

**Reading Municipal Light Board of Commissioners**

**Regular Session**

**230 Ash Street**

**Reading, MA 01867**

**April 20, 2017**

**Start Time of Regular Session: 7:32 p.m.**

**End Time of Regular Session: 9:53 p.m.**

**Commissioners:**

**Thomas J. O'Rourke, Chairman**

**Dave Hennessy, Vice Chair, Secretary Pro Tem**

**David Talbot, Commissioner, Absent**

**Philip B. Pacino, Chairman**

**John Stempeck, Commissioner**

**Staff:**

**Coleen O'Brien, General Manager**

**Jane Parenteau, Director of Integrated Resources**

**Hamid Jaffari, Director of Engineering & Operations**

**Tracy Schultz, Executive Assistant**

**Joyce Mulvaney, Communications Manager**

**Citizens' Advisory Board (CAB):**

**Neil Cohen, Member**

**Guest:**

**Mayhew Seavey, PLM Engineering**

**Call Meeting to Order**

Chairman O'Rourke called the meeting to order and announced that the meeting is being videotaped for distribution at community television stations in Reading, North Reading, Wilmington and Lynnfield.

**Opening Remarks**

Chairman O'Rourke read the RMLD Board of Commissioners' Code of Conduct and explained that Ms. Markiewicz would not be in attendance; therefore, there is no financial report. Chairman O'Rourke welcomed Reading's new CAB representative, Neil Cohen, and Mayhew Seavey from PLM Engineering. Mr. Hennessy agreed to serve as Board Secretary. There was no public comment. Mr. Stempeck stated that he attended the CAB meeting on April 5<sup>th</sup> and commented that it was an outstanding meeting: The presentation of the Capital Budget was met with excellent questions and the RMLD team is to be commended for a job well done. The subsequent tour of Wilmington's new high school revealed a beautiful building with much forethought put into materials.

**Report of the Chairman**

**Reorganization of the RMLD Board**

Chairman O'Rourke announced the annual reorganization of the RMLD Board of Commissioners and asked for nominations for Chairman and Vice Chair. Mr. Stempeck nominated Chairman Pacino for Chairman and Mr. Hennessy for Vice Chair. Chairman Pacino seconded the nomination.

Chairman O'Rourke moved that the Board accept the nomination of Chairman Pacino for Chairman and Mr. Hennessy for Vice Chair.

**Motion carried 4:0:0.**

Chairman O'Rourke was Chairman up to this point in the meeting.

Chairman Pacino thanked the Board and stated that it is his thirty first year serving. The first time he served as Chair was in 1998. Chairman Pacino stated that he has no set agenda; only the best interest of the ratepayers. He has been through two votes Town of Wilmington to pull out of the system and the Twenty-Year Agreement

**Report of the Chairman**

**Reorganization of the RMLD Board**

that arose from that, the construction of the RMLD building, and four General Managers. Chairman Pacino clarified that his purpose as Chairman will be to guide, not to dictate. He concluded by stating he fully supports Ms. O'Brien and the direction that she is taking the RMLD.

**Electric Rate Design Scenarios – Mr. Seavey**

Ms. O'Brien pointed out an error in the Board Book and explained that the agenda and attachment cover page of the presentation should read 'Electric Rate Design Scenarios.'

### **Electric Rate Design Scenarios – Mr. Seavey**

Mr. Seavey explained that his analysis began by updating the Cost of Service Study that was performed three years ago. That edited document then served as a basis for designing rates that will accomplish various goals. One such objective being to send price signals to customers to control the peak. The Cost of Service Study is intended to provide an analysis of how the rates are currently performing, and to then provide options for restructuring.

The FY 2016 Cost of Service was updated to reflect the FY 2018 operating budget. To reach the targeted rate of return, customer distribution revenues were increased by 4 percent and streetlight rates were adjusted to reflect the formula rate that is allowed by statute.

The results show rates of return by class ranging from -2.7 percent for basic residential customers to as high as 28 percent for industrial customers. The overall rate of return is close to the target of 8 percent. It comes in at 7.9 percent. Class rates of return varied from minus 10 to plus 28. These are comparable to what was found in FY 2014, and are well within the range of the rates of other municipal utilities.

Mr. Seavey continued, explaining that subsidies are always an issue that arise during rate design, where the question arises: Is everyone paying their fair share to run the utility? Retail electric rates cannot reflect the actual cost of providing service. The cost of energy varies hourly. Additionally, capacity and transmission make up an increasing portion of cost structure. These costs are incurred in very specific ways. The cost of capacity, which is doubling, is determined by the New England load during a single peak hour. Even if a customer is offline at that time, they still pay the cost of that capacity. Similarly, transmission costs are incurred based on one peak hour a month. This is determined by the transmission grid's peak, not RMLD's. The actual distribution costs vary depending on where the customer is located on the electric system, but the rate structure is socialized.

Vice Chairman Hennessy asked what is the actual variability in distribution cost. Mr. Seavey replied that the average distribution cost is about 4 cents a kwh. The cost for a customer located right next to a substation is probably less than a cent, whereas the actual cost for a customer further away could be 7 or 8 cents a kwh.

Mr. Seavey then stated that there are political considerations that are always present in rate design. Residential customers are viewed as a favored class in both private and municipal utilities. In municipals, they elect the Commissioners, and when private utilities file their rates the Attorney General is representing the residential customers. Additionally, Associated Industries of Massachusetts represents industrial customers so the small commercial customers end up picking up the balance. Large customers are viewed as employers in the town and as being subject to competitive pressure, and having choices that small commercial customers do not.

There are two types of subsidies to address in RMLD's rate design: Cross-class and intra-class. Cross-class is where one rate class is subsidized by another rate class. Residential rates don't even cover their own expenses; there is a negative rate of return. All RMLD's net income is produced by commercial and industrial customers. Additionally, there's a subsidization of renewable generation and net metering customers, who are not paying a significant cost of the distribution services that they are using. Within each class are Intra-class subsidies, because the demand charge that large customers pay doesn't reflect the actual cost of demand. If a customer has a high load factor and is purchasing a lot more kwh than what they impose on the system and they are paying capacity charges through a cents-per-kwh charge, they're paying more than their share. If customers are not paying the actual cost, then they don't have a proper incentive to control their demand.

There are three scenarios that all produce the targeted eight percent rate of return. The total revenue remains consistent, but is shifted across customer classes.

Scenario 1 is an across-the-board 4 percent increase. The customer and distribution charges will increase, which make up one quarter of the bill impact. The bill impact is between 1 and 1.5 percent. The rates of return shift very little. Revenues increase \$1 million. Average bill will increase 1 percent. The rates of return remain uneven. Residential rates still lose \$1.3 million and commercial and industrial earn \$7 million.

It is worth noting that all rates, regardless of which scenario was being looked at, are 10 to 40 percent lower than comparable rates from National Grid.

Scenario 2 has every class of customer producing a uniform 8 percent rate of return. The impact is dramatic. There would be a 13 percent increase for residential customers, a 20 percent increase for residential time-of-use customers, an 11 percent decrease for commercial customers and a 4 percent decrease for industrial customers. Customers generally do not notice changes of less than ten percent. Large customers will notice smaller changes because they have access to their accounts and usage.

Scenario 3 brings residential rates up to break even (up to a 0 percent rate of return), and the commercial and industrial rates produce the net income to meet the overall 8 percent rate of return.



### **Electric Rate Design Scenarios – Mr. Seavey**

his results in a 4 percent increase for residential customers, and a 12 percent increase for time-of-use. The commercial rates would go down about 3 percent and the industrial rates would remain relatively flat, with only a 0.5 percent increase. It's not an enormous impact.

These are the parameters that RMLD has to work with for overall rate class design. The present rate charges demand only to commercial, industrial, and school classes of customers. The demand charges vary between \$7.5 and \$9 dollars a kw. In FY 2018, forward capacity and transmission costs alone total \$16. The present demand rates will only recover half of the cost of capacity and transmission. The rest is recovered through a cents-per-kwh charge. High load customers are paying more than their share of transmission costs. Mr. Seavey gauged the level of subsidy that each of the 80 industrial customers are paying. This was based on the allocated cost of capacity and transmission versus how much the 80 customers were paying through the present rates. There are customers whose capacity and transmission charges are almost entirely being paid by someone else. Then there are customers paying 60 percent more than their share of capacity and transmission costs. This is a direct function of the load factor of the customer-the number of hours that they use each kw of demand. If you take the customer's monthly kwh and divide it by kw's of demand, the unit you get is hours. The higher that number is, the more the customer will be paying to subsidize others. The dollar amount that is subsidized varies tremendously.

Mr. Stempeck asked, with the forward capacity and transmission costs due to increase dramatically, will that effect National Grid as well? Mr. Seavey answered in the affirmative, and explained that all utilities within NEMA's load zone will be similarly affected.

Mr. Stempeck asked we have such granular data in terms of who is subsidizing who, can another scenario be to work with each company so there is no subsidizing? Mr. Seavey replied that a good approach is to adjust the rate and then work with individual customers either directly or through an energy services company to look at their consumption patterns and their processes. The price signal must be correct first.

Mr. Stempeck stated that with all the data and algorithms available, there must be a straightforward way to adjust on a rational basis. Mr. Seavey responded that it is tricky; customers vary widely in their ability to control things like that. Some of it is behavior and some of it is technology. If the customer has a process that is inflexible, there's not much that they can do other than looking at storage technologies or onsite generation.

Mr. O'Rourke clarified that Mr. Stempeck was not suggesting changing the relationship between residential and commercial. Mr. Stempeck replied that he was just focusing on commercial. Would imagine that all supermarkets are being treated the same. But if one becomes significantly differentiated, then that becomes an issue. Mr. O'Rourke remarked that a supermarket is a good example, since they are inflexible due to refrigeration.

Mr. Seavey explained that refrigeration has a flywheel effect. When the input is reduced, the temperature rises quite slowly. If you can target a narrow window you could very easily control that. It's the same thing with air conditioning. If you know that there's going to be a peak later in the day you can do extra chilling in advance of that, and then reduce or completely turn off. There are options with technology if you have the information in advance.

Mr. O'Rourke then commented on how it's impossible for manufacturers when they could be losing millions in production time. Mr. Seavey replied that's why businesses need a good accountant to calculate whether there is a cost benefit.

Mr. Seavey continued, saying that the approach they're working on is to create a separate purchase power capacity transmission charge for customers who are billed a demand charge. Currently, every customer pays the same cents per kwh rate. We could take some of the revenue being recovered from commercial and industrial customers, turn that into a demand charge, and recover the rest through a kwh charge. This would reflect the price of capacity and transmission without shifting any revenue between classes of customers. It would keep the amount of revenue that you're recovering from commercial and industrial customers the same, but would shift some of those energy charges into demand charges. This will have an enormous impact on the amount of subsidization that takes place within the larger customer class.

The impact to the largest 80 customers would be some significant increases. Most of the customers would experience an impact of plus or minus 5 percent. There are some customers who will get a strong price signal. The amount of dollars involved is relatively small for most of the customers, but there are a few with sizable increases. There are also some with moderate decreases. About 2/3 of the industrial customers would see an increase. Only 5 will experience an increase greater than 10 percent. None of the decreases would be more than 5 percent.

