Residential Workshop One
February 12, 2015
9:00 AM – 1:00 PM
Division of Fisheries and Wildlife Field Headquarters
1 Rabbit Hill Road, Westborough, Massachusetts

Draft Meeting Summary

34 people attended this workshop (see Attachment 1 for list). The background documents and presentation slides can be found on EEAC website: http://ma-eeac.org/residential-workshop-1-january-29-2015-meeting-materials/

INTRODUCTION, CONTEXT SUMMARY, AND WORKSHOP OVERVIEW

Dr. Jonathan Raab, facilitator from Raab Associates, welcomed the group to the residential programs workshop and reviewed the agenda. The workshop objectives were to first provide an overview and context for discussions on the products, multi-family, and whole house elements of the residential program and, secondly, to begin to discuss the products element in detail. The whole house element, including multi-family and low-income, will be discussed at a day-long workshop on February 26 and a final wrap up workshop will be scheduled in March. During the final workshop, the voting councilors will finalize recommendations to be reviewed and considered by the full Energy Efficiency Advisory Council (EEAC) for packaging into resolutions that will be distributed to the Program Administrators (PAs) to clarify the EEAC's priorities for the next three year plan.

RESIDENTIAL SECTOR OVERVIEW

Presentation

Margie Lynch, Coordinator for the residential consultant team to the EEAC, provided the residential program overview. Ian Finlayson, Deputy Director of the Energy Efficiency Division at Massachusetts Department of Energy Resources, provided an overview of changes to the Residential Conservation Services (RCS). See the presentation slides on the website.

Clarifying Questions

Councilors asked the following clarifying questions and provided the following comments about the residential program overview. *Responses are in italics.*

- What is the heat rate you used for conversion from electric to Btus (British thermal units)?

    - *Site energy was used, so every kilowatt-hour (kWh) of electricity is equal to 3,412 Btus. Sourced energy was not used. All figures in the presentation are lifetime savings based on site energy with the exception of the pie charts in slides 8 and 16.*
- What is the rationale for the approach of using source energy value instead of site energy value? The pie charts have two measures for energy saved, one at source and one at the site, and electric cannot be compared to other fuels—this data does not reflect what is going on between the fuel sources.
    - *We chose this approach because the end-use data was provided to us in source terms; but we could generate the pies in site information too. It more or less reflects the value of the different energy sources. This (slides 8 and 16 of the residential sector overview) is the only area where source data was used in the presentation. All other data is site data.*
- The Benefit Cost Ratio (BCR) of electric and gas for multi-family retrofit and home energy services almost looks reversed—is this correct?
    - *It might be because on the electric side you pick up the oil and propane benefits in electric home energy services (HES); there are not oil and propane benefits in multi-family and the proportion of non resource benefits are, in the eyes of a participant, much higher for HES than for multi-family.*
- Multi-family retrofit program has low incentives on gas side and high incentives on the electric side compared to the cost of measures—does this contribute to the difference in the ratios?
    - *It may or may not. The PAs screen measures individually so the incentives are to be matched to the benefits.*
- Can you explain what you mean by behavior?
    - *Behavior is an initiative under whole house. The PAs claim savings by prompting a change of behavior in customers. Most behavior initiatives are in the form of a home energy report, which indicates how much electricity and gas they use, how their use compares to their neighbors, and provides recommendations to reduce electricity use.*
- Is the graph/pie chart combo saying that a lot of people are participating in behavior initiatives but it is not generating a lot of savings?
    - *This chart shows lifetime savings. Behavior has a one-year measure life. When you look at lifetime savings for behavior, that represents one year of savings whereas the measure life for the other savings (e.g. lighting) shows 6-8 years of savings. If we looked at annual savings only, behavior would show comparatively higher on annual savings basis than it does on lifetime savings basis.*
- When you say total program cost, is that the whole cost of the program or is that including participant cost, or is that program cost meaning the PA cost?
    - *It is the PA cost and does not include participant cost. All of the slides are PA cost; but the BCRs include participant costs.*

