing Commercial Building Working Group, of which I am a member, and one of the policy recommendations from that working group is for cities and states to adopt these rating and disclosure mandates along the lines that you're hearing about now. That working group, again, is composed of representatives of cities and states around the country, as well as NGOs, utilities, associations and other experts.

Then you can see around the circle there on the right of the slide the other working groups that address residential buildings. They address utilities, building codes, valuation, monitoring and verification, financing, industrial, many of the key opportunities for energy efficiency.

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The commercial working group, our goal here is to improve energy efficiency in commercial buildings, office buildings. Most of the ones that are going to be in existence over the next decade have already been built, so existing buildings are critically important. In fact, even in a good year we only add, say, one percent to our building stock and recent years have not been good years for building construction. So, existing buildings are very much the main game.

Commercial buildings collectively use about 50 percent of the energy consumed by buildings, and account for more than 20 percent of total U.S. greenhouse gas emissions. Public buildings are about 25 percent more energy-intensive than private buildings. Commercial buildings spend more than \$2.00 per square foot on energy. It can be significantly higher. Many folks in the space are under the mistaken assumption that all buildings use more or less the same amount of energy. In fact, you can see this building is using as little as \$1.00 per square foot for energy or as much as \$5.00 per foot in energy, even in the same market where they're all paying the same energy prices.

On average, five to fifteen jobs are created for every \$1 million invested in energy efficiency of buildings and, as you'll see in a slide later, energy efficient buildings have higher occupancy levels, lease rates and sales prices. In other words, energy efficient buildings are more profitable.

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The policies and programs that are being recommended by SEE Action fall into four broad categories. I won't go into every one of them here, but you can see that one category is to drive demand for energy efficiency, and this policy of benchmarking rating and disclosure is a policy that is intended to increase demand for energy efficiency and to catalyze private sector investment in energy efficiency.

A similar policy is a requirement to do retro-commissioning. That is building tunings, make sure that the building is properly performing, and that's found to be very cost-effective. We're not talking about capital investments or retrofits. We're just talking about making sure the systems are operated properly.

Unfortunately, very often, in fact more often than not buildings are not operated anywhere near the way they were designed to be operated, and that creates both energy waste and comfort problems. So retro-commissioning is a good policy, and it's a policy that some jurisdictions are now requiring both for government buildings and for private buildings.

The other broad categories of activities are to enable energy efficient operations and investments, to build the workforce to improve the energy efficiency through retrofits and improved

operation, and to move the market through improved procurement and demonstrating emerging technology.

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Some of the work products of the Existing Commercial Building Working Group are fact sheets. We have fact sheets on benchmarking, rating and disclosure, retro-commissioning, high-performance leasing, strategic energy management programs and other topics. All of these materials are available at the Web address you see at the bottom of the slide, SeeAction.energy.gov.

There's also a model policy design guide, including benchmarking, our topic today. That's available from that Web address as well and from BuildingRating.org and Imt.org, and we're in the process of developing a retro-commissioning model policy guide.

There's also expert and peer support. So we encourage you to contact us at IMT. You'll see my contact information shortly. The folks at DOE, Cody Taylor and others, and we can either provide you support directly or help connect you to your peers in other cities or states, who have answers to some of your questions.

If there are other resources that would be helpful to you for us to provide, we would like to hear about it. So let us know; Cody Taylor, myself and IMT, and the folks at SEE Action all would like to hear about that.

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So how can you get involved? You can download and share our resources. You see the Web address there to get the specific resources for existing buildings. Here is Cody Taylor's e-mail address that you can send him to tell your story, to share your data or to request assistance.

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Now I'm going to get into the introduction to energy benchmarking and reporting specifically, and I'll mention that this slide show is available at the address you saw before. So, all of these slides are available for you at your convenience. We have to go kind of fast through the slides because of limited time.

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In general, for large cities with good public transportation, buildings typically account for more than 70 percent of the greenhouse gas emissions, and you can see four different cities' greenhouse gas emissions. These are based on the city's own greenhouse gas inventories. So can see all of these cities, New York, D.C, Boston, Chicago have more than 70 percent of their greenhouse gas emissions from their building sector, and the second biggest contributor is transportation in all four cases.

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Now we're familiar with rating and disclosure requirements in a variety of areas. You see here an image of a new federally mandated calorie disclosure on menus at fast food restaurants. You have of course your nutrition labels that go on your food. You have the energy guide labels that go on everything from air conditioners and refrigerators to dishwashers, and of course you have the miles per gallon sticker on a car.

Now, imagine that we didn't have that, if you didn't know when you were buying a car what the miles per gallon it would get was. In fact you couldn't even tell whether it was a Hummer or a Prius. You can imagine that people would be much less able to buy energy efficient cars, and they'd be less likely to pay a premium for an energy efficient car, and if they wouldn't pay a premium for a Prius then the manufacturers wouldn't have incentives to build Priuses, and you would imagine that you would stop having fuel efficient cars, and the fact that you could even go further and imagine that you end up paying the gasoline costs not just for yourself, but for everyone on your block. You share that out equally with all of your neighbors. In a scenario like that, people really wouldn't do a very good job of buying fuel efficient cars or saving gasoline.

That's effectively the situation that we have with buildings or at least that we did have until recently. Without knowing how energy efficient our building are the market just can't work properly. It's actually, I think, remarkable that our buildings don't perform worse than they do given the relatively little information that's available about building efficiency to the market.

So cities look at rating and disclosure mandates as a way to make markets work more effectively. It's all about harnessing the power of markets and driving private sector innovation and investment and energy efficiency, so that we can increase demand for energy efficiency without having to invest public money, so that we can

provide a consumer protection benefit for both residential and commercial consumers. And in the process, by catalyzing investment in energy efficiency and by keeping money in our communities rather than having it leave in the form of purchasing energy, we create local jobs.

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So the possibility of rating and disclosure for buildings, this is just a notional image. Of course we're not talking about actually having huge labels on the sides of buildings, but we are talking about making it transparent, providing transparent information about the energy efficiency of these large buildings.

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We believe that this can create a virtuous cycle where you have ratings, public ratings of the energy efficiency of all large buildings that are disclosed to the markets. That leads to the market having information about energy efficiency in buildings, and comparing the efficiency of buildings, and rewarding the energy efficient buildings with lower vacancy rates, higher rent, higher sales prices, which helps to improve their profitability and leave the owners to invest the energy efficiency in their buildings so that they can compete against other buildings, which leads to a more energy efficient building stock and significant energy savings, a continuously repeating cycle of improvement.

When performance is measured performance improves, and when performance is measured and reported back the rate of improvement accelerates. That's the thinking behind these policies.

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There's evidence, including this survey from *Building Operator* magazine, which found that facility managers who have Energy Star benchmarks, 70 percent have used the Energy Star to guide their energy efficiency upgrade plans. They typically target their investments in their worst performing buildings, as indicated by their Energy Star scores, and 67 percent of them have used Energy Star to help justify an efficiency project, for instance, when they're making the case to the CFO that this is a good investment.