Mr. Seavey then addressed the amount of subsidization of renewable generation net metering customers. RMLD's present rate allows the customer to avoid paying distribution for all kwh that are produced by the solar generator and consumed behind the mirror. That means that RMLD is losing an average of 30 percent of distribution revenues from each net metering customer. It amounts to an average of \$3.16 per installed kW of solar capacity.



### **Electric Rate Design Scenarios – Mr. Seavey**

Across all of RMLD's solar customers, the total amount of the subsidy is about \$1,800. The average is \$22 a month per customer. To be said, RMLD is better off than many utilities. RMLD is not crediting the full distribution for kwh that are delivered to the utility and is not doing strictly full net metering. The fuel charge is below the value of the capacity and transmission that is delivered to the system.

Vice Chairman Hennessy asked what the typical loss is, if ours is 30 percent. Mr. Seavey replied that the average in terms of dollars per kw is \$6 kw. RMLD's is half of that.

Mr. Seavey continued, stating that oversizing a solar array doesn't harm RMLD that much. The more that the customer exports to RMLD's system, the less RMLD loses from the customer in terms of dollars per kw. If only 20 to 30 percent of the electricity is being used behind the meter and 70 or 80 percent of it is being exported, losing about a \$1 a kwh.

Mr. Seavey then presented three of the most commonly used options to reduce this subsidy.

The option that Mr. Seavey sees most often is to add a distribution recovery surcharge for a certain amount of dollars per kw of installed solar capacity every month. It becomes an additional monthly customer charge based on the size of the customer's solar array. This is easy to implement but it's not ideal. Picking a number to charge per kW still leads to subsidies between solar customers. RMLD recovers all its distribution revenue, but instead of non-net metering customers subsidizing net metering customers, some net metering customers subsidize other net metering customers.

Another option is to install a demand meter in place of a standard kwh meter for every residential solar customer. The peak demand for solar customers is at night. The demand meter would pick up that peak and bill the customer an appropriate distribution charge, based on their demand. This was not previously an option due to equipment costs. However, demand meters are no longer as expensive. It is feasible but would mean billing system modifications.

The best way is to completely separate the solar generation from the consumption is to have two separate meters. The meter on the house records all the kwh use within the house, while a revenue meter on the solar array has a tariff rate for solar electricity. This is based on avoided capacity transmission value and the avoided energy value. There is no subsidization at all if you do it that way. Mr. Seavey stated that he knows of a few municipalities who do this for customers over 100 kw, and it could be done for smaller customers. However, it's a more complicated meter installation. The more effective a solution is, the more complicated and concluded his presentation.

Mr. O'Rourke inquired as to what the next step is. The Board has received good information. Is there now supposed to be a digestion period to think about the presentation and then come back and clarify?

Mr. Seavey answered that RMLD is looking for feedback on how important is it to address the different levels of subsidization and how important it is to be sending the correct price signal for capacity and transmission in order to try and control the peak.

Mr. Stempeck clarified that the three scenarios were picked, from an unlimited range of options, because they seemed the most reasonable. Mr. Seavey affirmed this, and stated that he had disregarded scenarios that were extreme and so moderate as to be almost meaningless.

Mr. Stempeck asked if this is something to address at the strategy meeting. Ms. O'Brien replied that she would think so as we're trying to resolve rate increases and structures to roll into the budgets for a July 1 implementation.

Ms. Parenteau added that the rates must be filed shortly before July 1; there is some time.

Mr. Seavey explained that the presented rates were carefully devised so as not to impact the budget-the revenues are the same.

Chairman Pacino asked what the Department is looking for the Board to do-are the Commissioners supposed to choose one of the scenarios?

Ms. O'Brien stated that she appreciates this type of presentation because it shows exactly how the rates work, including the numbers needed to recover the rate of return. It starts a conversation on subsidization, time of use, and solar. It highlights any type of revenue erosion from solar that is currently occurring, and raises questions as to what the future will bring. In California, circuits aren't connected to anything; they're on standby. Going forward, the rates need to be designed to be fair to all customers. We need to make sure we're strategically thinking: what is it now and what is it going to be in the future? Do we need to make a change now or do we want to wait? There is a subsidy with solar. Is it at a level now where it's still okay? If we allow that number to continue to grow, the next thing you know you're trying to recover from that and the increase to the customer is much greater.



### **Electric Rate Design Scenarios – Mr. Seavey**

Ms. O'Brien stated that she would be strategizing with Ms. Parenteau to make recommendations as to what they think. The state of the electric industry has been standard for the last thirty years. There's never been the threat of competition. However, going forward, solar will have an impact. The cost of the peak, load factor, and customers not paying their share all need to be addressed. It's always easier to stay consistent with the past, but there are changes that we want to make sure we're addressing. This can be discussed further in a strategy meeting and still try to get any rate changes in for July 1.

Mr. Stempeck appreciates the fact that other area utilities are significantly more expensive than RMLD and are facing the exact same issues in terms of rates. It comes down to a question of who subsidizes who or not, or if everyone just pays their fair share. Solar is great and he supports its proliferation. However, there are concerns that need to be addressed. We still need to provide power to customers in the morning and at night.

Ms. O'Brien agreed with Mr. Stempeck's support of solar. However, parallels can be drawn to the owners of electric cars who receive a tax break. When everyone has an electric car, at what point do we reinstate that tax? There should be a benefit for helping to clean the planet, but there are also fixed costs that need to be paid. Redistribution of that responsibility needs to be done strategically so we're not hurting our customers. Ms. O'Brien mentioned even making some minor adjustments in that direction so that we're covered in the event of rapid solar technology development. Money will still need to be paid to keep up the poles and wires.

Mr. Stempeck added that it pays to be strategic about this and consider the different options. The future is tied to how many people convert to solar and whether what is happening in California could happen here. With all the possible rates netting the same return, it really becomes a question of balance.

Mr. O'Rourke stated that the strategy session should provide governing thoughts on what the Board wants to do and what the Board does not want to do. There are different impacts on different customers; disadvantaging RMLD's largest customer should be avoided. Options need to be analyzed in terms of their relative merits. We need to make sure whatever we select outlines and protects as part of our strategy.

Mr. Stempeck reported on an article he read a week earlier about Google trying to divorce itself from PG&E because they've put in so many solar arrays that they no longer need the power from PG&E. They want to disconnect from the utility. PG&E is going to be charging them a transmission charge. This is reflective of how technology is changing in both our industry and our world. Ten years ago, this would have been unthinkable.

Ms. O'Brien said that whether people are connected to us or not, RMLD will not compromise the safety of its system, the workers, or the public. The cost of maintaining the system remains. Charge for providing standby power in the future-those costs will still be there.

Mr. Seavey explained that it ultimately becomes a policy question. A subsidy exists over time-when you try to take it away, it becomes an entitlement. When rates aren't looked at for a long time and don't adjust according to market conditions it creates a situation you can't fix without disadvantaging one group over another.

### **General Manager's Report – Ms. O'Brien**

Ms. O'Brien announced that the Art Contest calendars are available and have been delivered to the schools. Ms. O'Brien thanked Ms. Mulvaney and Ms. Parenteau's group. Ms. Parenteau added that the calendars were designed in house, resulting in a significant savings to RMLD.

The North Reading Town Day will be June 11 and the Reading Friends and Family Day will be June 17; RMLD will be attending both events. The Shred the Peak educational program will launch early to mid-May. The website redesign, historic calendar design, and Public Power Week event planning have all kicked off.

Ms. O'Brien's last Town presentation, to the North Reading Board of Selectmen, has been rescheduled to May 8.

Mr. O'Rourke asked about Earth Day. Ms. Mulvaney explained that the Reading Climate Advisory Committee will be holding an event at Parker Middle School. RMLD will attend.

### **Power Supply Report – February 2017 – Ms. Parenteau (Attachment 1)**

Ms. Parenteau reported the power supply report will be for February 2017. Comparing heating degree days with kWh sales showed that the winters were much colder in 2013, 2014, and 2015. Heating degree days dropped significantly in 2016 and 2017. The tricky part of kWh sales is that the monthly report is sometimes reflective of both January and February based on billing cycles.

**Power Supply Report – February 2017 – Ms. Parenteau (Attachment 1)**

In 2016 and 2017 where there is a decrease in sales, and then a slight increase, that could be related to January sales that are incorporated into the February bill. It was a bit non-conforming but Ms. Parenteau explained that she wanted to capture the significance of heating degree days and the drop in 2016 and 2017.

Ms. Parenteau then spoke on comparing imbedded fuel costs and heating degree days. Because of gas constraints in New England in February of 2013, 2014, and 2015, there were significant cost increases, especially

the spot market (day ahead and real-time). That has dropped significantly in 2016 and 2017. The day ahead markets and the real-time markets were averaging over \$100 a month. In February of 2016 and 2017, because of the mild conditions and lack of gas constraints, cost dropped to \$30 in those periods. This is reflected in fuel charges.

Mr. Stempeck clarified that the cost drop was due to temperature differentials. Ms. Parenteau answered that the mild weather was a contributing factor, as was the gas supply and RMLD's laddering and layering portfolio. These brought the price down.

Ms. O'Brien asked Ms. Parenteau if she had any information into Mr. Talbot's inquiry about solar panels held down on roofs by cinder blocks.

Ms. Parenteau answered that there are access issues at our solar projects at 1 Burlington Ave. and 326 Ballardvale. IRD reached out to one of our customers, Teradyne in North Reading, and they have access to their panels and we can walk on the roof and take a look. They can provide a structured tour of the facilities. It is comparable to RMLD's arrays. Preliminary dates for the tour are May 16 and May 17. Ms. Schultz stated that she would resend e-mail that Ms. Foti had distributed about the tour.

Mr. O'Rourke explained that Mr. Talbot had been looking for information on the feasibility of RMLD having its own solar business.

Ms. Parenteau thought Mr. Talbot had asked for a hypothetically, without considering the structure's integrity, the cost of placing solar on RMLD's garage roof. Ms. Parenteau stated that she had reached out to developers, and that it would cost roughly \$200,000 to do 250 kw.

Mr. O'Rourke added that he believed the end game was a cost benefit analysis, if we purchased those solar panels then what kind of cost benefit would there be for RMLD. Ms. Parenteau stated that she would run those numbers.

Chairman Pacino added that it was his understanding that RMLD is looking for other locations for solar panels.

Ms. O'Brien agreed with Ms. Parenteau regarding what Mr. Talbot originally asked. However, the question has shifted. Mr. Talbot wants to know what we are doing to solicit roofs to put solar panels up that are just held down by cinder blocks. Mr. Talbot is viewing it as a very low-cost method of throwing solar panels up and he wants that scenario evaluated.

Ms. Parenteau commented that RMLD needs to consider that if we own the solar panels, we would have to pay the owner of the building a lease payment. What do we do with the tax incentive credits that are here, since we can't take advantage of those. It is an analysis that can be done.

Ms. O'Brien added that the property owner would be responsible for a tax payment once the panels are placed on the roof as well.

**Engineering and Operations Report – February 2017 – Mr. Jaffari (Attachment 2)**

Mr. Jaffari began his report on the progress made in February 2017. Year-to-date, construction total \$485,426. As part of a pilot program, RMLD is installing a generator in which construction has started.

