

Built Environment and Energy Advisory Committee Meeting
Washington Metropolitan Council of Governments
777 North Capitol Street, NE, Washington, DC

November 21, 2013 Draft Meeting Highlights

Attendance:

Olayinka Kolawole, DDOE, Co-Chair
Todd Sims, IMT
Rob Taylor, WSSC
Sam Brooks, DC DGS
Emil King, DDOE
Steve Walz NVRC
Erica Bannerman, Prince Georges County
David Pirtle, Pepco Holdings
Bill Eger, Alexandria
Nathan Costa, Alexandria
Mai Tomida, Alexandria
Jiedong Wang, Alexandria
David Johnson, FT McNair
Ernest Jolly, DC Water

By Phone:

Luisa Robles, Greenbelt
Tim Stevens, Sierra Club
Marie Genovese, Loudoun County
Ellen Eggerton, Fairfax County DPW & ES

Staff:

Leah Boggs, COG DEP
Jeff King, COG DEP
Isabel Ricker, COG DEP
Steve Bieber, COG D

IECC Hearing and Building Codes Update – Todd Sims, Institute for Market Transformation

Mr. Simms thanked COG and Leah Boggs for her work and support regarding the IECC code revision. The region's presence at the hearings in Atlantic City was definitely felt, and they helped to ensure that important efficiency requirements were not rolled back in the new code. The COG region sent a total of 15 voting members in delegations from 4 member jurisdictions. People were very impressed - COG was certainly the best represented region there. Because of their presence, the group was able to defend against energy efficiency rollbacks. Mr. Simms also noted that Arlington has just become IAS accredited; an indication that the county has a top notch building department.

Before the event IMT was involved in outreach and education regarding new code policies they were proponents of or opposed to. They also helped secure travel scholarships for people interested in attending the hearings.

The industry expected that the 2015 code would be weaker on efficiency measures than 2012, but it would be disaster if the code failed the DOE determination, so the goal was to “hold the line.” The biggest proposal energy efficiency advocates were unified in opposing was RE166, which was backed by the Homeowners Association, and which we were able to successfully block. RE188, an energy rating index that can be used as a compliance path, was a major win for efficiency advocates. In the end, 2012 and 2015 are not significantly different on energy savings policies, but 2015 is much better organized and uses much clearer language.

Ellen Eggerton, who was at the hearings, noted that by the last day there were only 50 people in the meeting, and a very small number actually voting. The hearings involved 100 hours of testimony over 6 days, so many people left after their issue was voted on. Because the COG region had 15 out of the 50 people there, they had a big impact. The voting rules varied depending on what rule was up for vote, but if you stepped out your vote would not be counted. IMT sent text messages to let people know when an important vote was coming up so everyone would be in the room. Other cities, particularly Boston, sent delegations to help on key issues like RE166 and RE188.

2015 Residential Code

There are many small changes that IMT has summarized on the handout posted on the BEEAC website. Of note, a provision for historic buildings passed. Historic buildings will no longer be exempt from complying with energy codes except when doing so would harm the historic nature of the building. This was broken out into a new chapter.

In response to a question on whether this caused opposition from the historic building community, Mr. Simms said that there was a good compromise. The new code provides a pathway to document *how* a change would impact the historic nature of the building in order to not comply. Steve Walz asked whether there is an effort to do outreach to the historic building community. Mr. Simms agreed that that is a good idea, and suggested that IMT will look into doing that.

RE 9, a new solar-readiness provision, requires single family homes to leave room for solar panels and supporting infrastructure. Erica Bannerman asked if someone could explain what that means technically. Ms. Eggerton responded that it doesn't require anything additional done to the building, but homes must have a drawing that indicates the “solar ready zone,” an area that is shade and orientation compatible for solar, and note not to put plumbing, skylights or other equipment through it.

RE188 is a truly historic proposal that establishes a new compliance pathway for Home Energy Rating Systems (HERS)-like energy rating requirements. IMT & NRDC worked with the Leading Builders of America, a trade group that represents 90% of builders associations in the U.S., to promote this provision. The groups feel strongly that it is important for builders to accept, and even to want, the proposal. IMT is going to have continued involvement working with HERS and RESNET, as well as with states and builders to implement the code change.

In response to a request from Co-Chair Kolawole for more detail about the new index, Mr. Simms explained that it is an energy rating index based on 2009 code. A higher rating represents an increase in energy efficiency. It was a pretty controversial proposal, and there were attempts to both strengthen and weaken it, but the final version was actually the original proposal. HERS is a proprietary system, and it will be possible to use other systems, but HERS is the most widely used.

The New Buildings Institute is a good resource for information on the commercial code changes. Most of the changes were incremental. The biggest changes were in reorganization to make the code easier for design and construction professionals as well as building departments. New lighting provisions promote occupancy sensors, day lighting and lighting controls. HVAC and water heating requirements were bumped up to match the ASHRAE standard. Aligning the code and standard does make it more stringent, but consistency is supported by most in the business community.