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Energy Star is a free tool that's provided by the U.S. EPA, the Environmental Protection Agency. It's available online. It's been around since 1999. It provides an apples-to-apples comparison for the whole building, allowing you to track changes in the energy, water and carbon emissions, as well as the cost of energy for buildings over time, and to report that data and share that data with others within your organization and, in the case of cities and states that require it, to counterparties at transaction and to the market.

If you have a high enough score, a score of 75 or higher on a 1 to 100 scale, you can apply for the Energy Star certification. That 1 to 100 scale equates to how you compare to peer buildings of your kind throughout your region. So, one means that you're in the least energy efficient one percent of all peer buildings, and 100 means that you're in the one percent of most energy efficient peer buildings.

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The Energy Star Portfolio Manager is a metrics calculator that takes and inputs the energy consumption from all sources, in other words, your electric, your gas, any other fuel that's used over a 12 month period, your water consumption, and it normalizes your use based on whether – and other factors which it automatically knows based on the address of the building – and it normalizes for other data that you provided, the square footage of the building, how the space is being used, how many people are in the building, how many computers, what are the operating hours, and it gives you a rating which is adjusted for all those factors, providing an apples-to-apples comparison from one building over time among buildings.

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As a consequence, it's proven a very popular tool with building owners. You can see from this bar chart the rapid growth in usage from zero in 1999 to more than 250,000 buildings that have been benchmarked by people using more than 40,000 different accounts, and the buildings collectively are 27 billion square feet of commercial and institutional space, which is nearly 40 percent of the commercial building market.

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A big driver of all these people Energy Star benchmarking their buildings and seeking the Energy Star label is the fact that these

Energy Star labeled buildings are renting for more, selling for more, and they have lower vacancy rates. Each of the bars on this chart shows the premium in the three metrics, rental, sales price and occupancy. Each colored bar corresponds to one study. Different studies looked at different datasets in different periods of time, but all of them directionally came to the same conclusion, that these Energy Star labeled buildings all right more profitable, that they're commanding premium prices and lower vacancy rates. So that's been a major driver of the rush of building owners to Energy Star benchmark their building, and improve their performance and qualify for the Energy Star label.

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There's a picture on the right of what an Energy Star plaque looks like. These plaques appear at the entrance to Energy Star labeled buildings. Collectively these buildings save nearly \$2.3 billion in energy costs every year. There are more than 16,500 of these Energy Star buildings, and they reduce the equivalent of 12 million metric tons of carbon dioxide every year, which is equivalent to the emissions electric use of over 1.5 million homes.

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So cities and states around the country have adopted rating and disclosure mandates. What we're focusing on today is requirements for existing privately owned commercial buildings. There are six cities in the country and two states that have requirements that apply to these existing privately owned commercial buildings, and those are shown in red on this slide.

You can see the first to adopt was California. The next was the city of Washington, D.C., followed by Austin, Texas and New York City, Seattle, Washington and San Francisco, and mostly recently, on June 21st the Philadelphia city council unanimously adopted and the mayor signed into law a public rating and disclosure mandate for all commercial buildings.

The other colors correspond to other types of rating and disclosure mandates, and the ones I'll particularly call your attention to are the green, the states of Hawaii, Minnesota, Michigan and Ohio, which require that publicly owned government buildings have to be Energy Star benchmarked or otherwise benchmarked and those ratings are publicly disclosed. So it's a way of being accountable to taxpayers. They're effectively paying the energy bills for these buildings. They want to see the buildings operated efficiently to

minimize the burden on the taxpayers, and this is a way of governments holding themselves accountable for improving the performance of their buildings.

I should say that all of the red jurisdictions that you see also, as part of their requirements for privately owned buildings, also have the same or more demanding requirements of government buildings. In other words, they're all leading by example, typically by benchmarking and publicly disclosing the government buildings before they require private buildings to do so.

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Here is a summary and we don't have the time to go through every city in the summary of cities that already have these rating and disclosure mandates. One of the key variables is what form disclosure takes.

In four cities, Washington, D.C., New York City, San Francisco and Philadelphia the disclosure is public. The world can see the ratings for these privately owned buildings on the Web. Now these individual private disclosures haven't occurred yet. The first is scheduled to happen in New York City in September, but already the market is reacting to the prospect of this public disclosure, and in many cases the government buildings have already had their ratings publicly disclosed.

The other jurisdictions have transactional disclosure requirements. Those requirements are that the jurisdictions have to disclose to a counterparty at transaction, typically anybody that wants to buy, lease or finance, that is to lend money against the building in question. And you can see certain jurisdictions also require audits and retro-commissioning of large buildings.

You also see at the bottom of this slide several cities, Boston, Boulder, Chicago, Minneapolis, Portland, San Jose, which are actively considering rating and disclosure laws.

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Collectively these laws have a pretty significant impact in terms of the square footage that's affected. You can see the total square footage is more than four billion square feet. That's the top pie chart, and the 800-pound gorilla here, just because it's the biggest city in the country, is New York City, accounting for more than half of that square footage.

The bottom pie chart is the number of buildings irrespective of size, accounted for by each jurisdiction. These are just the buildings that have to benchmark annually. In fact, in the states, especially California and Washington State, many more buildings than this are subject to the law, but because there's no public disclosure, no requirements to benchmark annually, the requirement only comes in at the time of transaction. A relatively small fraction of those buildings subject to the law will have to benchmark in any given year.

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New York City calls their plan the Greener, Greater Buildings Plan. In addition to mandatory rating and disclosure they have mandatory audit and retro-commissioning, mandatory lighting upgrades and mandatory tenant submetering. It's the most complete package of policies aimed at addressing the root cause of wasted energy in large existing buildings of any jurisdiction in the country.

New York City buildings account for \$15 billion annually in energy costs, and they use 94 percent of the electricity used in New York City. The two percent of buildings that are over 50,000 square feet in New York account for about half of all the floor area. So just by regulating two percent of their building, they were able to try to improve energy efficiency in half of their building stock, and of course these buildings will stand for many years.

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Here each dot represents 20,000 buildings. Each dot represents a lot, over 50,000 square feet on the map, and each building icon on the left represents 20,000 buildings. Eighty-five percent of the buildings that are standing today will still exist in 2030. So it's critically important that we improve the efficiency of our existing stock.

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Here's a timeline for New York. They adopted their Greener, Greater Building laws in December of 2009. In May of the following year the municipal facilities were benchmarked, and in September those benchmark ratings were disclosed publicly, September of 2011. In August of 2011 privately owned buildings

had to benchmark and submit their ratings to the city, but for the first year those ratings were not made public.

The second year, May of this year, May of 2012, the privately owned buildings had to submit their benchmarks for the second time, and those individual ratings will be made public in September of this year, except for residential buildings which got an extra year, and the residential buildings will be disclosed for the first time in September of 2013. They've had 75 percent compliance with the requirements in the first year, and that impressive compliance rate for the first year of a new program was achieved through outreach and training, a help center provided by the University of New York and NYSERDA, and aggregate data supplied by the local utility, ConEd.

So, more than 2,300 city buildings have been benchmarked and those ratings have already been disclosed, and the aggregate ratings from the first private building submissions will be published shortly. They've already been delivered to the city council of New York.