A concrete pad has been poured at Station 4 and it's going as scheduled. The generator will be delivered on June 1. Then there is wiring and testing to do to get ready for July 1. It is on target.

Routine construction for the month of February totaled \$109,591, bringing the year-to-date to \$1,171,604. Other capital projects have brought year-to-date spending to \$4 million. There is \$5 million more to spend. Approximately \$2.5 to \$2.6 million will be spent on the generator.

Ms. O'Brien asked Ms. Mulvaney to work with Mr. Jaffari to set up a ribbon cutting ceremony in mid-June and to invite the Commissioners. Ms. O'Brien said that she had just visited the site with Mr. Jaffari and Mr. Zanelli is doing a great job.



### **Engineering and Operations Report – February 2017 – Mr. Jaffari (Attachment 2)**

Mr. Jaffari then moved on to the seven programs that comprise routine maintenance. Crews have upgraded almost 26 percent of the pad mount transformers and almost 17 percent of the overhead transformers have been upgraded as part of the transformer replacement program. As of April 10, 224 poles have been replaced and 126 of those 224 transfers have been completed.

Feeder patrols showed no problems. 961 out of 1,237 manholes have been inspected. Through February 2017, RMLD has completed 91 percent of its porcelain cutout replacements, with 253 remaining. 75 spans were trimmed in February, totaling 831 spans trimmed year-to-date. Infrared scanning showed no hot spots at the substations.

The NJUNS double pole report shows 3 transfers pending in Lynnfield, 23 transfers pending in Reading and 27 pole butts that need to be removed. North Reading has 13 pending transfers and 106 poles butts that need to be removed, and Wilmington has 26 transfers, 4 pole butts, and 1 guy install pending. RMLD is making good progress on double poles and making transfers but unfortunately, we must wait for Verizon and Comcast to do their transfers.

Mr. Jaffari then discussed reliability indices, stating he is pleased to announce the use of a new reliability tracking from APPA. Most utilities use this program. The 2016 totals just came out and RMLD was well below the national and regional average for SAIDI, SAIFI, and CAIDI. The programs we have in place are paying off, but there is still a long way to go. Maintenance hasn't been done on the system for 20 to 30 years and we're trying to catch up.

Mr. Stempeck asked if the 2017 numbers were year-to-date. Mr. Jaffari answered yes, adding that there are areas of concern. Maintenance needs to be increased, but we are doing the best that we can do.

Major outage causes from 2012 to 2017 were 35 percent equipment, 30 percent trees, and 21 percent wildlife. Outages in February 2017 were caused by equipment, trees, and wildlife. A squirrel recently caused an outage in Lynnfield. It's mating season and wildlife finds a way into the equipment.

Mr. Stempeck commented that the reliability program is working very well, which is testimony to the effectiveness of the maintenance programs.

Vice Chairman Hennessy clarified that SAIFI and CAIDI are year-to-date; we're not expecting those numbers to go up due to seasonal factors. Mr. Jaffari answered yes, they are year-to-date. SAIDI and SAIFI increase as we experience outages. SAIFI relates to the frequency of outages experienced. That number is usually higher than the other two. That number is nothing right now, due to the mild winter, and that will hopefully remain the same.

### **RMLD Procurement Requests Requiring Board Approval (Attachment 3)**

#### **IFP 2017-33 Hourly Rates for Overhead Line Construction and Maintenance Work as needed, Storm Management Line Construction and Restoration**

Mr. Jaffari explained that this bid is for a contractor that will provide its staff to help with construction upgrades and help during system emergencies in order to restore service faster. The bid was sent to 30 companies and 2 responded. Powerline and Matrix. The lowest responsive bidder was Powerline. Matrix bid \$796,704, which is a \$50,000 price difference.

Mr. Stempeck made a motion, seconded by Vice Chairman Hennessy, that proposal 2017-33 for Hourly Rates for Overhead Line Construction and Maintenance Work as needed, Storm Management Line Construction and Restoration be awarded to Powerline Contractors, Inc., as the for a total cost of \$746,760 pursuant to M.G.L. c. 30 § 39M on the recommendation of the General Manager.

**Motion carried 4:0:0.**

### **General Discussion**

There was none.

### **RMLD Board Meetings:**

**Tuesday, May 2, 2017 Strategic Meeting**

**Wednesday, May 10, 2017 Operating Budget Review**

**Thursday, May 11, 2017 Capital Budget Review**

Chairman Pacino asked whether a 6PM start time for the Strategic Meeting and the Budget Meetings was agreeable to the Board. The Commissioners confirmed this was amenable.

**CAB Meeting**

**Wednesday, May 3, 2017**

Chairman Pacino volunteered to attend the CAB meeting.

Mr. O'Rourke asked when Board committees would be elected. Ms. Schultz explained that historically it has been done at a subsequent meeting, but she has assigned AP Warrants and Payroll. Chairman Pacino and Vice Chairman Hennessy are the only ones who can sign AP due to the other Commissioners having signed for the last three years. Per Board rules, they must take a year off. Vice Chairman Hennessy volunteered to sign AP for the month of May.

**Executive Session**

At 9:07 p.m. Chairman Pacino made a motion, seconded by Mr. Stempeck, that the Board go into Executive Session to discuss the deployment of security personnel or devices, to consider the purchase of real property and discuss strategy with respect to collective bargaining, Chapter 164 Section 47D exemption for competitively sensitive or other proprietary information provided in the course of proceedings conducted pursuant to this chapter when such municipal lighting plant board determines that such disclosure will adversely affect its ability to conduct business in relation to other entities making, selling, or distributing electric power and energy pursuant to this chapter and return to Regular Session for the sole purpose of adjournment.

**Chairman Pacino called for a poll of the vote:**

Mr. O'Rourke: Aye; Chairman Pacino: Aye; Mr. Stempeck, Aye; and Vice Chairman Hennessy: Aye.

**Motion carried 4:0:0.**

**Adjournment**

At 9:53 p.m. Mr. O'Rourke made a motion seconded by Mr. Stempeck to adjourn the Regular Session.

**Motion carried 4:0:0.**

A true copy of the RMLD Board of Commissioners minutes  
as approved by a majority of the Commission.

David Hennessy, Secretary Pro Tem  
RMLD Board of Commissioners



# Electric Rate Design Scenarios

A Presentation to the  
Reading Municipal Light Department  
April 12, 2017

**PLM** Electric Power Engineering

# FY18 Cost of Service

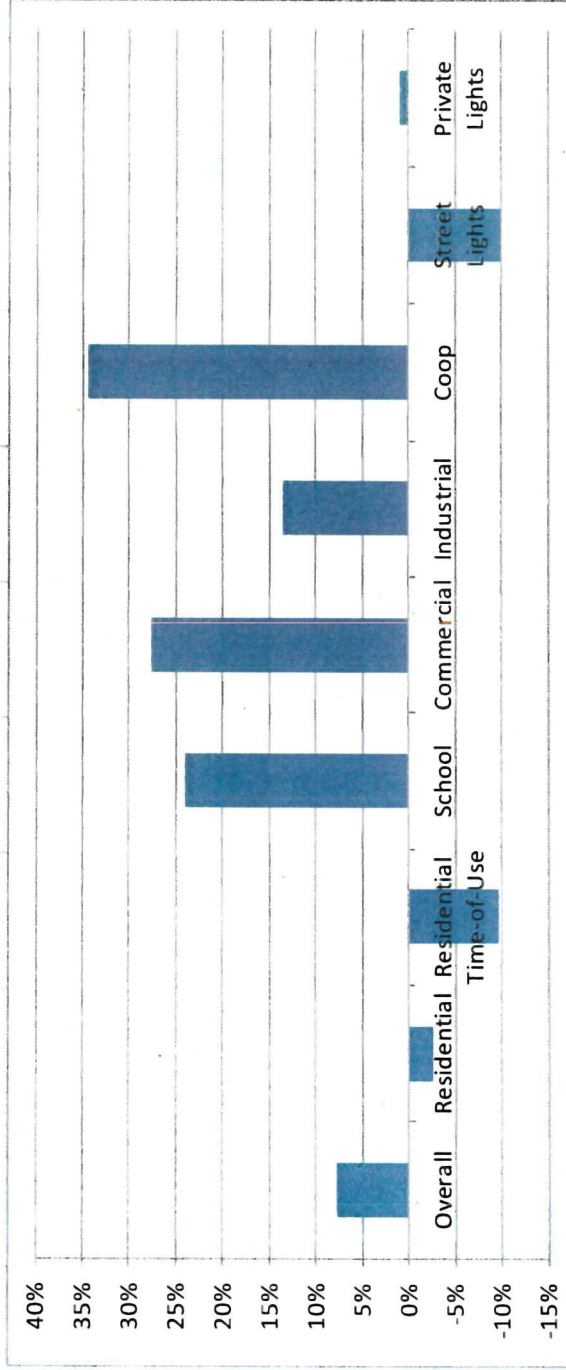
## Assumptions

- ◆ Used FY16 cost of service model as the base
- ◆ Sales kept flat at of 672 million kWh
- ◆ O&M from RMLD FY18 budget
- ◆ Plant increased to \$79 million
- ◆ Customer and distribution charges increased by 4%
- ◆ Municipal street lights billed at \$0.13861



# FY18 Cost of Service Results

DESCRIPTION	FY18 Test Year Total	Residential		School SCH	Commercial C	Industrial I	Coop COOP	Lighting	
		A	A-2 Time-of-Use					Municipal Street	Private Area Lights
TOTAL ANNUAL REVENUES	97,811,030	39,143,692	662,010	2,097,137	29,323,754	25,670,440	465,143	344,056	104,798
TOTAL ANNUAL EXPENSES	<u>91,551,366</u>	<u>40,233,432</u>	<u>729,846</u>	<u>1,792,054</u>	<u>24,326,487</u>	<u>23,479,965</u>	<u>374,057</u>	<u>513,102</u>	<u>102,424</u>
RETURN (NET INCOME)	6,259,664	-1,089,740	-67,836	305,083	4,997,267	2,190,476	91,087	-169,046	2,374
TOTAL NET PLANT, JUN 30	79,119,000	40,622,268	704,232	1,271,407	18,123,155	16,177,139	264,851	1,695,890	260,058
RATE OF RETURN	7.9	-2.7	-9.6	24.0	27.6	13.5	34.4	-10.0	0.9



# FY18 Cost of Service

## Results

- ◆ Overall rate of return 7.9%
- ◆ Class rates of return vary from minus 10% to plus 28%
- ◆ Rates of return are comparable to the FY13 cost of service study
- ◆ Relative rates of return are within the range seen from other Massachusetts municipal utilities.



