



Reading Municipal Light Department  
RELIABLE POWER FOR GENERATIONS

230 Ash Street  
P.O. Box 150  
Reading, MA 01867-0250

Tel: (781) 944-1340  
Fax: (781) 942-2409  
Web: www.rmlld.com

## **AGENDA** *REGULAR SESSION*

### READING MUNICIPAL LIGHT DEPARTMENT CITIZENS' ADVISORY BOARD (CAB) MEETING

Wednesday, February 11, 2015

6:30 pm

230 Ash Street, Winfred Spurr/Audio Visual Room  
Reading, MA 01867

1. CALL MEETING TO ORDER: G. Hooper, Chair
2. APPROVAL OF MINUTES: G. Hooper, Chair  
  
**Suggested Motion:** Move that the Citizens' Advisory Board approve the minutes of the May 8, 2014, meeting as written.  
  
**Suggested Motion:** Move that the Citizens' Advisory Board approve the minutes of the November 19, 2014, meeting as written.
3. STORM FEEDBACK: C. O'Brien, General Manager
4. TANGENT "LUNCH & LEARN" EVENT: J. Parenteau, Director of Integrated Resources
5. 500 CLUB - RF MESH AMI SYSTEM: H. Jaffari, Director of Engineering & Operations
6. SOLAR POWER AT PUBLIC BUILDINGS: G. Hooper, Chair
7. REPORT FROM JANUARY BOARD OF COMMISSIONERS MEETING: D. Nelson, Vice Chair
8. CAB COVERAGE FOR 2015 BOARD OF COMMISSIONERS MEETINGS: G. Hooper, Chair
9. NEXT MEETING: G. Hooper, Chair
10. ADJOURNMENT: G. Hooper, Chair

*This Agenda has been prepared in advance and does not necessarily include all matters which may be taken up at this meeting.*



**READING MUNICIPAL LIGHT DEPARTMENT  
CITIZENS' ADVISORY BOARD (CAB) MEETING**

**Combined Meeting with the Board of Commissioners**

**MINUTES  
Regular Session**

Time: 6:30 p.m.

Date: May 8, 2014

Place: RMLD, 230 Ash Street, Reading, MA, Winfred Spurr/ Audio Visual Room

**CAB Members Present:**

Mr. John Norton, Chairman (North Reading); Mr. Tony Capobianco (Reading); Mr. George Hooper, Vice Chairman (Wilmington); Mr. Dennis Kelley (Wilmington); Mr. David Nelson, Secretary (Lynnfield)

**CAB Members Absent:**

None

**RMLD Commissioner(s) Present:**

Mr. John Stempeck, Chairman; Mr. Philip Pacino, Vice Chairman; Mr. Robert Soli; Mr. David Talbot; Mr. Thomas O'Rourke

**RMLD Staff Present:**

Ms. Coleen O'Brien, Ms. Jeanne Foti, Mr. Robert Fournier, Ms. Priscilla Gottwald, Mr. Hamid Jaffari, Ms. Jane Parenteau, Ms. Kathleen Rybak, Mr. William Seldon

**Invited Guests and Members of the Public:**

Mr. Mayhew Seavey, *PLM* Electric Power Engineering; Ms. Marcie West, Town of Reading Board of Selectmen Liaison to the Board

**1. Call Meeting to Order – J. Norton, Chairman**

Chairman Norton called the meeting of the Citizens' Advisory Board to order at 6:32 p.m.

**2. Cost of Service Study Presentation – M. Seavey, *PLM* Electric Power Engineering**

See attached Minutes as approved by the RMLD Board of Commissioners.

**3. Next Meeting – J. Norton, Chairman**

The next meeting of the Citizens' Advisory Board will be held on Tuesday, June 3, at 6:30 p.m. at RMLD.

Mr. Capobianco announced that he would not be seeking re-appointment to the CAB. His term expires on June 30, 2014. Chairman Norton noted that he might have difficulty covering the Board of Commissioners meetings, which have been moved to Thursday evenings.

**4. Motion to Adjourn – J. Norton, Chairman**

Mr. Hooper made a Motion to Adjourn the Citizens' Advisory Board meeting, seconded by Mr. Nelson. Hearing no further discussion, *Motion carried 5:0:0 (5 in favor, 0 opposed, 0 absent).*

The Citizens' Advisory Board Meeting adjourned at 8:12 p.m.

Respectfully submitted,

\_\_\_\_\_  
David Nelson, Secretary

Minutes approved on \_\_\_\_\_



**Reading Municipal Light Board of Commissioners  
Joint Meeting with the Citizens' Advisory Board  
Regular Session  
230 Ash Street  
Reading, MA 01867  
May 8, 2014**

**Start Time of Regular Session: 6:31 p.m.**  
**End Time of Regular Session: 7:57 p.m.**

**Commissioners:**

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>John Stempeck, Chairman</b>       | <b>Philip B. Pacino, Vice Chair</b> |
| <b>Robert Soli, Commissioner</b>     | <b>David Talbot, Secretary</b>      |
| <b>Thomas O'Rourke, Commissioner</b> |                                     |

**Staff:**

|  |  |
|--|--|
| <b>Coleen O'Brien, General Manager</b>                 | <b>Jeanne Foti, Executive Assistant</b>                  |
| <b>Bob Fournier, Accounting/Business Manager</b>       | <b>Hamid Jaffari, Engineering and Operations Manager</b> |
| <b>Priscilla Gottwald, Community Relations Manager</b> | <b>Jane Parenteau, Integrated Resources Manager</b>      |
| <b>Kathleen Rybak, E&amp;O Operational Assistant</b>   | <b>William Seldon, Senior Energy Analyst</b>             |

**Citizens' Advisory Board:**

|                                |                                     |
|--------------------------------|-------------------------------------|
| <b>John Norton, Chairman</b>   | <b>George Hooper, Vice Chairman</b> |
| <b>David Nelson, Secretary</b> | <b>Tony Capobianco, Member</b>      |
| <b>Dennis Kelley, Member</b>   |                                     |

**Town of Reading Board of Selectmen Liaison to the Board:**

**Marsie West**

**Guest: Mayhew Seavey, Principal, Power Line Models**

**Call Meeting to Order**

Chairman Stempeck called the meeting to order and stated that the meeting was being videotaped; it is live in Reading only.

**Opening Remarks**

Chairman Stempeck read the RMLD Board of Commissioners Code of Conduct.

Chairman Stempeck reported that Commissioner Talbot will be the Secretary this evening.

**Introductions**

Chairman Stempeck welcomed Selectwoman Marsie West and the Citizens' Advisory Board. Chairman Stempeck also introduced the new RMLD Board member, Tom O'Rourke. Mr. O'Rourke thanked Chairman Stempeck for the introduction.

Chairman Stempeck introduced Mayhew Seavey who has performing the Cost of Service Study for the RMLD.

Ms. O'Brien welcomed the Board and the CAB. She explained that approximately every two to three years, utilities should conduct a Cost of Service Study to ensure that their allocations remain in or at the utility industry standards. A Cost of Service Study has now been performed, a little differently from previous studies at the RMLD. Only budget and revenue requirements were provided to PLM, Mayhew Seavey, to ensure that fully independent results could be achieved. Ms. O'Brien stated that Mayhew has established a Cost of Service modeling system that includes baseline data from other municipalities and Independent Operating Utilities (IOU's) in the commonwealth of Massachusetts.

**Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)**

Mr. Seavey stated that he performed a Cost of Service Study, and is reporting on the results on behalf of the RMLD using fiscal year 2015 data as the basis. Mr. Seavey said that he will be making recommendations with respect to rate design and discuss what the next steps are then discussion.

Mr. Seavey explained that the process began by conducting a historic test year Cost of Service Study. This was performed with actual data from fiscal year 2013, expenses and revenues, and then allocated across the various customer classes to determine how the existing classes were performing. This was also done to verify that the model was working correctly such as calculating revenues correctly; they provide a snap shot on how the present rates look.

**Presentation – Mayhew Seavey (Attachment 1) Cost of Service Study (COSS)**

Mr. Seavey explained that the model was updated with fiscal year 2015 data provided by RMLD in terms of expenses then calculated what the revenue should be using the present rates and made sure that those revenues were consistent with what the RMLD has projected. Then determine what was required to meet the revenue requirements to cover expenses and to provide sufficient net income. The bottom line is that it was determined that an overall increase of 1.3% was all that was necessary to meet the budget expenses for fiscal year 2015 based on the projected sales that were looked at.

Mr. Seavey stated that the model indicates that the existing rates of return by customer class are at the limit of what is considered the standard municipal utility practice, they are not outside of the range, but are at the outer edge of the range of rates of return. The residential rates' rates of return are fairly low whereas the commercial industrial are fairly high. However, the RMLD's existing rates are extremely competitive with other municipal and private utilities across all customer classes. It is to note that one of RMLD's main objectives is to attract and retain commercial load which helps to support competitive rates for everyone and keeps rates stable.

Mr. Seavey reported that two cases were considered, the first with an across the board 1.3% increase. It is the easiest approach to take by adding approximately 1.3% to the total rates that customers are being charged which produces enough revenue to meet expenses. Every customer class has the same impact. The second case is to slightly smooth out the rates of return within the same general constraint of 1.3% to move the individual class rates of return within the standard range. In order to do that, it would require a 5% increase in residential rates, 1.3% increase in industrial rates and 3% decrease in the commercial and school rates. This would have a fairly significant impact on the difference between the lowest rate of return and the highest rate of return. Each customer class would see a slightly different impact.

Mr. Seavey pointed out that a third commercial class was considered, a small commercial class. Typically private utilities and larger municipal utilities have three commercial classes or general service classes. A small customer class which deals with small businesses that use less than 10,000 kilowatt hours per month which are the majority of RMLD's commercial customers. There is a medium size commercial class which consists of a demand charge and energy charge class. The RMLD is already demand metering all those small customers. If you were to take approximately 2,000 small commercial customers off the demand rate and put them onto an energy only rate a significant amount of them would see a 20% increase. This was a surprise to him because of when you think of small commercial customers as being fairly uniform. Some of RMLD's small commercial customers towards the higher end of the usage have very good load factors. For every kilowatt of demand they put on the system, they are using quite a few kilowatt hours. Those customers are doing quite well under the current rate. If you put them onto an energy only rate, they would be hurt and pay quite a bit more. Also, it would not be an accurate way of billing them because they are not imposing a lot of demand on the system and the present rate structure rewards them for that. Similarly, there would be decreases for the low load factor customers, but they are considered to be bad customers because they would have high demand relative to the number of kilowatt hours they are using. Those customers would get sizeable decreases. It would not be consistent with the goal of sending the message of accurate price signal to the customer. He is not recommending RMLD adopt a small commercial class.

Mr. Seavey added that another rate looked into was a residential low income rate. All private utilities have this rate and many municipalities have adopted them voluntarily as well. There is a state mandate that calls for the private utilities to have the low income rate. This rate applies to customers who are receiving any type of means tested assistance from the commonwealth of Massachusetts. There are two approaches that are currently widely used. Many municipal light departments have chosen to eliminate the customer charge for customers who qualify for a low income rate. One advantage of this is provides the same benefit to all customers. It is particularly beneficial on a percentage basis to small customers. It provides a fixed benefit in dollars and a different benefit in percent depending on usage. For a customer using 250 kilowatt hours it will be a 9% reduction, a 500 kilowatt hour customer which is a more typical customer it is a 5% reduction. The other option used by the private utilities is a flat percentage discount on the entire bill exclusive of the purchase power charge. In the case of private utilities their delivery services, in RMLD's case it would be the distribution charge. The IOU's discounts are that National Grid uses 25% and NSTAR uses 27%. Mr. Seavey calculated that if the RMLD replace the prompt payment discount that is currently 10% with a 25% low income discount that would reduce the total bill by 6%. He did not add the prompt payment discount to the low income discount because that is duplicative. Those are the two options he has suggested. They are fairly equivalent overall as to the amount of revenue the RMLD would spend putting a rate like that into place. The only difference is that the flat customer charge would benefit low usage customers more. Since there is no data available for the customers who qualify for that there is no way to estimate the impact on the customers or revenue.

Mr. Pacino asked one question to Mr. Seavey and the other is for the Department. The discount on the lower rate what is the offset at this point. The offset has to be made up by some other customers. Where would be the offset be? Mr. Pacino's second question is what would be the cost to administrate this and how would it be handled by the Department if this was to be put in place. Mr. Seavey responded it is not possible to estimate what the revenue loss would be. Initially, the revenue would come out of net income. Once you gain a year's experience, you would adjust the rates to make up for the lost income.



### **Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)**

Mr. Seavey said that the presumption he has going into this is that we are not talking about a huge amount of revenue that will be lost that would make a material impact on meeting the revenue in the system. In terms of implementation the way the rate is implemented by private utilities or other municipalities is to require documentation from the customer that they are eligible to receive some sort of means tested assistance. That would be a simple process to sign up a customer and put that rate code into the billing system.

Ms. O'Brien commented that the RMLD has payment plans with its customers that require documentation and already have that process. With the new Cogsdale update the RMLD can add that rate structure. Chairman Stempeck inquired that RMLD's customers will know what means tested assistance or will it be published. Mr. Seavey responded that it is typically identified in the tariff. Mr. Pacino said that this would be taken out of the 8% or the bottom line in the short term. As time goes on other customers would be making up for this. Mr. Seavey responded that he believes that is correct. Mr. Hooper asked if this could benefit some of the seniors. Mr. Seavey replied presumably that is correct.

Mr. Seavey reported that the next item is the unbundling of the rate structure and creating rates that essentially take all the purchased power costs out of the base rates. There is approximately four cents of purchased power costs embedded in the base rates and the rest of the purchased power costs come through the purchased power adjustment. The fuel adjustment recovers all the energy costs. They are proposing collapsing those three pieces into a single purchase power charge which includes all purchase power costs and would be billed on the basis of estimates then trued up after the fact to actuals. It is fairly standard practice in the industry by now to break out the distribution rate which covers all the costs of owning, operating and maintaining your distribution system plus all of your profit and net income. Putting that into what essentially is the base rate which will be called distribution rate and all the purchase power and transmission costs will be covered by a purchase power charge. That makes it much more transparent and easier to account for purchase power collection whether you are accurately collecting all your purchase power costs or whether your base rates are performing properly. If you end up with more revenue than expected at the end of the year, it is difficult to tell right now if you overcollected on your base rate or purchase power costs. Breaking into these two components makes it possible to do that. The one downside to this is the prompt payment discount applies to the entire base rate would no longer apply to the four cents of purchase power that is built into the base rate. While the percentage discount will remain at ten percent, the dollar discount to the customer will be smaller. The purchase power charge is a pass through cost; you cannot discount it because if you discount it incorrectly you will under recover your costs. The proposal would be to keep the prompt payment discount at ten percent, but would apply to a smaller piece of the rate.

Mr. Seavey demonstrated the rate for a residential customer noting that the results would be similar. The customer charge remains the same. The base rate charge would drop by approximately four and a half cents because it would take that base rate purchase power charge out. In place of the four cents that is in the base rate plus the five cent fuel adjustment plus the two mill purchase power adjustment you would have a nine and a half cent purchase power charge which recovers all the purchase power costs (capacity, energy plus transmission). These designs reflect fiscal year 2015 projected. The typical five hundred kilowatt hour bill, 1.3% higher overall the energy conservation charge and NYPA credit will remain the same. The ten percent prompt payment discount would only apply on the four and a half cent distribution charge plus the \$3.73 customer charge. The discount is built into the rate. The bill will have one fewer line item on it. It might be easier for the customer to understand. It would be easier to compare to a National Grid or NSTAR bill because it will have the same terminology. It will have a distribution charge on it to compare RMLD's to the investor owned utilities. Increasingly, municipal utilities have the same structure so that comparisons can also be made with other municipal utilities.