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IMT has done an analysis of a hypothetical model, where you had a New York or San Francisco style policy in place across the country that was guided by an expert policy panel, including leaders from major property owners like Bentall Kennedy and TIAA-CREF as well as building owners. The analysis found that if you have policies like this in place across the country, it will create 59,000 net new jobs in 2020 and save more than \$18 billion in energy costs.

Of course these rating and disclosure mandates don't require that those be made more energy efficient. It's simply disclosing information to the market, but the opinion of the experts is that just by having the market have the information it will catalyze investment in energy efficiency, which will create these jobs and these energy savings.

We also did a study of firms that have already hired up to meet the demand created by these laws, especially laws in New York City and Seattle, and we have profiles of a dozen companies that have staffed up and attribute their increased business and increased staffing to the laws in place there. A key issue is that they're seeing the primary demand is not a lack of the ability to finance

energy efficiency. It's a lack of demand for energy efficiency, and these laws help stimulate that demand.

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A last critical issue is in order to benchmark a building, as I said before, you need to have all of the energy use for that building because you can't benchmark a building if you don't know, for instance, how much energy is being used by tenants on their meters, and often building owners don't have access to that information. This is such an important issue that my organization got together with the leading representatives of building owners, BOMA and the Real Estate Roundtable, as well as with NRDC, U.S. Green Building Council, the folks behind LEED, and Enterprise Community Associates, and we created the Data Access and Transparency Alliance, an organization whose mission is to get information about whole building energy use to building owners, so that they can understand the efficiency they're building and prove the efficiency they're building and benchmark their building.

The National Association of Regulatory Utility Commissioners, the group association of all the public utility commissioners in the country, approved a resolution that our group had sponsored, called on utilities to provide whole building data access to facilitate Energy Star benchmarking of buildings in their territory. So that's an important first step.

The next step is to go to individual PUCs and utilities and persuade them to provide these services. There are already many utilities like ConEd in New York, ComEd in Chicago and others that provide these services, but, unfortunately, most utilities don't yet provide whole building data access to building owners yet, even if there's a big demand from their customers.

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Here is my contact information. BuildingRating.org is a resource for folks like you, government officials and others interested in the rating and disclosure mandate. The EnergyDataAlliance.org is the website for the Data Access and Transparency Alliance data.

Now I'm going to hand off. Cody, did you want me to take any questions now or should I hand it off to Marshall to present on Washington, D.C.?

Andrew Schulte: This is Andrew. I'd go ahead and say why don't we move ahead, just to make sure that all the content gets covered, because we do have a lot of content for this presentation. Then we can line up any questions that come in for sort of the back half of the session, if that works.

Cliff Majersik: Great. Here's Marshall.

Andrew Schulte: And I would just jump in there quickly to say thank you to Cliff for a great overview and introduction to this presentation. I think this sets the high level, national level picture for benchmarking and disclosure policies, and I think it served as a nice introduction to the local examples that we're going to hear about now.

Next up, as Cliff indicated, is Marshall Duer-Balkind. Marshall is a program analyst for building energy benchmarking in the Office of Policy and Sustainability at the Washington, D.C. District Department of the Environment. He manages the implementation of D.C.'s building energy benchmarking program, and contributes to the development of the district's ambitious sustainability plan.

Prior to joining the District Department of the Environment, Marshall worked at the Connecticut Department of Environmental Protection, and he earned his Masters of Environmental Management from the Yale School of Forestry and Environmental Studies.

So with that, I will turn the mike over to Marshall.

M. Duer-Balkind: Great. Thank you very much. I'll try to keep it somewhat brief because I know time is moving. So next slide please.

For starters, we've heard a lot already about why building owners and why cities what to benchmark, so I'll go through this quickly. If you think about why would a building owner benefit from such a policy, why would they see the benefit, why wouldn't they just see this as a regulatory burden? Why do you actually have, as we do in D.C., building owners basically chomping at the bit to submit their data and have it displayed publicly?

It's because benchmarking allows you a way to compare performance, to manage your energy, water consumption, calculate carbon footprint, set investment priorities, and when it's being disclosed publicly allows you to attract tenants and position yourself competitively in the marketplace relative to other

buildings. Reducing your utility costs is very important because utilities are the largest single expense in operations for building owners, more than repairs and maintenance, more than administration, more than security, more than grounds.

Obviously they pale in comparison to the revenue generated by your rent, and a small change in occupancy rate will have a much greater effect than utility bills, but studies have shown that buildings that are Energy Star certified and are good energy performers also have higher occupancy rates. So it's a win-win.

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So D.C. in 2008 became the first city in the country to institute a mandatory rating and disclosure law. Why did D.C. do this? D.C. did this because, as you can see in the chart here and as we saw on the chart on Cliff's slides, buildings are the largest source for D.C. of greenhouse gas emissions, accounting for 75 percent of overall emissions in the city, well beyond transportation, definitely well beyond waste because we have a good public transit network and so forth.

So if we want to reduce greenhouse gas emissions, if we want to reduce energy in the city, which we do want to do, reduce energy use, we need to target buildings. We could use traditional incentive programs and that kind of thing and of course the District is doing that as well, but this is a low-cost approach to catalyze an overhaul of the entire building stock, to provide granular energy data to the city, to drive a transformation of the market, and to position D.C. once again as a national leader in sustainability.

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So what are the actual requirements? I'll be brief here. The Clean and Affordable Energy Act in 2008 established requirements for existing buildings and for new buildings relating to benchmarking. The existing buildings requirements, which is what I'm going to spend basically my entire presentation on, are the Energy Star Portfolio Manager of benchmarking and public reporting, for public buildings over 10,000 square feet of which there are about 250, and private buildings over 50,000 square feet, of which there are about 1,800 or so.

That's not counting the federal buildings, because D.C. does not have legal oversight over federal buildings. If we would include those, that would greatly increase the number.

It was the first law of any city. We're still finalizing the regulations here. In fact, we put out a proposal last fall. We got a lot of comments. We looked at what other cities were doing because while D.C. was the first to pass a law, other cities like New York, which we just talked about, have advanced, somewhat passed us in those limitations.

So we looked at best practices in other cities. We refined our regulations, and we just actually last Friday, July 20th, put out a new proposed regulation for public comment. You can find that on our website, Ddoe.dc.gov/energybenchmarking. We expect to finalize later this year, and then we will be getting data later in 2010.

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Briefly I want to talk about another aspect of our law that is pretty unique, which is a requirement for new buildings. Alongside Portfolio Manager, which everyone knows, is sort of a sibling application from Energy Star called Target Finder, which is basically Portfolio Manager applied to an energy model of a building as to the actual performance of the building to try to say, "Okay, we've designed the building this way. What kind of Energy Star score will it get if it performs the way it's designed?" Obviously, as we've already heard, not all buildings perform the way their design was built.

This was also required in 2012. Now all new buildings that are starting to be built in the city are required to model energy performance and report the results to the District for publication. But we don't yet have a single building where we're reporting this information yet, but we will and that will be interesting.

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So we've had a few stumbling blocks as you might imagine, given the 2008 to 2012. It's been four years. There's a lack of dedicated funding in D.C. These programs are not hugely labor-intensive, but they're not elementary. You do need some staff. Also, with a shift to include the residential sector to do it the way the law was written versus what was initially anticipated, obviously, as was already said, it was somewhat more complex.