# Issue of Subsidies in RMLD's Rates

Subsidies are inevitable in retail electric rates

- Rates can seldom reflect the actual cost of service to every customer
  - Energy costs vary hourly
    - Energy rates reflect at most two groups of hours, on-peak and off-peak
  - Capacity and transmission costs are set based on demand during the peak hour of every year (capacity) or month (transmission)
    - Most customers do not even pay a demand charge
    - Those that do typically pay a rate based on the customer's peak, not their demand during the regional peak hour
  - Distribution costs vary depending on where a customer is located on the distribution system
    - Rates are based on the average cost of the entire network

# Issue of Subsidies in RMLD's Rates

Political considerations are reflected in rate levels

- Residential customers are favored by both municipal and private utilities
  - Residents of municipal systems usually elect the Municipal Light Board members
  - The Attorney General often represents the residential customers of private utilities in rate cases, putting downward pressure on residential rates
- Large customers are more sensitive to competitive price pressure and are more able to move their operations to shop for lower electricity prices
  - Municipal utilities also tend to view large customers as employers for residents and therefore require less net income from them



# Two Types of Subsidies to Address in Rate Design

- Cross-Class Subsidies
  - Residential rates do not even recover expenses
  - Commercial and Industrial rates produce all of the net income and subsidize the residential customers
  - Renewable Generation rates do not recover much of the cost of providing distribution service to customers who take service under those rates
- Intra-Class Subsidies
  - Demand charges do not reflect the actual cost of distribution, capacity and transmission expenses, all of which are demand-related
  - High-load factor customers subsidize low-load factor customers
  - **Has the added disadvantage of not providing adequate incentive to customers to control demand during peak periods**

# **Alternative Rate Design Scenarios To Address Cross-Class Subsidies**

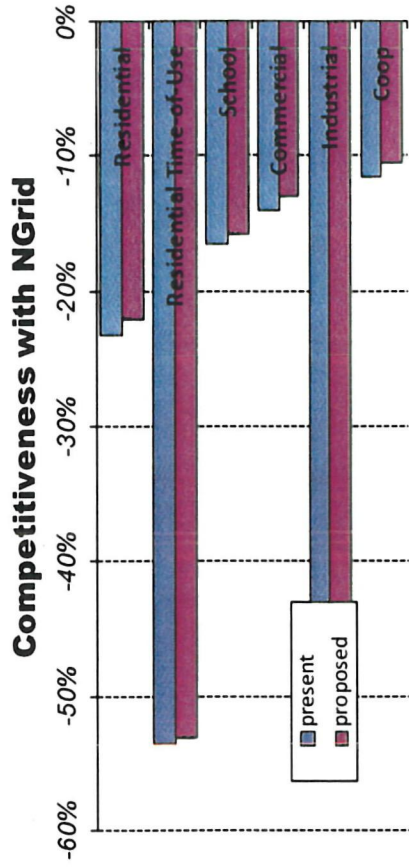
All scenarios were designed to produce an overall 8% rate of return

1. Design rates that will provide an equal percent increase to all classes of customer
2. Design all rates to produce the same rate of return, approximately 8%
3. Design residential rates that produce a 0% rate of return, with all other rate classes producing rates of return equal to each other

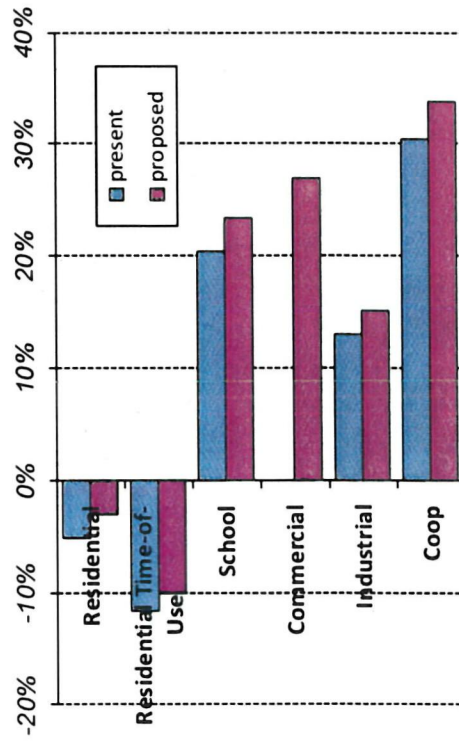


# Scenario 1: Equal Percentage Increase

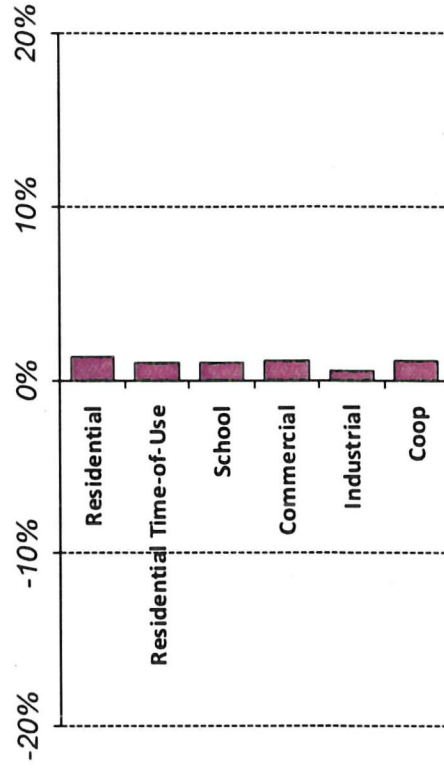
	Rate of Return (%)	Revenue Change (\$000)	Revenue Change (%)	RMILD vs. NGrid (%)
Residential	-3.0%	\$533	1.4%	-22.1%
Residential Time-of-Use	-10.0%	6	1.0%	-53.1%
School	23.4%	20	1.0%	-15.8%
Commercial	27.0%	320	1.1%	-13.1%
Industrial	15.1%	131	0.5%	-53.9%
Coop	33.8%	5	1.2%	-10.6%
<b>TOTALS</b>	<b>7.9%</b>	<b>\$1,016</b>	<b>1.1%</b>	<b>-32.5%</b>



**Rate of Return**



**Rate Impact**



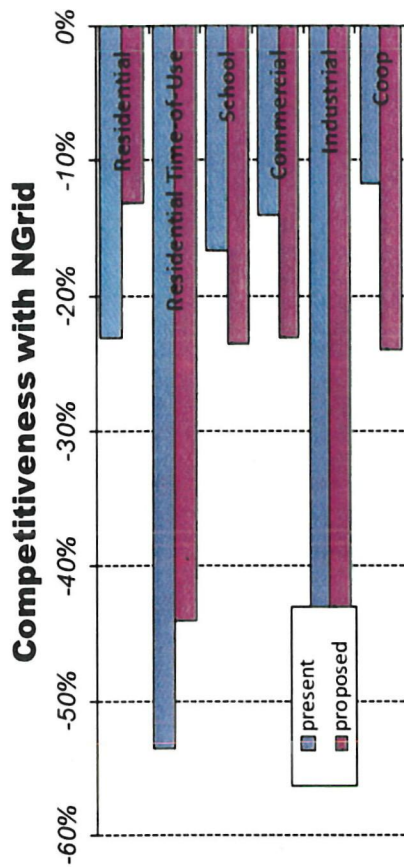
## **Scenario 1: Equal Percentage Increase**

- Overall revenue increase is \$1 million
- All classes base rates increased by 4%
  - Net bill increase averages 1%
- Rates of return remain uneven
  - Residential rates lose \$1.3 million in net income
  - Commercial and Industrial customers pay over \$7 million

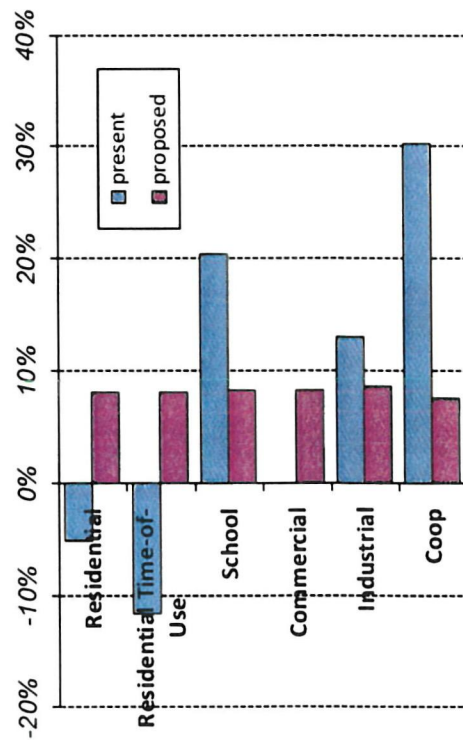


# Scenario 2: Equal Rates of Return

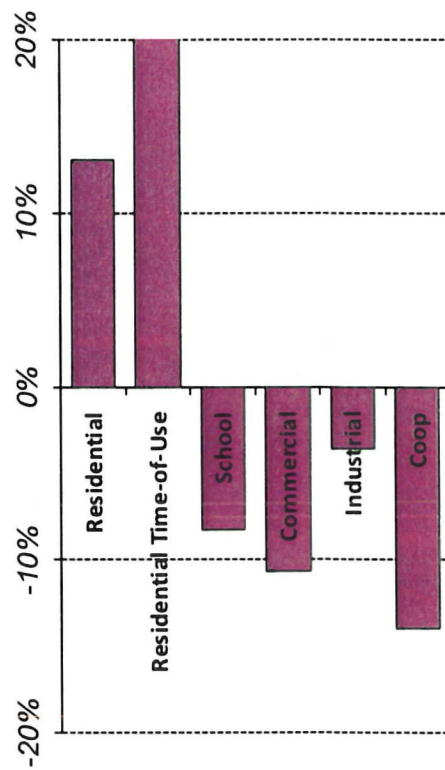
	Rate of Return	Revenue Change	RMLD vs. NGrid
	(%)	(\$000)	(%)
Residential	8.1%	\$5,001	-13.1%
Residential Time-of-Use	8.0%	132	-44.1%
School	8.2%	(170)	-23.5%
Commercial	8.2%	(3,033)	-23.2%
Industrial	8.5%	(920)	-55.8%
Coop	7.6%	(63)	-24.0%
<b>TOTALS</b>	<b>7.8%</b>	<b>\$947</b>	<b>-32.6%</b>



**Rate of Return**



**Rate Impact**



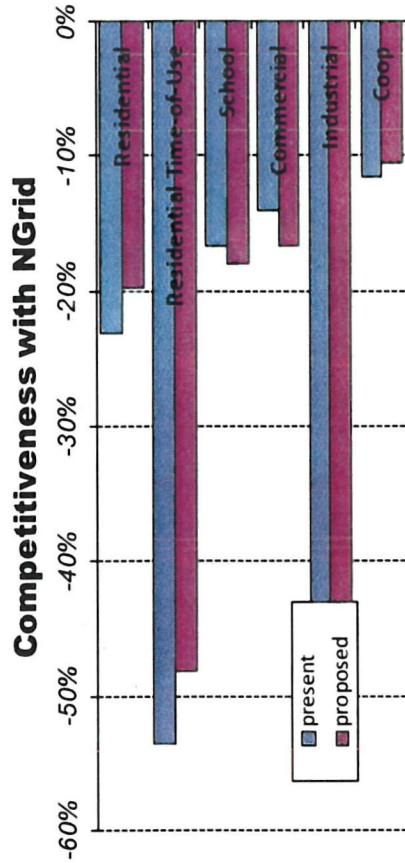
## **Scenario 2: Equal Rates of Return**

- Overall revenue increase is \$1 million
- Each class produces an 8% return on equity
- Average rate increase is 1%
  - Residential increase is 13% or \$5 million
  - Commercial reduction is 11% or \$3 million
  - Industrial reduction is 4% or \$1 million

