

Cindy:

Hello, I'm Cindy Zhu with the U.S. Department of Energy. I'd like to welcome you to the March edition of the Better Buildings webinar series. In this series we profile the best practices of Better Buildings challenge and alliance partners and other organizations working to improve energy efficiency in commercial building. Next slide, please. Today we will focus on considering energy performance and real estate appraisals and valuation. High performance buildings are more energy efficient, consume fewer natural resources, can improve the health and productivity of occupants, and can lower operational and ownership risks. Because of these numerous benefits, properly valuing these measures is an integral component to maximizing the return on investment.

Next slide, please. Let me give you a little more detail about our presenters today. We'll first hear from John K. Scott a Better Buildings alliance partner at Colliers International who will describe Colliers strategy for addressing value creation in high performance building. John has over 30 years of experience in commercial asset management and project leasing. As a senior vice president of Colliers International in Florida, he is directly responsible for the Florida real estate management services department where he directs a portfolio of over 115 retail, office, and industrial properties in excess of 10 million square feet.

Joining John in this conversation will be Devesh Nirmul, principal and owner of Inspirod where he has worked with commercial real estate organizations like Colliers on advancing market transforming energy and sustainability solutions and practices. Devesh is also senior director with Renew Financial where he is helping to enable the rollout of high performance energy financing mechanisms throughout Florida.

Our third speaker is Theddi Wright Chappell, CEO of Sustainable Values, whose business is specializing in valuation consulting, due diligence, impact investing, and optimizing real estate returns for clients. Theddi is a national and international speaker and educator on the implications of green strategies on asset value. She recently premiered a one-day course developed with the Department of Energy titled Energy Matters, that addresses the growing relevance of energy in the built environment and its implications on real estate property value.

Thanks to all of you for being with us today. Next slide, please. Before we get started with our presentation – sorry, John – I want to remind our audience that we will hold questions until near the

end of the hour. Please send in questions through the chat box on your webinar screen throughout the session today and we will try to get to as many of them as we can. The session will be archived and posted for the web for your reference. So to start us off, let's hear from both John Scott at Colliers and Devesh Nirmul of Inspirod. John, what is Colliers doing to properly value high performance buildings?

John:

Well first off I wanna thank my fellow speakers who I've worked with on numerous opportunities. Right now I work with Devesh on the Bowmy evaluation high performance three building, so I appreciate him being on the call and also with Theddi Wright who I previously have worked with and her green building development project that she did with the index many years ago. So thank you both for being on this call with us and thank you for inviting us to the call.

To give you some background on what Colliers is doing in regards to the next slide, and the slide after that. Thank you. Reconciling high performance benefits with valuation impacts in the marketplace. First off, starting off with high performance features, we have a lot of data out in the marketplace, but how much of that data is usable? How much of it is valuable? That's one of the issues we face in trying to reconcile it to a valuation impact in the marketplace.

Number two, when we look at the types and scopes of benefits there's visible and invisible type of operations that are going on. One is when you walk into a space and you see water bottle fillers. I call that part of the visible environment. But when we see employee efficiency and productivity in place, that's one of the invisible components that go into valuation, and then which stakeholders receive the benefit? We have to look at the different types.

There's ownerships, which could be a pension fund, could be private equity. There's tenants to your corporate tenants or they could be LLCs or sole proprietorships, but we also have to add in the leasing, the management components, engineering and service providers for that entire environment to try and build the true value of the projects.

Later on we'll discuss some of the impacts on valuation approach, the market validation of value, and at any time during this session, Theddi, Devesh, I would love for you to jump in on my slides as

you know I'm very interactive and would be have anything that adds value for our audience. Next slide.

So I'm gonna go through some basic information just so it's front of mine for all of us. Present value is the value of a future asset expressed in present dollars. As we all know, the value of money in present value is at the highest potential. Next slide. That present value's investment cost from the after tax present value of project savings.

Later on as we're going through some of the calculations and we're looking at cap rates and NOIs, this will be very, very helpful to you. Next slide. So most of us in the management or leasing world work with a very simple income strategy, which is net operating income, potential lease minus the vacancy and credit losses. Any other income, which in today's time seems to be a lot in parking garages, but parking garages have an impact on the value of the building significantly.

As one case an example I have a project in South Beach that has a parking garage that's open to public parking. One third of the revenue from that building is generated by the parking garage, but also that brings in sustainability components that should be discussed, and then of course we've minused the operating expenses. Next slide.

Then in the end when we're talking to our ownerships and/or investors, we're looking at what's the ROI, our gains minus cost divided by the cost of this. Again later on in our case studies, which Devesh is going to focus on more, we're going to have an open discussion on this. Next slide.

So looking at the conventional building and the high energy efficient building, this is what I utilize when I'm set in front of CEOs and CFOs. For those of you on the phone and if you're CEOs or CFOs this is not a slight by any means, but as many of you remember with the new computers that were being produced, and start me up or Windows 95 comes to mind, there used to be something that occurred called a blue screen, meaning when you booted it up and didn't operate right it'd give you a blue screen and you'd have to turn it off again.