We had challenges with data access, which I'll come back to later, and we've had a lot of need for training and outreach and so forth, which I'll also get into later.

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So if I was talking to a group of D.C. building owners at this point, I would proceed to talk about the details of the law, "This is what you do. This is when you report....." You don't want to hear that. You want to hear, if you're in another jurisdiction and want to influence policy, what are the big decisions that you're going to have to make? What did D.C. do in those cases and why?

So that's how I'm going to focus the rest of this presentation on what I see as sort of the five key decision points, tools, building classes and sizes affected, data access that's used, disclosure and public engagement.

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Cliff did a marvelous job on Energy Star Portfolio Manager, so I'll be pretty quick on this, but the first of course is the tool. Why Energy Star Portfolio Manager over designing a custom tool or using some activating tool that's being developed and so forth?

It's because we're looking at how buildings are actually performing. We want that operational rating. And we want something that's free. It's online. It's relatively easy to use. When Energy Star comes out with a new upgrade next year it's about to get a lot easier to use, which will be really great. It will eliminate the need for providing training and so forth, hopefully, which will be pretty wonderful.

Then you get this one number, this score for a lot of building types, and when you don't have a score you still get an EUI. That's very powerful. So really strong brand recognition. Three-quarters of the marketplace of all consumers know what Energy Star means. Maybe they don't know there are Energy Star buildings, but they will.

In D.C. in particular, the GSA, General Services Administration, the federal government requires that all federal buildings be benchmarked, and any buildings that the federal government is leasing space in be benchmarked and be Energy Star certified. Due to that, there was already an extremely high rate of adoption

of Energy Star Portfolio Manager in the commercial space within the District of Columbia, which made this easier.

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The next question was: what buildings? Obviously we'll need to start with the public buildings and lead by example. D.C. started at 10,000 square feet and up for public buildings, so that we would be grabbing a larger swath of the public buildings than we would with private buildings. Obviously you need your large commercial buildings for a higher adoption rate in D.C., and also multifamily.

Multifamily makes a lot of sense in a place with large stocks of multifamily housing, like D.C. In other cities without complexes, it wouldn't make much sense, but in New York and D.C. and other big cities it does make a lot of sense. EPA is working actively to try to create a score for multifamily that will really catalyze a lot of information in the multifamily.

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The economies of scales here. In New York, of course, two percent of your overall buildings, they've got half of their buildings looking just at all commercial space in D.C. Buildings over 50,000 square feet account for nine percent of all commercial buildings and 73 percent of the commercial building area.

Also important is it's a relatively sophisticated class of owners. You have owners who often have property management companies and the like, that know what they're doing and that's important. That's one of the main reason, I think, that going lower than 50,000 is not always advisable.

Click please.

The other thing D.C. did is a phase-in approach, where we started with the very largest buildings, 200,000 and above, 150,000 and above and phased it over a period of years. Since we started with the largest buildings, you can see, obviously, we get much closer to 100 percent of the building area before we get close to 100 percent of the building. And due to the regulation being somewhat delayed, projected reporting deadline is being pushed back somewhat. We're expecting fall of this year for everything over 150,000 square feet, and then we'll be back on the normal timetable, April 1st, and April 1st of each year going forward, and obviously there will be annual reporting for all these buildings.

Next slide please.

The other big issue we faced and this was one that I think was not fully anticipated at first, was the problems with data access. The obvious problem is that owners can't easily access all tenant data. And the solution, what we have come to see as really the good solution that's working in best practices in New York and Seattle is aggregate whole building data.

This was what was critical to New York's very high compliance rate. This is really important here. We want to bring this to D.C. We don't actually have it yet. Obviously the idea will be a direct one-click upload to Energy Star Portfolio Manager, which New York does not have either yet, but that is what we are shooting for.

We have national support, as Cliff already talked about, but in D.C. we're going to need a public legislative or public utility commission solution. I would say that those who are in state legislatures out there, that you have a particular advantage here, because if you're putting in a statewide policy you can actually, in the very same law, mandate aggregation of utility data as a service being provided by utilities a year or two prior to providing it to making any building have to report. So you can really stagger that well.

If you're in a city, you need to work with your state level PUC. In D.C., because it's a district, a PUC is the same level, so we're working with them, legislature working with utility companies.

In the meantime – next slide please – we have a two-pronged approach. For nonresidential buildings, in order to benchmark you need more information than just the energy use of tenants. If it's an office building, you need to know from the tenants how many hours they operate. How many computers do they have? How many people do they have and so forth? If it's a hotel, how many beds do they have, that kind of thing. It varies by space.

So you have to ask the tenants for information anyway. So D.C. actually put in requirements that mandate by law that the owner or their agent, the property manager must ask those nonresidential tenants for space use and energy and water consumption data. And the tenants are liable to be fined, the same fine that could be fined for not complying, not providing data to the building owner.

So if a building owner makes best efforts to get the data and they don't, they then can report that they tried everything they could to get the data. They couldn't get the data from their tenant. The district from the environment can contact that tenant directly, and that tenant would then provide the information to the building owner and to DC then they'd have 30 days. The building owner, within 30 days, would then update the benchmarking report with this new data.

That's on the nonresidential side. There's less assumptions of privacy for nonresidential buildings and so forth, tenants, so it's somewhat more feasible.

Next slide please.

And lower number of tenants. If you have 300 residential tenants, you don't want to go asking all of them for forms. It doesn't work. And, so, what we're doing in DC for a lot of our older buildings, we estimate about two-thirds of older building stock is master metered anyway. That's of all residential buildings. So those can be benchmarked as whole buildings, done, simple.

For residential buildings that are not master metered, D.C. in the interim is not going to be requiring any data collection from residential tenants. The manager or owner will put in space use as they know it. They'll put in master meter data, if they have any, say for water. They'll put in common meter data. If they happen to have a nonresidential tenant or two or three, you know, a deli on the ground floor or something, they have to get that information and put that in as well. Once whole building information is available from the utility company, they will have to use that.

So we see the interim solution that we have as better than nothing, but not perfect data for a couple years, while we try to get the data access issue solved here in D.C.

Next slide please.

I should not put animations in my webinars, they slow things down. Public disclosure, number four. We saw this graph already actually, thanks to the courtesy of IMT. Why is public disclosure so important? Of course it's because it harnesses the power of the free market to drive efficiency, and in D.C. we feel very strongly that transactional disclosure, which is an option that some cities might consider, it does not provide as much leverage. It's much harder to enforce and it inserts government in between a real estate

transaction in a way that it hasn't ever been before. So in a way it's more invasive, in a funny way. And of course it's very difficult. – and it doesn't provide the kind of shaming factor. “I have a LEED certified building. I've been crowing about it. Oh wait. It has really bad energy performance.” There are buildings like that out there and they are going to have to improve. We want, the vision for the future here on the commercial office space side at least is that if you're going to be a Class A you have to be a top energy performer, period.

Next slide.

So how are we going to be disclosing it? For starters, we make public only in the second year of data, so not at first to give people a little time to adjust.

