

**Baltimore Commission on Sustainability  
December 2014 Meeting Report**

**Date:** Tuesday, December 16, 2014, from 4-6 pm

**Location:** 417 E. Fayette Street

**Subject:** Commission on Sustainability December 2014 General Meeting

**In Attendance:** (*Commissioners*) –Cheryl Casciani, Ted Atwood, John Ciekot, Fran Flanigan, Lynn Heller, Earl Johnson, Sharon Middleton, Ruth Ann Norton, Cindy Parker, John Quinn, Ed Whalen, Miriam Avins, Tom Stosur, Mary Washington, Gerie Okwesa, Scot Spencer, Dana Cooper

(*Staff*) – Beth Strommen, Alice Kennedy, Kristin Baja, Abby Cocke, Andrea Calderon

**Approval of Minutes** - Ed Whalen motion, Mary Washington 2nd

**Chair Report:**

Sustainability Plan Update

Waste Working Group next meeting focus on kids and waster

Renewable Energy Goals in Sustainability Plan and Climate Action Plan

**Staff Report:**

Baltimore Energy Initiative - completion of Annual Report

International Green Construction Code - passed by City Council, signed by Mayor

**Energy Plan Vote:**

Saw Plan at previous meeting. Plan reviewed by Commission and Mayor's Office.  
Commission approves to adopt City Energy Office Energy Plan and Strategic Goals

**Discussion:**

**City of Baltimore**

Overview Renewable Energy Goals

Climate Action Plan - 20% Reduction by 2020

Main strategies are to encourage increase in State RPS and Encourage 20 MW installation of solar by 2020, and streamline solar permitting process

City Permitting

Lowered permit costs in 2010/2011

Solar permits now a part of the E-Plans review in HCD

Working with HCD to get regular updates on total solar and geothermal installations in City

Having intern review and evaluate installation data

#### City Energy Office

Coordinating 10 MW Solar installation with Constellation

Siting of this is difficult. Lots of constraints in terms of where to locate the projects. Looked at schools, landfills, parking areas, City buildings etc.

Finalizing locations with Constellation for installation. Back River and Convention Center are possibilities.

Any remaining will be on large scale land owned by Constellation

Looking at landfill sites for installation

Abell grant for initial investigation

Maybe feed two meters for housing authority

Solar at Patapsco WWTP

Also good wind data for Patapsco - could be location for wind

Question - Have you looked at wood? and biomass? Answer - yes, it has been stored at Camp Small, looking at a digester

Loan Program - small business and non-profits could receive loans for renewable energy.

#### City Schools

Waverly Elementary School - vegetative roof and 32 KW solar

2.7 million for Net Zero School at Graceland Park O'Donnell Heights

PPAs will be used

Purchasing provides cost effective renewable energy purchasing also through Tier 1 and Tier 2 renewable energy credits

Comment - map of solar locations? Yes - looking at solarize as they did in Boston

Question re: Waverly - is there and MOU? members of community did not know about the solar installation.

## **Maryland Energy Administration - *Marta Tomic***

“Clean, Affordable and Reliable Energy for all Marylanders”

### Smart Investments & Real Results

The Maryland Energy Administration works with State residents and businesses to save energy and money. Whether it's by lowering utility bills through energy efficiency upgrades, promoting energy independence through the installation of clean energy systems, or increasing our State's energy resilience, MEA makes smart investments and gets real results.

- Renewable Energy - MEA provides grants for innovative clean energy systems and supports the development of offshore wind.
- Energy Efficiency - MEA provides grants for money saving energy efficiency measures in the commercial and industrial sector and for low-to-moderate income Marylanders.
- Policy, Planning and Analysis - MEA provides expert support on key energy policy issues facing Maryland, from efficiency to resiliency.