Well I look at the high energy efficiency or sustainable model in that way too. When I would go and present to a CFO or a CEO and I would try and run these numbers by, if I didn't engage them within the first minute or two I got what I called the blue screen,

meaning I would have to reboot or come back. But when you present a model as you see on the right hand side where it shows a delta between the recoverable operating expenses and the amount of energy costs and the rent, there's a delta there that increases the value as well as reduces the operating costs for the ownership. Next slide.

This is not up-to-date information as I have not seen any newer information, but it's very powerful in effect when we're looking at this. Devesh, I was going to ask you to jump into this a little bit just to talk about.

Devesh:

I appreciate it. Thank you, John. So just in context, John and I have been looking at these issues from the perspective of the tangible types of changes and updates and upgrades that happen in buildings or the investments in green buildings down to the actual valuation type calculation to take place, or the standard financial calculation. Throughout this presentation we're kind of going back and forth. This will be consolidated in part of what we're putting together.

The point here though is empirically what are we seeing in the marketplace when you do have a sustainable feature, a high performance building? How does it impact these metrics that are important to us when it comes to investment decisions? I'll just highlight a couple here. So the rent premium for green. So this study back, I think the last version of this was -

John:

2008.

Devesh:

2008. Yeah. There's a premium here for green, and then when we look at the analysis that John presented at the beginning of his presentation, what's driving that? Is there something tangible? Is it intangible? At the end of the day it's important for us in a community of running these buildings and trying to make them perform at the highest level is to recognize that there is some sort of impact and we should try to account for it.

John:

Well and you know what I believe, Devesh, I think because of the recession that occurred as we were just talking about, this is 2008 numbers. The market fell off and that's gonna lead into our income and our market, our sales approach with valuation, because at this time the ledge fell out from under everything and values drop not because of sustainable projects but because of the entire marketplace.

- Devesh:* And that includes occupancy.
- John:* That includes occupancy as well, yes.
- Devesh:* And so it's a dynamic thing. You've got to keep track of all these things. I think the next one, decrease operating expenses is a very obvious one that John just highlighted, a very important contribution it provides to the net operating income.
- John:* So deltas are important to us. If we're just looking and presenting a reduction in operating expenses, that's not sexy, guys. But if we show revenue increasing on the other side of that to create that delta, then you are able to get past the blue screen because you engage the investors and the people who are gonna make these decisions.
- Devesh:* And I think the stakeholder piece then as you just mentioned investors, I would even include tenants, and I work with a building where they're giving their tenants credits every year. Because of their base building reductions they're able to credit back on the fees of the tenant space.
- John:* And I totally agree with you and that's why I expanded that stakeholders at the beginning. It's just so hard to talk about all the stakeholders involved here and I think that's a part of creating the evaluation and I know Theddi is going to jump into that later on.
- Devesh:* And we can add another layer to the productivity value to the tenants if you can actually show them what that means. Even if you have it financially accounted for, let's say we do do air quality. I know that's a tough thing to get into, but point is we're reinforcing that we have a high performance building on the financial side, but we can also reinforce on sustainability features, and I think the new well standard is a good example of trying to capture some of that. Yeah?
- John:* And that's a whole different subject matter we're not even -
- Devesh:* We're not gonna go into it. And then the final one is the cap rate reduction, this idea of the lending community when it comes to understanding the value of projects and supporting the financing needed for this wherever that's possible. The basis point reduction seems to be a very interesting phenomena we want to track a bit more as well. There's a couple of other things here. Currently this data is available. Next slide, please.

John:

So with the capitalization rate I just wanna talk about it just to read off here shortly. Most of y'all will laugh in a few minutes when I say capitalization rates commonly fall between 6 percent and 10 percent. Well in some of the very hot markets, and I won't even say ones close to a bubble, it goes well below a 6 percent capitalization rate at this point in time, and what's driving that? Obviously the appraisal value of it is escalating and the operating costs are falling and that's what we were just talking about a moment ago. So it's changing the dynamics in the marketplace and through sustainable initiatives, through many other types of initiatives we're seeing that occur.

Now Devesh, as we're gonna go into a case study later on, some of this leads back to the NOI of the project, right? And we are going to utilize this scenario in the appraisal or sales value as we go forward. Next slide. So let's talk about sales comparison. This is where I've had the most difficulty with our different ownerships and our different stakeholders in these because there are so many different attributes to it. In the sales comparative I'm going to use one of the towns that both Devesh and I have worked in, the greater Miami area, which was outside the top 30 in green buildings years ago and is now in the top 10 because of significant changes.

The recession actually created an environment where sales comps added in a sustainability component. There was 2 million square feet of office space or three high rises that were going to be delivered within an 18-month period in downtown Miami. In the beginning, none of them have looked at sustainable initiatives. As the recession folded in and they were continuing their construction they started looking at it and saying, well how do I differentiate myself? What occurred is the first building said, "You know what? I'm gonna become lead certified." Within a month the second building said, "Well you know what? I'm gonna do one better than that. I'm going to be silver."

Finally the last building came back and said "I'm going to be platinum", and they created a sales comparison differentiator between them, and those buildings all three opened and are all three prominent in the Miami marketplace now, and that was one of the subtle ways you started seeing the sales comparison, but how do you measure that? Devesh, how do we get in and say how much value did that add to it? I know it added a box on the leasing broker and the tenant scale, but how else do you measure that?