Cody Taylor has worked with some consultants and DOE to develop this SEED platform, Standard Energy Efficiency Data platform – Cody can correct me if I got that wrong – which is an open source platform for storing municipal data and data from Portfolio Manager for the five cities. D.C. is a beta tester of SEED right now, working through the bugs.

We're going to use that to store the data and then put it out through APIs to lots of third parties. So you'll be able to see it on the facilities. You'll be able to see it in USGBC, _____. You'll be able to see it in CoStar, et cetera. With the data, we want it in as many places as possible.

We're going to make a real effort to distinguish between whole building and partial building, provide financial cases, so it's really apples-to-apples. Specifically we're going to be providing the address, the year built, energy performance rating, 1 to 100, energy intensity. That's source energy intensity normalized, electricity use, gas use, water use, emissions, space type, gross building area, those basic things.

Next slide please.

This is not D.C. This is San Francisco, which we'll be hearing more about in a minute, but I just wanted to try and ... This is a map that honest buildings put together for San Francisco of the buildings that are complying and not complying with the law in the first year. This is to highlight just a little bit the power of visualization, where we'll be able to look at a city and look at a map and be able to see sort of a heat map of hot, you know, red

buildings, a lot of energy, and blue, less. There's just a lot of power in the visualization of this data in a way that we haven't ever seen before and it's really going to be transformative, I hope.

Next slide.

This isn't really a policy per se, but it occurred to me that it's really crucial, which is public engagement. In D.C. we've had a lot of public meetings. We've had a lot of workshops. We've had stakeholder groups, dozens of public meetings and workshops and presentations. We've provided lots of portfolio manager trainings to building owners, managers and that kind of thing.

Also, we're working with the DC Sustainable Energy Utility to create a tactical support hotline. People will be able to call in and say, "I'm trying to comply with D.C.'s law. I'm having this problem with the software. Can you help me?" This was very successful in New York, very successful in Seattle and so we're borrowing the idea. Thanks. We're very excited about that.

It's also important to have trainings and events that are sector-specific. The reality is that the difference between an office building and a residential building, a hospital and so forth for benchmarking is actually less than you would think, but for these people they think they're different. They don't want to see an example used of an office building if they're a residential building. They're going to tune out. You need to have something that is sector specific so people will actually pay attention.

And then partners. We've worked with a ton of partners – click please – and this is going to be somewhat painfully slow. But you can just sort of see here the – assuming my PowerPoint doesn't crash the webinar – you'll be able to see the large range of partners that we have worked with. This is only a small fraction of it. It's currently even a smaller fraction because the webinar appears to have solved.

Let's just try to go on. Click again please. There we go. It's still a fraction of the many groups that we work with to try to get outreach as far as possible.

The next slide please.

In closing, I just want to talk again about the opportunities this brings to policy makers. Having this data opens up granular energy consumption data that we haven't really had access to

before, to really look at where energy is being used in the city and how it is being used.

Then we can target your incentive programs, target your efficiency programs where it's most needed, and you will increase both the impact and the fiscal responsibility. You're not throwing away money anywhere. You're targeting it where it's really needed.

In closing, progress in energy efficiency has been difficult because energy use has been invisible. It's been private. We need to change the game and that's what these kinds of policies are about. Thank you very much.

Andrew Schulte: Thank you so much, Marshall. As you were talking there were actually a couple D.C.-specific questions that came in. So I think if we can spare just a minute or two running through those that would be great.

One question that I got with regard to one of your last slides on outreach engagement, et cetera, one attendee wanted to know whether you were willing to make agendas or curricula for these meetings available to attendees, that they could see what these meetings look like, what's being covered.

M. Duer-Balkind: Do you mean the public meetings that we have had with stakeholders and so forth?

Andrew Schulte: Yes, I believe so.

M. Duer-Balkind: On our website, on ddoe.dc.gov, you can actually download PowerPoints of some of our recent presentations that were given to stakeholders, to both building owner stakeholders and to service provider consultant groups. I think that probably provides a pretty good summary of the kind of level of information that we're providing.

If they're looking for something even more detailed than that, I'd be happy to have a one-on-one conversation with them and talk about it, but the PowerPoints really provide as close as you can get to an agenda and those are all publicly available on our website. That's ddoe.dc.gov/energybenchmarking.

Cody Taylor: This is Cody Taylor, Department of Energy. If that's useful to folks, we can collect a few of those from a number of cities who have been doing this and have some examples centrally located on

the SEE Action website. You can easily get to several different cities with those types of things at once.

M. Duer-Balkind: I would just say you also could find a lot of information on BuildingRating.org, which is a website that IMT and some other groups have worked to put together. What was the other question?

Andrew Schulte: There was one other question. It had to do with the inclusion of multifamily buildings in the disclosure law. The questioner wanted to double-check what the threshold square footage was for multifamily buildings that had to have benchmarking disclosed.

M. Duer-Balkind: It's the same as for all other privately owned buildings, 50,000 square feet and above. Though in this calendar year, 2012, the law is only phased in at the level of 150,000 square feet and above. But the thresholds are exactly the same as for other kinds of buildings.

Andrew Schulte: Okay. And the follow-on question to that was: based on your experience so far with multifamily properties in particular, do you find that that threshold is appropriate? Would you recommend that number to other cities or local governments? Do you have any insight on how replicable that is?

M. Duer-Balkind: I don't have a ton of insight of my own experience. Because of our phase to the strategy, we've mostly been focusing on the 150,000 square foot and above, and then next April 1st it will be 100,000. The 50,000 to 100,000 buildings, we aren't going to have to submit any data until April 1, 2014. So I don't think our outreach efforts really reached out to a lot of those entities yet. So I don't really have a lot of sense of that.

I will say that in some other cities like Seattle that have gone down to lower thresholds, when you go down below 50,000 to 20,000, to 15,000 square feet, you do start to run into cases wherein it's a single building owned by an 80-year-old gentlemen who's had this building with 15 apartments in it for all these years and he's never used never used a computer and, "What is this Energy Star Portfolio Manager thing you want me to use? I don't have any knowledge of this." That can be a challenge.

So I do think that the 50,000 square foot or most 25,000 is probably an appropriate threshold, but that's based on what I've heard from talking to other cities, not based on any particular experience we've had here in D.C.

Andrew Schulte: Great.

Barry Hooper: I think that there's good evidence that 50,000 is an appropriate threshold, and what the lowest threshold would be I definitely think the jury is out, but probably some of us may be below whatever that perfect threshold is. I agree that 50,000 is a very good starting place.

Andrew Schulte: Thanks for that. In the interest of time I think we should push ahead, and since Barry just spoke up I think this is a perfect opportunity to introduce him, so I'm going to transition now from Marshall to Barry.

We're now going to hear from Barry Hooper, who is the Green Building Program Coordinator with the San Francisco Department of the Environment. He's responsible for policies, building codes, incentives and public information efforts supporting buildings owned by the private sector in San Francisco. His current project includes local requirements for existing commercial buildings to obtain energy audits and report energy performance ratings, as well as the Green Building ordinance for new construction.

So with that, Barry, it's over to you.

Barry Hopper: Great, thank you. Next slide please.

Just to briefly introduce ourselves, and could you click once or twice, I think there are some photos. I apologize to everyone for the animation.