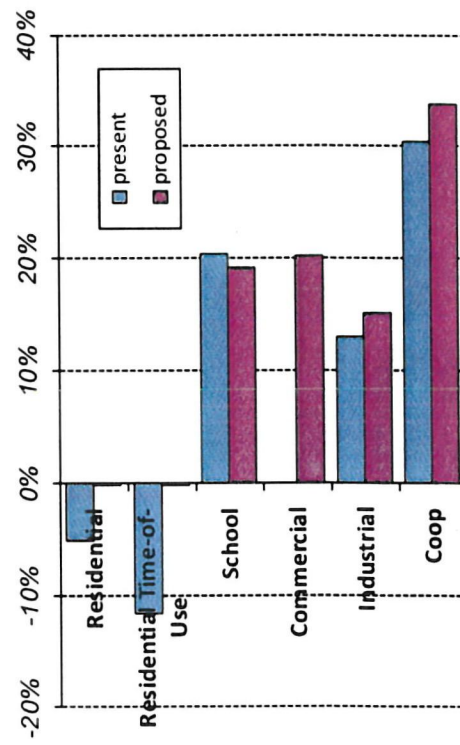


# Scenario 3: Residential Classes 0% Rate of Return All Others Equal Rates of Return

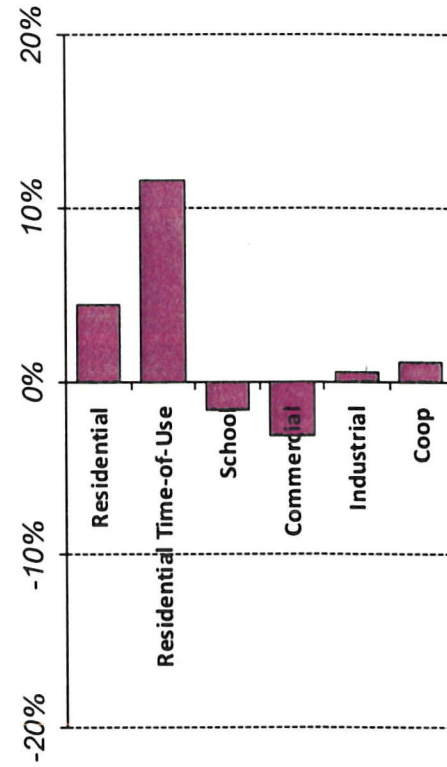
	Rate of Return (%)	Revenue Change		RMLD vs. NGrid (%)
		(\$000)	(%)	
Residential	-0.1%	\$1,691	4.4%	-19.8%
Residential Time-of-Use	-0.1%	75	11.6%	-48.2%
School	19.1%	(33)	-1.6%	-18.0%
Commercial	20.3%	(880)	-3.1%	-16.7%
Industrial	15.1%	131	0.5%	-53.9%
Coop	33.8%	5	1.2%	-10.6%
<b>TOTALS</b>	<b>7.9%</b>	<b>\$990</b>	<b>1.0%</b>	<b>-32.6%</b>



**Rate of Return**



**Rate Impact**



### **Scenario 3:**

#### **Residential Classes 0% Rate of Return**

#### **All Others Equal Rates of Return**

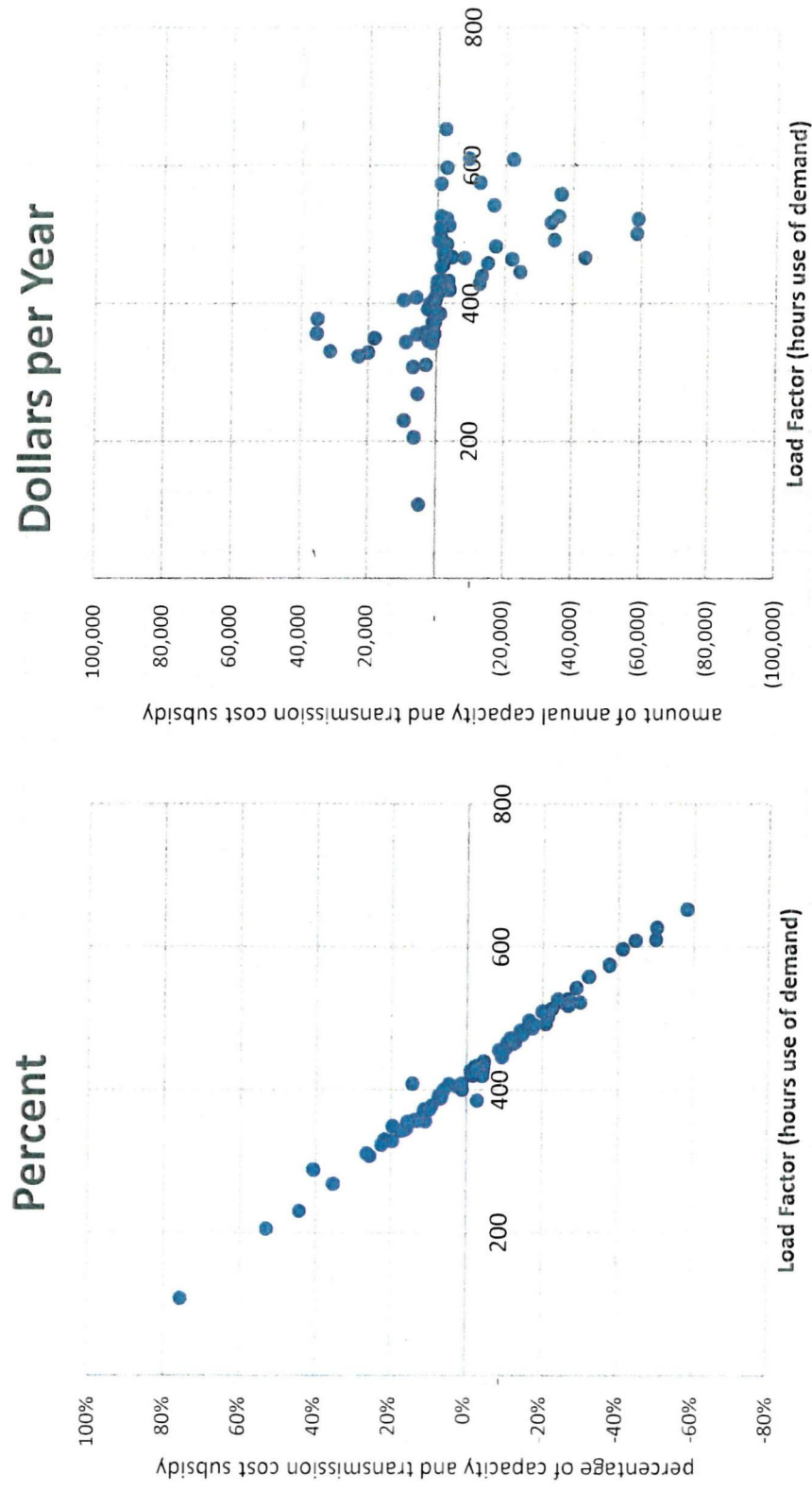
- Overall revenue increase is \$1 million
- Average rate increase is 1%
  - Residential increase is 4% or \$1.7 million
  - Commercial reduction is 3% or \$0.9 million
  - Industrial increase is 0.5% or \$130 thousand



## **Alternative Rate Design Scenarios To Address Intra-Class Subsidies**

- Present rate charges a demand charge only for distribution service to Commercial, Industrial and School customers
  - Rate varies between \$7.48 and \$8.94 per kW
- In FY18 Forward Capacity and Transmission costs will total almost \$16 per kW
- All capacity and transmission costs are recovered through a flat cents per kWh charge that is the same for all customers
- Customers who use a lot of kWh relative to their peak demand (high load factor) are paying more than their share of capacity and transmission costs

# Industrial Rate - Subsidization of Capacity and Transmission Cost

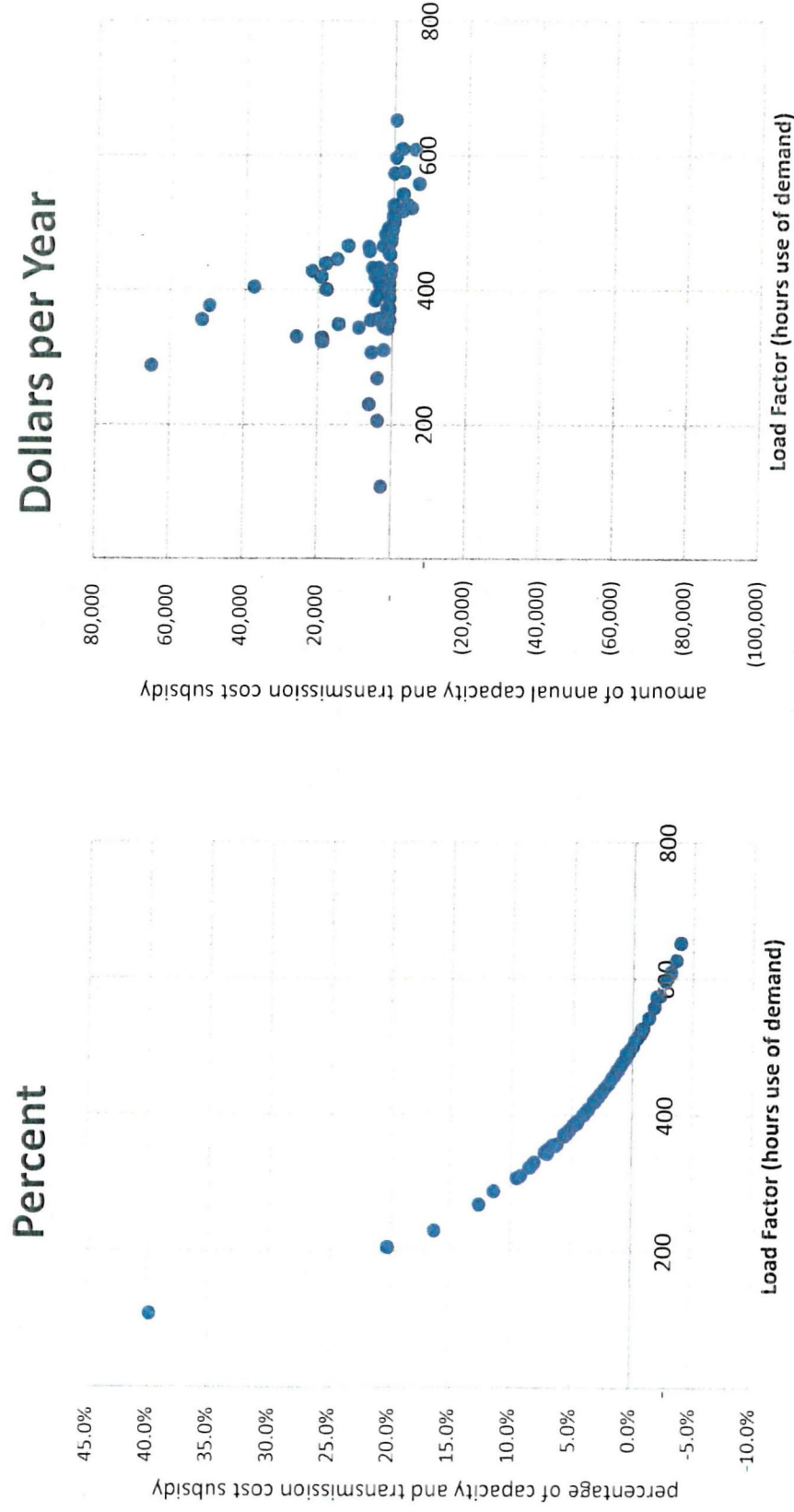




# **Proposed Approach to Reducing or Eliminating this Subsidy**

- Create a separate Purchase Power Capacity and Transmission Charge (PPCTC) for demand-billed customers
  - A demand component that reflects the combined cost of Forward Capacity and Regional Network transmission charges
  - An energy component that recovers the remaining revenues that the PPCTC charges to all other customers would have recovered
- No shift of revenues from one class to another, only from high load factor customers to low load factor customers.