Devesh: Well certainly first of all if they're fully occupied we wanna know the tenants and what their motivation was to move in there, but then there's going back to the day-to-day. What's the operating cost? So we need to go beyond just the certification and look at some of the empirical data of what's going on in those buildings.

John: That's a great point.

Devesh: And that's not always something that we're paying close attention to, but I think most of the buildings we've worked with, one of the first key points is what's the utility bill? Understand what's going on and where the opportunity might be right off the bat. Now with the lead certified process, with commissioning, etc. you hope that you've gotten a grip on that early on, and so there's any kind of anomalies in how the building is operating versus design, which is a big challenge that they've addressed.

John: So speaking of anomaly before I go on to our income approach, there were a lot of buildings that I met with developers that Colliers was looking at and they said "We're gonna build it to lead, core, and shell, but we're not going to certify the building." Do you have any thoughts on the impact of those type of buildings in the marketplace?

Devesh: I think in those cases you definitely have to be looking at the data. How are you able to take those bill-to criteria and tie it back to performance that you can account for? For example I mentioned the commission. I know in some of the actual certified cases it's required to have a fundamental level of commissioning. That's mainly to make sure that things are running the way they're designed, and so you're getting the data, you're getting the energy performance that you expected, but –

John: Well I see the value if they were going to sell it as an empty building, but when you add the tenants into it and you would think that the design, okay, so we built to a lead silver, which there's more of those than any other type of buildings right now at this time, but the tenants aren't all lead certified users of that space, right? So that creates a conflict.

Devesh: And a variation in the potential – two buildings of the same design could operate very differently based on the facts that you just presented, and I assume desire certified space or it's up to maybe negotiation a green lease potentially to get some sort of level of performance agreement between the ownership and the tenants. So

it's not just what you do when you build it. It's really about implementing a regime and a culture and operation.

John: So I wonder, and just speaking out loud having this conversation, if you own a lead certified building, we'll say silver, and you only lease to lead certified tenants come in, is there value that's added to that? I know there's not a quantifiable value at this time, but do we see that as a value? I'm just using lead. It could be any certification that's out there.

Devesh: Yeah, and I would just jump back to the data. If you have reporting requirements you're tracking certain pieces of data too, and maybe that automatically is giving value. As long as there is a commitment to all these pieces.

John: And I know Theddi is sitting back there going "I can't wait to get my turn on this." Appreciate that, Theddi. Next slide, please. So I'm going to transition over into Devesh's component of this presentation, but the income approach typically is the one we focus on because it measures those high performance investments. It demonstrates them and we're able to analyze and reduce operating expenses, and I know you're gonna share some case studies so I'd like to turn it over to you now, Devesh.

Devesh: Sure. Before we hop into that, which can talk about some basic financial scenarios here with the next slide, please. So this slide is entitled Cap Rate, not to confuse everybody, there's a certain way cap rates are used in the commercial industry, but it's also a way of looking at rate of returns. I'm gonna just focus really on the ROI, not so much the title of this slide, just to give you an idea. What we're doing here with this example is we're showing that we're gonna have a chiller replacement that's gonna occur. Whether it's high efficiency or not, in the marketplace what tends to happen is the newer system is gonna be more efficient.

What we wanna show is how do we value those efficiency benefits and maintenance benefits? Now in a typical ROI we're not going to be doing this 25-year type of analysis. We're gonna look to see when we recover our initial investment, but if you do sort of make sort of a life cycle piece without the value of money adjustment as you would do with net present value, you're gonna see that there's a benefit that builds up over the lifetime here of this building and the equipment actually specifically.

John: And that's a quantifiable asset.

Devesh:

Yeah, very quantifiable. Of course like I said if this was NPV the numbers would be a little different 'cause you're adjusting for the time value of money, but generally speaking the idea of having this chiller and the reduced maintenance, reduced energy cost, this is a rough example. We haven't really looked at escalation rates or utility rates in here, but it's built in. You get this ROI of 160 percent. Looking at the first year it's a much smaller piece, it's 16 percent, but let's move on to next slide, please and here's another case.

So getting more to John's earlier example of the net operating income impact on the cap rate on why it makes sense for investor owner to consider these improvements, and here we have an example of a building with a net operating income of 85K that was a result of looking at the vacancy and credit losses; the parking revenue, John mentioned that as an example; and of course operating expenses. What we're trying to look at here is when we shift out that operating expense line item how that impacts our cap rate. in this case we have an appraisal value of \$950,000.00.

With that net operating income we have a cap rate of close to 9 percent. Now we'll get into the case study of the energy efficiency piece. Next slide, please. So let's take that same learning and apply it to an energy efficiency scenario, and we have two here. We have a new one. This is 'cause you wanna be looking at things in a very dynamic fashion. The first one is just straight up energy efficiency. What happens to a building assuming a 10 percent cap rate in the marketplace? You have an adjusted gross income if you take into account based on the vacancy and losses, and then you have an operating expense here \$70,000.00, and this is relative to that original example of what we had of let's say \$100,000.00 before.