The Department of the Environment is an agency of the city and county of San Francisco that's really been tasked with filling in the gap between many sustainability efforts of other agencies that deal with land use planning, transportation and city information, programs primarily through building owners providing energy efficiency and critical programs throughout the community, programs that are listed here.

Next slide please.

One of the biggest motivating factors for many of those programs, particularly Green Building, is mitigating greenhouse gas emissions in San Francisco, as well as efforts that are now starting to begin to adapt, to expected impacts of climate change over the next few years and in many cases there is a lot of overlap between the two, because making a building more efficient is not only

helpful for mitigating it's contribution to greenhouse gas emissions but also to generally be more resilient in needing fewer resources in the event of resource shocks and other interruptions we expect. The ratio of emissions from buildings transportation in San Francisco is a little bit different than the other communities. I think a lot of that has to do with a little bit cleaner power supply to the city from both the cities hydro-electric facilities and the regional facilities that PG&E buys its power from, but it still boils down to really our challenges being buildings and getting people to and from buildings as the areas for mitigation. Next, but before I move on, sorry. What was observed was the commercial sector accounts for in the commercial municipal and industrial sectors together account for about 60% of the footprint of the built environment. So that's where we focused on with this policy I'll be talking about today.

Next slide please.

We took an overview of polices that affect the private in our community looking at their potential effect, the resources available partly from the city, but also state actors, and we really have a wealth of benefits of California being a particularly active state, and due to decoupling back in the late '70s, the investor-owned utilities being active partners in improving energy efficiency in our community and statewide, and California rate payers investing about \$1 billion a year in energy efficient incentives, which a big resource for us to draw upon.

We found that we did have good policy tools in effect that related to new buildings, and some good efforts got underway for projects where there was a planned alteration of existing buildings where a permit would be pulled, but very little resources and effort underway looking at existing commercial buildings and their operation other than the incentive programs, which is really where they tend to focus in this difficult environment.

Next slide please.

So, this Existing Commercial Building Energy Performance ordinance focuses specifically in that area, how existing commercial buildings are operated.

Next slide.

As with other green building policies that have been developed in San Francisco, the task of policy design was really put before

stakeholders, a task force comprised of 19 members of the public who represented property ownership management, the engineering and design community as well as finance and legal community, utilities, state and federal regulators, and they were given a briefing about the challenges we face and the reality behind them, and both the major resource and financial challenges that are we looking at over the long-term that affect the economy of our community, and also that they began the discussion at the height of the last recession, where there wasn't going to be the Lone Ranger riding in with a sack of cash to provide additional incentive funds to pay people to upgrade their buildings to help them save money. We really, really had to come up with ideas that would be cost effective for the city government as well as for the private actors, and be able to yield measurable results for minimum cost.

They really took that task to heart – next slide please – and came back with a set of eight major recommendations, which really recognized the idea that information was the most underutilized resource and also the most economical one for both the city and the private sector to work to improve availability of the market to be well informed to make good decisions in their own best interest.

So their recommendations, the five that are most related to information are green in this slide, and they are first and foremost making sure that each building benchmark and report a limited public summary of how its performing on an annual basis, that there be an energy audit available to the building owner every five years. By available I mean they are responsible for obtaining it and there are a number of ways to do so, and that those two components, the benchmark and the audit really act as a 360 point of view of vision for the building owner.

They see how their building is performing over time and how it's performing compared to their peers, as well as they'd have in their hands a plan, a set of specific actionable recommendations for what could be done to save the money and to further performance their building. That information also needs to be available to tenants, and we also need to be public about how our own buildings are performing in the public sector.

Additionally, I'll talk about some of the other recommendations. The suggestion about providing capital has been acted upon. There are extensive educational efforts underway. Submetering is the one recommendation they made that has not been translated into a policy or other program here in San Francisco.

Next slide.

I kind of covered this in the previous slide, but it was eagerly signed by Mayor Lee with the support of BOMA and the local business community. IREM, BOMA, NAIOP were all represented at the table, and there's been great political consensus and support of this policy of making sure that decision makers have information to make good decisions in their own interest.

Next slide please.

The benchmarking requirement, very similar to New York City and D.C., is based on Energy Star Portfolio Manager. Really, the biggest element of variation among these types of programs across the nation is how the building owner is going to obtain that information that Marshall was elaborating on.

The opinion of our local utility, PG&E, is that it's not necessarily in support of whole building aggregation. So within the confines of state utility law in California and a related law, AB 1103, which I'll mention in a little bit more detail later, utilities have been directed to provide the building owner with information about how their building is performing upon request.

However, that order that was in the state law didn't explicitly also address how to release the information to the owner in the case of spaces where the tenant is separately metered, and that's a major sticking point. So their interpretation has been that each individual tenant would need to provide this form, a data release authorization form and a wet signature giving their consent to share the information, both to comply with San Francisco's benchmarking ordinance as well as related state law AB 1103.

Once they get over that hurdle, then it's a pretty straightforward process of clicking a link provided by the city, reviewing the very limited report that we're asking to make public, and releasing the information electronically to us.

Next slide please.

The information in the report is intentionally quite limited. It is limited to the Energy Star rating, the 1 to 100 score that applies to a given building. Energy Star is a great tool and it does apply to a wide swath, particularly of larger buildings. However, there will be in any given community a significant swath of buildings where the mix of uses for the specific use of that building make it such

that it's a challenge of describing how your building is performing. So we also ask the building owner to note the energy use intensity, which is really the thing that's most equivalent to the miles per gallon you might measure at the pump when you are checking if your car is actually performing as the sticker indicated it would when you bought it, and then the annual Co2 emissions related to that total energy consumption.

As a compliment, the state law, AB 1103, requires a very detailed disclosure between parties to any transaction involving the sale, lease, or refinance of a commercial building, and that law will phase in starting January 1, 2013. So we do expect that the combination of that state requirement and the need for that data to be disclosed in a lot of detail within the structure of commercial property transactions will both be an additional enforcement mechanism for validating the data that's assembled and transmitted to us, as well as further impetus to resolve the issue of how to make sure that the tenant information is available to building owners so that they can comply with the state and local laws that require whole building energy performance reporting.

The one argument for not aggregating the whole building level that is substantive in a manner that isn't self-referential, and just referring to the law says that in a given case that it may be a challenge, is that if the data is aggregated it is more difficult to look at it in a little bit more detail, for the building owner to look in more detail and their consultants to evaluate exactly where waste may be occurring. So there is value in the fact that the building has numerous separate meters, and there's also value in making sure that the energy consumption of individual meters is not made public, but what is lost in a whole building aggregation mechanism is the ability for a little bit further review of the meaning of the whole building information.

Next slide please.

As a complementary measure, the building owner is required to get an energy audit, meaning the ASHRAE standards, and that's not the focus of this meeting, so I'm going to breeze through this, but this slide I borrowed from ASHRAE describes the basis of the different levels of audits that are recognized in their standard.

Next slide please.

And those analyses really roughly translate to the preliminary energy use analysis being a validation by a professional engineer

of the benchmark data that is reported in the City of San Francisco, a level one walkthrough being a very simple audit that's required for smaller buildings that typically are less complex, and then a little bit more detailed level two audit or more that's required for larger facilities, and they do the alternative option of retro-commissioning the buildings. So in essence, either doing an audit or retro-commissioning every five years is very likely to play out in practice, similar to New York's policy of an audit and retro-commissioning every ten years.