Mr. Kelley asked that 2013 numbers were utilized and the multipliers were not the same as what has been presented. Mr. Seavey replied that in the presentation, it is for forecasted fiscal year 2015 which is based on estimated purchased power costs. Mr. Kelley pointed out that the fuel adjustment is .05167 however, on his bill it is .06 not quite a penny difference which is 2014. Mr. Seavey explained that this is the problem doing this type of comparison. What this compares is what the bill would be if you did not change the rates to this new structure, but you have the costs that you have next year. It is not what the bill is now, it is would be on July 1 if the rate change was not performed. Mr. Kelley added on top of the rate increase they just had, it will be another 1.3%. Mr. Seavey added that it is probably going to be a decrease.

Ms. O'Brien responded that the RMLD performs purchase power fuel adjustment analysis every month that fluctuates. You are trying to hit a moving target. Purchase Power costs are a pass through, no profit is made.

Ms. O'Brien stated that purchase power by law, must be recovered. You are projecting forward and reconciling because it changes every month and you have to recover this. By unbundling this, the not for profit percent return, goes on to the distribution side so the RMLD is clear that it is covering all of its purchase power costs.



### **Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)**

Mr. O'Rourke commented that this depends on a lot of factors, in general for an average bill taking out the purchase power charge what does that ten percent become nine percent, eight and a half percent. Mr. Seavey clarified ten percent of the discount. Mr. O'Rourke explained that the current bill is discounted ten percent. Mr. Seavey responded that the fuel does not get discounted. Mr. O'Rourke wants to understand from a customer's perspective they will not get a ten percent that they are currently receiving. Mr. Seavey stated that on a five hundred kilowatt bill instead of a \$4.50 discount it will be approximately \$2.25 based on the ten percent discount. Mr. O'Rourke stated that in terms of the description on the bill it will need to be clear to delineate this. Mr. Seavey said that he is not sure how the bill is structured and community education is one avenue to deal with this. Ms. O'Brien asked Mr. Seavey to speak to the utilities that have gone to unbundling and how they have dealt with the prompt payment discount. Has the percentage on the prompt payment discount has it been increased. Mr. Seavey said that there is one municipal that he has knowledge of that increased the prompt payment discount in order to try to maintain the same level of dollar discount. Most municipals these days are realizing that the prompt payment discount may not be that useful of a tool as it use to be before. There is some indication that in essence it is a tax on customers who don't have cash to pay their bills quickly. He does not know of any municipals that have done a controlled experiment. The only situation that he is aware of is that ten years ago, Concord added a prompt payment discount and showed a fairly sharp drop in their receivables. The customers who do not take advantage of the discount are paying for those who do.

Mr. Pacino said that this committee had discussed the ten percent discount, is the ten percent common, and is it standard. Mr. Seavey replied that it is very widespread; at least eighty percent of municipal utilities have the ten percent prompt payment discount. Some of them have five percent for some groups of customers, such as businesses who pay promptly. Mr. Pacino explained that there was discussion about fifteen years ago with Peabody Light avoided a rate increase by lowering their prompt payment discount. Mr. Pacino said that he does make the deadline and pays the extra ten percent. Chairman Stempeck said that this could be considered in another session. Chairman Stempeck added that the water department also has a significant discount if you pay ahead of time. Mr. O'Rourke asked approximately how many customers take advantage of the discount. Mr. Seavey replied that the number is high because he has not seen a utility in which its customers did not take advantage of it. Mr. Fournier reported that on an annual basis, the RMLD will see approximately \$1 million in forfeited discounts. However, on the discount dates the RMLD is inundated with payments. The options that the RMLD offers is automatic pay and auto pay to ensure customers meet the discount. Chairman Stempeck commented there is a balance to having the discount or not having the discount. From an economic perspective is that you get your money faster, and have knowledge that you are going to receive it. If the RMLD were to take the prompt payment discount away or lower it would have an economic impact. Mr. O'Rourke said that to speak to the other side, is there any penalty if you are ninety days late on your payment. Chairman Stempeck asked how long until the RMLD shuts off power. Mr. Fournier responded that there are regulations that dictate when you can shut off customers. When customers are past due, they receive two notices; it does not get to the ninety day timeframe. There are methods and processes that the RMLD follows that are dictated by the Department of Public Utilities. Chairman Stempeck pointed out that nonpayment by RMLD's customers is the exception, not the rule. Chairman Stempeck pointed out that it his understanding that the RMLD bends over backwards to work with its customers. Mr. O'Rourke added that what he is touching upon is if did eliminate the prompt payment totally that it disincentives the customer to pay more expeditiously. Mr. Seavey added that the prompt payment discount has a positive effect on cash flow.

Mr. Pacino clarified that the RMLD can put a lien on a customer's home for nonpayment. Mr. Fournier commented that the RMLD does place liens on residential customers for nonpayment.

Mr. Pacino stated that it is his understanding as explained that the 1.3% increase of the 4.5% from the prior rate increase, but Mr. Seavey has said previously that it actually has decreased. Mr. Seavey clarified it is the function of the fact that the 1.3% increase is with all things being equal on July 1. Mr. Seavey pointed out that July 1 the bill will be 1.3% higher than it would have been. What it has relative to the June bill is a function of purchase power costs that are being billed in June versus purchase power costs that are being forecasted for July. Mr. Seavey said that he is not sure where that is going to fall right now. Given the increase, it is not a large adjustment one way or the other. Mr. Pacino said that potentially under the purchase power adjustment that could be a 1.3% increase no matter what. Mr. Seavey explained that purchase power costs can swing the bill much more than that 1.3% very easily. Mr. Seavey commented that we are dealing with some costs the RMLD has control over going up 1.3% the others will swing either way. Mr. Pacino said that if we do nothing than we will end up with a 1.3% increase that is his understanding. Chairman Stempeck pointed out that is beyond our control that is external; the purchase of power can go anywhere, we are dependent on our internal power pool to find the lowest possible cost. It is an advantage that the RMLD has. Chairman Stempeck said that we need to look at different variations on the theme of the discount which will be looked at and come up with a reasonable assumption.



### Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)

Ms. West stated that her question is what percentage of purchase power, which she believes is a pretty high percentage, is variable. Mr. Seavey pointed out that purchase power is nine and a half cents versus four and a half cents for everything else which is two thirds. Ms. West asked is there any way to try to make that variability less are there any strategies to make that variability less on the purchase power or to make purchase power lower as a total percentage. Ms. O'Brien replied that this is the function of Integrated Resources and Planning group. By creating a power supply portfolio that has the lowest cost power, and risk management for power supply. That is how we are able to have the second lowest rate in the state. Ms. O'Brien is not sure other than performing an analysis on the portfolio almost on a daily basis that you could get it much lower than that. Ms. West commented that there is no way to decrease the fluctuation. Ms. O'Brien said that when you perform purchase power and fuel adjustment analysis you generally are looking ahead six months and reconciling six months then you strategize to even that out the best you can. You are forecasting ahead. If you know it is going to go up then you might do something a little different if you know it is going down in order to keep as stable a rate as possible within that pass through and getting all your money back. Ms. West stated that the reason she is asking this is that two thirds of the power can go up and down; you have the potential for things to bounce around. Chairman Stempeck agreed. Chairman Stempeck stated that others in different industries when presented with that kind of variability they try to track it historically, and know such in July and August when air conditioning goes on it will go up you try to do longer term contracts to lower costs to try help that or shave the peak power if you can do that. Chairman Stempeck pointed out that the RMLD is trying to get programs in place to shave its peak, which takes time to make that happen.

Mr. Seavey then addressed the structure of the hydropower credit. Presently, the hydropower credit is calculated on the basis of market value of the capacity and energy that the RMLD receives from New York Power Authority. The recommendation is to change that methodology to a formula that is tied to the average cost of the energy which RMLD receives from all its other sources compared to the cost of energy from NYPA if the average cost of energy which is basically the same number as the current fuel adjustment. As that goes up, the value of the hydro power credit will increase and if it goes down the value of the hydropower credit will decrease. Since we are in a period of time where energy prices have gone up significantly in the last year and projected to go up, this change in methodology should produce a larger credit for the residential customers through the hydropower credit. Chairman Stempeck pointed out that this is an excellent approach to help the residential customers.

Mr. Seavey said that they are looking at the streetlighting rate and in the process of reviewing the present streetlight rate to determine if there is a need to adjust the rates which is not quite completed. It is looking however, that the present streetlight rate are acceptable and they are not going to recommend any change in the present rates. They are looking at instituting a new rate for LED streetlights as they come on stream that will help reflect the greater efficiencies being offset by the higher costs of the fixtures. They will develop a rate that is consistent with the other rates, but will reflect that greater efficiency in the rate. Hopefully, the cost to the communities will not increase as a result of that new technology in the short run and decrease over time as the cost of those new fixtures get amortized over the expected longer life. It is anticipated that those rates should be completed within the next week or so.

Mr. Soli asked if Mr. Seavey is going to discuss the spreadsheets. Mr. Seavey responded that he was not planning on it. Mr. Soli said that he had a question, power is a big part between demand, transmission and energy, it is approximately \$78 million of the total budget. Mr. Soli said that with energy the RMLD meters which are new and should be in calibration. However, \$40 million for demand and transmission are based on RMLD's estimates. If the estimate perhaps is off two and a half percent, this translates to \$1 million. Mr. Soli said that he looked at the metering and ran the numbers; you need to get every meter, every fifteen minutes. Mr. Soli noted that he ran a year's worth that is eighteen months of data measured every fifteen minutes. The data rate looked like that a kilobit per second which is very modest. For a dial up modem, the peak rate is fifty six kilo per second, it is vastly greater at a kilobit per second. Mr. Soli stated that being on the Board we have never seen really good data. The schools have fancy meters for the school rate. They have never really seen the demand that they have relative to what the percentage states. Mr. Soli said that he would be reluctant to go \$40 million just on the basis of an estimate when it seems, just get the data. A kilobit per second, eighteen months of data, taken every fifteen minutes, the hardware is modest with some software.

Mr. Seavey added that there are many utilities that have already installed smart meters on all their accounts and are now in the process of building that data. This modeling benefits from that data. While the data in here is not of the residential customer of RMLD, it is the residential customers of National Grid because they are performing that type of research and are required to publish residential class loads hourly for an entire year on their website for the use of competitive electric supply. Mr. Seavey reported that is the data he uses when he determines what residential customers are contributing to the monthly system peak and therefore how much of the transmission cost gets allocated to them. How much residential customers are contributing to the summer annual peak and therefore how much capacity costs gets allocated to them.



### **Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)**

Mr. Seavey said that he would not guarantee that these allocations are accurate to within one to two percent, there is a very high degree of confidence particularly with the residential class consists of 20,000 customers which is an enormous amount of diversity. There will not be many outliers that will throw the results off that happen with large industrial customers.

Mr. Seavey said that he is a little more leery about typical load shapes for large commercial industrial customers because they can have different usage patterns from one utility to another. Mr. Seavey said that he is comfortable with the data that was utilized to allocate the capacity and transmission costs are representative. Can you do a better job by sending correct price signals to customers, be careful what you wish for. If every residential customer has a smart meter you have the potential to bill them for their contribution to the summer peak and it will have a varying effect on customers. Currently, all the residential customers are lumped together and are socialized for the cost of the class. All are treated exactly the same for contribution to your costs. If you disaggregate them as in the small commercial class there will be winners and losers. The winners are going to win small and the losers are going to lose big. It is the nature of a probability distribution like that. The data is getting more available, more affordable. It is a matter of what you decide to do with that data. Chairman Stempeck added that this may be a unique case in which you both can be right. Chairman Stempeck said that we would like to use real time data. There is no question that when you use real time data it would help the analysis tremendously. Chairman Stempeck asked what RMLD's penetration of smart meters is. Mr. Jaffari responded that RMLD's 500 club which consists of commercial and industrial that need to be completed. Chairman Stempeck commented that the question is how we get the right algorithm in place to real time measurements. Chairman Stempeck pointed out that doing things on an individual basis could be positive for load reduction. Chairman Stempeck asked how difficult is it to obtain real time data as Mr. Soli pointed out in order that this is fed into the model to see what the dichotomy is. Chairman Stempeck said that if we have the mechanism why not do this because decisions may be made differently if we had the actual data.

Mr. Kelley said that what is being discussed and is in agreement that we are making assumptions, but should be taking real data to make sure it is not an assumption. Mr. Kelley said that we are speaking about another 1.3% increase to the end user. Chairman Stempeck commented that it is going to take time to figure out what the algorithms are to write the software then perform another analysis. Chairman Stempeck pointed out RMLD is a month to two months behind on the real data for purchase power, etcetera and that needs to be readjusted in the following invoice. The RMLD then has to readjust for this time lag in the following invoice which could be off one or two percent. Mr. Kelley stated that we just had a rate increase where it was 5% or 9%. Chairman Stempeck pointed out that he wanted to make it clear the increase was not 9%. Chairman Stempeck explained that the 9% was on a sub category; the increase on the entire bill was 5%. Mr. Kelley said that there was a 5% increase now; it will be going up 1.3%. Chairman Stempeck responded that is correct. Chairman Stempeck explained that we are going up to what our cost of power is because by law we are required to do so. Chairman Stempeck asked if this was clear. Mr. Kelley responded, no. Chairman Stempeck said that otherwise the RMLD can send documentation. Mr. Kelley said that he is asking a question in that the rates have gone 5% and are going up another 1.3%. Mr. Kelley said that's what the statement was, and he will go back to the minutes, and that part of the reason was that the things done for energy savings have affected the net profit so this was the change. The net profit to him is what RMLD is making, that is all he is asking. Chairman Stempeck explained that the way the analysis for the rate increase was presented it was clearly indicated that there was going to be a rate increase in the July timeframe. They were doing an estimate at that time, but projected the 5% increase and with the Cost of Service it is 1.3% which is incredibly accurate. Chairman Stempeck pointed out that it has been three and a half years since there has been a rate increase. People have received salary increases over the last three years and a half years, if not they have had cost of living increases. Mr. Kelley added that he disagreed because there companies out there in which employees do not get one every year. Chairman Stempeck said that Mr. Kelley could share the companies with him offline because they are probably going out of business.

Ms. O'Brien said that she will ask Mr. Jaffari to work with Mr. Fournier to look at the data channels of what those meters can bring back hourly. We could analyze if residential assumption is correct.

Mr. Talbot said that Mr. Soli is on the right track the more data you have the more efficient things become. Mr. Talbot said that he is impressed by how much revenue it can save and generate by dealing with that peak. Mr. Talbot said that if he understands it correctly, we can't change the rates in a manner to influence the peak because the RMLD does not have tiered real-time pricing for almost all customers. Rates cannot be raised from 3:00 pm to 6:00 pm for some of them to send them a price signal to chop the peak, is that correct. Ms. O'Brien replied that the RMLD is hoping to work with the larger commercial customers to have real time pricing at some point. Mr. Talbot said that the RMLD does not have a tiered structure, however, when the RMLD has the data it will be able to say which customers contributed more to the peak which resulted in hundreds of thousands of dollars extra per year because of the high monthly peaks in the summer.



### Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)

Mr. Talbot pointed out that if each month's peak hour could be cut, it would be a large cost savings for RMLD and its customers, five percent translates into \$1 million for the organization it is amazing how powerful that is. The data will help us with that. Mr. Talbot said that the people contributing to the peak need to know they have to do something and will be charged if they do not. In the meantime, as we head into the heat wave season and there is a hot day in June or July, the weather forecast will show this, if everyone is contributing to some larger communication strategy that day at 10:00 am there are e-mails going all over the place, radio announcements and Facebook postings that customers are getting the message it gets done that day. Real financial savings will be garnered if we implement a communications strategy in that manner. It is not that difficult to do this. Mr. Talbot added that he learned that newspapers are not as efficient for this purpose. He wrote an op ed laying this out and suggesting people get a time of use meter and save money on their bills, but only a few customers called to get one. There were front page articles in the *Reading Chronicle* and the Wilmington newspaper with almost no effect. The lesson is that when press releases are done to the newspapers it has little impact on consumer behavior. The viral strategy is the way to go on hot weather days with customers until the RMLD has the data and deals with the commercial customers, July is coming up and we can do it this year.

Mr. Hooper asked based on the conservation charge, what constitutes that has the RMLD thought of a flat rate, other utilities charge thirty six cents for their conservation charge. Ms. Parenteau replied that it is a rate design. Initially, the conservation charge is self-funded so any moneys that are collected, for that go out for that purpose. Examples of use of this use of the conservation charge are the residential appliance rebate, energy audits and commercial incentive programs. The rate designs for the IOU's or private companies are set up on a per kilowatt hour charge likewise it is three times higher than what RMLD charges. That is why the RMLD elected to choose that rate design. You can design the rate any way you want to. Historically, the RMLD use to charge residential fifty cents per bill. Today, the conservation charge brings in estimated revenue of \$700,000. It is a matter of achieving the revenue requirements and set the rate appropriately in order to collect those revenues. Mr. Hooper asked if the RMLD is generating sufficient funds to cover this. Ms. Parenteau replied that is correct. Mr. Seavey added that from a rate design perspective, charging on a flat per customer basis is considered to be fairly regressive because it affects small users more highly than high users. Mr. Seavey said that someone using two hundred kilowatt hours per month is going to pay the same conservation charge as someone using two thousand kilowatt hours a month.

Mr. Pacino said that if we do nothing with the purchase power adjustment, the 1.3% will be coming into place if we do nothing. That is what he is taking away from this. Mr. Seavey explained that if the 1.3% comes in from the purchase power adjustment, it will not flow to your bottom line, not reach net income and will not help you meet your revenue target. Mr. Seavey pointed out that it is really important that the 1.3% happens to the base rates regardless of what happens to purchase power. Mr. Pacino asked if we are trading a variable under the purchase power adjustment for a steady 1.3%. Mr. Seavey responded it is not trading because the variable still has to be recovered. Those expenses and revenues are off in a different part of the world. The part that is over here 1.3% increase needs the 1.3%, you cannot use purchase power revenues to subsidize. Mr. Pacino said that the purchase power adjustment goes away until another rate study is performed, that is his understanding and will be replaced by the 1.3% increase. Ms. O'Brien explained that when the rate increase discussion back in November there would be a five percent in January or February and another two percent in July. The RMLD was estimating on a revenue requirement. There is a little bit of confusion because the purchase power and the fuel are pass throughs. The 1.3% is required for the revenue requirement which has anything to do with purchase power. Mr. Kelley asked that the RMLD is taking the pass through numbers and bundling those together because the discount only are the part that you make revenue on. Ms. O'Brien explained that currently, you have an embedded purchase power piece that is a pass through that is part of the base rate. The base rate consists of purchase power, operating and maintenance expenses, and as purchase power and fuel fluctuates from what you have in the embedded rate as it goes up and down this is adjusted every month, to collect by law what you have to collect. When you unbundle the rate, you have your expenses and your purchase power. It is lot easier to do a budget to actuals, to make sure that you are collecting for your expenses, purchase power you are collecting for that. Ms. O'Brien pointed out that most utilities are going towards a transparent unbundled rate. Mr. Kelley said that at the last commission meeting he attended, Mr. Soli asked to take the pass through money and keep it in a separate that is what you are working towards that. Ms. O'Brien replied that is correct. Mr. Kelley said that the budgets will show those as separate line items. Ms. O'Brien agreed. Ms. O'Brien clarified that her answer at that meeting is that the RMLD is going to an unbundled rate and the reason it is not there is because the billing software is being upgraded. The RMLD is doing the Cost of Service and unbundling it. As soon as Cogsdale billing is capable to handle this, then it will be unbundled on the bill. That is the direction the RMLD is going.

Mr. Soli said that the current purchase power adjustment the value is a little more than half a cent per kilowatt hour. On five hundred kilowatt hours, it would be \$2.50 as opposed there is an eighty five cent differential as shown in the presentation. Ms. Parenteau pointed out that the current billing adds the fuel to account for the purchase power charge. Mr. Seavey pointed out in the presentation it is not the present today, it is the present July1, based on budget estimates.



### **Cost of Service Study (COSS) Presentation – Mayhew Seavey (Attachment 1)**

Mr. Soli added as of his May bill it is half a cent a kilowatt month. Mr. Pacino added that the point Mr. Soli is trying to make that it is a real possibility that if the 1.3% is put in place that is based on estimates that we could be possibly decreasing this to the customer as opposed to doing nothing. Mr. Seavey added that if purchase power costs go down, at the same time it goes down. Mr. Seavey commented that it is really important to do this if purchase power costs are entangled together with base rates it is far too easy for the utility to do essentially a back door rate increase by overcollecting purchase power costs and flowing it through the bottom line because you cannot account for them. That is what municipalities have done for decades as soon as they had the ability to do a purchase power adjustment rather than increasing the rates they would increase the purchase power adjustment. They would do that in order to make their three to four percent, for the rate of return. It was not possible for their auditors to tear that apart, you did not actually earn a four percent return for the year, and you actually overcollected \$500,000 in purchased power costs. With it broken out and unbundled then this is not a possibility. You as a customer can look at the numbers and see that the correct amount of money was collected from the base rates and recovered all the purchased power costs. It is much more transparent.

Ms. O'Brien said that when the RMLD went through the 4.5% in February, the schools were 3.9% it varied for the rate classes. When we went through that conversation and Ms. Parenteau discussed that realistically that if you looked at the fuel, the customer's bill had down. With the 4.5% increase, realistically the purchase power had gone down more than what the RMLD was increasing into base. However, purchase power can go up, if one of your nuclear plants shuts down and you have to go the market for replacement power. The RMLD tries to stabilize that over time or to soften that so there are no rate spikes and tries to do this on a daily basis. Purchase power goes up and we have to recover it.

Mr. Pacino asked where we go from here where we have had the presentation, what is the next step. Chairman Stempeck said that we need some refinement on the LED streetlighting before we can provide the final acceptance. Mr. Seavey added that you will need actual rate schedules that you can vote on. Chairman Stempeck said that the rate schedules will be available at the next meeting. Chairman Stempeck said that the next step would be a recommendation on the adoption of the policies that have been just walked through. An agreement of each of the proposals, in terms of breakouts on how to structure the mix question and then approval for 1.3% increase. There are three things different things that need to happen.

Chairman Norton pointed out this needs to occur before it comes to the CAB. Mr. Pacino said that he is trying to establish the timetable. Chairman Stempeck said that the Board hopes to have a recommendation before its next meeting. Mr. Pacino said that the RMLD Board needs to meet in order to make the recommendation and refer it to the CAB. Mr. Pacino noted that the CAB has a thirty day time review. Ms. O'Brien said that June 18 is the deadline for Cogsdale billing changes for a July bill.

Chairman Stempeck said that all the data will be available for the next meeting, Thursday, May 15.

Mr. Talbot asked that the customer charge goes up when customers get a special meter and stays on the bill for \$2 forever such as the time of use meters, is there a payback for that charge. Mr. Fournier replied that it does not matter if it is a time of use meter or not. Mr. Talbot said that remains even for forty years. Mr. Fournier explained that will stay on as long until the customer charge is changed again. Mr. Seldon said that you try to time that out so for the next generation of metering comes in you will have a brand new meter.

Ms. O'Brien clarified the data that will be needed. Mr. Seavey said that it would be a complete set of rate schedules on either option. Chairman Stempeck said that the outcome of the May 15 meeting will be forwarded to the CAB. Mr. Pacino said that if any commission member needs information to communicate to the department tomorrow. Ms. O'Brien said that the recommendation to the CAB is up to thirty days.

### **RMLD Board Meetings**

**Thursday, May 15, 2014, 6:30 pm**

### **Citizens' Advisory Board Meeting**

**Citizens' Advisory Board will continue to meet after this meeting and determine their next CAB meeting date.**

### **Adjournment**

At 7:57 p.m. Mr. Soli made a motion seconded by Mr. Pacino to adjourn the Regular Session to adjourn.

A true copy of the RMLD Board of Commissioners minutes  
as approved by a majority of the Commission.  
David Talbot, Secretary Pro Tem  
RMLD Board of Commissioners

# Cost of Service and Rate Design

A Presentation to the  
RMLD Board and Citizens' Advisory Board  
May 8, 2014

# Outline of Presentation

1. Results of Proforma Fiscal Year (FY)15 Cost of Service Analysis
2. Rate Design Recommendations
3. Next Steps
4. Discussion

# Results of the Proforma Future Test Year (FY15) Cost of Service Study

- ◆ FY13 Historic Test Year Cost of Service model was updated with expenses and sales from RMLD Operating Budget for FY15
- ◆ An overall increase of 1.3% in revenues is necessary to meet budgeted expenses



# Rate of Return

- ◆ Existing rates of return by customer class are at the range of standard municipal utility practice
- ◆ Existing rates are very competitive with other municipal and private utilities across the board
- ◆ A main objective of RMLD is to attract and retain commercial load to support the stabilization of rates

# Proposed Rates

## Case 1 – Uniform Increase

- ◆ Overall revenue increase required is only 1.3% for all customer classes.

# Proposed Rates

## Case 2 – Smoothed Rates of Return

- ◆ Same overall revenue increase of 1.3%
- ◆ Class rates of return moved within the standard municipal utility range
  - Residential increase to produce a breakeven
    - ◆ Would require a 5% increase
  - Industrial increase of 1.3% (Same as Case 1)
    - ◆ Would require a 1.3% increase
  - Commercial and School decrease rate of return
    - ◆ Would require a 3% decrease



# Rate Classification

## Small Commercial Class

- ◆ Investigated adding a Small Commercial class for customers using less than 10,000 kWh per month
  - No demand charge
  - Consistent with private utility rate structure
- ◆ Results indicate that this would not be a viable option
  - Would cause increases of up to 20% for a large number of high load factor customers
  - Would result in decreases of up to 50% for a large number of low load factor customers
  - Not consistent with the goal of sending accurate price signals to customers

# Rate Classification

## Residential Low Income Rate

- ◆ Option 1 – Eliminate Customer Charge for qualifying customers
  - Used by several Municipal Light Departments
  - Provide same benefit (\$3.73 per month) for all customers regardless of usage
  - Higher percentage reduction for low usage customers
    - ♦ 9% reduction for 250 kWh customer
    - ♦ 5% reduction for 500 kWh customer
- ◆ Option 2 – Percentage discount on entire bill exclusive of purchased power charges
  - National Grid uses a 25% discount on Delivery Services
  - Nstar uses 27% (25.7% for electric heat customers)
  - A 25% discount in place of the Prompt Payment discount would reduce the total bill by 6% relative to a bill using the Prompt Payment discount

# Rate Structure

## Unbundled Rates

- ◆ All purchased power costs removed from Base Rate Charge
  - Becomes Distribution Charge
- ◆ Capacity, Energy and Transmission costs recovered through Purchase Power Charge
  - Includes a portion of the Base Rate Charge as well as all of the Fuel Charge and Purchase Power Adjustment (PPA)
  - Billed using estimated costs and sales then reconciled to actual costs and revenues after the fact
- ◆ Prompt payment discount applies to Customer Charge and Distribution Charge
  - Percentage remains at 10%, however dollar amount is smaller to customer because there is no discount on the portion of purchase power cost built into the Energy Charge



# Residential Rate

| Present                    |             | Proposed                              |
|----------------------------|-------------|---------------------------------------|
| Customer Charge            | \$3.73      | Customer Charge<br>\$3.73             |
| Base Rate Charge           | \$0.08980   | Distribution Charge<br>\$0.0457       |
| Fuel Adjustment            | 0.05167     |                                       |
| Purchase Power Adjustment  | 0.00197     | Purchased Power Charge<br>\$0.09503*  |
| Energy Conservation Charge | 0.00100     | Energy Conservation Charge<br>0.00100 |
| NYPA Credit                | (\$0.00274) | NYPA Credit<br>(\$0.00274)            |
| Prompt Payment Discount    | 10%         | Prompt Payment Discount<br>10%        |
| 500 kWh bill               | \$69.72     | \$70.57                               |

\*Purchased Power Charge estimated based on budgeted purchased power costs for FY15

# Results of the Historic Test Year (FY13) Cost of Service Study **Rate Structure**

Recommend changing the methodology for calculating the NYPA hydropower adjustment

$$\text{NYPA Savings} = \text{NK} \times [\text{ACEWO} - \text{ACN}]$$

Where

NK = total kWh of NYPA received

ACEWO = average cost of energy excluding NYPA

ACN = average cost of NYPA energy

Should reduce customer bills since the average cost of energy purchased is expected to increase

# Results of the Historic Test Year (FY13)

## Cost of Service Study

### **Rate Structure**

- ◆ In the process of reviewing the Street Lighting rate to determine if there is a need to adjust the present rates in order to recover the cost of service
- ◆ Gathering data to develop a rate for LED Street Lights in addition to the present Street Light rates