As next steps, education and training are critical. Internal staff and building departments need to review the changes and support adoption of the 2015 IECC at the state level. Although most changes were small and incremental, these improve energy savings tremendously in the aggregate. Additionally, most states are not actually on the 2012 code, and there are huge energy efficiency improvements in 2015 over the 2009 code.

Building departments should assess overlaps in policy. IMT designed a green building roadmap with DC to help professionals see what requirements they must meet and what incentives they have access to. The IGCC is incorporated into the roadmap, but many places have not adopted the IGCC.

CDP is a new online portal for code development. Anyone qualified to vote can now do so online. By removing cost and time barriers ICC hopes CDP will facilitate much more participation. They will still have hearings, but the hope is that instead of sending 8 or 12 members, it will be possible to send 1 or 2 to hear testimony and others can vote on their own time online. It is possible that energy advocates will be disadvantaged by this. Building groups are very big and organized and therefore more likely to vote online in an organized fashion. The first opportunity to use CDP will be the Group C hearings on April 27, 2014. Codes are approved every 3 years, but there are interim measures & opportunities for involvement, particularly in committees. Committee action is lower pressure so it would be a good opportunity to try out CDP.

Discussion:

A question on utility involvement was raised. Specifically, how might utilities be more involved in code development, so that it is possible to claim savings that are happening with behavioral changes and purchase decisions? Mr. Simms said that this is a common question, and while IMT is very involved in code development, he focuses more on code compliance and would refer people to their utilities team, which would be familiar with the intricacies of crediting savings. More utility engagement during the process is desirable and would likely result in better, faster, more effective outcomes. It is important to realize that codes set the *minimum* energy savings that can be realized. IMT works on bringing the baseline up, and these code changes are mostly incremental but in the aggregate have a big impact.

WSSC Solar Installation – Robert Taylor, WSSC

WSSC serves 1.8 million customers in PG and Montgomery counties, processing 200 million gallons of wastewater and treating 70 million gallons per day. They have 2 major treatment plants, one in each county. WSSC spends about \$24 million, mostly for electricity, per year on energy. They looked at owning and building the panels versus a PPA, and decided the PPA had several advantages:

- As a public utility, WSSC does not pay taxes, so could not accept tax benefits for building & owning their own system.
- PPAs offer a zero upfront cost option
- PPA company sells SRECs (WSSC wanted to avoid these complicated transactions)

- PPA handles all maintenance and repair

Essentially, there is more risk in own-build than in PPA.

Despite having quite an array of facilities they do not have a lot of roof area for solar panels, so decided to ground mount the system. WSSC wanted to maximize production per site. Due to MD's net metering law, this meant 2MW per site. The sites were chosen because they had extra property where it is unlikely WSSC will expand the plants for at least 100 years.

The PPA with Standard Solar is a 20 year contract, with the option to buy the system at 10 years. The system is provider owned, built and operated. WSSC required small, local, minority business participation because of their strict SLMBE goals (they used all US-manufactured materials: the inverters were made in Denver and the modules were made in Atlanta). It was also very important to WSSC to be able to claim a carbon reduction, even though the PPA provider owns the RECs. The price is 25% less than what WSSC was paying for conventional energy. The contract stipulates a 3% price escalator per year (after a flat period). Production is estimated to be 3.3 million kWh per year, which will save WSSC \$3.5 million over 20 years. Standard Solar gets paid based on what the panels produce, and therefore the PPA owner takes on the risk, helping ensure system quality.

Construction began May 1 and operations began on October 1, 2013. Major challenges included: project schedule delays, which caused many people to have to work overtime, electric distribution system problems at Seneca, solar load shedding problems at Western Branch, and change order negotiations with Washington Gas. However, they anticipated that Pepco net-metering approvals would be a big hold-up but Pepco approved them in a week.

Discussion:

The systems are net metered, but have a separate solar meter. WSSC did most of the management themselves, but had consultant support from AECOM in developing RFP. Co-Chair Kolawole asked if WSSC is planning to build more arrays. The Seneca plant's maximum demand is 2.5 MW, and the system is 2MW, so they don't feel the need to build more there. However, a MD virtual net metering law may change that if they can apply the surplus output there to the grid. Their Potomac plant has peak load of 16 MW, so there is plenty of opportunity to use excess energy there.

Ms. Bannerman asked if there was opposition from nearby residents. WSSC sent letters to the neighbors explaining the project. Most of the concerns raised were about being blinded by the solar panels reflecting when driving on a nearby road, which was not a problem because they were at a 45 degree angle.

D.C. Wind Farm Contract and BuildSmartDC – Sam Brooks, DC DGS

Wind PPA – major procurement & Data driven efficiency initiative

DC has a broad supply strategy including both wind and solar. The city spends \$50 million per year on electricity, so price volatility in electricity can be a huge problem. There is a desire to have a more consistent and predictable cost, so they are hedging risk by diversifying the city's energy supply. Bluefin recently did a major roof PV analysis that found there is at least 5.5 MW, probably more like 8 MW, of solar potential in the city.