Sorry, this is the pre-upgrade column, so this is \$70,000.00 without the upgrade. Ignore what I just said. It's not connected to the previous slide. So the next column then we have the actual reduction in operating expenses as a result of the energy efficiency measure. Now you see the increase in value dramatically up there, roughly almost \$200,000.00, and then the second row here is just sort of nuanced.

The idea is that if we are attracting more tenants to a building as John mentioned, the Miami buildings, you create the hype, you get the Fortune 500's that need to have that or the GSA clients that wanna have a requirement. It's not a matter of they want it or not, they just need to do it. Well you know you're having more

occupancy and you're gonna be running your systems at a higher capacity, you're gonna be using more energy. So we want to adjust for that a little bit, however we still see here because we have less vacancy we're able to still capitalize on that. We still have –

John: Well Devesh, what you just told me is the occupancy is lower or higher you're still seeing a substantial value.

Devesh: That's the lesson here. That's the lesson absolutely.

John: So if I take a building that's at 95 percent occupancy at a pre-upgrade value versus a higher performance then we're going to see this type of value added to it regardless.

Devesh: Regardless. Yeah. So this is just to kind of clarify that. Even those other changes that happen we're not really, they don't impact the bigger picture too much. Next slide, please. So the life cycle analysis, we hinted to this earlier, and the ROI example provided that. The concept of life cycle costing, looking at costs over time. We use analysis 'cause we know there's a lot of variables out there we could be looking at that would incur over time.

I've talked to John's engineer about the magnetic chiller technology and how that totally changes the maintenance repair paradigm for the buildings that have that technology. There's also you never know what's down the road in terms of incentives, changes in utility costs, but also if we start to quantify some of those sustainability benefits that we're not currently quantifying, if we have a carbon tax, a carbon market down the road. How does that make this even look better in a life cycle perspective? So we're looking at the entire life of the equipment in the building.

John: So my one question about that, Devesh and I'm struggling with, is all the technology changes and the rapid growth of technology in this and we're putting in magnetic chillers that are gonna reduce our costs 50 percent. What if in five years there's another type of chiller that comes out that reduces the cost another 50 percent of what the previous is? Are we seeing technology changing that dynamic and the life cycle of it?

Devesh: I think so. I think it might represent some clear sort of quantum leaps if you will. I've worked with buildings that have been built well back in time, and it's through ingenuity, through innovation and culture to try to figure out how to match. Some of the new buildings have the scanners, the occupancy sensors right when you walk in, which can be great for controlling loads in the building.

The older buildings don't have that. What's an approximation of technology to get to that? The buildings that aren't doing really well that were built back then can try to figure out a way to match that in a different way. So that would be my other approach to that answer, but I get it. Thank you.

Okay, next slide, please. So the life cycle, here's kind of an illustration of just looking at five years for life cycle. This could be a real world scenario. You could be facing that idea that, well, you don't know what you're gonna do with your building over the next five to ten years. You have an eight track that's due for maybe replacement during that period. This could happen to your home too, to be frank. It happens all the time. So we do a replacement with a higher performance, which would cost us much more for sure but start to provide a lot of benefits over the next couple years, or do we go with the standard performance eight track replacement or just do a tune-up?

John: So a new construction just off of this slide it appears to me if I'm going through the value engineering process and I'm looking at this, what's the ROI to this? That would be my question from this slide.

Devesh: Yeah, and I think some of the other analyses we've done, John, the ROI is gonna look really good on the – probably better on the standard and the tune-ups in a lot of cases than doing the full blown. I think at least a standard will have a better ROI initially. What we have to try to look at is to be really sensitive to what's the market gonna look like too when we go to sell it.

John: So you bring up multiple factors. How long are they going to hold this project? You mentioned government, which is forever, and then you go into developers, which may be less than three years, and so their view of this slide right there is going to be completely different at a period of time and what their investment criteria is I guess.

Devesh: Exactly. What we're trying to basically convey is that it's important to look at the real big picture on this stuff. Where is that market going? Have you looked at what legislation is coming down the road in that marketplace, incentives, etc., and just be aware of that. Next slide, please. To that end, what we did here, we try to look at sort of how these things relate between on the top row there you've got things like asset hold period, which John just mentioned, the capital funds required to do a project, the impact on growth lease rates, the impact on expenses and revenue, and then

we look on the left, the type of upgrades and the value impact considerations.

Sorry, the upgrades are on the left and the value impact considerations are on the top row there. We look at major HVAC equipment with long life cycles. Certainly we should be able to see a dent on the energy costs, the growth lease rates, and allowing you more net rent. We know there's a lot of capital funds required. That's the other side of that equation, and then for an asset hold period for over ten years we definitely see the marketplace saying yes.

John: So I'm gonna throw a wrench exactly into that, okay? I was in China last year in Shanghai and we were in the Shanghai Tower, which is the second tallest office building in the world now, but I asked the engineering and the architectural firm, I said "What is an old building in China?" and they said anything after 2008 is old, meaning in a six-year period they consider it antiquated, and because technology when they started developing is moving so rapidly they just don't see the use of keeping the building. They more or less recycle the building, that type scenario. Of course they have unlimited resources right now, so that's another issue that comes along with that.