# Discussion





**FY15 Proforma Test Year Cost of Service Study**  
**TYPICAL & SPECIFIC ALLOCATION FACTORS (IN PER UNIT)**

| SYM                     | ALLOCATION FACTOR             | Residential |           | School     | Commercial  | Industrial  | Small Commercial | Coop      | Lighting         |                     | TOTALS |
|-------------------------|-------------------------------|-------------|-----------|------------|-------------|-------------|------------------|-----------|------------------|---------------------|--------|
|                         |                               | A           | A 2       |            |             |             |                  |           | Municipal Street | Private Area Lights |        |
| DEMAND:                 |                               |             |           |            |             |             |                  |           |                  |                     |        |
| 12CP                    | AVERAGE 12 COINCIDENT PEAKS   | 0.4507      | 0.0072    | 0.0191     | 0.1946      | 0.2518      | 0.0661           | 0.0051    | 0.0041           | 0.0013              | 1.0000 |
| 1CP                     | ICAP (ISO ANNUAL PEAK)        | 0.4648      | 0.0074    | 0.0193     | 0.1967      | 0.2388      | 0.0678           | 0.0052    | 0.0000           | 0.0000              | 1.0000 |
| AFD                     | AVERAGE & EXCESS              | 0.3645      | 0.0058    | 0.0210     | 0.2136      | 0.3111      | 0.0729           | 0.0056    | 0.0041           | 0.0013              | 1.0000 |
| PR                      | PEAK RESPBITY (SEE ABOVE)     | 0.4507      | 0.0072    | 0.0191     | 0.1946      | 0.2518      | 0.0661           | 0.0051    | 0.0041           | 0.0013              | 1.0000 |
| NCP                     | NON-COINCIDENT PEAK DEMAND    | 0.4392      | 0.0070    | 0.0179     | 0.1827      | 0.2660      | 0.0770           | 0.0048    | 0.0041           | 0.0013              | 1.0000 |
| ENERGY:                 |                               |             |           |            |             |             |                  |           |                  |                     |        |
| E                       | ENERGY                        | 0.3678      | 0.0057    | 0.0206     | 0.2139      | 0.3106      | 0.0711           | 0.0054    | 0.0037           | 0.0012              | 1.0000 |
|                         | ENERGY PRICE WEIGHTED SALES   | 256,569,112 | 3,944,216 | 14,351,890 | 149,202,281 | 216,663,541 | 49,594,874       | 3,775,245 | 2,587,739        | 804,071             |        |
|                         | PER UNIT MARGINAL ENERGY COST | 1.0159      | 0.9802    | 0.9877     | 1.0080      | 1.0051      | 0.9821           | 0.9658    | 0.9000           | 0.9000              |        |
| CUSTOMER:               |                               |             |           |            |             |             |                  |           |                  |                     |        |
| CTM                     | CUSTOMLR METERED - TOTAL      | 0.8877      | 0.0112    | 0.0011     | 0.0135      | 0.0023      | 0.0841           | 0.0002    | 0.0000           | 0.0000              | 1.0000 |
|                         | CUSTOMFR UNMETERED            | 0.0000      | 0.0000    | 0.0000     | 0.0000      | 0.0000      | 0.0000           | 0.0000    | 0.0006           | 0.0137              | 0.0144 |
|                         | CUSTOMER METERED              | 0.8749      | 0.0110    | 0.0011     | 0.0133      | 0.0023      | 0.0829           | 0.0002    | 0.0000           | 0.0000              | 0.9856 |
| C1                      | CUSTOMER TOTAL                | 0.8749      | 0.0110    | 0.0011     | 0.0133      | 0.0023      | 0.0829           | 0.0002    | 0.0006           | 0.0137              | 1.0000 |
| CWM                     | CUSTOMER WEIGHTED METERED     | 0.4416      | 0.0070    | 0.0180     | 0.1837      | 0.2675      | 0.0774           | 0.0049    | 0.0000           | 0.0000              | 1.0000 |
|                         | CUSTOMFR WEIGHTED UNMETERED   | 0.3770      | 0.0047    | 0.0005     | 0.0057      | 0.0010      | 0.0357           | 0.0001    | 0.000265         | 0.0059              | 0.4309 |
|                         | CUSTOMER WEIGHTED METERED     | 0.2513      | 0.0040    | 0.0103     | 0.1045      | 0.1522      | 0.0440           | 0.0028    | 0.000000         | 0.0000              | 0.5691 |
| CWT                     | CUSTOMER WEIGHTED TOTAL       | 0.6283      | 0.0087    | 0.0107     | 0.1103      | 0.1532      | 0.0798           | 0.0028    | 0.000265         | 0.0059              | 1.0000 |
| DEMAND & CUSTOMER:      |                               |             |           |            |             |             |                  |           |                  |                     |        |
| 0.75                    | DEMAND (NCD*WEIGHT)           | 0.3294      | 0.0052    | 0.0134     | 0.1370      | 0.1995      | 0.0577           | 0.0036    | 0.0031           | 0.0010              | 0.7500 |
| 0.25                    | CUSTOMER (C*WEIGHT)           | 0.2187      | 0.0028    | 0.0003     | 0.0033      | 0.0006      | 0.0207           | 0.0000    | 0.000154         | 0.0034              | 0.2500 |
| D&C                     | D&C OVERALL                   | 0.5481      | 0.0080    | 0.0137     | 0.1403      | 0.2001      | 0.0784           | 0.0037    | 0.0032           | 0.0044              | 1.0000 |
| DEMAND & ENERGY:        |                               |             |           |            |             |             |                  |           |                  |                     |        |
| 0.5                     | DEMAND (AED*WEIGHT)           | 0.1823      | 0.0029    | 0.0105     | 0.1068      | 0.1556      | 0.0364           | 0.0028    | 0.0021           | 0.0006              | 0.5000 |
| 0.5                     | ENERGY (F*WEIGHT)             | 0.1839      | 0.0028    | 0.0103     | 0.1070      | 0.1553      | 0.0356           | 0.0027    | 0.0019           | 0.0006              | 0.5000 |
| D&E                     | D&E OVERALL                   | 0.3662      | 0.0057    | 0.0208     | 0.2138      | 0.3109      | 0.0720           | 0.0055    | 0.0039           | 0.0012              | 1.0000 |
| STREET LIGHTS:          |                               |             |           |            |             |             |                  |           |                  |                     |        |
| LA                      | CUSTOMLR LGHT AREA            | 0.0000      | 0.0000    | 0.0000     | 0.0000      | 0.0000      | 0.0000           | 0.0000    | 0.0000           | 1.0000              | 1.0000 |
| LS                      | CUSTOMLR LGHT STREET          | 0.0000      | 0.0000    | 0.0000     | 0.0000      | 0.0000      | 0.0000           | 0.0000    | 1.0000           | 0.0000              | 1.0000 |
| PURCHASED POWER FACTOR: |                               |             |           |            |             |             |                  |           |                  |                     |        |
| VAR                     | SLE ABOVE DEMAND FACTORS      | 0.4507      | 0.0072    | 0.0191     | 0.1946      | 0.2518      | 0.0661           | 0.0051    | 0.0041           | 0.0013              | 1.0000 |
| PS                      | PASNY PER KWH BASIS           | 0.9843      | 0.0157    | 0.0000     | 0.0000      | 0.0000      | 0.0000           | 0.0000    | 0.0000           | 0.0000              | 1.0000 |

**FY15 Proforma Test Year Cost of Service Study**  
**COST OF ELECTRIC PLANT 6-30-13**

| ACNT | DESCRIPTION                     | Allocation Factor | FY2013 Test Year Total | Residential      |               | School SCH     | Commercial C     | Industrial I     | Small Commercial SC | Coop COOP     | Lighting         |                     |
|------|---------------------------------|-------------------|------------------------|------------------|---------------|----------------|------------------|------------------|---------------------|---------------|------------------|---------------------|
|      |                                 |                   |                        | A                | A 2           |                |                  |                  |                     |               | Municipal Street | Private Area Lights |
|      | <b>3. TRANSMISSION PLANT</b>    |                   |                        |                  |               |                |                  |                  |                     |               |                  |                     |
| 350  | LAND AND LAND RIGHTS            | AED               | 0                      |                  |               |                |                  |                  |                     |               |                  |                     |
| 351  | CLEARING LAND AND RIGHTS/WAY    | AED               | 25,015                 |                  |               |                |                  |                  |                     |               |                  |                     |
| 352  | STRUCTURES AND IMPROVEMENTS     | ALD               | 765,613                |                  |               |                |                  |                  |                     |               |                  |                     |
| 353  | STATION EQUIP                   | AED               | 4,257,806              |                  |               |                |                  |                  |                     |               |                  |                     |
| 354  | TOWERS AND FIXTURES             | AFD               | 0                      |                  |               |                |                  |                  |                     |               |                  |                     |
| 355  | POLES AND FIXTURES              | AFD               | 0                      |                  |               |                |                  |                  |                     |               |                  |                     |
| 356  | OVERHEAD CONDUCTOR AND DEVICES  | AED               | 20,923                 |                  |               |                |                  |                  |                     |               |                  |                     |
| 357  | UNDERGROUND CONDUIT             | AED               | 9,056                  |                  |               |                |                  |                  |                     |               |                  |                     |
| 358  | UNDERGRD CONDUCTOR AND DEVICES  | AED               | 3,475                  |                  |               |                |                  |                  |                     |               |                  |                     |
| 359  | ROADS AND TRAILS                | ALD               | 0                      |                  |               |                |                  |                  |                     |               |                  |                     |
|      | <b>TOTAL TRANSMISSION PLANT</b> |                   | <b>5,081,890</b>       | <b>1,852,463</b> | <b>29,516</b> | <b>106,570</b> | <b>1,085,607</b> | <b>1,581,016</b> | <b>370,405</b>      | <b>28,670</b> | <b>21,089</b>    | <b>6,553</b>        |

# FY15 Proforma Test Year Cost of Service Study COST OF ELECTRIC PLANT 6-30-13

| ACN7                       | DESCRIPTION                    | Allocation Factor | FY2013 Test Year Total | Residential |         | School  | Commercial | Industrial | Small Commercial | Coop |         | Lighting |         |
|----------------------------|--------------------------------|-------------------|------------------------|-------------|---------|---------|------------|------------|------------------|------|---------|----------|---------|
|                            |                                |                   |                        | A           | A 2     |         |            |            |                  | C    | I       | SC       | COOP    |
| 4. DISTRIBUTION PLANT      |                                |                   |                        |             |         |         |            |            |                  |      |         |          |         |
| 360                        | LAND AND LAND RIGHTS           | NCP               | 843,454                |             |         |         |            |            |                  |      |         |          |         |
| 362                        | STATION EQUIP                  | NCP               | 5,321,547              |             |         |         |            |            |                  |      |         |          |         |
| 363                        | STORAGE BATTERY EQUIP          | NCP               | 16,281                 |             |         |         |            |            |                  |      |         |          |         |
|                            |                                |                   | 6,181,283              | 2,714,878   | 43,258  | 110,839 | 1,129,097  | 1,644,353  | 475,660          |      | 29,818  | 25,466   | 7,913   |
| 361                        | STRUCTURES AND IMPROVEMENTS    | D&C               | 3,036,175              |             |         |         |            |            |                  |      |         |          |         |
| 364                        | POLES, TOWERS AND FIXTURES     | D&C               | 16,424,832             |             |         |         |            |            |                  |      |         |          |         |
| 365                        | OVERHEAD CONDUCTOR AND DEVICES | D&C               | 14,500,151             |             |         |         |            |            |                  |      |         |          |         |
| 366                        | UNDERGROUND CONDUIT            | D&C               | 3,534,637              |             |         |         |            |            |                  |      |         |          |         |
| 367                        | UNDERGRD CONDUCTOR AND DEVICES | D&C               | 4,395,290              |             |         |         |            |            |                  |      |         |          |         |
| 368                        | LINE TRANSFORMERS              | D&C               | 4,840,478              |             |         |         |            |            |                  |      |         |          |         |
|                            |                                |                   | 46,731,562             | 25,615,640  | 373,880 | 640,854 | 6,557,490  | 9,350,052  | 3,665,567        |      | 171,071 | 151,586  | 205,421 |
| 369                        | SERVICES                       | CWT               | 2,168,550              | 1,362,528   | 18,969  | 23,241  | 239,091    | 332,212    | 172,947          |      | 6,146   | 575      | 12,841  |
| 370                        | METERS                         | CWM               | 3,409,205              | 1,505,485   | 23,988  | 61,464  | 626,120    | 911,845    | 263,768          |      | 16,535  | 0        | 0       |
| 371                        | INSTALLATIONS ON CUST PREMISES | DA                | 0                      | 0           | 0       | 0       | 0          | 0          | 0                |      | 0       | 0        | 0       |
| 372                        | LEASED PROP ON CUST PREMISES   | LA                | 0                      | 0           | 0       | 0       | 0          | 0          | 0                |      | 0       | 0        | 0       |
| 373                        | STREET LIGHT AND SIGNAL SYSTEM | IS                | 790,969                | 0           | 0       | 0       | 0          | 0          | 0                |      | 0       | 790,969  | 0       |
|                            |                                |                   | 6,368,724              | 2,868,013   | 42,957  | 84,705  | 865,211    | 1,244,057  | 436,715          |      | 22,681  | 791,544  | 12,841  |
| TOTAL DISTRIBUTION PLANT   |                                |                   | 59,281,569             | 31,198,531  | 460,095 | 836,398 | 8,551,799  | 12,238,462 | 4,577,942        |      | 223,571 | 968,596  | 226,175 |
|                            | PER UNIT                       | -D                | 1.0000                 | 0.5263      | 0.0078  | 0.0141  | 0.1443     | 0.2064     | 0.0772           |      | 0.0038  | 0.0163   | 0.0038  |
| COMPONENTS:                |                                |                   |                        |             |         |         |            |            |                  |      |         |          |         |
| DEMAND                     |                                |                   | 41,229,954             | 18,108,588  | 288,535 | 739,312 | 7,531,226  | 10,968,046 | 3,172,711        |      | 198,893 | 169,863  | 52,780  |
|                            | PER UNIT                       | =DD               | 0.6955                 | 0.3055      | 0.0049  | 0.0125  | 0.1270     | 0.1850     | 0.0535           |      | 0.0034  | 0.0029   | 0.0009  |
| CUSTOMER                   |                                |                   | 18,051,615             | 13,089,943  | 171,560 | 97,086  | 1,020,573  | 1,270,416  | 1,405,231        |      | 24,678  | 798,733  | 173,394 |
|                            | PLR UNIT                       | =DC               | 0.3045                 | 0.2208      | 0.0029  | 0.0016  | 0.0172     | 0.0214     | 0.0237           |      | 0.0004  | 0.0135   | 0.0029  |
| TOTAL BEFORE GENERAL PLANT |                                |                   | 64,363,458             | 33,050,995  | 489,611 | 942,968 | 9,637,406  | 13,819,478 | 4,948,346        |      | 252,241 | 989,685  | 232,728 |
|                            | PER UNIT                       | PTD               | 1.0000                 | 0.5135      | 0.0076  | 0.0147  | 0.1497     | 0.2147     | 0.0769           |      | 0.0039  | 0.0154   | 0.0036  |
| COMPONENTS:                |                                |                   |                        |             |         |         |            |            |                  |      |         |          |         |
| DEMAND                     |                                |                   | 46,311,844             | 19,961,052  | 318,051 | 845,882 | 8,616,833  | 12,549,062 | 3,543,116        |      | 227,563 | 190,952  | 59,333  |
|                            | PLR UNIT                       | =PDTD             | 0.7195                 | 0.3101      | 0.0049  | 0.0131  | 0.1339     | 0.1950     | 0.0550           |      | 0.0035  | 0.0030   | 0.0009  |
| CUSTOMER                   |                                |                   | 18,051,615             | 13,089,943  | 171,560 | 97,086  | 1,020,573  | 1,270,416  | 1,405,231        |      | 24,678  | 798,733  | 173,394 |
|                            | PER UNIT                       | =PTDC             | 0.2805                 | 0.2034      | 0.0027  | 0.0015  | 0.0159     | 0.0197     | 0.0218           |      | 0.0004  | 0.0124   | 0.0027  |