# Impact of Shifting Capacity and Transmission Costs to Demand Charge



# **Impact of Shifting Capacity and Transmission Costs to Demand Charge**

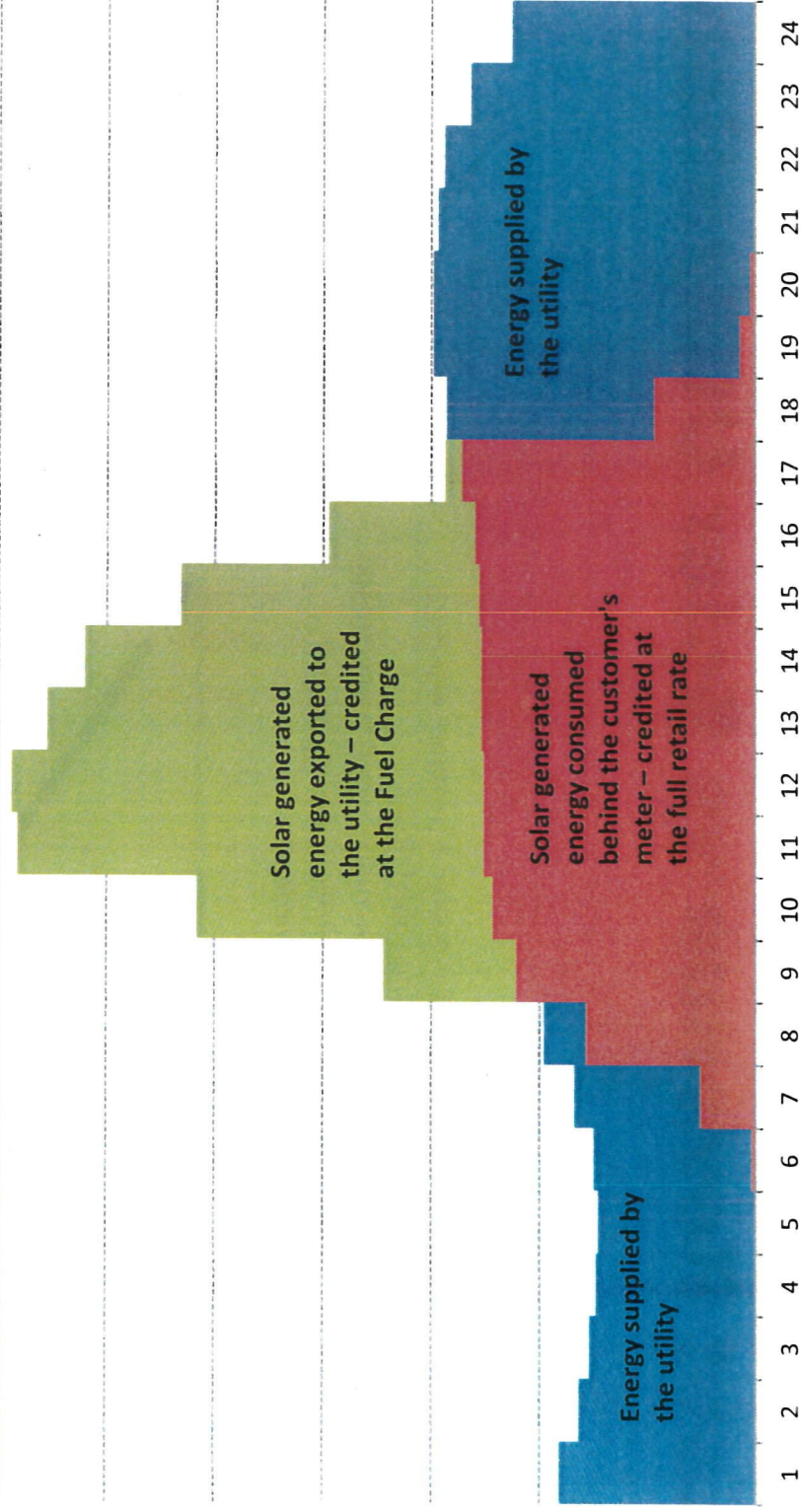
- Two thirds of Industrial Customers would see an increase in their cost of electricity
- Only five customers would see an increase greater than 10%
- None of the decreases would be greater than 5%
  - Customers seeing decreases are high load factor customers using a lot of kWh
  - Customers seeing increases tend to be smaller, low load factor customers using fewer kWh



# Subsidization Under Present Renewable Generation Rate

- Present rate allows customer to avoid paying a distribution charge for all kWh that are produced by their solar generator and consumed on the customer's premises
  - The percentage of distribution charges avoided varies with the size of the solar installation but averages over 30% of total distribution revenue lost per customer
- RMLD loses an average of \$3.16 per installed kW of solar capacity each month in distribution revenue
  - Total monthly subsidy is estimated at \$1,800 across approximately 80 customers, an average subsidy of \$22 per customer.
  - This is mitigated by the fact that payment for energy exported by the solar customer is at the Fuel Charge, which is less than the avoided energy, capacity and transmission value of the solar generation

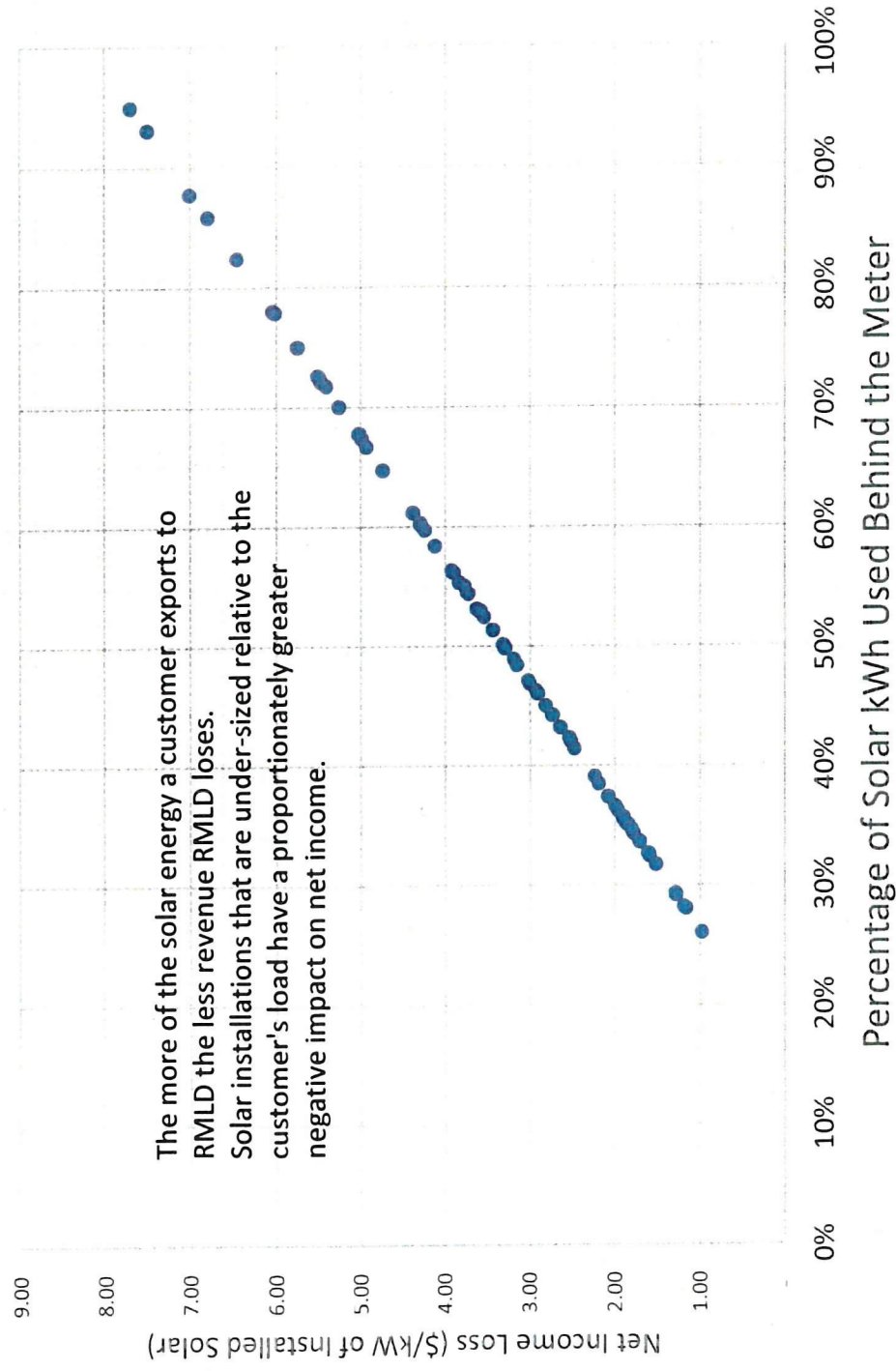
# How a Solar Customer Looks to RMLD Metering



April 12, 2017

PLM Electric Power Engineering

# Lost Revenue vs Solar Utilization





# Options for Reducing the Renewable Generation Subsidy

- Add a Distribution Recovery Charge of \$x.xx per kW of installed solar capacity each month to recover the lost distribution revenue
  - This is not ideal since, as the previous graph shows, the actual lost revenue per kW varies widely from one customer to another.
  - Simple to administer with existing metering and billing system
  - This approach has been adopted by many public power systems
- Install demand meters on all customers with renewable generation and bill their distribution service on a demand rather than energy basis
  - Solar generation does not significantly reduce the maximum demand that a customer places on the distribution system
  - Requires new and more expensive metering and billing solutions
- Separate the metering and billing of distribution service and renewable generation supply
  - Bill the customer for 100% of the electricity consumed on the customer's premises at the normal retail rate
  - Credit the customer for 100% of the energy generated by the facility at a Renewable Generation Buyback tariff rate
  - Most complete and accurate way of eliminating the subsidy
  - Requires new and more complicated metering and billing solutions