Devesh: That's a whole different situation.

John: But that changes the whole ballgame. Our average building I believe is 37 years old in the U.S., so we have a different perspective, a longer-term perspective.

Devesh: And we're overhauling those chillers. We're not getting rid of them. We're keeping them functioning.

John: Exactly. So I mean it's just different perspectives that I see going on out there.

Devesh: Very important. Yeah. Your point is valid because different marketplaces within the U.S. itself in North America geographically will have a different eye to this stuff, and so it's important to be aware of that. An interesting one I have here, it's something that I'm familiar with on the fourth road, thermal mass storage. I work with a building in Chicago, which is a leader, and they're really good about – it's an existing building, but they model the heat transfer properties of the materials in the building.

So they're able to figure out how to maximize their demand response revenues on the PGM grid, which buildings get paid for what they offset. It's a great way of generating revenue actually, but to maximize that they decided to model how the materials hold on to heat so that they could just coast down to one chiller on a hot summer day or even an extreme winter day and just be ahead of the market and make that money and avoid the peak emissions as well.

John: So you had an operating efficiency gain, so reduced operating cost out of it, but is there a revenue gain?

Devesh: The revenue is from the amount that they're below a baseline. The way that system works in that market if you're in New York or Chicago, if you have a certain baseline and you perform below that baseline you get paid a certain amount of dollar per kBtu.

John: So that's the revenue component.

Devesh: That's the revenue component. So it made sense for them to go ahead and invest in this modeling exercise for the company to figure this out and then they know when to turn Luxor on at midnight for example on those extreme days, run it – or no, turn all of them on, run it and pre-cool the building I should say. That's the key here and the material properties of the building materials take care of it.

John: And that's an old school concept.

Devesh: It is. We do it a lot of the off-grid type of things are based on some of that stuff. Anyways, I just wanted to throw out some examples. Next slide, please. Okay, so overall life cycle we don't want to forget about the end of useful life costs, decommissioning disposal. I know a lot of green buildings try to figure out ways to recover that and make that an opportunity center, not so much a cost center. It's important to keep in mind. Next slide, please.

So here we have an overview of some steps to consider. We've been all over the place and sort of we're looking at assessment of particular projects or situations' data, the calculations and then the valuation that happens with the appraisal side, which Theddi will be moving us forward with, but we sort of try to get an outline of what you wanna be able to do in any situation. Data is the first step, right? So work effectively with your facility team, engineer vendors to get the type of data you'll need to do a proper valuation

analysis. Could be an audit, could be vendor reports on upgrades. Those are good sources of information.

Review and adopt the investors, so whatever the investment performance criteria is you wanna apply that to these numbers and then of course the consumption data, actually looking at the baseline situation in the building to be able to plug that in, and we know there's some calculator tools out there that can be accessed, which is the fourth box here at the bottom that can help you not only calculate this but try to see how the benefits accrued at different potential stakeholders as well. I think one of them that's new is the BUVC tool, building upgrade value couplet, which is a very interesting one that does sort of provide for a breakout between tenants and ownership for example on benefits and costs.

Next slide, please. So once you've calculated the impacts of tangible high performance investment benefits, you wanna do that in a way that takes into account life cycle but also building of different energy measures together. For example in the case of energy efficiency it's very obvious, or maybe you have some water and energy efficiency, and we talked about magnetic shore. That piece of technology already comes bundled with a variable frequency drive and control system upgrade, which are the things you wanna consider when you're doing any eight track upgrade to maximize those benefits. That's a bit of the engineering side, but it's important to kind of understand that from engineers. That's why we start off with that up top.

John: Well integrated systems is something you know I've worked on and I think that's very important to the future here is how to integrate the systems, how well they integrate together.

Devesh: Exactly. That could be said for lighting and HVAC together. We talked about occupancy centers, the whole type of thing there, and of course we wanna be able to translate these financial outputs considering all of the different variables that we've mentioned in terms of the public intangible and tangible benefits. You wanna look at profit evaluation approaches, which one is preferred for the ownership type you're dealing with but also maybe some alternatives to look at, right? Based on how this entire suite of tangible and intangible types of things are now becoming more important. I think I'm gonna leave it there. I just wanna throw out a couple of these steps here. Next slide, please.

John: With that we'll move over to Theddi. Thank you very much.

Cindy:

Thank you, John and Devesh. I hope your insights on valuation will enlighten others to get past the blue screens at their companies. A quick reminder to the audience that we will be sending the slides out after the webinar as I'm sure many of you would like to take another look at John and Devesh's metrics for valuation again. Please send in any question you may have through the webinar chat box on your screen. We are collecting those for our Q&A period at the end of the session.

Next let's hear from Theddi at Sustainable Values who is working with DOE to help develop much needed training for the appraiser industry. Appraisers' understanding of green building benefits is critical to ensuring that buyers purchase buildings that meet their comfort and operational expectations and sellers receive appropriate compensation for the effort and capital spent improving and maintaining their buildings. Without an appraisal process that values sustainability, these benefits are not captured and there is less incentive for owners and other stakeholders to invest in greening their assets. Next slide, please. Theddi, take it away.

