Metropolitan Washington Council of Governments

Built Environment and Energy Advisory Committee (BEEAC)

Meeting Summary: October 15, 2015

MEMBERS AND ATTENDEES:
Michelle Vigen, Montgomery County (Chair)
Emil King, District of Columbia (Vice-Chair)
Jeannine Altavilla, Arlington County
Joan Kelsch, Arlington County
Bill Eger, City of Alexandria
Jay Wilson, District of Columbia
Jessica Lavender, Fairfax County
William Marsh, Fairfax County
Wilson Ang, ICMA Fellow
Lindsey Shaw, Montgomery County
Erica Shingara, City of Rockville
David Jacobs, National Center for Healthy Housing
Reuven Walder, Ecobeco

COG STAFF:
Leah Boggs, COG DEP
Jeff King, COG DEP
Isabel Ricker, COG DEP (by phone)
Madison Wagner, COG DEP
Steve Walz, COG DEP Director

[Note that Webex had several technical difficulties during this meeting. This summary may be less complete than usual due to connectivity issues.]

1. Call to Order and Introductions, *Michelle Vigen (Chair)*

Chair Vigen called the meeting to order and attendees introduced themselves.

2. Jurisdiction Roundtable Updates

Arlington: The Rethink Energy Challenge recently put out an online pledge with 3 actions that got 800 participants, with expected savings of $125,000 from their energy saving actions. The Green Building Incentive Program started using LEED v4 effective Oct. 1.

DC: The District government recently announced a wind power purchase of 45MW, or 35% of the government's use, its largest RE purchase yet. They are purchasing 100% green power through this procurement and RECs. DOEE is developing new solar initiatives for low-to-moderate income residents and small businesses, and working on developing The Green Building grant program has a project looking at microgrid feasibility District-wide.

Fairfax County: Revamping their residential energy efficiency program and looking at developing a new commercial EE program.

Montgomery County: The new Green Bank work group is starting 10/27. The County is holding a press event on 10/19 on their public facility solar projects, and is preparing to launch commercial PACE in the next few months.

Rockville: Has had 200+residents participate in the solar cooperative thanks to MD SUN and COG. The city is looking at installing a solar canopy of 275 kW on a public facility.

3. The Nexus Between Energy Efficiency, Housing, and Health

David Jacobs, National Center for Healthy Housing; Reuven Walder, Ecobeco

COG's Climate Change Report recommendations for existing housing focuses on energy efficiency. Energy-efficient homes generally include: 1) ENERGY STAR appliances; 2) High Efficiency HVAC; 3) Well sealed and insulated building envelopes; 4) Insulated ducts; 5) Smart thermostats (with demand control)

The idea of 'healthy homes' is gaining traction. A 2009 Surgeon General Call to Action defines it as: "A healthy home is sited, built, renovated, and maintained in ways that support the health of residents."

- "KEEP IT": dry, clean, ventilated, pest-free, safe, contaminant-free, and maintained.
- Sensitive populations like children and older adults have more respiratory issues.

Allergen & Pollution Control:

- Mold, dust mites, insects, pet and rodent dander, pollen, ragweed, etc. are common allergens.
- VOCs, particulates, formaldehyde, radon, acrolein, etc. are common pollutants.
- Illness depends on length of exposure and concentration of exposure.
- Plan ahead – build structures that contain materials less susceptible to emitting or hosting allergens and pollution, and systems that control for allergens and pollution.

Ventilation "Trade-off"

- Tight houses are better at keeping conditioned air in the house, and unconditioned air out.
    - Tighter means slower air exchange. This helps reduce heating load required for any given time period, which saves energy and improves comfort.
    - Tighter means fewer outdoor pollutants enter in a given time period, a health benefit.
- However, if not ventilated, tight houses could increase allergens concentration, pollutants and contaminants that cause:
    - Short term: Asthma, allergy, COPD exacerbation
    - Long term: Lung disease, heart disease, stroke

Ventilation Standards

- ASHRAE 62.2 is a ventilation standard in the United States that provides the minimum air exchange rate for a home based on its size and occupants.

- The standard has changed over time. The standard's goal is to reduce/dilute pollutants for most people. The standard is NOT geared to sensitive populations.
- Due to new research into fine particles, 62.2-2013 is about 75% "looser" than 62.2-2010. The 2016 standard will likely give reductions for high performance filters.

How to Meet Ventilation Standards

- Weatherization programs typically seal up the house, then put bathroom fans on timers to exhaust air for required minutes per hour, although some still rely on passive ventilation.
- Exhausting conditioned air provides big incentive for consumers to disable these controls.
- A better solution is an Energy Recovery Ventilator, which costs more up front, but will provide a balanced flow of fresh air and exhaust air to meet ventilation requirements with substantially less energy penalty.
    - Technology has been around for decades and is used in Europe and Canada. Has not caught on here due to low energy prices.

