

MEMORANDUM

To: Illinois SAG Participants
From: Philip Mosenthal and Karen Lusson
Date: November 9, 2015
Subject: **New and Modified Efficiency Portfolio Ideas and Thoughts**

This memo is provided to the SAG on behalf of the Attorney General's Office, to provide input on thoughts related to the efficiency portfolio planning process for the next 3 year plan. Below we include a skeletal template for a new program idea to address street lighting. However, we want to make clear that we are not necessarily advocating for this program to be adopted, nor to take the budget from any particular other program. Rather, we believe it is important for the utilities and their consultants to engage in a comprehensive planning exercise where they consider the various cost-effective opportunities available, leverage the extensive ratepayer investment in potential studies, and take into account the general policy objectives and guidelines that have been expressed by SAG participants as well as past Commission orders and legislation, to develop a well-rounded portfolio proposal for consideration and comment by the SAG. We do not presume to know what that optimal portfolio will be, but want to make sure that all cost-effective efficiency opportunities and markets are considered, and that it represents a balanced approach given the constraints that exist.

In addition to consideration of high efficiency LED street lighting as a possible new resource or program, we encourage the Program Administrators to consider the following other objectives:

- **Maximize the ability to pursue as much cost-effective efficiency resources as possible viewing the entire EEPS plus IPA effort jointly**
 - This would necessarily mean shifting all electric-only residential and small commercial programs to IPA, to free up limited EEPS budgets to pursue those opportunities that are not eligible for IPA. We recommend a process whereby the electric utilities maintain some control, oversight and administrative responsibilities for these programs, including engaging in a competitive procurement process in advance of the IPA bid process to ensure fair pricing and maximum cost-effectiveness.
 - Consideration should be given to ways to have IPA also promote other technologies/programs that may result in gas benefits as well. For example, it may be possible to fund a residential and small commercial smart thermostat program with IPA funds based solely on the electric benefits accruing.

Alternatively, it may be possible to still have the IPA mechanism provide funding for the electric portion, in conjunction with gas PAs supplementing the program budget(s).

- **Put greater emphasis on optimizing life cycle savings, costs and net benefits over short term resources.**
 - This does not mean solely pursuing long-lived measures, but would reflect avoidance of a portfolio heavily dominated by the desire to maximize the annual first-year savings at the expense of long-term ratepayer benefits.
 - For those opportunities that can be shifted to IPA, this does not apply because we should be pursuing all cost-effective efficiency for those markets from both short and long lived measures without a budget constraint. For example, IPA should include all cost-effective residential behavioral opportunities.
 - Consider likely long term market transformation effects from program strategies, even when only a qualitative analysis.
- **Where possible, err on the side of pursuing strategies, programs and markets that are likely to lead to longer-term market transformation and/or spillover effects when compared with purely short-term resource acquisition strategies.**
 - This should include maximum use of upstream strategies that focus on modifying the way markets currently behave by ensuring greater stocking and promotion of high efficiency equipment. This should be particularly applicable to equipment that is often purchased to replace failed equipment with short notice or planning.
 - This should include consideration of retiring or severely restricting efforts focused on markets that are showing signs of being transformed through other efforts (either naturally occurring, market-based initiatives, and/or codes and standards) to free up resources to promote newer more emerging opportunities. For example, consideration of eliminating significant resources to capturing lighting savings from fluorescent and HID technologies, with a much greater focus on LEDs and advanced controls, should be pursued. As a point of reference, Efficiency Vermont plans to discontinue all promotion of fluorescent lighting technologies beginning January 1, 2016.
- **Where possible, avoid creation of “second order lost opportunities” whereby capturing the lowest hanging fruit among customers might ultimately make it more difficult to eventually get more comprehensive cost-effective savings.**
 - This particularly likely applies to the residential and small commercial markets. Focus on deeper savings among a limited pool of participants vs. broader participation with less deep savings should be pursued where reasonable and appropriate. Consideration to modified incentive and financing offers that encourage deeper more comprehensive savings should be considered (*e.g.*, DI efforts might make things like screw-in bulbs and aerators somewhat less

lucrative while enhancing overall incentives for more full service home upgrades).