### Short Term Goals

- 3 Strategic Policy goals
- Smart, Green & Growing
- MEA Grants, Programs & Policy

### Strategic Policy Goals

- EmPOWER Energy Efficiency Act of 2008
  - Reduce per capita electricity consumption and peak demand by 15% by 2015
- Renewable Portfolio Standard
  - Generate 20% of electricity from renewable sources by 2022, with 2% coming from in-state solar sources.
- Greenhouse Gas Reduction Act of 2009
  - Reduce greenhouse gas emissions by 25% by 2020

### Growth in Installed Solar Capacity

- 215 MW December 2014

## Governor O'Malley's RPS Goal - 20% In State

### MEA Grants

- Increase deployment
- Decrease cost
- Spur Innovation
- Support local green jobs
- Enhance the reliability and resiliency of our grid

### Wind & Solar Spotlight

- Wind: Currently 2 utility scale projects
  - 120 megawatts from 48 turbines – enough to power over 35,000 homes. Another 40 MW in development
- Solar PV, SHW & canopies
  - FY14 grants helped over 1,000 homeowners install solar PV
  - Canopy grants brought \$22 million of economic development

### Net Zero Schools

- Goal: Design and construct three new public schools that will have net zero energy usage, in aggregate over the course of a year.
- Participants:
  - Howard County - Wilde Lake Middle School replacement
  - Baltimore City - Graceland Park/O'Donnell Heights Elementary/Middle School replacement
  - MEA is looking to identify at least one additional new school in BGE service territory to participate in FY15.

### Long Term Goals

- MEA has played an integral part in the deployment of affordable, reliable and clean energy.
- Historical action:
  - Governor O'Malley & MEA supported an increase to the RPS as part of GHG Plan (25% by 2020)

## **Exelon**

### **Exelon Maryland Overview**

Exelon employs almost 7500 people in Maryland and has almost 3200 retirees

There are just over 21,000 Exelon shareholders in Maryland

Exelon maintains a charitable giving program throughout the state totaling approximately \$7 million annually

## **Commercial Business Overview**

### Scale, Scope and Flexibility Across the Energy Value Chain

#### Upstream Exploration & Production

Development and exploration of natural gas and liquids properties

9 assets in six states

~165 BCFe of proved Reserves

#### Power Generation

Leading merchant power generation portfolio in the U.S.

~32 GW of owned generation capacity<sup>(2)</sup>

Clean portfolio, well positioned for evolving regulatory requirements

#### Electric, Gas Retail & Wholesale

Industry-leading wholesale and retail sales and marketing platform

~150 TWh of load and ~500 BCF of retail gas delivered<sup>(3)</sup>

~ 1 million residential and 100,000 business and public sector customers

#### Beyond The Meter

One of the largest and most experienced Energy Management providers

Over 4,000 energy savings projects implemented across the U.S.

A growing Distributed Energy platform with over \$1B of investment to date

#### The Exelon Wind and Solar Portfolio

Wind - 46 Projects/10 States/ 1,375.4 MW

Solar - 2 Projects/2 States/251.5 MW

#### Exelon Portfolio In Maryland

Total Generation owned by Exelon in MD: approximately 3100 MW

Clean Generation

## Wind (110 MW)

Criterion: 70 MW located in Garrett County—on line 2010

Fourmile: 40 MW located in Garrett County—on line 2014

## Solar (24 MW)

Mt. St. Mary's—15 MW

University of MD Medical Systems—3.1 MW McCormick (3 locations)—2.4 MW

General Motors—1 MW

Constellation at Ft. Smallwood--.8 MW Others—1.7 MW

## Hydro (572 MW)

Conowingo Generating Station: 572 MW located in Harford and Cecil County, MD

## Nuclear (1700 MW)

Calvert Cliffs Nuclear Power Plant: 1700 MW clean generation located in Lusby, MD

## Generation Under Development

Fair Wind (Wind): 30 MW located in Garrett County—COD anticipated 12-31-2015

125 MW Tier I to be developed—includes Fourmile and Fair Wind projects (55MW remaining)

Perryman (Gas): 120 MW expansion underway

30 MW to be developed by end 2015; includes 10 MW in Baltimore City

## Distributed Energy is a Fast Growing Business

On-site generation, including solar, quadrupled since 2006 (Wall Street Journal 2013)

US C&I customers are spending ~\$5-6 billion per year on self-generation and energy efficiency programs (Bloomberg 2013)

Revenues from Distributed Generation are expected to reach \$12.7 billion by 2018 (Pike Research, Navigant, 2012)

## Energy Efficiency Projects

Efficiency projects are typically implemented for public customers like, municipalities, universities, schools, and hospitals with annual energy spends in excess of \$500,000 seeking a means to finance large scale energy initiatives

Within MD, Constellation has implemented nearly 20 energy performance contracts resulting in over \$6.5MM in energy savings for its customers

The Baltimore Convention Center is one example,

Constellation implemented a multiphase energy project that resulted in significant energy savings and a long term partnership with Baltimore Convention Center staff.