**FY15 Proforma Test Year Cost of Service Study**  
**COST OF ELECTRIC PLANT 6-30-13**

| ACNT | DESCRIPTION                                | Allocation Factor | FY2013 Test Year Total | Residential A        | Residential Time-of Use A 2 | School SCH          | Commercial C         | Industrial I         | Small Commercial SC | Coop COOP         | Lighting            |                     |
|------|--|-------------------|------------------------|----------------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|-------------------|---------------------|---------------------|
|      |  |                   |                        |                      |                             |                     |                      |                      |                     |                   | Municipal Street    | Private Area Lights |
|      | TOTAL GROSS PLANT, INCL UNCLASSTD PER UNIT |                   | 70,194,448<br>1,0000   | 36,045,240<br>0.5135 | 533,968<br>0.0076           | 1,028,396<br>0.0147 | 10,510,504<br>0.1497 | 15,071,450<br>0.2147 | 5,396,640<br>0.0769 | 275,092<br>0.0039 | 1,079,346<br>0.0154 | 253,812<br>0.0036   |
|      | DEMAND                                     |                   | 50,507,452<br>0.7195   | 21,769,417<br>0.3101 | 346,865<br>0.0049           | 922,515<br>0.0131   | 9,397,472<br>0.1339  | 13,685,941<br>0.1950 | 3,864,103<br>0.0550 | 248,179<br>0.0035 | 208,251<br>0.0030   | 64,709<br>0.0009    |
|      | CUSTOMER                                   |                   | 19,686,996<br>0.2805   | 14,275,823<br>0.2034 | 187,102<br>0.0027           | 105,882<br>0.0015   | 1,113,032<br>0.0159  | 1,385,509<br>0.0197  | 1,532,537<br>0.0218 | 26,914<br>0.0004  | 871,094<br>0.012410 | 189,103<br>0.0027   |
|      | LESS ACCOUNTS NOT DEPRECIABLE:             |                   |                        |                      |                             |                     |                      |                      |                     |                   |                     |                     |
|      | FULLY DEPRECIATED 1 (-)                    | AED               | 0                      | -0                   | 0                           | 0                   | 0                    | 0                    | 0                   | 0                 | 0                   | 0                   |
|      | FULLY DEPRECIATED 2 (-)                    | D&C               | 0                      | 0                    | 0                           | 0                   | 0                    | 0                    | 0                   | 0                 | 0                   | 0                   |
|      | SUBTOTAL                                   |                   | 0                      | 0                    | 0                           | 0                   | 0                    | 0                    | 0                   | 0                 | 0                   | 0                   |
|      | TOTAL RATE BASE                            |                   | 70,194,448<br>1,0000   | 36,045,240<br>0.5135 | 533,968<br>0.0076           | 1,028,396<br>0.0147 | 10,510,504<br>0.1497 | 15,071,450<br>0.2147 | 5,396,640<br>0.0769 | 275,092<br>0.0039 | 1,079,346<br>0.0154 | 253,812<br>0.0036   |
|      | COMPONENTS:                                |                   |                        |                      |                             |                     |                      |                      |                     |                   |                     |                     |
|      | DEMAND                                     |                   | 50,507,452<br>0.7195   | 21,769,417<br>0.3101 | 346,865<br>0.0049           | 922,515<br>0.0131   | 9,397,472<br>0.1339  | 13,685,941<br>0.1950 | 3,864,103<br>0.0550 | 248,179<br>0.0035 | 208,251<br>0.0030   | 64,709<br>0.0009    |
|      | CUSTOMER                                   |                   | 19,686,996<br>0.2805   | 14,275,823<br>0.2034 | 187,102<br>0.0027           | 105,882<br>0.0015   | 1,113,032<br>0.0159  | 1,385,509<br>0.0197  | 1,532,537<br>0.0218 | 26,914<br>0.0004  | 871,094<br>0.012410 | 189,103<br>0.0027   |

# **FY15 Proforma Test Year Cost of Service Study** **ELECTRIC OPERATING AND MAINTENANCE EXPENSES**

| ACN7                           | DESCRIPTION                   | Allocation Factor | FY15 Test Year Total | Residential |         | Residential Time of Use A 2 | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |
|--------------------------------|-------------------------------|-------------------|----------------------|-------------|---------|-----------------------------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|
|                                |                               |                   |                      | A           |         |                             |            |              |              |                     |           | Municipal Street | Private Area Lights |
| E. OTHER POWER SUPPLY EXPENSES |                               |                   |                      |             |         |                             |            |              |              |                     |           |                  |                     |
| 555                            | PURCHASED POWER (1)           |                   |                      |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | ENERGY                        | E                 | 36,952,025           |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | NET INTERCHANGE (1)           | E                 | 0                    |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | GROSS PURCHASED ENERGY        |                   | 36,952,025           |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | LESS SALES FOR RESALE ( )     | E                 | 0                    |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | NET PURCHASED ENERGY          |                   | 36,952,025           | 13,592,608  | 208,958 | 760,339                     | 7,904,490  | 11,478,476   | 2,627,454    | 200,006             | 137,094   | 42,598           |                     |
|                                | PASNY SAVINGS                 |                   | -702,372             | 691,356     | -11,016 | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                | CAPACITY (1)                  | VAR               | 16,332,287           |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | LESS CAP SALES FOR RESALE ( ) | VAR               | 0                    |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | NET PURCHASED CAPACITY        | VAR               | 16,332,287           | 7,360,557   | 117,280 | 312,000                     | 3,178,278  | 4,112,171    | 1,080,131    | 83,935              | 67,088    | 20,846           |                     |
| 555C                           | OTHER HYDRO Q-Ph2             | VAR               | 0                    | 0           | 0       | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                |                     |
|                                | 555 TOTAL                     |                   | 52,581,940           | 20,261,808  | 315,222 | 1,072,339                   | 11,082,769 | 15,590,648   | 3,707,585    | 283,942             | 204,182   | 63,444           |                     |
| 556                            | SYS CONTROL AND LOAD DISPTG   | AED               | 0                    | 0           | 0       | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                |                     |
| 557                            | OTHER EXPENSES                |                   | 0                    | 0           | 0       | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                |                     |
|                                | SUBTOTAL                      |                   | 52,581,940           | 20,261,808  | 315,222 | 1,072,339                   | 11,082,769 | 15,590,648   | 3,707,585    | 283,942             | 204,182   | 63,444           |                     |
|                                | TOTAL PRODUCTION              |                   | 52,581,940           | 20,261,808  | 315,222 | 1,072,339                   | 11,082,769 | 15,590,648   | 3,707,585    | 283,942             | 204,182   | 63,444           |                     |
|                                | PRODUCTION COMPONENTS         |                   |                      |             |         |                             |            |              |              |                     |           |                  |                     |
|                                | DEMAND                        |                   | 16,332,287           | 7,360,557   | 117,280 | 312,000                     | 3,178,278  | 4,112,171    | 1,080,131    | 83,935              | 67,088    | 20,846           |                     |
|                                | ENERGY                        |                   | 0                    | 0           | 0       | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                |                     |
|                                | PP&FA FUFI                    |                   | 36,952,025           | 13,592,608  | 208,958 | 760,339                     | 7,904,490  | 11,478,476   | 2,627,454    | 200,006             | 137,094   | 42,598           |                     |
|                                | PASNY SAVINGS                 |                   | -702,372             | 691,356     | 11,016  | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                |                     |
|                                | SUBTOTAL                      |                   | 52,581,940           |             |         |                             |            |              |              |                     |           |                  |                     |

**FY15 Proforma Test Year Cost of Service Study**  
**ELECTRIC OPERATING AND MAINTENANCE EXPENSES**

| ACN1                          | DESCRIPTION                  | Allocation Factor | FY15 Test Year Total | Residential |        | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |  |
|-------------------------------|------------------------------|-------------------|----------------------|-------------|--------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|--|
|                               |                              |                   |                      | A           | A 2    |            |              |              |                     |           | Municipal Street | Private Area Lights |  |
| 2. TRANSMISSION EXPENSES      |                              |                   |                      |             |        |            |              |              |                     |           |                  |                     |  |
| OPERATION                     |                              |                   |                      |             |        |            |              |              |                     |           |                  |                     |  |
| 560                           | OPER. SUPERVN AND ENGINE'RG  | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 561                           | LOAD DISPATCHING             | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 562                           | STATION EXPENSES             | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 563                           | OVERHEAD LINE EXPENSES       | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 564                           | UNDERGROUND LINE EXPENSES    | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 566                           | MISC TRANS EXPENSE           | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 567                           | RENTS                        | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
|                               | SUBTOTAL                     |                   | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 565                           | TRANS OF ELECTY BY OTHERS    | VAR               | 12,556,727           | 5,659,006   | 90,168 | 239,874    | 2,443,551    | 3,161,554    | 830,435             | 64,532    | 51,579           | 16,027              |  |
|                               | TOTAL                        |                   | 12,556,727           | 5,659,006   | 90,168 | 239,874    | 2,443,551    | 3,161,554    | 830,435             | 64,532    | 51,579           | 16,027              |  |
| MAINTENANCE                   |                              |                   |                      |             |        |            |              |              |                     |           |                  |                     |  |
| 568                           | MAINT. SUPERVN AND ENGINE'RG | AED               | 3,000                |             |        |            |              |              |                     |           |                  |                     |  |
| 569                           | MAINT OF STRUCTURES          | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 570                           | MAINT OF STATION EQUIP       | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 571                           | MAINT OF OVERHEAD LINES      | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 572                           | MAINT OF UNDERGROUND LINES   | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
| 573                           | MAINT OF MISC TRANS PLANT    | AED               | 0                    |             |        |            |              |              |                     |           |                  |                     |  |
|                               | SUBTOTAL                     |                   | 3,000                | 1,094       | 17     | 63         | 641          | 933          | 219                 | 17        | 12               | 4                   |  |
|                               | TOTAL                        |                   | 12,559,727           | 5,660,099   | 90,186 | 239,937    | 2,444,192    | 3,162,488    | 830,654             | 64,549    | 51,592           | 16,031              |  |
| COMPONENTS:                   |                              |                   |                      |             |        |            |              |              |                     |           |                  |                     |  |
|                               | DEMAND                       | #####             | 12,559,727           | 5,660,099   | 90,186 | 239,937    | 2,444,192    | 3,162,488    | 830,654             | 64,549    | 51,592           | 16,031              |  |
| TOTAL PRODUCTION & TRANSM EXP |                              |                   |                      |             |        |            |              |              |                     |           |                  |                     |  |
|                               |                              |                   | 65,141,667           |             |        |            |              |              |                     |           |                  |                     |  |



## FY15 Proforma Test Year Cost of Service Study

## ELECTRIC OPERATING AND MAINTENANCE EXPENSES

| ACNT                     | DESCRIPTION                      | Allocation Factor | FY15 Test Year Total | Residential |        | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |
|--------------------------|----------------------------------|-------------------|----------------------|-------------|--------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|
|                          |                                  |                   |                      | A           | A 2    |            |              |              |                     |           | Municipal Street | Private Area Lights |
| 3. DISTRIBUTION EXPENSES |                                  |                   |                      |             |        |            |              |              |                     |           |                  |                     |
| OPERATION                |                                  |                   |                      |             |        |            |              |              |                     |           |                  |                     |
| 580                      | OPER. SUPERVN AND ENGINEERING    | D&C               | 583,668              | 319,934     | 4,670  | 8,004      | 81,902       | 116,780      | 45,782              | 2,137     | 1,893            | 2,566               |
| 581                      | OPERATION LABOR                  | NCP               | 750,286              | 329,533     | 5,251  | 13,454     | 137,050      | 199,592      | 57,736              | 3,619     | 3,091            | 960                 |
| 582                      | STATION EXPENSES                 | NCP               | 398,849              | 175,178     | 2,791  | 7,152      | 72,855       | 106,102      | 30,692              | 1,924     | 1,643            | 511                 |
| 583                      | OVERHEAD LINE EXPENSES           | D&C               | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 584                      | UNDERGROUND LINE EXPENSES        | D&C               | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 585                      | STREET LIGHTING AND SIG SYS EXP  | LS                | 82,907               | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 82,907           | 0                   |
| 586                      | METER EXPENSES                   | CWM               | 247,938              | 109,488     | 1,745  | 4,470      | 45,535       | 66,315       | 19,183              | 1,203     | 0                | 0                   |
| 587                      | CUSTOMER INSTALLATION EXPENSES   | CT                | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 588                      | MISC DISTRIBUTION EXPENSES       | D                 | 402,885              | 212,029     | 3,127  | 5,684      | 58,119       | 83,174       | 31,112              | 1,519     | 6,583            | 1,537               |
| 589                      | RENTS                            | D                 | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                          | SUBTOTAL                         |                   | 2,466,533            | 1,146,162   | 17,583 | 38,764     | 395,462      | 571,964      | 184,505             | 10,402    | 96,117           | 5,574               |
| MAINTENANCE              |                                  |                   |                      |             |        |            |              |              |                     |           |                  |                     |
| 590                      | MAINT. SUPERVN AND ENGINEERING   | D&C               | 484,026              | 265,316     | 3,872  | 6,638      | 67,920       | 96,844       | 37,966              | 1,772     | 1,570            | 2,128               |
| 591                      | MAINT OF STRUCTURES              | D&C               | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 592                      | MAINT OF STATION EQUIP           | NCP               | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 593                      | MAINT OF OVERHEAD LINES          | D&C               | 1,792,794            | 982,710     | 14,343 | 24,586     | 251,569      | 358,702      | 140,625             | 6,563     | 5,815            | 7,881               |
| 594                      | MAINT OF UNDERGROUND LINES       | D&C               | 130,694              | 71,639      | 1,046  | 1,792      | 18,339       | 26,149       | 10,251              | 478       | 424              | 575                 |
| 595                      | MAINT OF LINE TRANSFORMERS       | D&C               | 156,000              | 85,511      | 1,248  | 2,139      | 21,890       | 31,212       | 12,236              | 571       | 506              | 686                 |
| 596                      | MAINT OF ST LIGHTING AND SIG SYS | LS                | 9,745                | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 9,745            | 0                   |
| 597                      | MAINT OF METERS                  | CWM               | 43,290               | 19,117      | 305    | 780        | 7,950        | 11,579       | 3,349               | 210       | 0                | 0                   |
| 598                      | MAINT OF MISC DISTRIBUTION PLANT | DA                | 0                    | 0           | 0      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                          | SUBTOTAL                         |                   | 2,616,549            | 1,424,292   | 20,814 | 35,935     | 367,669      | 524,487      | 204,428             | 9,594     | 18,060           | 11,269              |
|                          | TOTAL                            |                   | 5,083,082            | 2,570,455   | 38,397 | 74,699     | 763,131      | 1,096,450    | 388,933             | 19,996    | 114,178          | 16,842              |
| COMPONENTS:              |                                  |                   |                      |             |        |            |              |              |                     |           |                  |                     |
|                          | DEMAND                           |                   | 3,788,725            | 1,664,483   | 26,521 | 67,955     | 692,246      | 1,008,148    | 291,625             | 18,282    | 15,613           | 4,851               |
|                          | CUSTOMER                         |                   | 1,293,357            | 905,971     | 11,876 | 6,744      | 70,885       | 88,303       | 97,308              | 1,715     | 98,564           | 11,991              |
|                          | TOTAL                            |                   | 5,083,082            |             |        |            |              |              |                     |           |                  |                     |

**FY15 Proforma Test Year Cost of Service Study**  
**ELECTRIC OPERATING AND MAINTENANCE EXPENSES**

| ACNT | DESCRIPTION | Allocation Factor | FY15 Test Year Total | Residential |  | Residential Time of Use A 2 | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |
|------|-------------|-------------------|----------------------|-------------|--|-----------------------------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|
|      |             |                   |                      | A           |  |                             |            |              |              |                     |           | Municipal Street | Private Area Lights |