- Given the statutory desire for all customers to have ample opportunities to participate in programs, we encourage viewing EEPS plus IPA efforts collectively when considering equity between customer groups.
- **Given limited EEPS budgets, when cost-effective opportunities are competing for scarce resources, preference should be given to strategies that capture other NEBS and public policy goals.**
 - In particular, allocating more resources to the low and moderate income residential sector is appropriate, given demographic data reporting the levels of low and low-moderate income populations per utility service territory and throughout the state. This would include increased funding and efforts by utilities to supplement currently planned DCEO efforts, as well as enhanced incentives in existing incentive programs for low- and low-moderate income, as discussed in the OAG templates.

STREET LIGHTING

Below is a new-program template filled out for Street Lighting based on readily available information. As noted above, this should be viewed as a resource for consideration, *but not a formal position that it is a preferred portfolio resource at this time, which will inherently depend on other competing cost-effective priorities.*

Proposed New Program Idea Template	
Program Name* (or Measure name)	<i>Street Lighting</i>
Program / Measure Description*	<i>LED street lighting, with or without advanced controls, can be a cost-effective efficiency measure replacing existing HID lighting, as well as a high efficiency alternative for new street lighting installations. Some street lights are owned by municipalities, and DCEO can and presumably already does promote upgrades to those directly with the municipalities as part of its custom program or some other initiative. However, some portion of street lights are historically owned by utilities and municipalities or other customers pay a monthly "lease" fee rather than actually retain ownership. These fees are generally establish through tarriffs designed to recover the amortized capital plus operating and maintenance costs of the lights. This program would focus on ways to address the efficiency opportunities available for the utility owned street lights. This could be done through development of new tariffs, or other strategies that allow for the utilities to ensure the lowest life cycle cost technology is used, that utility shareholders recover any currently unamortized or undepreciated stranded assets, and that the long term savings from improved efficiency are shared with the utility customers.</i>

Background*	<i>This program has been successful in Vermont in the past. Currently MA utilities (National Grid and Eversource) have plans to deliver programs in their just filed three-year plan. However, specific data on budgets and savings and the size of the market are not yet public. Some Massachusetts PAs have aggressively worked to convert customer owned street lighting, but the exact design and financial and savings data related to the utility owned portion is yet to be worked out and will be integrally dependent on Commission approval of a new tariff. Eversource and National Grid have tentatively agreed on a goal of retrofitting all utility-owned street lighting to LEDs over a period of 10 years.</i>
Program / Measure Duration*	<i>TBD. We do not propose any specific program start date or duration. Rather, we encourage the utilities to analyze the cost-effectiveness of this opportunity and consider pursuit of it, as appropriate, given all the competing resources and a general sense of the SAG and Illinois policy priorities and objectives. We do believe that any aggressive effort to do this would likely require newly designed and approved tariffs, and take a while to begin. Because the utilities would have direct control over the technologies and capital investments, we believe market saturation could be achieved in a relatively finite number of years following the establishment of the appropriate tariffs and other incentives.</i>
Estimated Budget*	<i>TBD. We do not propose any specific program budget. This is necessarily a complex decision that will be dependent on an iterative process of considering all cost-effective efficiency resources and applying various policy and objectives principles. We have been clear in the past what our position on those principles are.</i>
Estimated Participation (Optional)	<i>TBD. Utilities have all the data they need to estimate this, and it will be dependent on trade offs with other budget priorities.</i>
Savings Targets*	<i>TBD. We do not propose any specific savings targets, or necessarily, that this opportunity should usurp other cost-effective opportunities that may compete for limited budget resources. Rather, we believe the utilities should consider these opportunities in their planning processes.</i>
Collaboration*	<i>Collaboration with DCEO and municipal customers in particular will be important. Even when utility-owned, customers will have a vested interest in the light quality, new tariffs, construction schedules, and other details. We do not believe there needs to be collaboration across utilities for utility owned equipment.</i>
Delivery Strategy*	<i>TBD. We envision this would likely be a direct install type of delivery driven by each utility that owns streetlights. Delivery should be under control and administration of the utilities.</i>
Target Market*	<i>Utilities</i>
Marketing Strategy*	<i>Utilities will primarily have direct control and decision-making on this. However, some customer engagement and interaction, led by the utility or its contractors, will be necessary.</i>
Eligible Measure(s)*	<i>LED technology and advance controls. New and retrofit.</i>
Program Tracking (if applicable)*	<i>TBD. Likely would best be tracked separate from other programs because funds may be intermingled with tariff designs.</i>
Cost per Energy Saved	<i>Depends greatly on the amount of depreciation and amortization that has already occurred on existing street lights. Utilities have this data and can estimate.</i>
Replacement*	<i>See above under "program/measure duration"</i>