Other important features of healthy and energy efficient homes:

- Use high-quality air filtration media (MERV13+) in central air handler. Energy Recovery Ventilators (ERV) are the best technology to improve indoor air quality, and recover 70%+ of the energy used to ventilate the house.
- Maintain 30-60% relative humidity year round through dehumidification and humidification. Allergen-creating insects, animals and molds love high humidity. Viruses love low humidity.
- Seal and redesign ducts so that they effectively supply and return air throughout the entire house in similar amounts.
- Continuous, low velocity air circulation from the ERV dilutes pollutants and allergens that make people sick, and enables the return air system to carry pollutants effectively back to the filter.

Emerging Issues:

- Fine particulate matter (PM) can have damaging long term effects.
- Range hood standards. Both gas and electric cooking produce significant pollution including airborne grease and acrolein that have long term detrimental impacts.

Educational/Programmatic opportunities for MWCOG and local government members:

1. Include ventilation standards in building codes for residential retrofit and maintenance (rental) markets. Many home owners are completely uneducated about ventilation's health impacts.
2. Air exchange maximum in new construction codes is very energy efficient, and could be detrimental to sensitive populations. These homes may need mechanical ventilation or fresh air.
3. Over-tightening older homes can be a real risk, especially to sensitive populations, that is often not being disclosed to new home owners.
4. Need a pathway to help people whose home is making them sick. Doctors need trusted resources they can refer patients to if they suspect environmental causes of respiratory illness.

5. Weatherization Programs can be expanded incorporate healthy home technologies such as ERVs, filtration, dehumidifiers and improved ventilation. There are multi-family whole building equivalents. It is difficult to treat individual apartments.
6. Advocate for IRS guidance that Healthy Home upgrades are deductible medical expenses, and allow home owners to make these upgrades using FSA or HSA Account funds.
7. Sponsor A Study With NCHH: While low-income (Medicaid) populations have been studied previously as part of federal programs, no controlled scientific study has been conducted to quantify the health benefits for low to moderate income families on private health insurance.

Discussion:
The US does not have any regulatory standards to deal with the indoor environment. This is a major gap in environmental and human health protection. Enterprise green communities and others are trying to improve standards for public housing. They have tried to quantify the benefit of improved indoor air quality and health outcomes. Randomized trials have showed significant health improvements with newer ASHRAE standard.

To reduce PM, you need to more efficient filtration systems, but whole-house vent systems have not been well-studied from a health perspective. There is a need to do this study. If the ducts are leaky you are not able to get good circulation. Improving the ductwork to eliminate leaks and make it effective for both heating and cooling is important to optimize filtration.

ERV systems and filtration plus re-doing the ductwork costs about $3,000 - $8,000.

Local governments in the region have been looking into these issues, for example Arlington recently did an event on moisture and healthy homes. It might be helpful for COG to do a deeper-dive workshop or training on this issue.

4. District of Columbia Greening the MLS Report

Jay Wilson, District Department of Energy and Environment; Laura Stukel, Elevate Energy; Sandy Adomatis, Elevate Energy

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Greening the DC MLS Report Partners: DOEE, MRIS, IMT, Elevate Energy. Deliverables:

1. Bringing utility data into MLS. Leverage existing Green Button data: developed a flow that would allow a user to download their data, share with the realtor, and bring it into the MLS. Utilities can adopt the “connect my data” standard which will automate the process. New fields introduced to show utility data as of July, which can be manually entered.
2. High performance homes inventory assessment - Worked with builders to find how many homes are being built to a green standards. Identified six neighborhoods in DC that are hot spots of green building. This is important for relators o know about housing in those areas. Compared the number of homes listed in building certification programs vs. listed in the MRIS.
3. Recommendations for DC Real Estate Outreach Specialist - A designated Real Estate Outreach Specialist will bring together the key stakeholder groups who will transform the marketplace toward fair valuation of energy efficiency and solar energy.

4. "What is Green Worth" Study of Residential Properties, including Single-Family Detached, Row Houses, Townhouses, Condominiums –High Rise and Boutique –Multi-Unit Buildings from Feb. 2013-June 2015.

MRIS has in-house analysis capability, which is very helpful for quantifying use and/or impacts of real estate listing criteria. They are starting to see a great increase in homes listed for sale using the new energy fields accurately.