**4. CUSTOMER ACCOUNTS EXPENSES**

|                                    |     |  |           |           |        |        |        |        |        |         |        |        |        |
|------------------------------------|-----|--|-----------|-----------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| <b>OPERATION</b>                   |     |  |           |           |        |        |        |        |        |         |        |        |        |
| 901 SUPERVISION                    | CTM |  | 0         | 0         | 0      | 0      | 0      | 0      | 0      | 0       | 0      | 0      | 0      |
| 902 METER READING EXPENSES         | CTM |  | 30,922    | 27,449    | 345    | 33     | 33     | 417    | 71     | 2,601   | 5      | 0      | 0      |
| 903 CUSTR RECORDS & COLLECTN EXP   | CTM |  | 1,705,333 | 1,513,814 | 19,045 | 1,834  | 1,834  | 23,008 | 3,904  | 143,432 | 296    | 0      | 0      |
| 904 UNCOLLECTIBLE ACCOUNTS         | CTM |  | 120,000   | 106,523   | 1,340  | 129    | 129    | 1,619  | 275    | 10,093  | 21     | 0      | 0      |
| 906 CUSTOMER SERVICE & INFORMATION | CTM |  | 0         | 0         | 0      | 0      | 0      | 0      | 0      | 0       | 0      | 0      | 0      |
| 908 CUSTOMER EDUCATION             | CTM |  | 0         | 0         | 0      | 0      | 0      | 0      | 0      | 0       | 0      | 0      | 0      |
| 909 INFO & INSTRUCTIONAL SERVICES  | CTM |  | 0         | 0         | 0      | 0      | 0      | 0      | 0      | 0       | 0      | 0      | 0      |
| SUBTOTAL                           |     |  | 1,856,255 | 1,647,787 | 20,731 | 1,996  | 1,996  | 25,045 | 4,249  | 156,126 | 322    | 0      | 0      |
| PER UNIT                           | =CA |  | 1,000     | 0.8877    | 0.0112 | 0.0011 | 0.0011 | 0.0135 | 0.0023 | 0.0841  | 0.0002 | 0.0000 | 0.0000 |
| 910 MISC CUSTR ACCOUNTS EXPENSES   | CA  |  | 0         | 0         | 0      | 0      | 0      | 0      | 0      | 0       | 0      | 0      | 0      |
| TOTAL                              |     |  | 1,856,255 | 1,647,787 | 20,731 | 1,996  | 1,996  | 25,045 | 4,249  | 156,126 | 322    | 0      | 0      |
| <b>COMPONENTS</b>                  |     |  |           |           |        |        |        |        |        |         |        |        |        |
| CUSTOMER                           |     |  | 1,856,255 | 1,647,787 | 20,731 | 1,996  | 1,996  | 25,045 | 4,249  | 156,126 | 322    | 0      | 0      |

**5. SALES EXPENSES**

|                                     |       |  |            |            |         |         |         |           |           |           |        |         |        |
|-------------------------------------|-------|--|------------|------------|---------|---------|---------|-----------|-----------|-----------|--------|---------|--------|
| <b>OPERATION</b>                    |       |  |            |            |         |         |         |           |           |           |        |         |        |
| 909 ENERGY CONSERVATION             | CT    |  | 1,267,096  |            |         |         |         |           |           |           |        |         |        |
| 911 SUPERVISION                     | CT    |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| 912 DEMONSTRATING AND SELLING LXP   | CT    |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| 913 ADVERTISING EXPENSES            | CT    |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| 916 MISC SALES EXPENSES             | CT    |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| TOTAL                               |       |  | 1,267,096  | 1,108,644  | 13,948  | 1,343   | 1,343   | 16,850    | 2,859     | 105,043   | 217    | 780     | 17,413 |
| <b>COMPONENTS</b>                   |       |  |            |            |         |         |         |           |           |           |        |         |        |
| DEMAND                              |       |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| CUSTOMER                            |       |  | 1,267,096  | 1,108,644  | 13,948  | 1,343   | 1,343   | 16,850    | 2,859     | 105,043   | 217    | 780     | 17,413 |
| <b>TOTAL O&amp;M (EXCLUDING PP)</b> |       |  |            |            |         |         |         |           |           |           |        |         |        |
| PER UNIT                            | =O&M  |  | 20,766,160 | 10,986,985 | 163,262 | 317,975 | 317,975 | 3,249,217 | 4,266,046 | 1,480,756 | 85,084 | 166,549 | 50,286 |
| DEMAND                              |       |  | 1,000      | 0.5291     | 0.0079  | 0.0153  | 0.0153  | 0.1565    | 0.2054    | 0.0713    | 0.0041 | 0.0080  | 0.0024 |
| PER UNIT                            | =O&MD |  | 16,349,452 | 7,324,583  | 116,707 | 307,892 | 307,892 | 3,136,438 | 4,170,635 | 1,122,279 | 82,830 | 67,205  | 20,882 |
| CUSTOMER                            |       |  | 0.7873     | 0.3527     | 0.0056  | 0.0148  | 0.0148  | 0.1510    | 0.2008    | 0.0540    | 0.0040 | 0.0032  | 0.0010 |
| PER UNIT                            | =O&MC |  | 4,416,708  | 3,662,402  | 46,555  | 10,083  | 10,083  | 112,779   | 95,411    | 358,476   | 2,253  | 99,344  | 29,404 |
| ENERGY                              |       |  | 0.2127     | 0.1764     | 0.0022  | 0.0005  | 0.0005  | 0.0054    | 0.0046    | 0.0173    | 0.0001 | 0.0048  | 0.0014 |
| PER UNIT                            | O&M   |  | 0          | 0          | 0       | 0       | 0       | 0         | 0         | 0         | 0      | 0       | 0      |
| PER UNIT                            |       |  | 0.0000     | 0.0000     | 0.0000  | 0.0000  | 0.0000  | 0.0000    | 0.0000    | 0.0000    | 0.0000 | 0.0000  | 0.0000 |

**FY15 Proforma Test Year Cost of Service Study**  
**ELECTRIC OPERATING AND MAINTENANCE EXPENSES**

| ACNT                        | DESCRIPTION                    | Allocation Factor | FY15 Test Year Total | Residential |  | Residential Time of Use A-2 | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |
|-----------------------------|--------------------------------|-------------------|----------------------|-------------|--|-----------------------------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|
|                             |                                |                   |                      | A           |  |                             |            |              |              |                     |           | Municipal Street | Private Area Lights |
| 6. ADMIN & GENERAL EXPENSES |                                |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
| OPERATION                   |                                |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
| 920                         | ADMIN & GENERAL SALARIES       | O&M               | 842,170              |             |  |                             |            |              |              |                     |           |                  |                     |
| 921                         | OFFICE SUPPLIES AND EXPENSES   | O&M               | 301,000              |             |  |                             |            |              |              |                     |           |                  |                     |
| 922                         | ADMIN EXPENSES TRANSFERRED     | O&M               | 0                    |             |  |                             |            |              |              |                     |           |                  |                     |
| 923                         | OUTSIDE SERVICES EMPLOYED      | O&M               | 351,650              |             |  |                             |            |              |              |                     |           |                  |                     |
| 925                         | INJURIES & DAMAGE              | O&M               | 49,059               |             |  |                             |            |              |              |                     |           |                  |                     |
| 926                         | EMPLOYEE PENSIONS & BENEFITS   | O&M               | 2,746,619            |             |  |                             |            |              |              |                     |           |                  |                     |
| 928                         | REGULATORY COMMISSION EXPENSES | O&M               | 0                    |             |  |                             |            |              |              |                     |           |                  |                     |
| 934                         | Inventory Adjustment           | O&M               | 0                    |             |  |                             |            |              |              |                     |           |                  |                     |
| 930                         | MISC GENERAL EXPENSES          | O&M               | 240,772              |             |  |                             |            |              |              |                     |           |                  |                     |
| 931                         | RENTS                          | O&M               | 212,000              |             |  |                             |            |              |              |                     |           |                  |                     |
|                             | SUBTOTAL                       |                   | 4,743,270            | 2,509,575   |  | 37,291                      | 72,630     | 742,165      | 974,422      | 338,224             | 19,434    | 38,042           | 11,486              |
|                             |                                |                   | 453,200              | 233,145     |  | 3,451                       | 6,621      | 67,671       | 97,014       | 34,842              | 1,771     | 7,033            | 1,652               |
| 924                         | PROPERTY INSURANCE             | DPLNT             | 5,196,470            | 2,742,720   |  | 40,742                      | 79,251     | 809,836      | 1,071,436    | 373,067             | 21,205    | 45,075           | 13,138              |
|                             | SUBTOTAL                       |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
| MAINTENANCE                 |                                |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
| 932                         | MAINTENANCE OF GENERAL PLANT   | O&M               | 737,711              |             |  |                             |            |              |              |                     |           |                  |                     |
| 933                         | TRANSPORTATION EXPENSE         | O&M               | 0                    |             |  |                             |            |              |              |                     |           |                  |                     |
|                             | SUBTOTAL                       |                   | 737,711              | 390,309     |  | 5,800                       | 11,296     | 115,427      | 151,550      | 52,603              | 3,023     | 5,917            | 1,786               |
|                             | TOTAL                          |                   | 5,934,181            | 3,133,029   |  | 46,542                      | 90,547     | 925,264      | 1,222,986    | 425,670             | 24,228    | 50,992           | 14,925              |
| COMPONENTS                  |                                |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
|                             | DEMAND                         |                   | 4,557,076            | 2,073,050   |  | 36,732                      | 87,193     | 888,220      | 1,102,385    | 321,035             | 23,457    | 19,076           | 5,927               |
|                             | CUSTOMER                       |                   | 1,285,032            | 1,059,978   |  | 12,980                      | 3,353      | 37,043       | 25,358       | 104,635             | 771       | 31,916           | 8,997               |
|                             | ENERGY                         |                   | 0                    | 0           |  | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                             | TOTAL                          |                   | 5,842,108            |             |  |                             |            |              |              |                     |           |                  |                     |
|                             | TOTAL OPER & MAINT EXPENSES    |                   | 79,282,281           | 34,381,822  |  | 525,026                     | 1,480,861  | 15,257,249   | 21,079,680   | 5,614,011           | 393,253   | 421,723          | 128,655             |
| COMPONENTS                  |                                |                   |                      |             |  |                             |            |              |              |                     |           |                  |                     |
|                             | DEMAND (INCLUDES 500 557)      |                   | 37,238,816           | 16,758,190  |  | 270,719                     | 707,085    | 7,202,936    | 9,385,191    | 2,523,445           | 190,223   | 153,369          | 47,655              |
|                             | CUSTOMER                       |                   | 5,701,740            | 4,722,381   |  | 59,535                      | 13,436     | 149,823      | 120,769      | 463,111             | 3,024     | 131,260          | 38,402              |
|                             | ENERGY                         |                   | 0                    | 0           |  | 0                           | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                             | PP&FA FUEL                     |                   | 36,952,025           | 13,592,608  |  | 208,958                     | 760,339    | 7,904,490    | 11,478,476   | 2,627,454           | 200,006   | 137,094          | 42,598              |
|                             | PASNY SAVINGS                  |                   | -702,372             | 691,356     |  | 11,016                      | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                             | TOTAL                          |                   | 79,190,208           | 34,381,822  |  | 528,196                     | 1,480,861  | 15,257,249   | 20,984,437   | 5,614,011           | 393,253   | 421,723          | 128,655             |



**FY15 Proforma Test Year Cost of Service Study**  
**ELECTRIC OPERATING AND MAINTENANCE EXPENSES**

| ACNT                                  | DESCRIPTION                              | Allocation Factor | FY15 Test Year Total | Residential |         | School SCH | Commercial C | Industrial I | Small Commercial SC | Coop COOP | Lighting         |                     |
|---------------------------------------|--|-------------------|----------------------|-------------|---------|------------|--------------|--------------|---------------------|-----------|------------------|---------------------|
|                                       |  |                   |                      | A           | A ?     |            |              |              |                     |           | Municipal Street | Private Area Lights |
| OTHER EXPENSES                        |  |                   |                      |             |         |            |              |              |                     |           |                  |                     |
| 403                                   | DEPRECIATION PRODUCTION - NON PRODUCTION | DPLNT             | 0                    |             |         |            |              |              |                     |           |                  |                     |
|                                       |  | DPLNT             | 3,892,000            |             |         |            |              |              |                     |           |                  |                     |
| 404                                   | AMORT OF LTD TERM ELECT PLNT             | DPLNT             | 0                    |             |         |            |              |              |                     |           |                  |                     |
|                                       | SUBTOTAL                                 |                   | 3,892,000            | 2,002,207   | 29,636  | 56,860     | 581,150      | 833,135      | 299,219             | 15,208    | 60,397           | 14,187              |
| 426                                   | OTHER INCOME DEDUCTIONS                  | PLNT              | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | INTEREST CHARGES                         |                   |                      |             |         |            |              |              |                     |           |                  |                     |
| 427                                   | INT ON BONDS & NOTES - PROD - NONPROD    | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
|                                       |  | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 428                                   | AMORT OF DEBT DISC & EXPENSE *           | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 429                                   | AMORT OF PREMIUM ON DEBT *               | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 432                                   | INTEREST CHARGED TO CONTR                | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
|                                       | SUBTOTAL                                 |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| 431                                   | OTHER INTEREST EXPENSE                   | O&M               | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | SUBTOTAL                                 |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| MISC SURPLUS ADJUSTMENT               |  |                   |                      |             |         |            |              |              |                     |           |                  |                     |
| 434                                   | MISC CREDITS TO SURPLUS                  | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 435                                   | MISC DEBITS TO SURPLUS                   | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 436                                   | APPROPRIATIONS OF SURPLUS                | PLNT              | 1,416,000            |             |         |            |              |              |                     |           |                  |                     |
|                                       | DEBT PRINCIPAL PRODUCTION                | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
|                                       | NON PRODUCTN                             | PLNT              | 0                    |             |         |            |              |              |                     |           |                  |                     |
| 437                                   | SURPLUS APPLIED TO DEPRECIATION          | PLNT              |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | SUBTOTAL                                 |                   | 1,416,000            | 727,124     | 10,771  | 20,745     | 212,024      | 304,029      | 108,864             | 5,549     | 21,773           | 5,120               |
|                                       | TOTAL                                    |                   | 5,308,000            | 2,729,331   | 40,408  | 77,605     | 793,174      | 1,137,165    | 408,082             | 20,758    | 82,171           | 19,307              |
| * PRODUCTION RELATED - OTHER EXPENSES |  |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | COMPONENTS                               |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | DEMAND                                   |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | CUSTOMER INRGY                           |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | TOTAL                                    |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
| DISTRIBUTION RELATED - OTHER EXPENSES |  |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | COMPONENTS                               |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | DI MAND                                  |                   | 5,308,000            | 2,729,331   | 40,408  | 77,605     | 793,174      | 1,137,165    | 408,082             | 20,758    | 82,171           | 19,307              |
|                                       | CUSTOMER INRGY                           |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | TOTAL                                    |                   | 5,308,000            |             |         |            |              |              |                     |           |                  |                     |
|                                       | TOTAL ANNUAL EXPENSES                    |                   | 84,590,281           | 37,111,153  | 565,434 | 1,558,466  | 16,050,423   | 22,216,844   | 6,022,093           | 414,011   | 503,894          | 147,963             |
| COMPONENTS                            |  |                   |                      |             |         |            |              |              |                     |           |                  |                     |
|                                       | DEMAND (INCLUDES 500 557)                |                   | 41,044,361           | 18,398,032  | 296,848 | 776,610    | 7,911,167    | 10,416,618   | 2,814,569           | 208,927   | 169,060          | 52,531              |
|                                       | CUSTOMER INRGY                           |                   | 7,204,194            | 5,811,870   | 73,814  | 21,517     | 234,766      | 226,507      | 580,070             | 5,078     | 197,739          | 57,833              |
|                                       | INRGY                                    |                   | 0                    | 0           | 0       | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | PP&A-FUEL                                |                   | 36,952,025           | 13,592,608  | 208,958 | 760,339    | 7,904,490    | 11,478,476   | 2,627,454           | 200,006   | 137,094          | 42,598              |
|                                       | PASNY SAVINGS                            |                   | 702,372              | -691,356    | 11,016  | 0          | 0            | 0            | 0                   | 0         | 0                | 0                   |
|                                       | TOTAL                                    |                   | 84,498,208           | 37,111,153  | 565,604 | 1,558,466  | 16,050,423   | 22,171,602   | 6,022,093           | 414,011   | 503,894          | 147,963             |



**READING MUNICIPAL LIGHT DEPARTMENT  
CITIZENS' ADVISORY BOARD (CAB) MEETING**

**MINUTES  
Regular Session**

Time: 6:30 p.m.