Appendices*

Optimal Energy, ACEEE 2012 Summer Study, "A Win-Win-Win for Municipal Street Lighting:
Converting Two-Thirds of Vermont's Street Lights to LED by 2014,"
<http://aceee.org/files/proceedings/2012/data/papers/0193-000144.pdf>

Energy Resource Solutions and Optimal Energy, NYSEDA, "Street Lighting in New York State: Opportunities and Challenges," 2015,
<https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Energy-Efficiency-Services/Street-Lighting-in-NYS.pdf>

Massachusetts' 3-year plan includes discussion of a planned effort to convert all Eversource and National Grid owned streetlights to high efficiency LED over the next 10 years. The plan descriptions can be found here:
<http://ma-eeac.org/wordpress/wp-content/uploads/Program-Descriptions-September-Draft-Plan-9-23-15.pdf>

On page 148 they discuss the plans for streetlights:
LED Street Lighting

During the last Plan period the PAs worked with a number of cities and towns to facilitate a transfer of ownership of the street lighting in their communities and convert it to LED technologies. For example, in 2014, the Cape Light Compact converted almost 16,000 municipally-owned street lights in 20 towns. Similarly, Eversource and National Grid worked with the Metropolitan Area Planning Council Conversion Program to convert 58,000 lamps in 21 municipalities. The PAs remain committed to providing their municipal customers with the most up-to-date street lighting technology options – including lighting and controls – as well as providing options for them to assume ownership and maintenance of lighting where it is cost-effective and they so desire. More than 75 of the Commonwealth's 351 cities and towns have purchased their streetlights from their local utility and others are in process.

The PAs are also committed to working with any community wishing to explore the process of conversion to municipal ownership. Experience to date has indicated that the municipal process for consideration, analysis, decision-making, and actual conversion can be quite extended, and that the local conditions and priorities of the local governing body in each unique city or town will control the rate at which the conversion can be accomplished for the Commonwealth. 79

Conversion of utility-owned street lighting to LED is inherently a more complex topic than many realize. First and foremost, it requires a new tariff, approved by the regulators, to be in place that allows the utility to account for and recapture its existing capital investment. For the actual conversions themselves to take place, multiple utility departments – engineering, operations, billing, purchasing,

and inventory/stocking – must establish procedures and coordinate so that the conversions take place in a manner that is safe, fiscally responsible, and seamless to a public that depends on adequate street lighting for safety and security. Further, all of the costs of the process must be tracked and accounted for in a manner that satisfies regulatory requirements. Both National Grid and Eversource will be proposing rate cases during the Plan period that will allow all these issues to be considered and addressed, and rate policies to be established by the DPU that will facilitate and expedite the conversion process.

Footnote 79: The City of Boston’s conversion has been underway for five years.

Here is the estimated remaining potential in Massachusetts. They have done a tremendous amount of conversions already. Unitol, Cape Light and Eversource East are almost completely converted already. However, there could be additional savings from adding controls to LED streetlights. The numbers in the table below are not public! They were part of the internal negotiation.

Massachusetts Streetlight Estimated Savings from LED Conversion

MWh Total Potential Planned 2016-18 %

<i>Muni Owned</i>	<i>37,231</i>	<i>8,346</i>	<i>22%</i>
<i>Utility Owned</i>	<i>50,970</i>	<i>10,195</i>	<i>20%</i>
<i>Totals</i>	<i>88,201</i>	<i>18,541</i>	<i>21%</i>

The PAs assume about 10% of the Muni owned streetlights can be converted each year, starting in 2016.

The PAs assume about 10% of the Utility owned streetlights can be converted each year, starting in 2017 to allow for time to get the new tariffs in place. See slide 16 of this presentation:

<http://ma-eeac.org/wordpress/wp-content/uploads/Key-Drivers-PA-Presentation-7-21-15-final.pdf>