Summary of Conclusions:

- 29 of the 32 pairs show a sales price premium for green features
- 3 of the 32 pairs were inconclusive showing less than a 0.5% premium positive or negative
- 2 of the 32 pairs had owned solar PV
- 32 pairs ranged in sale price between $317,000 and $865,000
- Sales price premium mean = 3.46%, median = 2.91%
- Homes were between 4-107 years old, and most were retrofitted to be green, so the study shows there is a premium for green retrofits in the DC area.

Study Challenges:

- Limited data provided on HPH sales identifying the green features – e.g. vague or zero description of green features in the MLS.
- Short timeframe to complete study, less than 45 days
- None of the HPH Sales had energy reports, green score sheets, or certifications attached to the MLS listings, which made it impossible to identify the premium of energy features separately from other green features.

Take away: the biggest emphasis needs to be on educating lenders, as they generally will not accept appraisers self-priced premiums.

Discussion:

The project will have a regional impact, and COG may want to engage other jurisdictions to do the same in their areas. MRIS would prefer to do things that cover their whole region and are strong proponents of including green criteria. MRIS will be partnering with the MLS for Philadelphia, after which they will have 70,000 member realtors.

Home performance with energy star data could be a way to get more home data into MLS faster, but most existing homes don't have energy star scores.

5. Regional GHG Report

Madison Wagner, COG Staff

Madison, the climate and energy intern at COG, completed a project to create a standardized regional approach to tracking GHG emissions. This built off of the GHG inventory work by NVRC and updated the COG 2008 Climate Change Report GHG inventory. A consistent methodology will enable tracking of progress toward regional GHG goals and assist local governments in completing their own inventories.

Process:

- Calculate the region's 2012 emissions using the ICLEI ClearPath tool (previously had been done using the ICLEI beta spreadsheet tool).
- Back-cast & re-calculate the regional 2005 inventory using ClearPath and the 2012 methodology
- Break out 2005 and 2012 inventories by locality.
- Pilot the region's GHG inventory with the CDP platform. COG was the first region in the country to report using CDP.

Results show that the NCR's GHG emissions went down 0.5%, despite a 9.9% increase in population. This means that average emissions per capita decreased by 10.3%. This is due in large part to declines in natural gas emissions (-8.6%) and stationary fuel emissions (-47.7%) in the built environment sector. Emissions from electricity went up 3.1%, emissions from non-energy sources went up 23.6% and emissions from mobile sources went up 3.7%.

eGRID factors for the region show significant decreases in emissions per MWh from 2005 to 2010 - about 10% - due to increasing use of natural gas over coal and increasing power plant efficiency. The region's emissions from electricity would have been significantly higher if this had not happened. Commercial electricity emissions declined slightly, possibly because of green building improvements, and industrial increased significantly, possibly due to data center construction.

On-road vehicles account for 70% of mobile emissions in the region. Of mobile sectors, only passenger cars and airline emissions declined between 2005 and 2012.
General findings:

- The National Capital Region met its first target for GHG emissions, as 2012 emissions were slightly below 2005 levels
- Electricity generation factors and stationary fuel combustion switches were the primary contributors to the region's meeting the 2012 target
- Passenger vehicles and commercial electricity will be important reduction targets for future

Next Steps:

- Jurisdictional reporting through ClearPath – Madison will work with local jurisdictions to collect community level and local government operations data to calculate GHG emissions for the locality and the government operations
- Carbon Disclosure Project reporting platform will enable easy CDP reporting for COG members
- Results will inform Climate and Energy Action Plan

Discussion:
Stationary fuel reductions were pretty standard across the three states. There were more heating degree days in 2005. The data are not available at the jurisdiction level, so it can be difficult to say why or where the declines are occurring.

6. COG Updates

- **BEEAC Survey** – Leah extended the deadline to next Friday due to lack of results. Solar and energy efficiency still seem to be priorities, but benchmarking seems to be a lower priority.

- **Climate and Energy Progress Report** – Maia thanked everyone for comments on the report. The final progress report is going to CEEPC at the end of the month.
- **Solar Workshop** – we are hosting a two part workshop on commercial scale workshop. October 26 meeting will be a discussion of the challenges, opportunities, and needs for additional resources. The second meeting on November 10 will be a deeper dive into the challenges and provide feedback on a preliminary toolkit for commercial properties interested in solar.
- **Chief Administrative Officers (CAOs) and Cooperative Purchase Officers Committee (CPOC)** – Baltimore cooperative purchasing group is doing a cooperative purchase of electricity. COG members have the opportunity to participate as well. The COG purchasing committee will be discussing this at their meeting on November 4, more info to come.

7. COG Updates, Upcoming Meetings and BEEAC Adjournment

- Solar Workshop – October 26
- MSWG Full Committee – October 27
- CEEPC – October 28
- CPOC – November 4
- BEEAC – No meeting in November
- Next meeting: December 17 (Potential change of date due to MSWG input)