Date: Wednesday, November 19, 2014

Place: RMLD, 230 Ash Street, Reading, MA, Winfred Spurr/ Audio Visual Room

**CAB Members Present:**

Mr. George Hooper, Chair (Wilmington); Mr. David Nelson, Vice Chair (Lynnfield); Mr. Dennis Kelley (Wilmington)

**CAB Members Absent:**

Mr. David Mancuso, Secretary (Reading)

**RMLD Commissioner(s) Present:**

Mr. Philip Pacino

**RMLD Staff Present:**

Ms. Coleen O'Brien, Mr. Robert Fournier, Ms. Jane Parenteau, Ms. Kathleen Rybak, Mr. Bill Seldon

**Public and Invited Guests Present:**

None

**1. Call Meeting to Order – G. Hooper, Chair**

Chair Hooper called the meeting of the Citizens' Advisory Board to order at 6:30 p.m. and noted that the meeting was being audio recorded.

**2. Organizational and Reliability Studies – C. O'Brien, General Manager**

*Materials: Organizational (Leidos) and Reliability (Booth & Associates) Studies Presentation Slides*

Ms. O'Brien reported that the organization study has been awarded to Leidos and the reliability study to Booth & Associates. Each organization made a presentation at the November 6th Board of Commissioners meeting and their presentations were included with the CAB Agenda. The organizational study is a long-term study that focuses on direct impact to the overall efficiency of RMLD within the context of trends and best practices identified in the industry. Ms. O'Brien noted that Leidos will be interviewing a number of people inside RMLD as well as the Commissioners. Any CAB member interested in participating in the interviews can be added to the schedule.

CAB members asked about the selection process. Ms. O'Brien stated that it was an RFP and we put together an RFP committee. Selection was based on their qualifications and ability to meet the scope of the RFP. Seven to eight proposals were received (some were late). Four were evaluated. The RFP was written so that the same company could do both studies, or we could split it. These two companies had a specialty in both of these areas.

Mr. Nelson asked to be included in the interviews.



Ms. O'Brien went on to do an overview of the Booth & Associates presentation. Booth will conduct a condition assessment, which includes various elements as outlined in the presentation. Ms. O'Brien noted that Mr. Ken McNeil, in his presentation, made it quite clear that if there are National Electric Safety Code violations or anything else out there, he will bring them to our attention before the report is completed. Ms. O'Brien agreed that that makes sense - we want to know that and make corrections with necessary appropriate diligence.

Ms. O'Brien noted that both presentations include a timeline and proposed payment schedule. Ms. O'Brien acknowledged that more questions might come up after CAB members review the materials or after the (upcoming) selectmen meetings and noted that we are trying to get as much input as possible.

Mr. Kelley asked if Ms. O'Brien has expectations or thoughts about where this will end as far as what she has already evaluated to compare against what they come out with. Ms. O'Brien responded, in some respects. As mentioned previously, the GIS is not accurate - that is the foundation of analysis to the system and future planning as well as the ability to perform transformer load management; you can look at your long-term capacity to determine if we need a substation in Wilmington; how your lines will be configured in one year to five years. Ms. O'Brien noted that she has restructured the Line department and created Tech Services. There are other areas where we are waiting to see what Leidos has to say concerning how things are structured. As far as the system is concerned, we are looking for modernization that meets the standard, and there is a lot of maintenance to catch up on. We want a solid system that meets standards and criteria - modernization that the State is enforcing, FERC, NERC, relays at the substations have to become solid state with electronics so they talk to the other ones - there are certain things that need to be upgraded. Ms. O'Brien is looking forward to seeing how they lay it out and the cost structure. Booth will go out and collect the main backbone for the GIS, which will not be everything, but they will be able to run a basic system analysis to give us an indication of the overall capacity deficiencies. For what we have, we should be able to get a good report. Depreciation had been elevated and we ramped it back down to 3% - we want to stay within the 3%. If we have to build a big substation or something, we will probably be looking at bonding or some other means. We are trying to keep the rates stable and get back on track within our means.

**3. Financial Report: September 2014 – R. Fournier, Accounting/Business Manager**

*Materials: September 30, 2014, Report*

Mr. Fournier reviewed the financial report for the period ending September 30, 2014, which represents the first quarter of Fiscal Year 2015. The budget variance for the five divisions was under budget, and we are in good shape for the first quarter.

**4. Integrated Resources Report: September 2014 – J. Parenteau, Director of Integrated Resources**

*Materials: Purchase Power Summary – September 2014*

Ms. Parenteau reviewed the Purchase Power Summary for September 2014. Energy Costs were equivalent to \$0.04 per kilowatt-hour. The fuel charge for September was set at \$0.045 and sales totaled \$61.1m. As a result, RMLD over collected by about \$317,000 resulting in a deferred fuel reserve of \$5.975 - a little higher than normal. In December/January (with gas constraints in New England), we anticipate that we will go through almost \$3m within a two-month period. Rather than decrease the fuel charge and then have to increase it, we kept it on the higher side in

anticipation of using those funds December-February. Overall, customers will be happy because it is still at \$0.045, but the average cost will be around \$0.13. Ms. Parenteau noted that National Grid went up to \$0.24 in November and NStar is going up to \$0.24 or higher January 1. From a competitive standpoint, we are very attractive in that perspective. We will probably increase the fuel charge to \$0.05 on December 1. Ms. Parenteau noted that in the spot market RMLD purchased about 17% of our energy requirement at an average cost of \$38.00 per megawatt hour.

Ms. Parenteau reviewed Capacity noting that last year's September peak was about 156 megawatts - there was a significant temperature change - 95 degrees last September and only 87 degrees this September. Temperature drives our peak demand so that accounts for the differential. Our capacity requirement was set at 208 megawatts based on last year's peak. The average cost for capacity and energy came in a little over \$0.06 per kilowatt-hour for the month of September. Ms. Parenteau then reviewed the Renewable Energy Certifications (RECs), noting that revenue (from the sale of RECs) is banked - there's a six-month lag in terms of when they bank it and when we receive the revenue. That goes against the fuel so all our customers benefit from that additional revenue. Ms. Parenteau reviewed Transmission and then the Energy Efficiency programs. RMLD processed one commercial lighting rebate, totaling about \$9,500 and the calculated capacity savings of about 10 kilowatts. Energy savings were about 30 megawatt hours. On the residential side, we processed 156 residential appliance rebates totaling just under \$8,000. Nineteen residential customers received energy audits at a cost of \$3,800. The projected reduction in savings for the residential side was 40 kilowatts and 27 megawatt hours.

#### 5. LED Street Lights – B. Seldon, Senior Energy Analyst

*Materials: Memo from Meyhew Seavey at PLM Electric Power Engineering dated November 14, 2014*

Mr. Seldon presented information relative to the proposed rates for LED street lights, which RMLD would like to file for a December 1 effective date. Costs were based on a per fixture basis and PLM review the information that we provided to them to come up with the rates for the four fixtures that we are offering. Based on our review of their recommendations, billing under this service would decrease the expenses to the towns by approximately 40% (replacing high-pressure sodium fixtures with LED lights). Ms. Parenteau noted that during the pilot, we are keeping track of the lights that were replaced and will be issuing a credit to the towns. We are billing the old rate (for those fixtures installed) and will apply the new rate and give a credit.

Mr. Hooper asked what an estimated savings might be per town. Ms. Parenteau agreed to provide that information and noted that she has looked at that for each of the four towns, and based on the existing lighting fixtures, estimates a 30-40% savings. In order to achieve that, the Light Department will not earn a return on the municipal streetlights, and adjusted the depreciation (the life of the fixture is 25 years); we typically depreciate that over 3%, which is 33 years. We compared the existing formula rate with the fixtures and the current purchase power pass-through with the proposed rate. Maintenance expense is estimated at about \$60,000 annually; life expectancy is longer so we will not have to go out as often to change them.

Mr. Nelson made a **motion** that the Citizens' Advisory Board recommend to the RMLD Board of Commissioners approval of the proposed LED street light rates for the towns of Reading, North Reading, Wilmington and Lynnfield, seconded by Mr. Kelley. Hearing no further discussion, *Motion carried 3:0:1 (3 in favor, 0 opposed, 1 absent).*

Mr. Hooper asked if we have gotten any feedback in terms of the illumination. Ms. O'Brien noted that at one site in Reading they thought it was not as bright. We redirected them and



everyone is happy. Ms. Parenteau noted that a customer in Reading said the street light used to shine on his yard and he liked that. Now, because they are more directional, there is less pollution.

**6. Engineering & Operations Report: September 2014 – C. O'Brien, General Manager**

*Materials: September 2014 Engineering and Operations Monthly Report*

Ms. O'Brien presented the Engineering & Operations Report. Ms. O'Brien highlighted the new maintenance programs that we have implemented, which includes quite a list of accomplishments just over the last several months. Ms. O'Brien noted that as a result of the pole inspection program, there are some poles that have to be replaced. Additionally, we are going to be working with Verizon to implement a new program/notification process for transfers on new pole installations to get the double poles removed quickly. Ms. O'Brien noted that inspection of the stations by UPG is actually 100% complete. System reliability is well under the regional and national average and we would like to remain there. Ms. O'Brien reviewed outage causes, noting that we are still targeting trees and equipment, and implementing the wildlife guards (making that go down significantly). Ms. O'Brien reported that we have put out a bid for a new tree-trimming program. The program will be a three to five year cycle, and will extend the five-foot radius to an eight-foot radius – most of the IOUs do ten. With the old program, they are bringing trucks back within the same year for the same area. This will be a more efficient program. The budget is \$640,000 and we want to get the entire service territory done for that. Staff have spoken with the tree wardens and DPW directors, and will be discussing the program at the selectmen meetings. We will use directional pruning - so branches grow away from the lines. This particular bid includes a master arborist instead of hiring a master arborist separately (the current practice). This will provide accountability – someone who is a liaison with the tree warden – a much more efficient process. Ms. O'Brien noted that RMLD would be putting the tree-trimming cycle map onto the RMLD website.

Mr. Nelson asked about the outage causes – the utility human error. What does that consist of? Is that inadvertent operations by the utility? Ms. O'Brien responded that it could be an inadvertent operation. Ms. O'Brien noted that “natural” will be changed to “weather and lightning,” and we will be adding, “motor vehicle hits.” Ms. O'Brien noted that APPA provides reporting categories so that utilities are able to report consistently throughout the region and the nation.

**7. Review of CAB Policies – D. Nelson, Vice Chair**

*Materials: Draft CAB Policy No. 1 – Revision 3c and Draft CAB Policy No. 2 – Revision 3*

Mr. Nelson stated that he thought that Rubin and Rudman did an excellent job reviewing the policies and thanked Ms. O'Brien for the opportunity for them to do that. Mr. Nelson asked about the cost of the review and if the CAB should reimburse RMLD for the review. Ms. O'Brien responded that the cost (a couple of thousand dollars) had been included with all of the others - we want to be consistent with all of the policies. Ms. O'Brien suggest including a review date every three years, which is what is being included with the other policies. The group agreed to add a review date on the final format for vote at the next CAB meeting.



8. **Next Meeting – G. Hooper, Chair**

The next CAB meeting was scheduled for December 17, 2014, at 6:30 p.m.

9. **Executive Session – G. Hooper, Chair**

Mr. Nelson made a motion that the Citizens' Advisory Board go into Executive Session based on Chapter 164, Section 47D exemption from public records and open meeting requirements in certain instances to discuss competitively sensitive issues and return to regular session for the sole purpose of adjournment seconded by Mr. Kelley. **Motion carried 3:0:1 (3 in favor, 0 opposed, 1 absent) by poll of members present:** Mr. Nelson, aye, Chair Hooper aye, Mr. Kelley aye. Mr. Mancuso was not present.

10. **Motion to Adjourn – G. Hooper, Chair**

Mr. Nelson made a *Motion* to Adjourn the Citizens' Advisory Board meeting, seconded by Mr. Mancuso. Hearing no further discussion, **Motion carried 3:0:1 (3 in favor, 0 opposed, 1 absent).**

The Citizens' Advisory Board Meeting adjourned at 7:11 p.m.

Respectfully submitted,

\_\_\_\_\_  
Mr. George Hooper, Chair

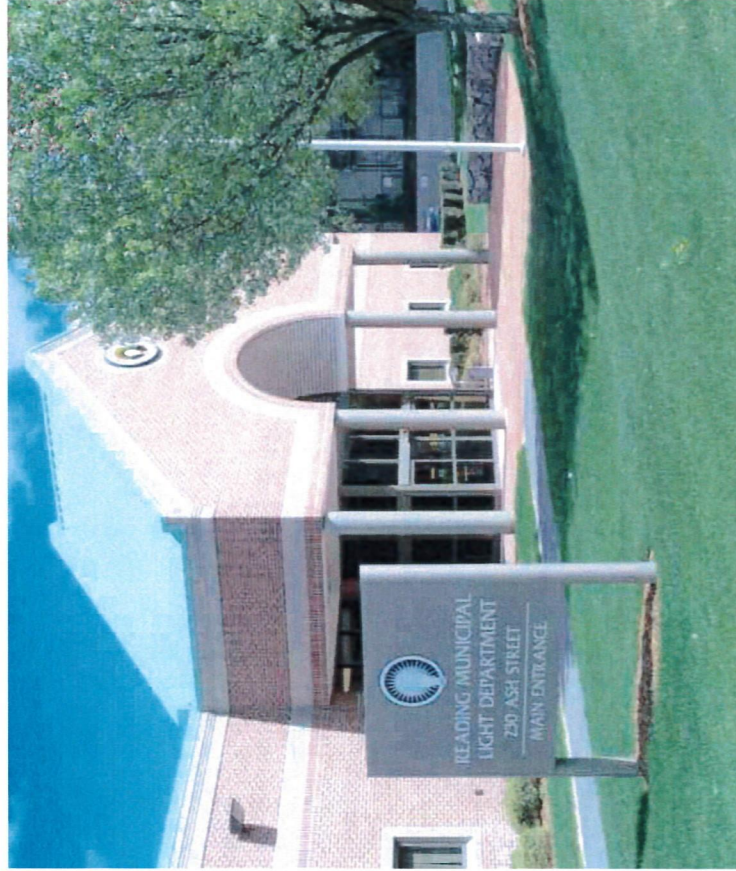
Minutes approved on: \_\_\_\_\_





RMLD

Reading Municipal Light Department  
RELIABLE POWER FOR GENERATIONS



# Peak Demand Reduction Program Overview

February 2015



# RMLD Overview – Commercial Programs

**Mission Statement:** RMLD is committed to providing excellent customer service while delivering reliable, competitively priced electricity.

RMLD offers several energy efficiency programs to help Commercial & Municipal customers reduce overall energy use and mitigate rising electricity cost trends.