# Questions?

April 12, 2017

PLM Electric Power Engineering

# INTEGRATED RESOURCES

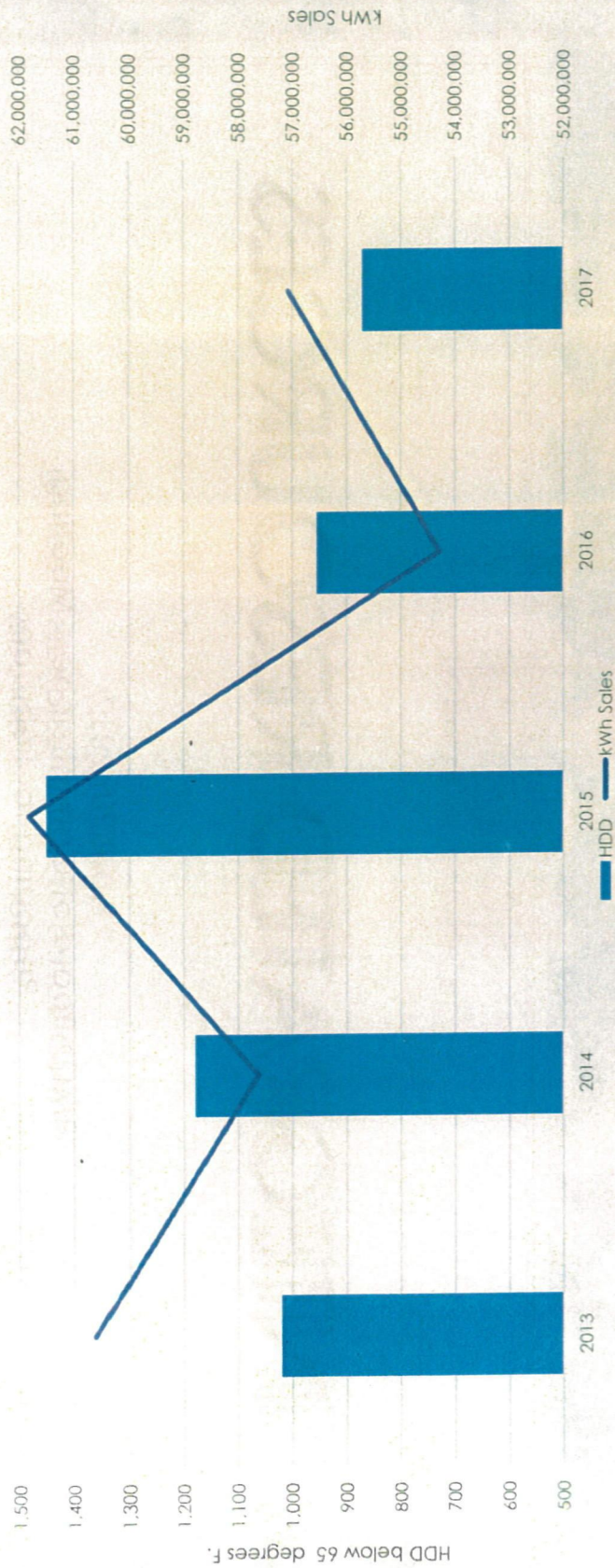
April 20, 2017  
RMLD Board of Commissioners Meeting  
Reporting for February

Jane Parenteau  
Director of Integrated Resources



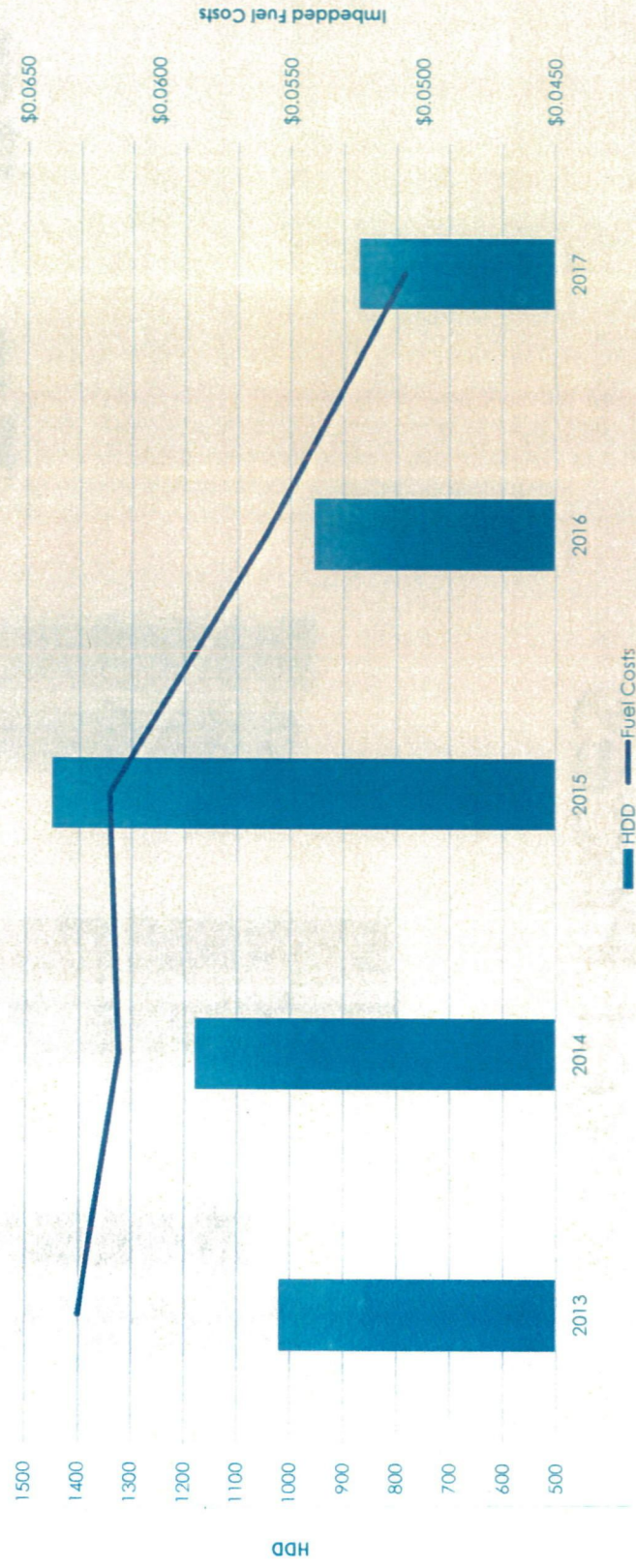
# Heating Degree Days vs. kWh Sales

February 2013-2017



# Imbedded Fuel Costs vs. Heating Degree Days

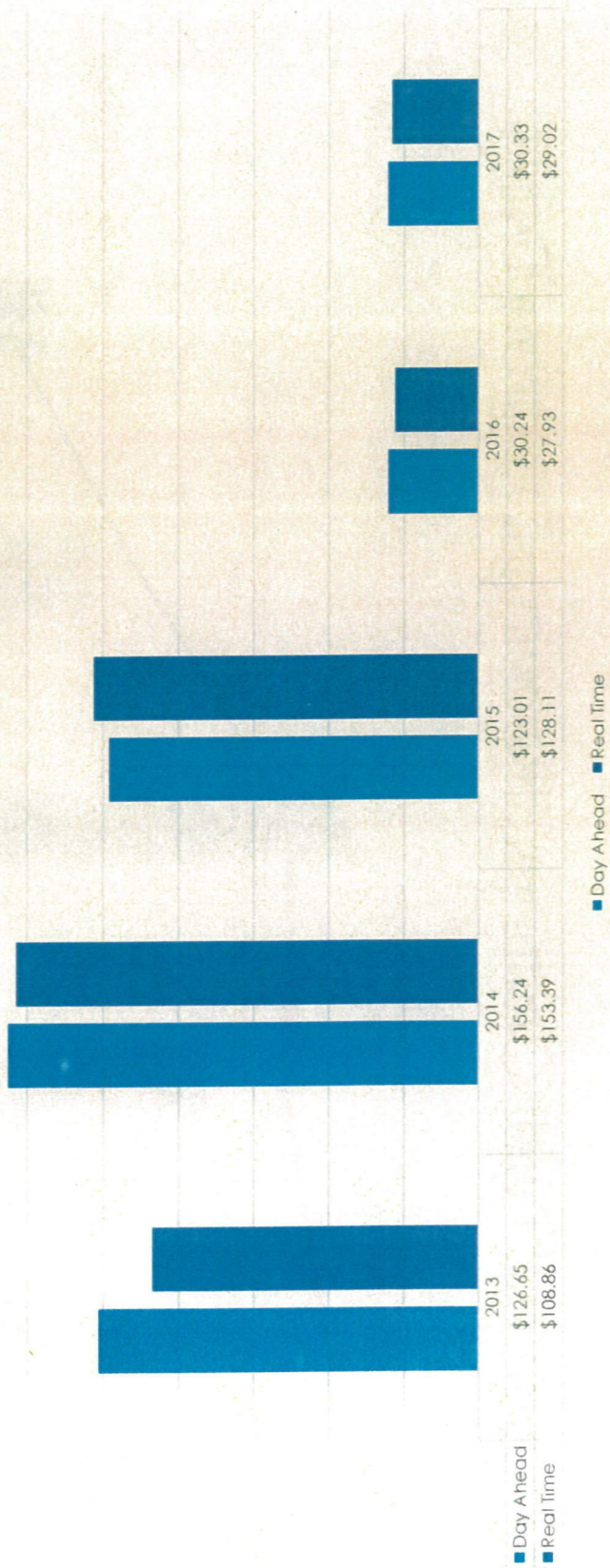
February 2013-2017





# Spot Market Prices

February Averages  
2013-2017





To: Coleen O'Brien

From: Maureen McHugh, Jane Parenteau

Date: April 6, 2017

Subject: Purchase Power Summary – February, 2017

Energy Services Division (ESD) has completed the Purchase Power Summary for the month of February, 2017.

### **ENERGY**

The RMLD's total metered load for the month was 51,014,776 kWh, which is a 6.53% decrease from the February, 2016 figures.

Table 1 is a breakdown by source of the energy purchases.

**Table 1**

Resource	Amount of Energy (kWh)	Cost of Energy (\$/Mwh)	% of Total Energy	Total \$ Costs	\$ as a %
Millstone #3	3,349,435	\$6.72	6.76%	\$22,514	0.90%
Seabrook	5,337,160	\$6.32	10.77%	\$33,731	1.34%
Stonybrook Intermediate	0	\$0.00	0.00%	\$0	0.00%
Shell Energy	7,472,000	\$59.36	15.08%	\$443,530	17.66%
NYP&A	2,140,208	\$4.92	4.32%	\$10,530	0.42%
EDF	3,049,600	\$61.90	6.15%	\$188,775	7.52%
ISO Interchange	8,649,127	\$41.06	17.45%	\$355,116	14.14%
NEMA Congestion	0	\$0.00	0.00%	\$51,909	2.07%
Coop Resales	9,628	\$120.88	0.02%	\$1,164	0.05%
BP Energy	8,558,400	\$46.78	17.27%	\$400,362	15.94%
Hydro Projects*	1,943,548	\$57.19	3.92%	\$111,145	4.43%
Braintree Watson Unit	62,240	\$747.51	0.13%	\$46,525	1.85%
Saddleback/Jericho Wind	2,462,991	\$100.71	4.97%	\$248,058	9.88%
One Burlington Solar	129,337	\$70.00	0.26%	\$9,054	0.36%
Exelon	6,361,600	\$91.55	12.84%	\$582,387	23.19%
Stonybrook Peaking	26,932	\$242.93	0.05%	\$6,543	0.26%
Monthly Total	49,552,206	\$50.68	100.00%	\$2,511,341	100.00%