The final \$10+ million project had an annual projected savings of ~ \$1 million over a 15 year term.

Unique to Constellation, Constellation's Efficiency Made Easy (EME) Program completed approximately 30 projects over the last 3 years

From January 2012 to September 2013, EME saved an estimated 84 million kWhs of electricity

Represents 21 percent reduction per customer on average

Avoided the release of more than 59,000 metric tons of CO2. Includes hotels, office buildings, universities, medical facilities, etc.

Financed through an adjustment to the commodity rate provided by Constellation

Enables customers to pay for this through energy usage savings  
Lighting, HVAC, etc. upgrades

Maryland Science Center

Lighting retrofits and controls; HVAC updates

Projected savings of 7.7 MW per year

Currently under construction—anticipated to be complete in early 2015

#### Baltimore Sustainability Goals--\$2.4 Million in Charitable Donations

**BALTIMORE SUSTAINABILITY GOAL 1: TREE CANOPY:** Exelon/Constellation contribution to TreeBaltimore - \$600,000 contribution--\$100,000 per year for three years 2009-2011 and for the three years 2012-2014 – grand total of \$600K

**BALTIMORE SUSTAINABILITY GOALS 2 AND 3: ENERGY REDUCTION AND GREEN SCHOOLS:** Exelon/Constellation contribution to Baltimore Energy Challenge & Baltimore Sustainable Schools Challenge (aka “Green, Healthy, Smart Challenge”) - \$650,000

contribution-- \$100,000 per year for two years 2009-2010 and \$150,000 per year for three years 2012- 2014.

**BALTIMORE SUSTAINABILITY GOAL 4: SWIMMABLE FISHABLE HARBOR:** Exelon/Constellation contribution to Waterfront Partnership Healthy Harbor - \$550,000 contribution--\$300,000 to support the Solar Water Wheel and \$250,000 to support Healthy Harbor activities

**BALTIMORE SUSTAINABILITY GOAL 5: VACANT LOT REVITALIZATION:** Exelon/Constellation/BGE contribution to Vacants to Value/Power in Dirt – Funded through Parks & People Foundation, \$600,000 contribution--\$100,000 per year for three years 2009-2011 and in 2012-2014

Renewable Maryland - *Arjun Makhijani, Institute for Energy and Environmental Research*

## Connecting Short- and Long-term Energy/Climate Policy in Baltimore Overview

Maryland has the resources to have a full renewable energy system by 2050 (defined as more than 90 percent reduction in greenhouse gas emissions)

A mix of distributed solar and offshore wind with efficiency can be economical and allow for a resilient and democratized energy sector

Maryland has ample urban solar potential – a Baltimore survey and solar measurements are desirable if not already in the works.

Direct fossil fuel use in buildings is a significant issue and conversion to highly efficient electric systems will be needed to make space heating “renewable-grid ready”.

Conversion from natural gas to efficient electric space heating is the most complex issue

Regulations regarding new and existing building efficiency are likely to be needed in the long-term if the present voluntary approach.

Pilot projects between now and 2020 could provide critical data

Essential to maintain integrity of “renewable energy” definition

Maryland has ample renewable resources

Offshore wind generation is higher in the winter, when solar is lowest. Solar PV is higher in the summer, when wind is lowest.  
Maryland Urban Solar PV Potential: ~10% more than 2010 generation, 25% less than 2010 use

Overview of space conditioning CO2 emissions in Maryland

Space conditioning is about 45% of building sector CO<sub>2</sub> emissions in Maryland. Over one-third of this is direct use of fossil fuels.

In the City of Baltimore, about 64 percent of households are heated with natural gas, 6.6 percent by fuel oil, and 27 percent by electricity – with a large fraction of the latter being resistance heating.

Roughly 90 percent of Baltimore heating systems are less efficient than the best available cold climate or geothermal heat pumps •

#### Actions before 2020 to prepare for the long-term building fossil fuel use

An assessment of greenhouse gas emissions from space heating and cooling in the residential and commercial sector that is specific to Baltimore, including specifically low-income households (30 percent of the total in Maryland, but higher in Baltimore).