Theddi:

All right, thank you. Good afternoon. I'd like to start with two of my favorite quotes relative to this topic. The first is from Oscar Wilde's *Picture of Dorian Gray*. And that is "We know the price of everything and the value of nothing", and I find that very applicable when you are evaluating the benefits of various types of green strategies particularly with the markets and owners' emphasis on price as opposed to actual long-term value. To that point, the next quote, which is what market participants, owners, investors, etc. what the market values is what equals market value, and market value is the premise by which the vast majority of real estate in the United States is valued. Next slide, please.

First of all I'd like to thank John and Devesh for their excellent primer on valuation. They covered a lot of the technical aspects very well and also touched on many of the salient points that I think are really important when you're trying to assess the benefits of energy efficiency and high performing strategies, the issue of feasibility on various systems and what contribution they could make, how they might impact highest and best use, which is a primary determinant of a property's potential market value.

Also the sales comparison approach. Despite the fact that there have been increases in the numbers of sales of property, it's still a relatively small statistical pool of data. So this remains a challenge for the valuation community that relies heavily on that type of

empirical data. Also they're pointing out that a reduction in expenses could increase NOI, which inevitably could lead to an increase in value.

Finally, the mention of the need for life cycle cost analysis whereas in the valuation world it's very prevalent in machinery and equipment, it is not used that commonly in the valuation of buildings, and I think going forward it could be much more valuable because it recognizes the contribution of systems that last longer, cost less, can impact capital expenses in a very significant way and overall obsolescent factors related to buildings as well. Next slide.

So I think it's also important for the audience to recognize there are a number of challenges that face appraisers. We've mentioned several times a heavy reliance on market and empirical data. One of the greatest challenges since there aren't necessarily a really large pool of sales is the issue of confidentiality, and that is the fact that the majority of building owners do not choose to share their operating data, and it's within operating data that a lot of the benefits that fall to properties from energy efficiency and more high performing systems can be realized.

So what's happened to date is that investors looking for financial validation have found the data to be insufficient. That's why the tools that the DOE is creating, the sharing of information among investors, the market overall will go a long way to creating the appropriate validation that's needed. Finally, there are a number of perceptions that are changing relative to value and performance. The types of value you're looking at relative to performance, the number of organizations signing on to the United Nations principles of responsible investment that increase the criteria for investments substantially and beyond just bottom line economic performance.

Finally, one of the largest is the vernacular and principles that apply to higher performing properties that have not been typically part of the vocabulary of the appraisal industry in the past. Broader concepts such as externalities. I think Devesh mentioned commissioning, which is not a term necessarily that many appraisers are familiar with but need to be or right sizing. Next slide. So I mentioned performance. I think this is one of the most critical that we need to understand is changing. Performance as a building characteristic you won't find in too many sales comparison charts, but it's being interpreted and expanded if the concept of performance at many different levels.

For example, at the building level the increase in benchmarking particularly through legislative policies has been significant and this creates a much higher level of transparency and greater mechanisms for buildings to be assessed at the management level. Instead of just an appraiser necessarily assuming competent management, if it's a high performing building they're looking for management that'll be able to continually assess and upgrade the property, and at the tenant level you're finding a lot more informed tenant base that's looking for the performance of the building from the perspective of how it will impact their own occupancy cost as well as their work environment. Next slide. I think one thing too that also has to be considered is risk. Risk is a critical factor and a determinant of market value.

It's critical to investors. It's critical to underwriters and lenders and it's applied in a variety of perspectives. From a performance perspective, how will a building that has energy efficient upgrades be compared to its peers? Will it be deemed a less risky investment? What's the probability of the success of some of the new technologies? Is there a high probability or a lower probability? If it's higher than obviously it'll be a less risky investment, and the characterization of risk is not only just market and economic, it also goes to environmental, through a location, potentially social, and also the issue of future proofing.

If you make an investment in your building today, a lot of investors have found that they have shorter term investment horizons, but if you flip that around and say they don't make the investment, they don't increase the energy efficiency of their building, how marketable will it be when they get ready to sell it? The reason this is so critical is it relates directly to your choice of discount rates and capitalization rates that were being discussed earlier. The less risky an investment is then the lower the rate and the higher the value. So there is a very direct correlation. Next slide, please. So how can market participants be more proactive? I hear this all the time and it is truly, and I'll say this, I'll repeat myself here, it's about informing and not influence.

So owners and investors in the scope of work upon when they engage an appraiser, they can mention and note special systems, specific strategies that they have undertaken and request that those be evaluated. Now the valuation professional is the one that makes the final determination of what's included, but certainly if the request is out there in most cases it should and could be honored. Also provide valuation professionals with the information they

need. A lot of strategies that have been undertaken aren't that visibly obvious. So making sure appraisers are informed is one of the most critical steps that owners investors can take. Architects, engineers, and designers, provide third party reports and details about a property's special features.

Again this is not a appraiser's area of expertise, so the more you can do, the more information you can provide to inform them, the better result it will be for everyone. Finally, tenants understanding of what lease options are available, what they may or may not be able to include in their own lease structure to overcome a split incentive or make a division of the cost of an upgrade more equitable between tenant and owner is very important. I would suggest that tenants become informed shoppers and then they can drive the market more effectively and be much happier in the space that they occupy. Next slide, please.