- Whenever we convert electric to mmbtus, it is not a good comparison to heat, oil, propane, and electric. This is not a criticism because it is the right thing to do; but we need to keep in mind that the conversion of electric kWh to mmbtu is not the same as a propane mmbtu.
    - *Right, we only converted mmbtu to allow comparison, but there are many nuances.*
- Regarding depth of savings (slide 19), do the multi-family retrofit figures contain C/I? A key issue is that we need better understanding of how multi-family and C/I can be merged.
    - *No, it is just residential, multi-family units, 5 and above, for the most part. An example of savings that would come through C/I that is not tracked here is central heating improvements. It benefits the participant but is tracked in C/I large retrofit program.*
- The City of Boston focuses a lot on duplexes and triple-deckers, which the City views functionally as multi-family structures. It is disappointing that the Efficient Neighborhoods plus initiative ended up being a single-family home program in practice. Duplexes and triple-deckers need a lot of attention and they are essentially multi-family; but statutorily, multi-family is considered 5 or more units. This needs to be changed.
    - *That is a great consideration for today and the subsequent meetings.*
- Is the Residential Conservation Services (RSC) program only going to be in-unit residential meters that are affected by the multi-family changes in the RCS language or will the commercial meters also be affected?
    - *It will be any residential unit. If it has a commercial meter, it can still fall under RCS.*
    - The language proposed as of now does not make this distinction.
    - *Just to clarify, in-unit is 5 or more on a property. This will also address condo associations that have single-family detached units that are all on one property.*

<u>Observations</u>

The Councilors made the following observations about how the residential programs functioned during the past three years and potential areas or opportunities to address in 2016-2018. When appropriate, the comments are grouped thematically.

Demand Savings and ISO – The consultants shared their observations about demand savings relative to other sectors. They said the historical focus has been on energy savings but the past winter reminded us that capacity concerns must also be part of planning process. We tee up issue of demand response and connected appliances fairly generally in the upcoming products presentation. We will need broader cross sector discussions to learn what people think the appropriate roles are of the efficiency programs and it goes beyond energy savings to focus on demand savings/peak demand.

Participants made the following observations and comments about demand savings:

- The low demand scenario stakeholder process conducted by Synapse raised the question of how much demand savings can be achieved through various methods. Alicia Grammar made it clear that demand response and savings can be fully covered by the next three year plan. The next plan should clearly state what the potential is for demand response and demand savings, and doing this would raise many questions about how to develop the program. Demand should be a major focus in the next three year plan.
- Demand response is a top priority, but demand response and demand savings are not identical. Demand response is the tip of the iceberg and energy efficiency measures are under the water line. It would be useful to look at where savings come from and how much those things (e.g. air conditioning, commercial lighting, etc.) impact demand. Initial review of this shows that C/I programs are better positioned to help demand savings than residential. Demand is important in residential; but demand will not be solved in the residential sector—C/I will have to make the bigger contribution.
- From ISO perspective, should we focus on both seasonal peaks or only on the summer peak?
    - *The market continues to operate on a summer peak, but it depends on what is analyzed. In the long-term, the portfolio mix may shift towards a winter peaking system in terms of scarcity due to a large introduction of variable resources like solar. We do not transact gas and oil, but gas availability is the problem in the winter*.
- What should we do with heat pumps in demand equation?
    - *They are great in the summer because they replace central and window air conditioning; but they replace oil and propane in the winter, which hurts demand.*
- There are no direct load control programs to any substantial quantity today on the residential side. There are a lot of opportunities to deploy technology--heat pump technology in particular--that would enable demand response. Programs should look toward this regardless of whether it is in wholesale or retail market. On the retail side, in retail tariffs, compensation for dispatch and load reduction is an opportunity (e.g. heat pump sold with a wifi thermostat that allows a third party to change it remotely during peak or scarcity events). Baltimore Gas and Electric is a good example where this was done successfully.
- From a markets perspective on demand savings, there are significant costs to not being aggressive with focus on demand. Several factors necessitate aggressiveness. First, the flat energy market we have is not attractive to generators. Emissions regulations are another factor. New England is seeing significant number of retirements of base load power generation, which directly impacts the region's resource adequacy requirements. The forward capacity market in 2018/19 will have increased to a cost of about 4 billion dollars partly due to generator retirements. Energy efficiency and anything that can reduce

demand will have enormous benefits. We need to focus on measures in the residential sector that have high demand.