Next slide please.

This is just kind of a process flow from the point of view of the building owner, pointing out the audit is only due once every five years, and that there are a couple of major avenues for exemption. If the building is able to demonstrate in a third-party verified way that they are performing well, and that's either using the LEED for existing buildings label, which does measure operational energy performance or Energy Star, which LEED uses Energy Star as its performance measurement tool, if the building is brand new, has recently undergone an audit that audit can be utilized, or if it can demonstrate dramatic management stress there are exemptions for each of those cases. Otherwise, you need to get an audit meeting one of those two standards that I talked about.

Then what's reported to the city, again, will be a very limited overview. The intent is to arm the building owner with fundamental information about how their building is performing, how it can improve, and the available incentives and financing that can make that a compelling opportunity for them.

Next slide.

As an example, the Baker Hamilton building was completed in 1906, shortly before the earthquake and fire that destroyed most of San Francisco, including the neighborhood that it's located in.

Next slide please.

This building is not only on the National Register of Historic Places – you can go ahead and click please – but it is also the first building in the city to obtain LEED Platinum certification. It got LEED EB Platinum as a matter of fact and it got that through, among other things, its efforts to ensure that they use transparency as a mechanism within its own building to motivate improvement. So there are overviews of how the building is performing at any

given time that are available to all occupants, including of course building management staff, and if the building is not using less energy than on the corresponding day of the prior year, after accounting for weather that day, the building managers get a work order to figure out why they're not on track for their continuous improvement goals.

Next slide please.

At the opposite end of the spectrum, the Hotel Intercontinental, which was delivered to market in 2008, has cut its energy consumption more than 30 percent in its first few years of operation by benchmarking, by undergoing energy audits, and by taking advantage of substantial rebates and incentives that are available here in California. So their energy in their building is actually about one-third of the industry average in the hotel sector, and they are being pretty vocal about pointing that out. That's a strategic advantage for them that they'd like to see reduced by other hotels following their lead.

Next slide.

In the course of delivering these programs we've done dozens, over 50 now, public presentations, benchmarking trainings. We do operate a hotline and provide other resources, both directly from the Department of Environment and from the utility, PG&E, and you can later check out ten quotes that are from local building owners, managers, operators, talking about what benchmarking has meant for them and the value of it.

Next slide please.

I just need to be fair to point out that we do have this great advantage, that PG&E has been helpful and they do offer rebates as well as our own program here, the Department of the Environment San Francisco. Energy Watch is a big resource for evaluations and rebates. There are free efficiency classes basically every weekday year round available at the Pacific Energy Center, including regular benchmarking classes that will step-by-step walk the building owner – if they bring just their data to class, they can benchmark there in person and walk them through the process.

There is relatively easy access to the energy consumption data in an owner occupied building, and improving access for buildings that are tenant occupied, where the tenant is separately metered, but that remains a big challenges. That's why in Marshall's slides

you saw our first move in terms of transparency has been publicizing which buildings have complied and which haven't, which has been very helpful in getting a lot of the portion of the Class A sector that has not complied to-date to get their attention.

The data, I have to confess, is a little dated on that website. We'll be posting an update shortly, but transparency about how people have complied has been an effective mechanism of getting their attention.

Next slide.

We are also offering a PACE financing program for commercial and multifamily buildings, five units or more.

Click three times please.

And it's available for efficiency renewables and water efficiency. I'll be happy to talk with you about that offline. It's similar to other PACE models.

Next slide please.

The estimated impact of the policy is summarized in this slide and in that taskforce report. The basic idea is that even with a conservative assumption and recognizing that there is a pretty robust market for energy efficiency in San Francisco already, we do expect a significant acceleration of efficiency projects and deeper efficiency projects, and for that to be really a minimal cost investment for the city itself, while helping San Franciscans attract and utilize the incentive budget that's available to them as rate payers here in California.

That's a significant, positive net present value to the community as a whole, even after accounting for the cost of audits or the cost of administrating this program, et cetera. The efficiency value of efficiency from even a small portion of building owners taking advantage of this information is pretty dramatic, and we have evidence that, depending on the market subsegment and the particular incentives available at that moment, between 40 and 70 percent of building owners have been taking advantage of clear, cost-effective opportunities for upgrades.

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That's it for me, so I look forward to your questions. Thank you.

Andrew Schulte: Thank you so much, Barry. At the moment I don't think that we have had a San Francisco-specific question come in, but we are right about to open it up for Q&A, so I'll give people a few seconds to type in any questions they might have.

While they are doing that, I would just like to move ahead. There is a section in this slide deck on related DOE initiatives. Anybody who attended the prior webcast on June 21st has already seen these. In the interest of time and wanting to get to your questions, we're not going to go into these in great depth, but they will be in the follow-up that you received, and if you have any specific questions about them Cody Taylor from DOE is on the line and can address them, or we can certainly engage with you offline. But just so you know, those related DOE initiatives are the Standard Energy Efficiency Data Platform or SEED, which Marshall referred to a little bit earlier on in his presentation.

We also have the open EI effort, which is trying to provide visual depiction of access to utility data and where utility data is available to customers and to what extent across the country. DOE is working on the development of a commercial building asset rating program, which you can learn more about on this slide and then at the website indicated at the bottom of this page.

Then finally, there's also DOE's development and implementation of a building's performance database, which, again, you can learn more about from the URL that's provided at the top of this slide.

So with that, I am actually going to move ahead toward the end. I would reiterate what I mentioned earlier, which is that there are three additional SEE Action webcasts coming over the course of this summer and perhaps extending into the early fall. Talks to be included are the remainder of the priority policy areas being covered by the SEE Action Commercial Building Working Group, including energy audit and retro-commissioning policies, strategic energy management programs, and high-performance leasing strategies. Those dates and times are still to be determined, so stay tuned and we will make you aware of the details as they get finalized.

This slide just provides the contact information for all of the speakers on today's webinar, and I will leave this up while fielding a couple of questions that have come in. Let's flip back through this because I'm trying to manage these on the go.

One question, which is kind of a high-level question that came in earlier during the presentation – let me find it. This came in during Cliff’s presentation and actually had to do with the virtuous cycle graphic that Cliff spoke to and that Marshall also noted.

But the question notes that this approach, the attempt to sort of get this virtuous cycle moving has been tried in the past in the residential sector and hasn’t necessarily shown a ton of success. So the question is: what is it about the commercial marketplace that leads us to believe that this virtuous cycle can in fact be put in place and can become self-perpetuating?

That’s probably a question I want to queue up for Cliff, if you have any quick thoughts on that.

Cliff Majersik:

Thank you. I would just say, first off, the virtuous cycle hasn’t worked in the residential retrofit market, but it actually has worked quite well in the residential new construction market. The market share of Energy Star labeled homes has been soaring. In fact, in 2010 37 percent of all new homes were HERS rated. That means that virtually all those energy efficient homes that got a rating was paid for by the builder, so that they could either collect the tax incentive or so that they could market the home as energy efficient.