Know where you fit in the process. Whichever role you're playing involved in evaluation, remember what you're trying to accomplish. What positive role can you play in the appraisal process? Know your strengths, what information you can bring, and your limitations. I believe that the appraisers working on complex high performance energy efficient buildings, you are well served with someone with a degree of experience. valuation is a field that the more experience you get, the more value add you can provide, and in many instances where there is not empirical data, you really need to rely on that experience of an appraiser that has had a broad background and ability to incorporate a variety of factors.

Finally, I mentioned the words "inform, not influence." At the end of the day it is the market and the market data that is a final determinant of value. So provide the information you can and allow the appraiser to evaluate it objectively and to the best of their ability. Next slide. So what's already out there to help? There are a number of factors and resources. One, the Appraisal Foundation has created a set of guidelines. One is finalized on background and core competency.

There is a residential set of guidelines advisory out for exposure and soon there will be a commercial advisory out looking for public input. The Appraisal Institute has green addendums, one for residential and one for commercial. They serve as a very good checklist to look and make sure that you can not only note but see, ensure that the systems and upgrades, etc. that have been included in a building get recognized. The Institute for Market

Transformation also has various publications they have worked on and some in concert with the Appraisal Institute that provide guidance and case studies, and finally the Department of Energy. Portfolio manager has an enormous amount of very useful data that can be gleaned from the information discerned in that.

The DOE's asset score for buildings and also the buildings performance database all have information that can be very helpful in determining points of difference for buildings and potential valuation factors. Next slide. So we're back to my first two. Please remember not to be driven completely by cost, but look at buildings in terms of value and the value that these strategies bring to 'em, and recognize it's not that individual appraiser but their evaluation of the market and the market data that's going to result in market value. Thank you.

Cindy:

Thanks, Theddi. I'd like to point out specific resources provided by our presenters, which the audience can access once you get the slides and use to start addressing some of the issues that we've talked about. So the first one we have a publication by Theddi titled High Performance Green Building: What Is It Worth? If you click that and read more you'll be able to find out more about investigating the market value of high performance green buildings.

The second one we have a report by the Appraisal Foundation on valuation of green and high performance property including core competency for appraisers. Next slide, please. So we have a bunch of different questions from the audience, very good questions, so let's take some time to answer some of these. If you have ongoing questions please feel free to keep typing into the chat box. Okay, so for John and Devesh, can the problem of split incentives for energy improvements between building owners and tenants be addressed during the valuation process?

Devesh:

Yeah. I sort of hinted to the green lease opportunity, the idea that you can make the tenants aware of the opportunity for them to have a better performing space that they're going to occupy for the next five to ten years both in terms of financially but also the comfort level. That's a standard thing. Comfort is expected, but the point would be a lot of the tenants are not looking at their own utility bills.

If they're national tenants they're warehousing these bills. They're going somewhere else. There may be a green initiative a tenant may have, but it's somewhere centrally managed. There's a great

interest for the base building engineers to want to try to get the tenants bases to perform at a certain level.

John: Well and I agree with you we're moving in that direction, Devesh. The split incentive is still a barrier in my mind because until we monitor each individual tenant's consumption and demand and compare them, because you may have what I call the heavy user next door to a light user and in our structure today we're pro gratis sharing that out to each one. So no one pays for the fact that they may be a heavy user compared to a light user. I still see it as a barrier and we're moving closer to that with wireless meters and many other things. I think that's gonna transform in the future, and to your point the best way to start out is with a green lease on it that would imply that you need to utilize those type of standards. I think that's where we're headed.

Devesh: I think that's a good point. I was actually referring to more of a triple net lease class A type situation, but even in those situations there's a lack of awareness of what's going on with the energy, but I totally agree when you have these pro rated type of situations. The one interesting situation I didn't run into that is an industrial flex space where I think the ownership has not seen any increase in rents, but operating costs over time they see it going up. They're like, "We wanna try in our next building to put some solar panels in and charge a little higher a bit on the rent but show the operating costs to be lower" as a way to kind of get around this. So just wanted to throw that out there.

John: So what we just did is go through three or four different stakeholders with different perceptions. I think that's a part of education. I hope that answers the question.

Devesh: Sub metering is also another area of innovation going on, which is key.

John: The wireless sub metering I think is key.

Devesh: Circuit-based, wireless, behavior change programs with tenants, all this stuff can help you.

Cindy: Great. Thanks. This is also directed towards you guys. So in practice, utility bills fluctuate, green scores such as Energy Star also change over time and not always in an upward direction. How does the uncertainty of future savings come into the picture?

John: Let me address the fluctuation that we see first and then I'll let you address how that changes, Devesh if you don't mind. A lot of the product that transformed over the past ten years has been downtown core class A type buildings that we've seen, and now we're starting to see it branch out. In utilizing Energy Star, we all know that they take in all the data from all the buildings and they create the medium.