A new wind PPA for a 46 MW utility scale project began in March. DC is actually going to take on the spot risk and buy the wind when it blows. This has different incentives than PPAs when one does not own the system. Because of this, they are looking into storage options to match the demand profile with supply. For example, wind blows at night but we need it during the day.

A question was raised regarding how the District's renewable purchasing affects DC residents with solar power. Mr. Brooks explained that DC buys RECs to provide 100% of the city's energy, which drives price of SRECs very high. They are currently about \$480, which is very lucrative for owners who sell their SRECs. DC is retaining ownership of the wind deal, so they will keep the RECs. REC purchases aren't really green power purchases even though you are paying someone else to produce renewable power, you are still using the traditional blend of retail power (about 43% coal). DC is looking to move away from REC purchases for this reason, but when wind doesn't blow they will have to buy RECs.

Wind power is a long term hedge, and very cost effective. The price on day 1 of production is extremely close to current retail rates for fossil fuels, which they expect will rise. With the PPA, DC can buy renewables at a fixed rate over the next 20 years.

Ms. Bannerman asked if DC included a set escalator in the PPA. There is a 2.5% price escalator each year. DC assumed efficiency gains in making the agreement, i.e. by investing the difference between the initial cost and 2.5% escalator in efficiency improvements they will still save money.

On site solar generation provides back up emergency power, improving resilience to natural disasters. A new system on a large high school building will be 1.2 MW and use combined heat and power (CHP) with battery backup to really increase the resiliency of the system. With this system, they will not need Pepco's involvement at all.

DC's **Game Change Initiative** focuses on: 1). operation, 2). system retrofits and 3). behavioral and occupant driven conservation. For example, one judiciary square reduced energy use last summer 20% by focusing on energy efficiency, most importantly on HVAC controls.

The city has discovered that there is huge energy waste - \$10 million due to operational inefficiencies alone. Mayor Gray's climate plan includes a goal to cut energy use 50%. This is not legislated, but DGS has this a priority, and expects to save over \$100 million over the next 20 years.

To achieve this, they needed better data. Previously, DC was inputting data from paper bills onto an excel spreadsheet. DGC has 1400 accounts, but none were mapped to the building so it was impossible to connect energy use with the location. Due to the White House Green Button effort, DC began working with Pepco to get 15-minute interval data for their buildings. Now they get this information the following day for 70% of their buildings.

Build Smart DC is a transparent public website to track load and use at all DC public buildings. There is tremendous accountability, and the hope is that buildings operating poorly feel pressure to improve when compared to other buildings. For example, after tracking energy use, buildings have been retrofitting conditioning to optimize lighting and HVAC schedule. Schools need customized scheduling to accommodate sports, clubs, etc. and can see huge savings if they do this.

One interesting case is the building at 200 I St SE, which won awards from USGBC and is the most energy efficiency building in DC, but was an energy failure of epic proportions. Implementing building automation system (BAS) scheduling is key. Having the data made it clear that even the most efficient buildings are wasting tons of energy when they are on all the time.

They are also identifying and addressing operational failures like insufficient access to building systems and insufficient training for facilities managers. Everyone wants to be good at their job, so giving people access to the data is empowering. You don't have to look hard to find examples of where tracking works to improve efficiency. DC is not an outlier; many other building owners also think they are saving but may not be.

Discussion:

Following a question from Robert Taylor, Mr. Brooks explained that the city get electronic invoices and pay bills electronically, but with paper backup. Pepco is hesitant to give interval data because sometimes it is different from the paper bill, but DC signed away their rights to challenge Pepco on this and has never seen a huge discrepancy. Ernest Jolly of DC Water noted that they have to compare the utility data against their own data because of these issues. The problems seem to be large or more frequent when you have two feeders.

Steve Walz asked whether DC is communicating this information to the building users or engaging them on energy efficiency. Mr. Brooks answered that DC is doing a green schools challenge in partnership with USGBC, whereby they send mentors to schools to help on energy issues. After 3 years the school's performance is judged relative to the baseline. There are incentives for schools that meet benchmarks in winter.

Roundtable

- Steve Bieber: the Exercise and Training Operations Panel (ETOP) is comprised of representatives from NCR state and local jurisdictions. ETOP is the driving force behind regional collaboration and both short-term and long-range planning for exercise and training initiatives within the NCR targeted at the homeland security partners. ETOP has funding to do trainings on improving energy efficiency and safety of supply chains, and energy emergency or utility failure. The scope of both grants is yet to be defined, but will be announced in December. Exercise planning and design will begin in January. If anyone in BEEAC is interested in helping to design trainings, please let COG know.
- Erica Bannerman: Prince George's county recently approved a clean and renewable energy bill that requires all new public buildings include on-site renewable energy, and they cannot meet the requirement with RECs.
- Todd Simms: Global Building Performance Network is hosting webinar series on building codes with experts across the world, for more information see their website: <http://www.gbpn.org/>

Next Meeting Date and Other Announcements

- Joan Rohlfis is retiring as of January 1 after 25 years at COG
- The next BEEAC meeting is December 19, 2013.