So for new construction it is actually working pretty well on the residential side. Residential retrofits are a really tough market. You’re dealing with unsophisticated building owners as homeowners, who have a lot of things on their mind. For affluent homeowners, the energy costs that they pay are not such a big piece of what they – not such a big impact on them. In other words, they’re not that worried about energy bills if they’re affluent.

For people who don’t have as much money, then they have limited access to capital and there’s a problem that’s on the residential side. It’s very difficult to finance energy efficient retrofits, which is why legislation like this SAVE Act that tries to incorporate energy costs into the underwriting for all mortgages are important.

The commercial picture is very different. You have sophisticated players who are in the business of optimizing the results from their buildings, but who are not often aware that they’re sitting on an untapped gold mine of energy savings. In many cases they have more easy access to capital than home owners and, very importantly, their assets are very valuable, and the cost of this energy rating is quite low. An Energy Star benchmark is

something that you don't have to pay any money for. It's just a matter of taking the time to gather the information. The hardest part usually is gathering the utility bills and the square footage, the other information that you put into the free software.

So the incremental cost relative to the value of the asset is quite low, whereas, say, a HERS rating for a home can be kind of costly, say, on the order of \$300.00 to \$600.00 as compared to, say, the average American home value of \$200,000.00. The cost of the rating compared to the asset value is much, much higher.

So there are a number of sort of human nature and economic explanations for why this virtuous cycle works so much better in the commercial sector than it does in the retrofit of the residential sector.

We can also see in places like Australia the virtuous cycle. They're a little bit ahead of us and they have seen a virtuous cycle of rating disclosure and increasing energy efficiency of their buildings. They actually have buildings that are more efficient than they imagined possible when they created their rating system. It used to top out at five stars and they've added a sixth star for more energy efficient buildings to accommodate that.

We've done our analysis and saw the job creation and investment in energy efficiency that's coming in New York. So it's very early days in the U.S., but early indications are that this really is catalyzing private sector interest and investment in energy efficiency operations and retrofits.

Andrew Schulte:

Great. Thank you, Cliff. One question that came in that I think could be relevant to any of the parties on the phone has to do with the nature of Portfolio Manager and the fact of the quality of the data entered into Portfolio Manager, and by quality I think we can also include voracity of the data entered into Portfolio Manager, is really dependent on the people entering in that information. So there is some concern that building owners or managers could conceivably game the system if there's no oversight.

So the questioner is wondering what actions are being taken in various jurisdictions to sort of do any verification of the information that's being provided to make sure that it is in fact accurate and representative of the building's true energy performance.

Cliff Majersik: This is Cliff. That's a great question. It is very important. Garbage in/garbage out. If people put in the wrong inputs, the ratings aren't going to have any value and it's critically important that jurisdictions make every effort to get good quality ratings from the start.

New York, as far as implementing these laws in many ways, one thing that they've found is that the vast majority of the ratings have been prepared by consultants hired by building owners. So the requirement is on the building owner, but the building owner can hire a consultant to meet the benchmarking requirements and that's what most New York building owners have done.

What New York has done with the first submission, they analyze all of the ratings. They group them by consultants, and then they actually found, if building consultants seemed to be making errors, they delivered report cards individually to each consultant with a ranking of all the consultants against each other, and they pointed out ways in which some consultants were making mistakes and comparing unfavorably to their peers. So they're working with the consultants to educate them and make sure that they're all sort of reaching a minimum level.

I think that's one area that is very important, that jurisdictions try to find resources to do some quality assurance. No jurisdiction has done this yet, but there has been talk about requiring that submissions be stamped by an engineer or architect who is responsible for quality assurance. That is part of the Energy Star label. If you do want to get an Energy Star label building, you have to do that.

So that's an area that I think jurisdictions are looking at. Embarking on public disclosure would be wise to allocate resources to some quality assurance, to work with their building owners and others to make sure that they're not making inadvertent or intentional errors in their ratings.

Andrew Schulte: Thanks, Cliff. Do any of our other speakers want to weigh in on that one?

Cody Taylor: I think one other thing to keep in mind and I think New York would be, again, a great example is what we're talking about to get the virtuous cycle rolling is partly that the data be reliable, and an element of that is really focusing on more of a marathon than a sprint. So if we find a jurisdiction may have evidence that

particular chunks of the dataset are subject to question, that really needs to be segmented out and looked at.

What we're finding is that smaller building owners, because they may be more economically distressed or just have fewer resources, in general may be less likely to hire a consultant, and so ironically look like they're – preliminary data, but look like they're more likely to do the reporting themselves. So we're going to need to really separate, when we move to public reporting, the large market segments where self-reporting predominates and be transparent about that as well.

M. Duer-Balkind: One of the things that I didn't talk about much in my presentation because we haven't gone to that stage yet is enforcement. I did make brief mention of the fact there's a \$100.00 a day fine possibility if you don't submit.

One thing of note about that, that makes that distinct from, I think, any other cities is that that fine applies to inaccurate data, fraudulent data more accurately, fraudulent data as well as just not submitting at all. So obviously the first step would be, if there's questionable data, to work with them to see the errors they made and so forth.

But there is a backstop, at least in D.C., against people gaming the system. I don't know how long it will before, if ever, we get to that particular clause being invoked, but it does exist.

Barry Hooper: We have the nominally have the ability to do that in our law as well, not necessarily directly fine the tenant. That is definitely a distinction. But yeah, one, I think you get into a philosophical question of what portion. If the intent of this is to motivate the market to work more – just to function better, where in that process is the right balance for the regulation, and where is the right balance for the –?

In California there is transactional disclosure. The fine, if you will, of your transaction not going through or leading to litigation has a much greater dollar value and risk associated with it than a direct monetary fine from the city. So that's government putting in place a structure where the enforcement is larger in the private sector, but has a greater financial risk.

I think these are the kinds of questions that we are going to be talking about a while, until we have good data to really offer answers that are backed by that data.

Andrew Schulte: We're at the point now where we are past the scheduled time for the webinar. We're at about 3:40 and I do want to be respectful of everybody's time, but attendees and presenters because I know folks are probably going on to other engagements.

I do see that questions continue to come into the Q&A box, which is wonderful. Please keep them coming in. At this point I think it's going to be best to follow-up with you offline. We can keep the Web portion open for a little while longer, so that any questions you might have you can get into the system, and then we will coordinate offline to get some answers together for you, and then we'll respond directly to the questioner. So thank you for sending those in and apologies if we were not able to get to your question live.

At this point I would like to wrap up by thanking our three presenters today, Cliff, Marshall and Barry for taking the time to present, for the depth of the expertise and experience that they've shared with all of us. I also want to thank all of the attendees for taking time out of your busy days to participate in this webcast. We do hope that it was valuable.

We are excited to engage in any follow-up conversation with you. So as I said, if you've got any questions please continue to type them in. Please feel free to reach out to Cody Taylor or any other of the speakers on the session regarding engagement with the SEE Action network, and we look forward to seeing you all on future webinars. So please keep an eye out for those invitations. They should be coming.

With that, I think we can wrap it up. I'll say good afternoon to everybody and thanks again for participating in this webcast.

Thanks, everyone.

Thank you.