So the 50 number is what is going up or down. If we're incorporating more buildings and what we see out there is that the buildings that are coming into Energy Star have high demands at this point in time and it is going to lower it down, we have to actually understand that's a very good problem to have because we're actually moving the challenged buildings into the project. Does that support the class A buildings in downtown? It makes them look better in that regard, but does that increase their value, which is back to this valuation component. I'll throw that at your feet, Devesh.

Devesh: So if you have more energy intensive use of the building over time within your buildings, newer types of build-outs, the capacity to be able to handle that higher load or occupancy intensity I should say is part and parcel of the whole high performance equation. When you put in a high performance piece of equipment you're designing it because it's that much more efficient, it can handle that much more of that type of load. Again I'm speaking in terms of energy here.

John: So the densification issue you're referring to is we're putting more people in more buildings, but with the efficiency we can handle those buildings. Does that not negate that at some point in time?

Devesh: Well I think when we're looking at valuation though it's the one that has the better efficiency in this kind of environment it's gonna have a higher – hopefully we'd see a reflection in the marketplace of –

John: I've always wondered if you put in more tenants, should your rent go up? That's a Theddi question I'm going to there.

Devesh: Well and that goes back to the example we gave of the occupancy vacancy type of impact. So the uncertainty of future savings...

John: I don't know. I fly all the time and I haven't seen my airline bill go down even though gas prices have been cut in half. I'm not quite sure how that fluctuates, but I'd like to see that.

Devesh: That's a good point and a lot of the utilities, natural gas being a big part of the – but I remember being in south Florida in '08 when the gas was gonna go up and that's a direct translation of great impact. The fuel costs go up historically.

John: Well that's required by the government.

Devesh: The only thing I'll say in addition is that there are other influences that are on the intangible side that you want to take into account. There's an expectation eventually in the marketplace that, oh, this is a green building, right? If we do see changes in fuel costs, etc. that may go up and down, we still have this other expectation in the marketplace to address.

John: Well and I think there's still the issue of every state governs its own PUC or Public Utility Commission and every state has its own rules and regulations. So what's transparent in one state may not be transparent in another state based on what legislation has created there. Do you see that?

Devesh: Oh absolutely, and like what I mentioned with the revenue opportunity in some of the grids, just the incentives and the terror structures, etc. they're very different and they incentivize different types of levels of efficiency.

John: So the incentives are something that's not I think that is standardized in the industry, so to make those changes transparent in every way it would be great if they would be standardized in the industry.

Devesh: Yeah.

John: I just wanted to end on that point. Thank you.

Cindy: Great. Thanks, guys. Theddi, we have a bunch of questions for you about how owners can really make sure that their building's improvements are accounted properly. Can you give an example of what owners specifically can do for that?

Theddi: Sure. I think it's important if possible for the appraiser to be able to talk to the architects or engineers that were involved to really get a determination and understanding of the goals and objectives of any types of special features or upgrades. If it's an existing building or new, commissioning reports, energy modeling, which is effectively a third party sign-off on projections that otherwise if

an appraiser makes based on market peers won't be able to validate possibly the same level of savings that the modeling could, and it would be accepted as an expert report so those types of inputs could be very valuable.

Cindy:

Thank you. I'm seeing some other general questions about what type of reading the audience can go do to learn more about this appraisal process and opportunities for incorporating green measures, and I would say please click on those resources that you will see once you get the slides after this talk, that high performance value publication that Theddi worked on is a great place to start. Unfortunately we don't have any more time for questions on this webinar right now, but if you have anything unanswered please reach out to our speakers after the end. Next slide, please. So we'll hope that you plan to attend the next Better Buildings webinar titled Strategies for Tenant Engagement. Registration is now opened for our next talk about energy in leased spaces.

Are you wondering how to tackle energy and water efficiency in leased tenant spaces? A representative from DOE will discuss technological barriers, opportunities, and collaborative approaches to promoting energy and water efficiency in tenant spaces. Pushman and Wakefield will highlight its recent efforts to integrate energy efficiency into the design and construction of tenant spaces and other measures they have taken to reduce water and energy consumption. Next slide, please.

I'd like to remind our audience that our annual Better Building Summit is coming up on May 9-11 in Washington DC. This is our once a year in-person meeting of Better Buildings partners, affiliates, and interested stakeholders to share best practices, be recognized for their work, and network. Registration is now open to the public and we hope that you will join us. Next slide.

So I'd like to introduce the audience to the Better Buildings challenge swap, an effort to market the work that energy teams engage in to a wider audience via a fun and informative channel. So we've created a reality series featuring the Whole Foods Market and Hilton Worldwide Energy teams who swap buildings and help each other identify further energy saving opportunities. Please click on the link to watch the swap webisodes when the slides go out, or if you can't wait that long, please Google "Better building swap." Next slide.

With that, I'd like to thank our panelists very much for taking the time to be with us today. Feel free to contact our presenters directly with additional questions or if we weren't able to get to your question during the Q&A period. If you'd like to learn more about the Better Buildings Challenge or Alliance, please check out our website or feel free to contact me directly at the email shown. I encourage you to follow the Better Buildings initiative on Twitter for all the latest information. You will receive an email notice when the archive of this session is available online. Thanks, everyone.

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