- Commercial Energy Initiative Program (CEIP)
- Commercial Lighting Rebate Program (CLRP)
- Electric Vehicle Charging Station Rebate Program
- Peak Demand Reduction Program (PDR)

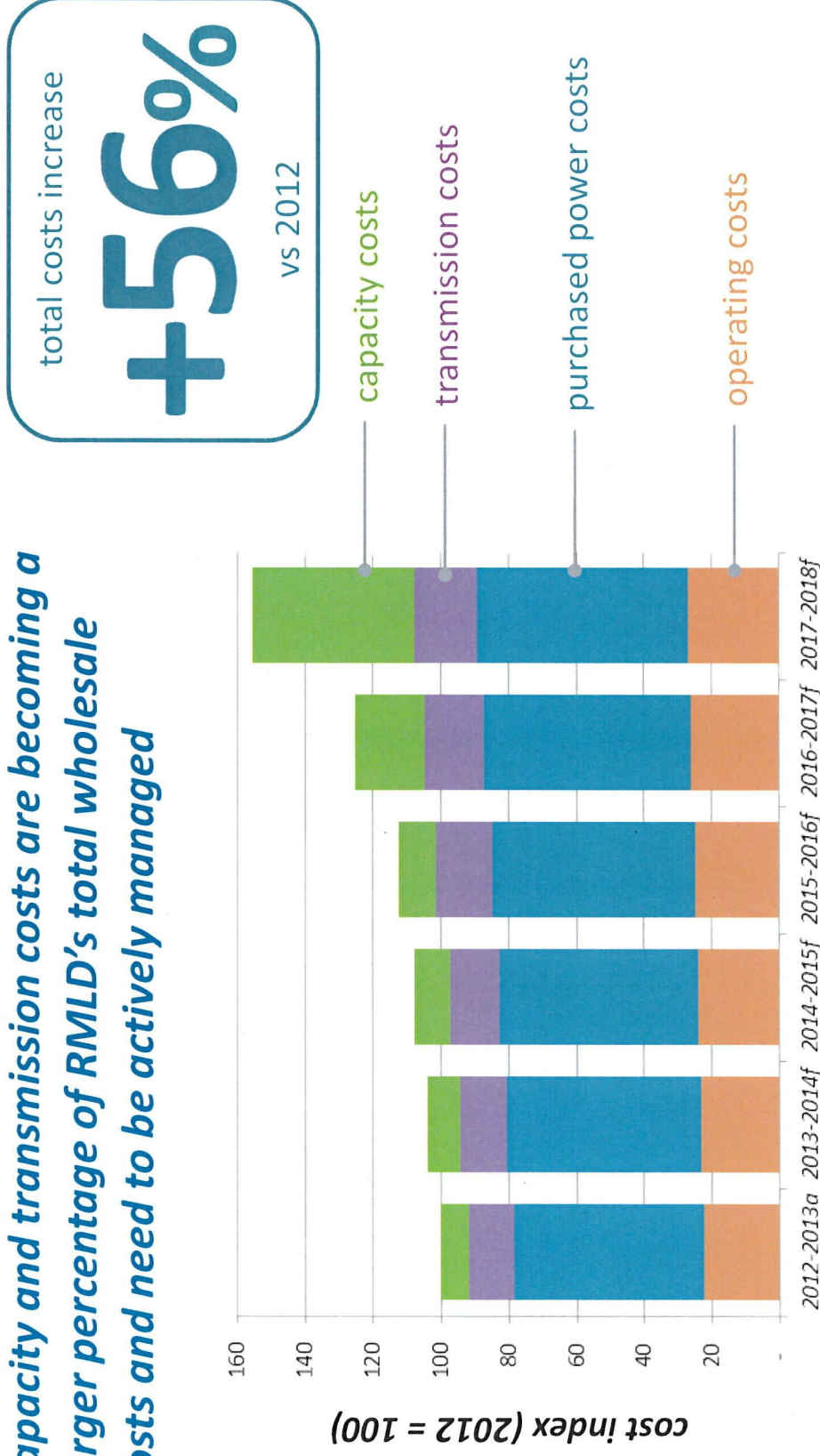
*New for 2014*

Area Electric Rate Comparison – December 2014

|   | COMMERCIAL<br>7,300 kWh's<br>25 kW Demand | INDUSTRIAL - TOU<br>109,500 kWh's<br>250 kW Demand<br>80/20 Split |
|---|---|---|
| READING MUNICIPAL LIGHT DEPT.<br>TOTAL BILL   | \$931.14                                  | \$710,967.52  |
| PER KWH CHARGE                                | \$0.12755                                 | \$0.10334   |
| NATIONAL GRID<br>TOTAL BILL                   | \$1,742.04                                | \$1,495,629.96  |
| PER KWH CHARGE                                | \$0.23864                                 | \$0.21740   |
| % DIFFERENCE                                  | 87.09%                                    | 110.37%   |
| NSTAR COMPANY<br>TOTAL BILL                   | \$1,087.25                                | \$1,026,007.61  |
| PER KWH CHARGE                                | \$0.14894                                 | \$0.14914   |
| % DIFFERENCE                                  | 16.77%                                    | 44.31%  |
| PEABODY MUNICIPAL LIGHT PLANT<br>TOTAL BILL   | \$1,032.39                                | \$714,893.12  |
| PER KWH CHARGE                                | \$0.14142                                 | \$0.10391   |
| % DIFFERENCE                                  | 10.87%                                    | 0.55%   |
| WAKEFIELD MUNICIPAL LIGHT DEPT.<br>TOTAL BILL | \$1,184.54                                | \$938,760.30  |
| PER KWH CHARGE                                | \$0.16227                                 | \$0.13646   |
| % DIFFERENCE                                  | 27.21%                                    | 32.04%  |

# Wholesale cost trends - NEMA

*Capacity and transmission costs are becoming a larger percentage of RMLD's total wholesale costs and need to be actively managed*



Source(s): ISO NE auction Feb 2014; NEPOOL Reliability Aug 2014;  
select municipality budgets; Tangent analysis



# Peak Demand Reduction (PDR) Program Overview

- ✓ Utility market price forecasts show **increasing fees for capacity and transmission charges**
- ✓ RMLD's new PDR Program offers Commercial and Municipal customers an opportunity to reduce costs by adjusting demand during a relatively few, critical peak hours.
- ✓ Participation is 100% voluntary with no penalties for "opting out"

## *Economic Incentive*

- \$3.50 monthly bill credit per kW of demand relief provided by customer during the peak transmission demand hour.
- \$1.5 monthly bill credit per kW of demand relief provided by customer during the ISO NE ICAP peak demand hour.

## *Minimal Operational Impact*

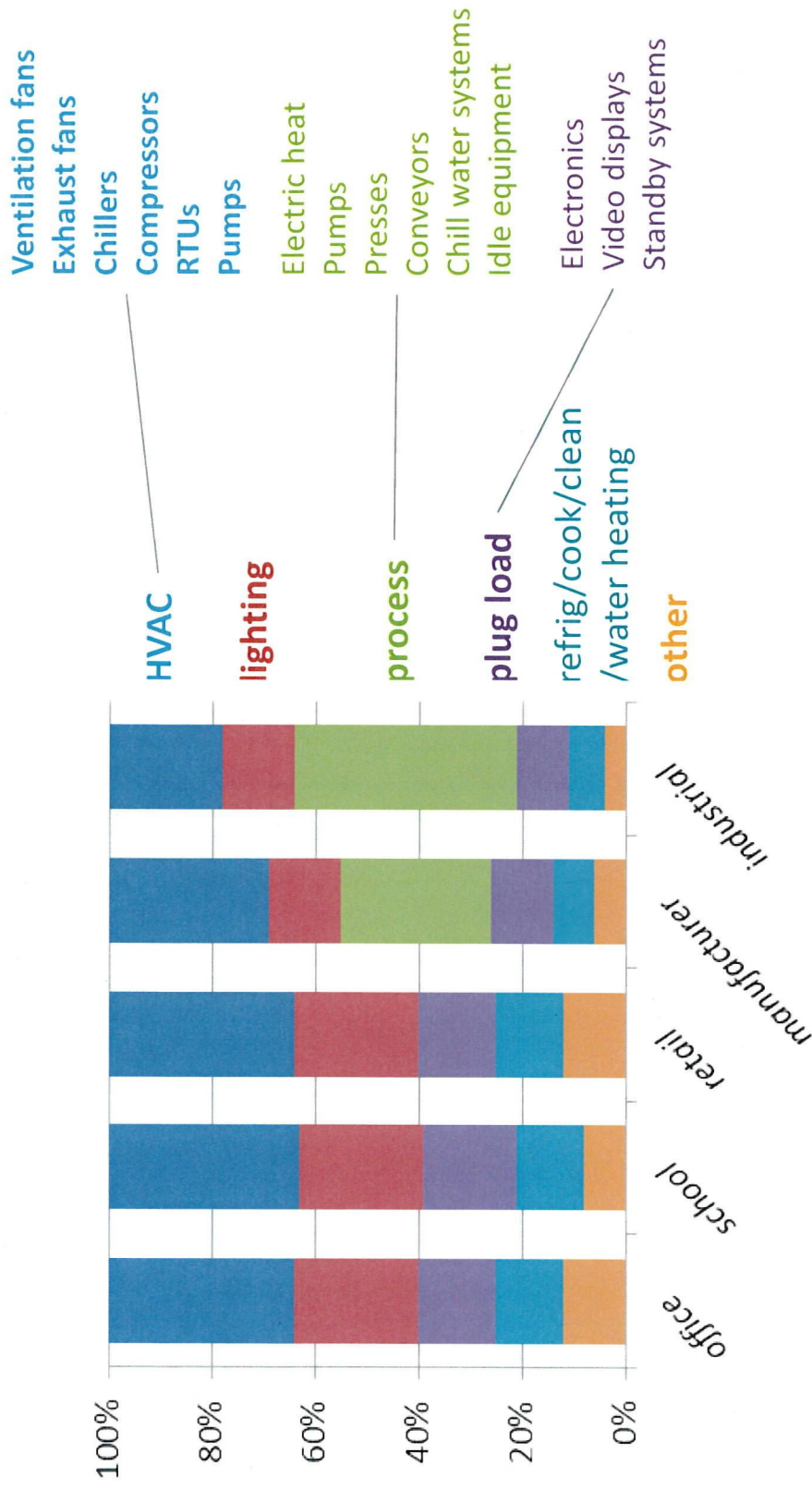
- The customer will be provided with access to the TangentAMP Demand Management platform, providing critical insight into their energy usage on a near real-time basis.
- Customer will receive an on-site energy infrastructure and generation assessment.
- Customer will receive an energy usage and demand profile analysis highlighting strategies for demand reduction and opportunities for program participation.

opportunities for program participation:

| Example to Show Value of PDR Credits assuming<br>a Load Reduction of 1 MW |                           |   |  |                       |                                  |                            |
|---|---------------------------|---|--|-----------------------|----------------------------------|----------------------------|
|   | Credit<br>Value,<br>\$/kW | Typical # of Called Events<br>per Month, Usually 2 hrs<br>in Duration | Peak Demand Reduction Achieved<br>by Load Shedding or Local<br>Generation During Peak Hour, kW | Monthly<br>Credit, \$ | Potential<br>Months<br>of Credit | Annual Value<br>of Credits |
| ICAP Tag<br>Reduction Credit  | \$1.50                    | 3 (Only during Summer<br>Months)                                      | 1,000  | \$1,500               | 12                               | \$18,000                   |
| Transmission Peak<br>Reduction Credit                                     | \$3.50                    | 3 or 4  | 1,000  | \$3,500               | 12                               | \$42,000                   |
| Totals  |                           |   |  | \$5,000               |                                  | \$60,000                   |



# Typical Load Mix by Building Type



*HVAC and lighting are noteworthy loads – good place to look for load shedding*

source(s): EIA and Tangent data; Tangent analysis

**Peak Demand Reduction  
(PDR) Overview**

# Typical Load Profile



# Typical Load Shedding Actions

| System               | Action    | Impact               | Example Reduction  |
|----------------------|-----------|----------------------|--------------------|
| • HVAC Equipment     | Cycle/Off | 0.5 kW/ton           | 100 T = 50 kW      |
| • Lighting           | Off       | Lamp watts X # Lamps | 400W X 100 = 40 kW |
| • Motors and Pumps   | Cycle/Off | 0.75 kW/HP           | 100 HP = 75 kW     |
| • Peaking Generators | Run       | Connected Load       | 750 kW             |



Today

Past 24

Past Week

Past Month

July 23, 2014
 

TUESDAY

WEDNESDAY

THURSDAY

### Energy Summary

### Today's Demand

178 kW  
Actual Peak

### Alerts and Notices

|                                    | Credit Value \$/kW | Peak Demand Reduction kW | Monthly Credit, \$ | Annual Value of Credits |
|------------------------------------|--------------------|--------------------------|--------------------|-------------------------|
| iCAP Tag Reduction Credit          | \$1.50             | 95                       | \$143              | \$1,710                 |
| Transmission Peak Reduction Credit | \$3.50             |                          | \$333              | \$3,990                 |
| <b>Totals</b>                      |                    |                          | <b>\$476</b>       | <b>\$5,700</b>          |



**Dashboard** REF 530 176

**July 23, 2014** ■ **Today's Demand**

— **Today's Forecast** — **Yesterday's Forecast**

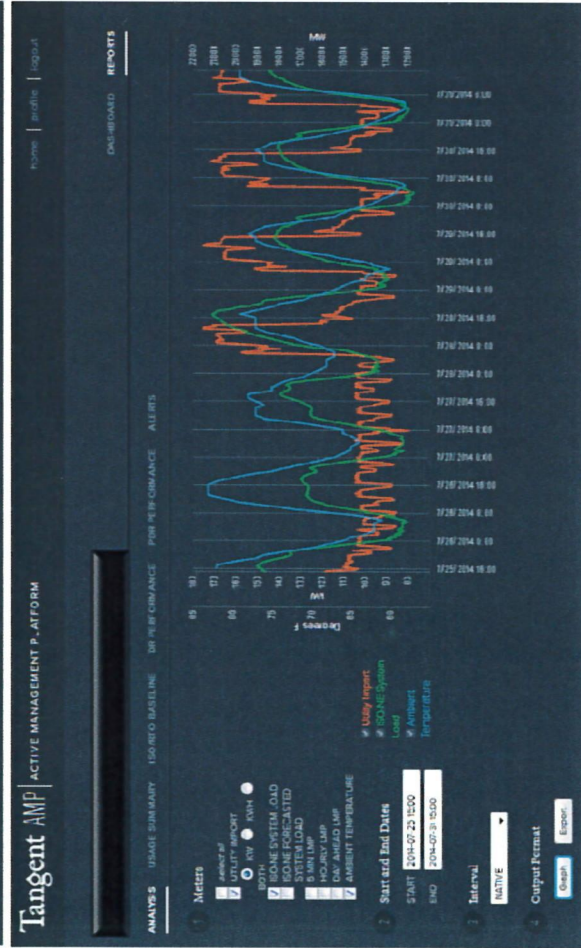
**Energy Summary** ■ **Post-24 Post-Week Post-Month**

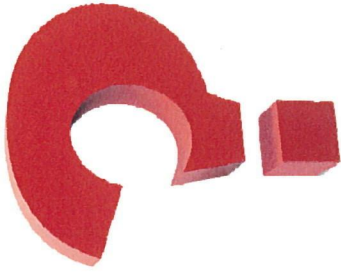
**0 kW** **178 kW**

Forecasted Rate  
Adjusted Peak

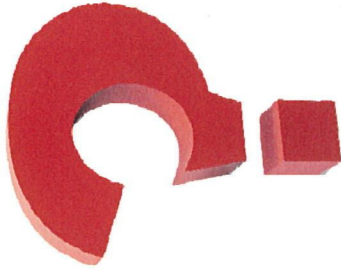
■ Daily Impact  
 ■ Baseline  
 ■ Net Demand  
 ■ Net Demand (Net)

**Alerts and Notices**





# Questions?



Please Contact Tom at:

Tom Ollila  
Integrated Resource Engineer  
Reading Municipal Light Department  
230 Ash Street  
Reading, MA 01867-2050  
Office: (781) 942-6426  
Mobile: (781) 789-6160  
[tollila@rmlld.com](mailto:tollila@rmlld.com)  
[www.rmlld.com](http://www.rmlld.com)