- Based on this demand conversation, what insights might we be able to use from understanding the direction of the PAs in response to the grid modification orders. If we focus on residential energy efficiency and on products and ways the residential product can affect demand management issue, it would be useful to have understanding of the realm of possibilities that is opening up to the EEAC that would be quite different in the next 3 year plan (e.g., advanced metering infrastructure). Maybe we should ask for more input.
- We must look forward. Innovations in technologies and future markets can converge. For example, if peak demand will be summer based then efficient mini-split heat pumps are important to offset window air conditioning units. The downside is that fuel switch in winter—so will we care differently about winter peak demand differently than summer peak demand? There is currently no market incentive to focus on winter peak demand. Another point is that maybe we need to increase overall savings in the residential program since this could have both overall energy savings and demand savings.
- ISO should have a winter peak but if they do not and no clear market signal is created, it is clear there are still significant benefits to having a state based program, which could be both residential and C/I, that would provide winter demand savings and benefits to consumers in Massachusetts. We cannot abdicate our demand program planning to what ISO is or is not doing.

Comments from a recent public comment session – Some workshop participants commented on comments heard during a recent public comments session:

- Mass Save Program Backlog:
    - Many comments were made during the public comment session about a backlog with the Mass Save program—is there a back log? If so, why and how can it be addressed? The comments seemed to have focused on the home energy audit component of the program.
    - Eversource Energy (Formerly NSTAR) and National Grid representatives said they have not seen a backlog with scheduling appointments for the Mass Save audit.
    - We heard more concerns about insulation installers than home energy audits—contractor saying they cannot grow their business because the revenue stream on the insulation side is not sufficient. It would be useful to hear from the PAs on this topic.
- The comments we received were all pro-efficiency. All of them were in favor of more aggressive savings, increased and expanded programs, better coordinated programs, more comprehensive scopes of work, etc. Renter access to some of the programs is also an issue that will hopefully be discussed at some point. We should be thinking more innovatively and aggressively for the next plan.

PRODUCT PROGRAMS/INITIATIVES

Presentation: Lighting

Glenn Reed, consultant to the EEAC, presented the residential products initiatives, starting with lighting.

Clarifying Questions: Lighting

Councilors provided the following clarifying questions and comments about the residential products initiatives. *Responses are in italics.*

- What is Energy Independence and Security (EISA) exempt?
    - *EISA are the federal standards applying to lighting products. The 2012-2014 standards are in place and ban standard incandescent lamps but allow other bulbs in specialty applications. Specialty CFLs and EISA exempt LEDs are essentially similar product categories.*
- Referring to slide 4, are these numbers based on the EISA standards?
    - *It is a bit more complicated. It is a year-by-year baseline on four different lumen bins.*
- It will be important to bring in the perspective of replacing CFLs with LEDs since the savings is significantly different than the status quo of replacing incandescent lamps.
- There are three different markets for lighting. For fixtures that have the LED bulb already in the fixture, LEDs have a bigger market share than CFL fixtures?
    - *They are different types of fixtures. It is not apples to apples comparison in terms of fixtures but fixtures have not been a large part of the programs. LED fixtures have a significant number of units compared to its relative counterpart but they are not the primary focus of PA's lighting initiatives.*
- Is it an equal comparison between the specialty CFL and the EISA Exempt LED?
    - *In terms of unit numbers, they are about the same but there are significantly more savings from the EISA Exempt LEDs for comparable unit numbers of specialty CFLs.*
- Is a big advantage for the CFL is with the standard mass production bulb?
    - *Yes because the costs are considerably different right now. CFLs are much cheaper than LEDs of equivalent wattage, but LEDs last longer and have other benefits.*

Discussion Questions: Lighting

Dr. Raab posed the following questions about the lighting initiative:

- What should the trajectory look like if PAs transition to only supporting LEDs and what market information should be collected to inform any decision to phase

out PA support for CFLs? Are we there yet? If we are not yet, how will we know when we are there?

- How should important non-savings attributes of LEDs be balanced against the current, higher cost of savings for general service LED lamps?
- Many specialty CFLS already have a higher incentive $/lifetime kWh cost than their LED counterparts. Should these lighting products be discontinued in favor of LEDs in the 2016-2018 plan?

The Councilors made the following comments in response to the presentation and lighting products initiative questions. Comments are grouped by theme where appropriate.

