

**Minutes**  
**March 6, 2015**

The Wastewater Advisory Committee to the MWRA met at the MAPC conference room, 60 Temple Place

**Attendees/Contributors:**

**WAC:** Stephen Greene (chair), Taber Keally (vice-chair, by telephone), Travis Ahern, Craig Allen, Karen Lachmayr, Beth Miller, Martin Pillsbury, Wayne Chouinard, Elie Saroufim

**Guests:** Karen Golmer & Nicole DeSantis (NEWIN), James Doucett & Allexe Law-Flood (DEP), Israel Alvarez, Sean Navin, Kristen Patneau & Stephen Estes-Smargiassi (MWRA), Jim Pappas, John Rosco?.

**Staff:** Andreae Downs (WAC),

**FUTURE MEETING DATES/TOPICS**

**NEXT:** April 14, 10:30 am, **Waterworks Museum:** MWRA Current Expense and Capital Improvement budgets, Kathy Soni, MWRA budget director, and Tom Durkin, Director of Finance, jointly with WSCAC

**VOTE:** Feb. 6 minutes approved.

**MWRA REPORTS**

**Sean Navin:** Introduced and welcomed. Is learning about the Authority and sizing up the new Legislature.

**ADVISORY BOARD REPORTS**

**Travis:** March's meeting will be action packed: Matthew Beaton, the new secretary of Energy & Environment, will be there. Awards will be given to water infrastructure champions in the Legislature. Rachel Madden will be honored. The Advisory Board will also be voting on a letter to the MWRA's Executive Director on a strategic plan for Molybdenum, which we discussed last meeting.

Also under discussion is the Authority's budget. The Preliminary FY16 Water and Sewer Assessment spreadsheet is on the AB's website for those interested in the proposed FY16 rates. There is also a "greensheet" video of the rate increase and future projections. (<http://mwraadvisoryboard.com/>)

**EXECUTIVE DIRECTOR'S REPORTS**

Andreae welcomed Jim Pappas, who had answered a WAC ad recruiting engineers to become possible WAC members. Jim and Packy Lawlor, both retired, have indicated interest in WAC membership.

She noted that the Water Infrastructure Alliance had tasked Sean and her with developing a Public Service Announcement for municipalities to adopt on flooding and clearing catch

basins. With help from MWRA, Boston Water & Sewer and others, a flyer was quickly developed that asked property owners to locate and clear catch basins, reminded folks not to pump storm water into the sewer and asked residents to pick up trash and dog doo to keep it from washing into local water bodies. BWSC also had a short video that was sent out by Twitter showing snow-blocked catch basins flooding. The flyer was sent out via email to municipalities, via the MWRA and by the Engineering Center

The NY T food section had an article Wednesday on compost and how the plastic produce stickers remain intact through the process. She is planning to write a letter to the editor noting that these stickers also survive the waste water treatment process.

Andreae is also looking into sewer lateral infiltration data to support possible legislation addressing the pipes at point of sale for residences in the state.

The Water Infrastructure Alliance is also following several nascent bills in the new Legislature, including some on climate change resiliency, public-private partnerships, and chapter 90-like funding for water infrastructure.

Andreae has also been invited to a March 17 workshop at Northeastern on food grinders and organic waste, following the Insinkerator pilot in Boston.

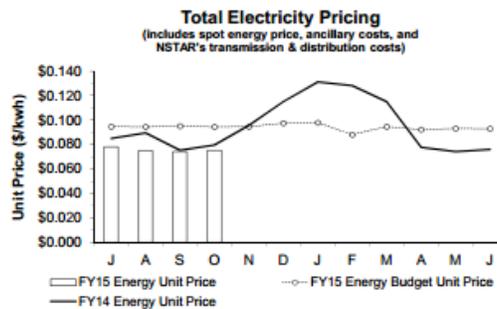
**PRESENTATION & DISCUSSION: Renewable energy production—how to chart**

**Stephen Estes-Smargiassi**, Director of Planning and Sustainability; **Kristen Patneau**, Program Manager, Energy Management, Deer Island; **Israel Alvarez**, Project Engineer, MWRA  
 (All slides from the **Second Quarter FY15 Key Indicators of MWRA Performance**, aka **Orange Notebook** example here:

<http://www.mwra.state.ma.us/monthly/bod/boardmaterials/2015/o-031115.pdf>

The Authority has several levels of measuring its performance on things that matter to it. The Orange Notebook helps keep the Authority on track, but also allows transparency to the rate-paying public.

Renewable, self-generated energy matters because it represents significant cost savings, and meets the Authority’s environmental goals. It also is a step toward resilience and energy independence.

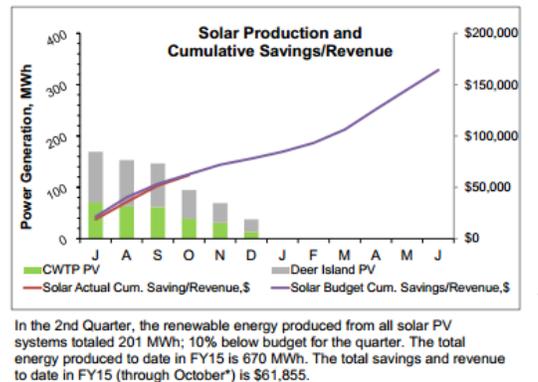


Under the current energy supply contract, a block portion of D's energy is a fixed rate and the variable load above the block is purchased in real time. The actual Total Energy Unit Price in the 2nd Quarter (actual only through October) was 20.2% lower than the FY15 budget estimate for the same period. The Total Energy Unit Prices for November and December are not yet available as the complete invoices for these months are still pending receipt as of reporting time. The Total Energy Unit Price includes a fixed block price, spot energy price, transmission & distribution charges, and ancillary charges.