Lobby to change heat pump incentives from technology to performance – state and PSC level.

Pilot project to convert low-income homes now heated with fossil fuel to cold-climate heat pumps (half owner occupied; half rented homes). Mix of fuel oil, natural gas, and resistance heated homes.

A pilot project to convert existing institutional buildings (schools, government offices, college buildings) using natural gas for heating to combinations of cold climate and geothermal heat pumps would be useful. This would fill the gap for those buildings where combined heat and power is not going to be implemented.

A detailed assessment (starting with the National Renewable Energy Laboratory 2012 technical potential study) of the distributed solar potential within Baltimore, including rooftops (residential, commercial institutional), parking lot solar canopies, road solar canopies, brown fields, etc. should be completed well before 2020.

A general policy of large solar projects to be microgrid ready should be evaluated.

Join solar projects to resiliency efforts, and specifically to microgrids. Baltimore is exploring joining its large solar projects with combined heat and power, fuel, cells, and microturbines.

It would be desirable to have at least one large solar-microgrid project (not necessarily a city-sponsored project) to be in place in the near future (within a few years) so that the cost and technical data are available for designing a system of interconnected microgrids that have distributed solar PV as the main generation source. The Konterra in Laurel, Maryland microgrid is a good reference as a starting point.

A solar-microgrid project that includes a storage component that can be used for selling ancillary services to the grid.

#### Actions to prepare for the long-term – Building standards

- The Baltimore Climate Action Plan already has a strong recommendation for upgrading new building standards. Baltimore

should consider going further by adopting the Architecture 2030 challenge for new buildings and major renovations:

90 percent carbon neutral by 2025

100 percent by 2030

(acquisition of renewable energy from offsite sources allowed).

- Voluntary actions and even mandatory bill disclosure are unlikely to meet the long-term need for upgrades of existing buildings. Baltimore needs to lay the foundation for mandating standards for existing buildings (at the time of sale or renting, for instance).

#### Questions/Comments

Allison Rich - MEHN new energy and health in Maryland report

Ken Strong - opportunities and challenges in row homes and would need to change the heat pump rebate structure

Lynn Heller - RPS as a whole is important. 2% solar carve out drives investment, and the price difference in SREC for Tier 1. Increasing RPS - legislation introduced during session. If interest in reducing GHG emissions, need to look at all of the sources.

Arjun - RPS is the main carbon policy. 1/3 from nuclear energy. Setting the RPS has to go together with efficiency standards. Inefficient buildings - can't just jack up the RPS. Setting the RPS is a dance between RPS and efficiency

Need to get efficiency down hard over next 5 years

Ted - Federal Tax Credits are critical

Calvin Butler CEO of BGE - RPS has been critical for solar. Exelon not against RPS standards at all. they have seen unintended consequences from tax credits. As look forward look at all the producers of GHG emissions. Key driver is energy efficiency. Has to be a win/win for all out there. BGE did not support the RPS increase of 40% to 2025 - would be a cost of over \$400,000 per year to consumers.

Bob Wallace - BITH Energy - built the house in Cherry Hill row house with wind and solar

Marta Tomic - Baltimore City grants look at Clean Energy Grant Program, Housing stock and harrowers for Baltimore City

Regina - natural gas and methane - concerned re: the methane release. Ted - methane is the byproduct - it is all captured

Mike Tidwell - CCAN - RPS value passed 2004 bi-partisan bill. 133 solar businesses now exist, would not have existed without the policy. Have to expand the policy. Not penalize wind and solar. Real threat is low gas prices from nuclear. policy has to keep up with technology

Arjun - wind and nuclear - wind tax credit has expired

Greg Smith - most valuable megawatt is megawatt not used

job opportunities for trades, renew focus on buildings and efficiency

Exelon - 3rd largest solar producer in country, 11th wind producer, incentives - level the playing field where needed, we are committed to renewables. Provided the \$32 million to keep the off-shore wind study going. They are all in.

Dave O'Leary - low income solar, distributed generation, community renewables bill

Lynn Heller - community renewables, acknowledged challenges at State level

Cheryl - agree to take serious look at community renewable and how to move forward

**Upcoming Events:**

- Next Commission on Sustainability Meeting: Tuesday, January 20, 2015, TBD