- Each year of the 2016-2018 plan should be more progressive toward increasing the percentage of LEDs and decreasing CFLs. We should get them into rental units and multi-family units, and across the board in whole house initiatives and retail initiatives.
- LEDS are almost exclusively used in corridors and stairwells of commercial units.
- The switch to LED is necessary and the sooner the better; but some concerns exist. First, the mercury in CFLs is a concern. Second, CFLs were low quality in the beginning and it is possible some people will not want to switch to LEDs because they will equate the poor early performance of early CLFs to LEDs.
- In multi-family and in-unit, we are installing LEDs in homes to replace incandescent lights. It is good to be progressive but if CFLs are shut off, can we replace them with LED units? We may not be able to replace all CFLs with LEDs in one year, so incremental savings for each one might not mean that we reach the savings goal overall.
- How elastic are LEDs—if we push people toward LEDs and push people away from CFLs, at what point would people revert to something cheaper and less effective or not make the switch?
- We have not done much in the area of replacing failed bulbs versus retiring bulbs early because the measure life for standard incandescent and halogens is very short, so replacing a 750 hour bulb early or at end of useful life does not affect savings calculations very much. If something fails or they need to replace a bulb, they should have option to select better technology—but the lifetime of the bulbs is 1 to 1.5 years for an incandescent. In terms of price, LEDs are still expensive and if they are under the five-dollar price point they will be more attractive to consumers.
- Has anybody looked at on-bill financing to eliminate the barrier of high priced LEDs without it being a full subsidy? Do we need another tactic to speed up adoption of LEDs?
- The EISA standards have a second phase around 2020 that is supposed to reduce the lifetime savings by changing the baseline and due to this, and because LEDs last a long time, we may currently be in a window where we will get the most

lifetime savings possible from an LED now, and the savings may decline over time.

  - *This assumption is correct. Current models predict that savings drop significantly after 2020 and CFLs drop to near zero because they become the new baseline. We will get more savings in the long-term the sooner we switch to LEDs. But, we will get the most near term savings from CFL than from LED. But there are many nuances and unknowns. The big unknown is how quickly LED prices will fall.*

- People want LEDs and it affects market transformation. On the other hand, how can we continue to give CFLs due to free ridership issue? An issue is that we may only have one year after incandescent bulbs are banned to give out CFLs and receive credit for it. Another issue is that this issue is out of our hands and up to the EMV studies. We need more information, especially tradeoff analysis. How much is it going to cost us if we put in all LEDs and how does that affect the program than if we just stick with CFLs.
- As a starting point for discussion, the consultants recommended specialty CFLs no longer be supported after this year and that in 2016 we assess whether or not CFLs are supported at all beyond 2016. Another question raised by the consultants to be considered toward the end of the third year of the plan is whether or not there is a possibility that the LED market will have progressed so much and uptake occurred so quickly that we could disengage from the lighting market entirely.
- We should think carefully about program design for the general residential sector. Many households struggle financially and upgrades to LEDs could be a problem for them. Customer contributions will need to be minimized for households at 60-80 percent of the state median to increase penetration.
- We do not know enough about LEDs and how they will progress. We may need to reassess how we handle lighting in the middle of the next plan.

The PAs commented on how they might consider implementing progression in a logical way in the absence of other recommendations from the EEAC:

- We have progressed LEDs more than was projected three years ago; but we do not foresee dropping CFLs entirely from our products program because we want to ensure there is something for every customer at every price point. If we dropped CFLs it would reduce equity in the market. However, 75 to 80 percent of the bulbs offered through direct-install portion of the Whole Home Program are LEDs and by end of 2015 it might be possible that we only offer LEDs there.
- If all the surveys come back saying they would have bought LEDs anyway, it could gut the savings. Given the levels of free ridership with CFLs, we may likely have high levels of free ridership with LEDs. The savings of LEDs will decline but the PAs will still be expected to get more savings for the dollars they have. This is concerning.

