ACCELERATE ENERGY PRODUCTIVITY 2030

Webinar 1: Accelerating Energy Productivity through Building Technologies and Financing

Wednesday, April 13, 2016

https://www.youtube.com/watch?v=wTzzf97IBJ4&feature=youtu.be

Welcome & Opening Remarks

- **Judi Greenwald**, Deputy Director for Climate, Environment, and Energy Efficiency, U.S. Department of Energy
- **Deborah Wince-Smith**, President and CEO, Council on Competitiveness
- **Kateri Callahan**, President, Alliance to Save Energy

Building Technologies Presentation: Jason Bingham, Vice President of Energy Services and Controls, Trane Commercial North America, Ingersoll Rand

- There is a direct connection between buildings and business results.
- Building owners and building managers are pushing for an increase in energy productivity.
    - 68% of building managers have been asked to reduce their budgets by 3-5%.
    - 72% are expected to be experts in energy management & have all of the capabilities to manage the building's energy.
    - 68% now have a goal to achieve an increase of "business results" (economic GDP) within the building this year. Owners now see the clear connection between building and business productivity.
- Macro trends are changing the building sphere all together.
    - Internet of building things: collecting data from any building and bringing it to a central location to analyze. This helps building managers manage their energy demand.
    - Competition for buildings from everywhere.
    - Utility death spiral: the business model that has always existed for utilities, which is to use the growth of consumption to fund the infrastructure needs of the generation, no longer works. Not only is consumption declining, but there are more needs on the infrastructure side. We also now have the complexity of renewables and microgrids, and buildings are looking inside more and more to meet demand.
    - Economic and government regulations.
    - The convergence of energy: the definition of energy itself is changing. Energy used to be separated by supply, distribution, and then demand, but now the lines between those three are completely blurred and most utilities today would define energy by all three of those categories.
    - Mergers and acquisitions: many different companies that serve the building industry have bought a supply-side company to serve the total energy of their buildings and utilities have bought energy management systems so that they can serve the demand-side of buildings.

    - Small markets getting big: connected homes - as we learn how to make homes more efficient, the same energy saving techniques will move into the small buildings sphere, which is a big part of the commercial building industry.
    - Buildings below 25,000 sq. ft. make up 90% of the total commercial building stock. They are a huge key in doubling energy productivity since they are some of the largest users of energy.
- The core trend - automating results.
    - Up until now, automating systems have collected data and made that information available to building managers on a screen. These results are now being automated.
- What does it take to automate energy productivity? Building technologies that are helping us advance energy efficiency and energy productivity.
    - Connecting data to a cloud - building information is now readily available and wireless.
    - Equipment is being manufactured ready to connect to a cloud.
    - User experience & analytics - allows for managers to quickly access the building data/information, and the analytics turns that information into knowledge and recommended actions and what the rate of return would be on these recommended actions.
    - None of these technologies are new, they are just much more accessible and connected to one another, and they are proliferating in the building sector.
- Challenges & barriers.
    - Energy transparency: need to make it easier to see every building's energy consumption to find best practices in reducing energy use.
    - Energy standards: There are good energy standards in place today, but they are not consistently adopted by state or region
    - Small building focus.
    - Remove the roadblocks to success. One example is on site energy storage.

Q & A

- **Kateri:** How can we break through the barriers of small buildings to make that sector of the industry more approachable?
    - **Jason:** Innovation in the small building sector that is occurring today will change the future of the industry.
    - Small buildings are not suited to have an entire control panel within them to track energy use. By offering a cloud automated system, you greatly reduce the cost of tracking and collecting energy data that is affordable for small buildings to invest in. The emergence of this cloud system can then be implemented into large buildings further reducing the cost of maintenance.
- **Jeremy Sigmon, USGBC**: You mentioned a role for storage with electric thermal - how are grid operators supporting energy efficient building technology, and what are other ways that buildings are working to ensure grid reliability?
    - **Jason:** how can grid operators have the same confidence when they say reduce the demand in a building? Advanced grid services.
- **Kateri:** What is the forecast for achieving Net Zero energy buildings?