Note: Only the actual energy prices are being reported. Therefore, the data lags by two (2) months due to the timing of invoice receipt.

One of the tricky things—how do we tell the story of what goes on in the world affects our budget—rain and snow and how it affects flow, power use & generation, etc. And what did you think would happen, and were you right?

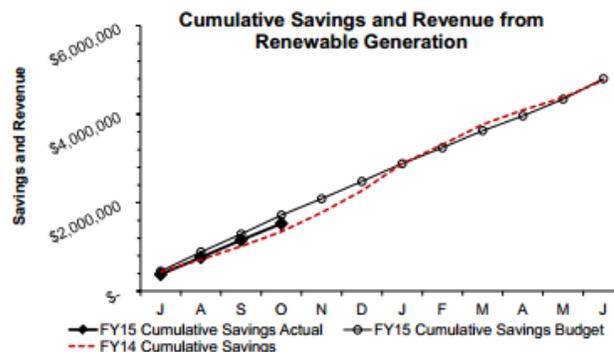
The Planning department has been looking at various ways to represent the data on renewable generation—including the sources, the weather (snow covering solar panels at Carroll put them off-line through much of February, more rain means less water going through the hydro turbines in the west, but possibly more going through the ones on the outfall) and the price per Megawatt, since that determines how much the Authority is saving.



(Chart still a work in progress)

Stephen presented several iterations of charts meant for the Yellow or Orange notebooks. Some combined hydro- or wind-power production, energy savings/revenue, monthly targets, and cumulative production and savings. While there were benefits to having representations of the output of individual production units (the windmills at Deer Island vs. Chelsea, for instance), the results were too busy. He showed several different draft charts, none of which is ready for publication (the charts in these minutes are from the FY15 Second Quarter Orange Notebook).

(Chart still a work in progress)



Another indicator to chart still is the energy savings created by various retrofits and conservation measures—Stephen did not yet have a chart for these, but he and Kristin talked about payback measures for certain efficiency measures.

The charts should help the Authority to manage its process better—helping it notice when something’s wrong—and also with managing the budget, and aiding transparency. One goal is to get Deer Island nearer to 100% self-generated power. With a planned upgrade of the combined heat & power plant, the plant should be generating more of its own power, and if co-digestion (the feeding of food waste slurry directly to the digesters to capture energy) is implemented at full scale, the Island could generate more like 70% of its own energy, renewably. Pumping sewage up to the Island accounts for about 30% of all energy use there (secondary treatment is another 30%), so getting to 100% is more difficult.

Karen: how much of that renewable energy is biogas?

It is about 18% of the 25% of Deer Island’s energy needs that is renewable. With co-digestion, it could be more like 60-odd% of 75%. Nearly 99% of it is captured and used on-site.

Stephen Greene: seems that you have a significant fixed load at Deer Island.

The process takes a lot of energy; we need to be sure that we conserve energy, but don’t endanger the process at all.

Martin pointed out that another benefit of increasing renewable power capacity is that fewer fuel trucks will be coming to the Island to deliver oil and gas, and that the Authority could calculate how much fuel is saved by using less oil and gas.

### **New England Water Innovation Network**

Karen Golmer, executive director; Nicole DeSantis, director of research; NEWIN

NEWIN got its start during a Patrick administration visit to Israel to explore innovation in oil and energy. It is a little more than a year old.

So far, NEWIN has sponsored several symposiums on water and innovation. Members now include academia, municipalities, industry and startups. The idea is to foster local innovation in the water sector that has global impact.

Karen went over some of the ideas to test new technology get from concept to commercial application by removing some of the risks. NEWIN, for instance, is identifying potential test sites.

Funding is mostly from private companies. There is a membership fee (free for municipalities). For the test bed infrastructure, the state legislature voted about \$8 million from a Water Innovation Trust—appropriated, but not allocated. NEWIN is fledgling, primarily still a volunteer organization.

Stephen: So is this like a venture capital group, putting some intelligence behind technologies?

Karen: the idea was to encourage economic development. But the technologies we’re developing are really significant. She named several global award-winning NEWIN members and several others that won international grant funding.

### **Molybdenum**

Travis: The Advisory Board’s February meetings were cancelled, so a letter to MWRA about molybdenum has not been voted yet. Travis noted that the current limits mean that the pellets have to be sold out of state several months out of the year to whomever will take it, rather than being able to set a better price. .

In the meantime, he has been researching the alternatives for cooling tower corrosion. Alternatives include a phosphate, which in fact is cheaper, but may not be as familiar to companies with large cooling towers.

Karen Golmer: I've been a cooling tower water product manager, Molybdenum cooling water treatment is easy to test for and they are effective. Phosphates are also effective; it's just not quite as easy to test for. The phosphate cooling water treatments have been around many years. There are other alternative too. There are treatments that don't use chemicals that soften the water first. There are treatments that can use wastewater as make up water. There are effective alternatives to Molybdenum for cooling water treatments.

Karen Lachmayr: Any reason why people might want to retain molybdenum?

Karen Golmer: No downside to switching to an alternative; the phosphorus ones are well-tested Molybdenum is not used as much as phosphate, the price of molybdenum has skyrocketed. The cost of molybdenum is significantly more expensive than phosphate.

Travis: Market may correct this over time anyway.

The committee discussed possible actions. Several felt that WAC should support minimizing toxins in the wastewater.

Andreae proposed drafting something that WAC could discuss at the next meeting.