- Referring to slide 4, it takes $8 to $10 more to buy down a standard CFL to an LED. This is what PAs look at from a cost perspective. Specialty and direct install in homes will probably head to 100% LEDs; but the cost to only introduce LED incentives is significant and the return is small. A progressive change might be to reduce incentives for CFLs or remove them and increase LED incentives pending the price of LEDs in the market.
- The number of bulbs that can be incentivized depends on the budget and may be related to the progression.
- States without incentive programs are moving to halogens, and these may establish the new baseline. If we pay extra money for LEDs, what do we have to cut from the other initiatives of the program? On the one hand CFLs are cheap and we should try to get as much mileage as we can from them; on the other hand we should do all LEDs as long as it does not take money from other program initiatives.
- In terms of progressive change, it sounds like PAs are leading with LEDs in-house because they know it is installed, which explains why the proportion of CFLs in retail is higher than in house. For general bulbs, the rate of change is similar to a weather forecast.
- The strategy for specialty bulbs will depend in part on what the retailer wants to put on the shelf. We hear they have more of an interest to put specialty LEDs on the shelf. This may result in a tiered transition.
- The higher cost per unit savings will drive market transformation and push incandescent lights out entirely and drive CFLs and mercury issues out too. This is an opportunity to reap higher environmental benefits by moving to LEDs. Who is going to do the analysis to show it is worthwhile to have a higher cost per unit savings in order to drive the market that would eventually mean we do not incent LEDs because manufacturers respond and produce cheaper LED bulbs? The analysis should include external costs like demand charges to see whether or not lighting savings could be discontinued.
- We should get out of specialty CFL lamps as soon as possible. The future of standard CFL bulbs is less clear and we should assess the status and be flexible in the three year planning process.
- Market transformation can occur through raising awareness and appreciation for LEDs; it need not only be done through incentives.

Dr. Raab summarized the conversation. He said it sounds like there is broad agreement that LEDs are superior except for cost and that the quicker we can progress to LEDs in the programs and then phase out the programs the better. In terms of progressing, it sounds like some pieces are clear while others are not. For example, PAs will lead with HES/whole house programs where they could move to 100% LEDs directly installed beginning in 2016, moving rapidly to LEDs for specialty lighting in the products program, and conducting assessment to determine the strategy for progression to only supporting

LEDs for general lighting in the products program. The assessment part will need more thinking to provide a more formalized recommendation to the EEAC.

Several people made additional comments on the lighting initiative.

- A consultant added that a main question to address in recommendations to the EEAC is whether or not there is sufficient value in LEDs to justify higher expenditures for them.
- Another nuance is the need to treat different sectors of the population differently based on economic status.
- A way to address the 60-80% state median income range, which includes many tenants, is to address 2-3 family retrofit program coordination to aggressively get LEDs into income specific households.

Presentation: New Technology

Glenn Reed, consultant to the EEAC, presented an overview of new technologies and practices.

Clarifying Questions: New Technology

Councilors provided the following clarifying questions and comments about the new technology and practices presentation. *Responses are in italics.*

- Are we talking about HVAC, domestic hot water, and consumer products together?
    - *Yes.*

Discussion Questions: New Technology

Dr. Raab posed the following questions about the technology:

Could expanded and new wireless enabled thermostat and home energy management system efforts be used to increase customer engagement (including behavior) and support demand response activities to address peak load issues?

The Councilors made the following comments in response to the presentation and first technology question.

- Yes, this technology is becoming more affordable and more widely available on smart phones. We should provide education on this type of information.
- We already are moving into this space with rebates for purchase of smart thermostats. Four different types of Wi-Fi thermostats will be offered through HES program too. We are also interested in developing residential demand response programs as well.

- This may be an area where we need to explore the interrelated opportunities of technology like this, the DPU's grid modernization and TVR orders. Seems like another area where we may need to weigh-in and potentially make modifications in the middle of the three-year plan.
- Yes, this is exactly why we want to move people into the AMI (advanced metering infrastructure) space and time varying rates.
- The Wi-FiI thermostat can also serve as gateway to other automated devices in the home. We are banking on the fact that this will allow us to control other devices in the home.
- Wi-FI thermostats are no better than programmable thermostats unless you can do something else with the Wi-FI thermostat. Forward thinking will be to deploy added value to thermostats. Need grid mod to deploy AMI to be able to quantify savings reductions.
- The main question is the cost effectiveness. If we invest in these, what are the additional benefits?
- We have the resources to lead in this rapidly evolving area and we will miss the opportunity if we do not go for it now.
- What kind of process do we need to put in a pilot or demonstration project in the plan to move demand response forward? If someone were to draft this project, who would vet it to take it forward?
- Not all Wi-Fi thermostats are created equal. Nest is a learning thermostat. The ability to do demand response depends on the thermostat. We'll need to think about the capabilities we will want to support in the thermostats. Wi-Fi may also be insufficient for whole house control that is why we also have home energy management systems with multiple players such as Lowes, General Electric, and even the cable company. This is an evolving area.
- We'll also need to consider price points with the thermostats and the ability of the thermostat to work with older 2-wire electrical systems, which nearly 80% of the homes in Massachusetts have. We are also the first PAs to work with thermostat manufacturers to collect date with customer approval.
- Demand response is good but we also need to think about other capabilities in connection with whole home energy management systems. For example, maybe it can influence behavior by sending text messages to the homeowner that would encourage behavior change.
- Regarding whole home energy management overall, the council may want to consider how to set up infrastructure to assess new technologies on a faster basis.
- We may need to delineate between hardware and software for Wi-Fi thermostats to encourage innovation and drive savings. Open data would allow software companies to develop new software that utilizes the thermostat hardware. But if the hardware provider is also the software provider, then this decreases innovation.