    - **Jason:** I think that it is within reach. For some time, cost has been the biggest inhibitor to implementing these net zero technologies into buildings.
- **Rodes Boyd, Ingersoll Rand:** Split incentives - is there a push for commercial property management companies to work with their owners and tenants to overcome split incentives?
    - **Jason:** This is a huge problem that is not solved yet, but we are seeing the proliferation of green leases.
    - Green leases - if there is an energy opportunity present for the owner of the building, it will be funded by the owner but paid for in the difference in the utility prices.

Buildings Energy Productivity Financing Presentation: Parker White - Director, Hannon Armstrong

- Finance can be used as the oil to these technology engines, or as a road block.
- Energy is becoming a core part of business and real estate, as well as across many international markets.
- We have only saturated about 9% of the non-residential real estate market with energy service company (ESCO) investments. The other 91% has yet to receive the investment it needs to reach the optimal energy performance.
- The greatest barrier to implementing energy solutions into buildings is financing, not a limited amount of technology.
- Misalignment - creates short comings with long term solutions
- Competition for capital:
    - Owners naturally favor core investments.
        - 3, 30, 300 rule: $3 per sq. ft. is spent on energy. $30 per sq. ft. is spent on rent. $300 per sq. ft. is spent on people. A building owner may prefer to improve the lobby of the building, which could potentially allow for the building owner to increase rent, than spend money on energy solutions.
    - Small buildings cannot always afford to make these investments.
    - Split incentives - Tenants typically pay majority of utility bill.
    - Lack of information:
        - Unclear expectations on return and investment value.
        - There has been success with ESCOs on the federal side, but there has not been the same success with the commercial and industrial sectors. This could be due to a lack of accurate information on how much energy will be saved upon investment.
    - Existing debt:
        - Mortgage prepayments are high, leading to reliance on expensive subordinated or unsecured credit.
- Example: Next Step Living - They had $180 million in returns, yet had to shut down. This has to do with competition and getting their services out into the space. The capital available to them was extremely limited. Whereas in the solar space, there is access to capital now that is very efficient.
- Being a principal investor, we are owning long term with our capital.
- Utilizing Real Estate Investment Trusts (REIT) - making available to anyone who owns stocks to invest into sustainable property. This property ranges from wind farms to solar panels on roofs

of buildings. Using these properties to create dividends for stock holders so they can be rewarded for their investment in this property.

- Through this REIT platform, they can securitize and syndicate with institutional investors and they have assets on a balance sheet.
- The core purpose of the REIT Platform is to generate superior-adjusted returns using finance to enable Greenhouse Gas (GHG) reducing assets to be adopted at scale.
- CarbonCount: scores the carbon abated or avoided per $1,000 of investment to see how effective the bond was in achieving a lower emission level.

Q & A:

- **Kateri:** why are you still one of the only sustainable infrastructure investment groups?
    - **Parker:** You are bringing together a unique brain trust when you create the structures necessary to create capital that is cost effective. Our cost of capital is usually cheaper than the alternative sources, making this program more affordable and available to a diverse set of companies. The more awareness we bring to this new space, the more likely we are to find similar competition in this sphere.
- **Kateri:** It seems that there should be a rebate for home owners who do not want to utilize savings measures because it creates a loan on the books for a building. Many owners want to sell the building in a set time frame, and if this loan conflicts with the sale of the building, it will not give an incentive to invest.
    - **Parker:** Property Assessed Clean Energy (PACE) is an assessment and not a loan and it is on the property and not accelerated so the amount that is owed never surpasses the one installment.
    - PACE has a prepayment option so it will not conflict with long term contracts. When you increase the energy productivity of a building, you have by consequence increased the property value.