- Convincing the manufacturers to agree to provide us with data has been hard enough; convincing them to agree to open data and software protocol seems unlikely.

The Councilors made the following comments in response to the second technology question, are there adjustments to existing program delivery models (e.g. upstream HVAC for appropriate measures) that should be considered?

- We should see what the results will be of the C/I upstream HVAC and gas water heating offerings before the residential group gets into these areas. We should have results by the end of 2015.
- Upstream opportunities are useful to evaluate and consider at the measure level; but there are implications to consider too. It is valuable to have a customer see the Mass Save logo in in the store and to fill out a rebate form to get rebate from the state. There area also savings implications if we go upstream.
- Some measures like storage water heaters could be treated differently in new construction and retrofit areas. There are many challenges with retrofits because of technical requirements that may be barriers to installation; but these barriers do not exist in new construction since the barriers can be overcome with changes to construction design. The next version of the building code will disincentivize atmospherically vented heating systems; this may be an opportunity for an upstream effort to support moving the market to outside air only condensing models of domestic hot water heaters as well as furnaces and boilers.

Dr. Raab summarized the participant discussion. He said it sounds like it will be important to think about each specific technology and where it is appropriate to apply incentives. Additionally, a one size fits all upstream approach may not be appropriate.

Presentation: Fuel Blind/Fuel Conversion

Glenn Reed, consultant to the EEAC, presented an overview on fuel conversion.

Clarifying Questions and Discussion: Fuel Blind/Fuel Conversion

Dr. Raab posed the following questions about fuel blind/fuel conversion:

- What should be the role of efficiency programs to identify, promote, and support a fuel-blind approach to space and water heating?
- How can Whole House and Products Programs efforts be better coordinated to promote efficient products and encourage their proper installation in existing homes?

Councilors provided the following clarifying questions and comments about the fuel blind/fuel conversion presentation. *Responses are in italics.*

- Who are the deciders on this policy question? Understanding this would be useful for the EEAC if they recommend opening up this conversation.
    - *The DOERs role with RCS regulations is to open the opportunities to change fuels. We hope the council will weigh-in on those opportunities because there are competing technologies and different ways of claiming savings, the latter of which will drive policy.*
- We need to clearly define fuel blind/fuel conversion/fuel switching. I am hearing that moving from fossil fuels to clean heat is good; but I'm not hearing calls for a whole scale switch from oil to gas. The next three year plan should include a program that fully promotes switching from oil or gas to clean heat because it is hard to get gas into the region on cold weather days, some parts of the state have a moratorium on gas, and by 2018 oil heat will have a requirement to use low sulfur heating oil which will increase its efficiency. We should help oil heat consumers switch to clean heat over gas at this time, and we'll need to think about how to leverage the Mass Save Program to take advantage of the alternative energy credits.
    - *It looks like the people are switching to gas in the market already; but perhaps that is because they are not aware of the other options. This suggests we need to help them become aware of the other clean heat choices that are available.*
- Promoting a fuel blind approach is unclear. But anything that pushes people toward gas is not a good idea. We need to think about non-tangible costs and benefits and consider what we might have to cut if we pursue one avenue over another.
- It would be great if the RCS regulations were written in a way that facilitated fuel switching, especially for multi-family, to gas and other sources. We need to identify policy barriers to encourage the energy efficiency program and renewable/clean energy programs to work together. The market would be better if these programs were better integrated.
- Fuel switching has a place in the markets; but we call it load shifting instead of efficiency. There is significant value to shift electric loads to another load, especially for the summer peak. It is not clear that fuel switching is driving gas demand in New England; it may be predominant shift of power plants shifting to natural gas. Fuel switching will not drive pipeline development but changes in electric demand in the winter will influence electric plants and gas demand.
- We know that gas is scarce in the region, so it does not make sense to call for more of it. We know that when power plants with dual fire shift to oil on the coldest days. It would be false economy to shift people from oil to gas.
- Many contractors have concerns about expanding their responsibilities to include renewable and other clean technology when they are focused on weatherization. This may be another decisive factor in this discussion.

- The Oil Heat Council sits on the EEAC but has not attended in a long time. They also did not submit comments during the RCS comment collection process.

Dr. Raab summarized the conversation about fuel switching. He said it sounds like there is desire to make things fuel blind up to a point as long as it does not promote the excessive use of natural gas. Additionally, the DOER has some ideas about what they might want to recommend to the council; but we will need to discuss this further.

Margie Lynch briefly presented a graphic illustrating the coordination between programs to tee up the next workshop on February 26.

PUBLIC COMMENT

Members of the public made the following comments:

- Manny Chaves, HVAC Contractor, commented on air source heat pumps. He said they install a lot of cold weather heat pumps and that problems could arise if many others in Massachusetts are installing similar pumps. In his home he has a hybrid heat pump/gas system. Even if it is as low as three degrees outside, the heat pumps provide 100% of the heat to the home, but he can switch to gas under certain conditions. Looking forward, the ability to switch from one fuel to another could be very beneficial, but we have to consider the impact on future winter peak demand. Demand is not just the utility's problem, it is everyone's problem.

NEXT STEPS/WRAP UP

Dr. Raab thanked the group for its input and asked the councilors to advise him on what worked well during the workshop and what could be improved for future workshops.

Participants listed positive aspects of the workshop, including:

- Open conversation was useful. It was good that we discussed things openly before trying to decide on or reach consensus on recommendations.
- The location was excellent.
- The meeting materials distributed prior to the meeting were helpful for understanding the issues and topics.
- The presentations were well prepared and helpful.
- Great opportunity for informal conversation where we could dig into specific issues.
- The snacks were much appreciated.

Participants also noted aspects of the session that could be changed to improve future workshops, including:

- Providing coffee.

Mr. Finlayson thanked the participants for their participation.

Appendix A: Attendance

Attendance, Residential Workshop #1 - 2. 12.15 - DFW Headquarters, 1 Rabbit Hill Road, Westborough			
Last Name	**First Name**	**EEAC Councilor**	**Company/Organization**
Berry	Michael	No	ICF
Boecke	Donald	Yes	MA Attorney General's Office
Buno	Jessica	No	Keegan Werlin LLP
Carey	James	Yes	Liberty Utilities
Cellucci	Elizabeth	Yes	CMA
Chambers	Brandy	No	Eversource
Chaves	Manuel	No	Chaves Heating & Air Conditioning
Chretien	Larry	Yes	Mass Energy Consumers Alliance
Finlayson	Ian	Yes	MA DOER
Glynn	Elizabeth	Yes	Local Initiatives Support Corporation
Grubbs	Harrison	No	CSG
Howat	John	No	NCLC on behalf of LEAN
Huckabee	Jerrylyn	No	MA DOER
Johnson	Paul	Yes	Greentek
Kearney	Brian	No	RISE
Lopez	Lourdes	No	City of Boston
Lynch	Margie	No	Core Energy Insights, Inc.
Lyne	Emmett	No	Rich May, P.C.
Masland	Lawrence	No	MA DOER
McDonagh	Michael	Yes	Mass Association of Realtors
Milton	Sam	No	Conservation Services Group
Moriarta	Courtney	No	SRA
Palma	Thomas	No	Unitil
Patton	Marlana	No	Peregrine Energy Group
Pereira	Laurie	No	Eversource
Pfeiffer	Ellen	No	National Grid
Pike	Brenda	No	National Grid
Reed	Glenn	No	Energy Futures Group
Shea	Lisa	No	Eversource
Song	Margaret	No	Cape Light Compact
Spencer	Lawrence	No	MA DOER
Swing	Bradford	Yes	City of Boston

Vavak	Amy	No	National Grid
Whiteman	Alissa	No	MA DOER
Winkler	Eric	Yes	ISO New England