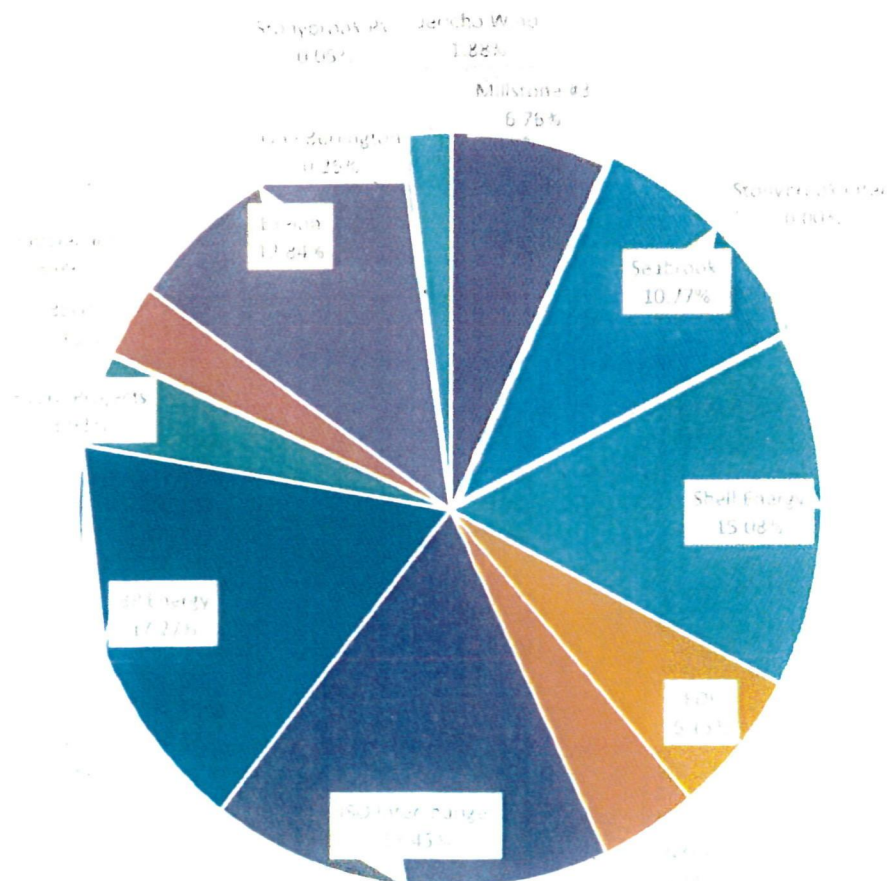
\*Pepperell, Woronoco, Indian River, Turner Falls, Collins, Pioneer, Hosiery Mills, Summit Hydro

Table 2 breaks down the ISO interchange between the DA LMP Settlement and the RT Net Energy for the month of February, 2017.

Table 2			
Resource	Amount of Energy (kWh)	Cost of Energy (\$/Mwh)	% of Total Energy
ISO DA LMP * Settlement	15,448,228	\$33.45	30.83%
RT Net Energy ** Settlement	(6,799,102)	\$23.30	-13.57%
ISO Interchange (subtotal)	8,649,127	\$41.10	17.26%

\* Independent System Operator Day-Ahead Locational Marginal Price

### FEBRUARY 2017 ENERGY BY RESOURCE



## CAPACITY

The RMLD hit a demand of 100,242 kW, which occurred on February 13, at 7 pm. The RMLD's monthly UCAP requirement for February, 2017 was 232,352 kW.

Table 3 shows the sources of capacity that the RMLD utilized to meet its requirements.

**Table 3**

Source	Amount (kW)	Cost (\$/kW-month)	Total Cost \$	% of Total Cost
Millstone #3	4,950	28.07	\$138,930	9.44%
Seabrook	7,909	22.68	\$179,398	12.20%
Stonybrook Peaking	24,981	1.83	\$45,618	3.10%
Stonybrook CC	42,925	3.39	\$145,651	9.90%
NYPA	0	0.00	\$16,834	1.14%
Hydro Quebec	0	0	-\$27,475	-1.87%
Nextera	60,000	6.15	\$369,000	25.09%
Braintree Watson Unit	0	0.00	\$86,849	5.90%
ISO-NE Supply Auction	91,587	5.64	\$516,152	35.09%
Total	232,352	\$6.33	\$1,470,957	100.00%

Table 4 shows the dollar amounts for energy and capacity per source.

**Table 4**

Resource	Energy	Capacity	Total cost	% of Total Cost	Amt of Energy (kWh)	Cost of Power (\$/kWh)
Millstone #3	\$22,514	\$138,930	\$161,443	4.05%	3,349,435	0.0482
Seabrook	\$33,731	\$179,398	\$213,129	5.35%	5,337,160	0.0399
Stonybrook Intermediate	\$0	\$145,651	\$145,651	3.66%	-	0.0000
Hydro Quebec	\$0	-\$27,475	-\$27,475	-0.69%	-	0.0000
Shell Energy	\$443,530	\$0	\$443,530	11.14%	7,472,000	0.0594
NextEra/EDF	\$188,775	\$369,000	\$557,775	14.01%	3,049,600	0.1829
* NYPA	\$10,530	\$16,834	\$27,364	0.69%	2,140,208	0.0128
ISO Interchange	\$355,116	\$516,152	\$871,268	21.88%	8,649,127	0.1007
Nema Congestion	\$51,909	\$0	\$51,909	1.30%	-	0.0000
BP Energy	\$400,362	\$0	\$400,362	10.05%	8,558,400	0.0468
* Hydro Projects	\$111,145	\$0	\$111,145	2.79%	2,503,508	0.0444
Braintree Watson Unit	\$46,525	\$86,849	\$133,374	3.35%	62,240	2.1429
* Saddleback/Jericho	\$248,058	\$0	\$248,058	6.23%	2,462,991	0.1007
* One Burlington Solar	\$9,054	\$0	\$9,054	0.23%	129,337	0.0700
Coop Resales	\$1,164	\$0	\$1,164	0.03%	9,628	0.1209
Exelon Energy	\$582,387	\$0	\$582,387	14.62%	6,361,600	0.0915
Stonybrook Peaking	\$6,543	\$45,618	\$52,160	1.31%	26,932	1.9367
Monthly Total	\$2,511,341	\$1,470,957	\$3,982,298	100.00%	50,112,166	0.0795

\* Renewable Resources

14.44%



## RENEWABLE ENERGY CERTIFICATES (RECs)

Table 5 shows the amount of banked and projected RECs for the Swift River Hydro Projects through February 2017, as well as their estimated market value.

<b>Table 5</b>				
<b>RECs Summary</b>				
<b>Period - January 2016 - February 2017</b>				
	<b>Banked RECs</b>	<b>Projected RECs</b>	<b>Total RECs</b>	<b>Est. Dollars</b>
Woronoco	0	10,715	10,715	\$198,228
Pepperell	0	7,455	7,455	\$137,918
Indian River	0	2,103	2,103	\$38,906
Turners Falls	0	1,135	1,135	\$20,998
Saddleback	0	13,678	13,678	\$253,043
Jericho	0	6,709	6,709	\$124,117
<b>Sub total</b>	<b>0</b>	<b>41,795</b>	<b>41,795</b>	<b>773,208</b>
RECs Sold	\$0		0	\$0
<b>Grand Total</b>	<b>0</b>	<b>41,795</b>	<b>41,795</b>	<b>\$773,208</b>

## TRANSMISSION

The RMLD's total transmission costs for the month of February, 2017 were \$1,023,048. This is an increase of .35% from the January transmission cost of \$1,019,500. In February, 2016 the transmission costs were \$996,019.

	<b>Current Month</b>	<b>Last Month</b>	<b>Last Year</b>
Peak Demand (kW)	100,242	105,335	104,312
Energy (kWh)	50,112,166	58,270,115	54,713,763
Energy (\$)	\$2,511,341	\$2,911,543	\$3,056,024
Capacity (\$)	\$1,470,957	\$1,477,200	\$1,491,572
Transmission(\$)	\$1,023,048	\$1,019,500	\$996,019
Total	\$5,005,347	\$5,408,243	\$5,543,616



# Engineering & Operations Report

RMLD Board of Commissioners Meeting

April 20, 2017

February 2017 Reporting Period

Hamid Jaffari, Director of Engineering & Operations



# Capital Improvement Projects

Construction Projects:		% Complete Status	FEB	YTD
100	Distributed Gas Generator Pilot	15%	\$5,774	\$92,081
108	Relay Replacement – Station 4	100%	\$10,500	\$113,209
110	4W9 Getaway Replacement – Station 4 • Materials received.	n/a	\$104,513	\$104,513
133	Station 3: Relay Upgrades and SCADA Integration	20%	\$1,642	\$250,637
139	Station 5: LTC Control Replacement	20%	\$137	\$6,324
	Service Installations – Residential and Commercial: This item includes new or upgraded overhead and underground services.	On-going	\$10,383	\$80,126
103	Grid Modernization and Optimization	On-Going	\$18,107	\$222,139
125	GIS	55%	\$45,182	\$179,777
131	LED Street Light Conversion	62%	\$54,855	\$485,126



## Routine Construction

	FEB	YTD
Pole Setting/Transfers	\$47,139	\$250,414
Overhead/Underground	\$10,413	\$275,452
Projects Assigned as Required <ul style="list-style-type: none"> <li>Industrial Way, Wilmington</li> <li>AT&amp;T Appl, Wilmington</li> <li>Lighttower, 600 Research Drive, Wilmington</li> </ul>	\$16,276	\$149,547
Pole Damage/Knockdowns - Some Reimbursable <ul style="list-style-type: none"> <li>Work was done to repair or replace seven (7) poles.</li> </ul>	\$8,051	\$84,337
Station Group	\$97	\$168,116
Hazmat/Oil Spills <ul style="list-style-type: none"> <li>Concord Street, North Reading</li> </ul>	\$500	\$5,796
Porcelain Cutout Replacement Program	-	-
Lighting (Street Light Connections)	\$4,065	\$19,508
Storm Trouble	\$13,874	\$31,855
Underground Subdivisions (new construction)	-	\$45,828
Animal Guard Installation	\$259	\$1,054
Miscellaneous Capital Costs	\$8,916	\$139,697
<b>TOTAL:</b>	<b>\$109,591</b>	<b>\$1,171,604</b>



# Routine Maintenance

## ► Transformer Replacement (through February 2017)

Pad mount 25.65%      Overhead 16.69%

## ► Pole Inspection (as of 4/10/17)

224 poles have been replaced      126 of 224 transfers have been completed

## ► Quarterly Inspection of Feeders (through March 2017)

Inspected circuits (Jan-Mar): 3W5, 3W6, 3W7, 3W8, 3W13, 3W14, 3W15, 3W18, 4W4, 4W5, 4W6, 4W7, 4W9, 4W23, 4W24, 5W4, 5W5, 5W8, 5W9, 4P9, 4P2

## ► Manhole Inspection (through February 2017)

961 of 1,237 manholes have been inspected.

## ► Porcelain Cutout Replacements (through February 2017)

91% complete      253 remaining to be replaced

## ► Tree Trimming

February: 75 spans trimmed      YTD: 831 spans trimmed

## ► Substation Maintenance

Infrared Scanning – February complete - no hot spots found

# Double Poles

- Ownership: 16,000 (approximately)
  - 50% RMLD
  - 50% Verizon

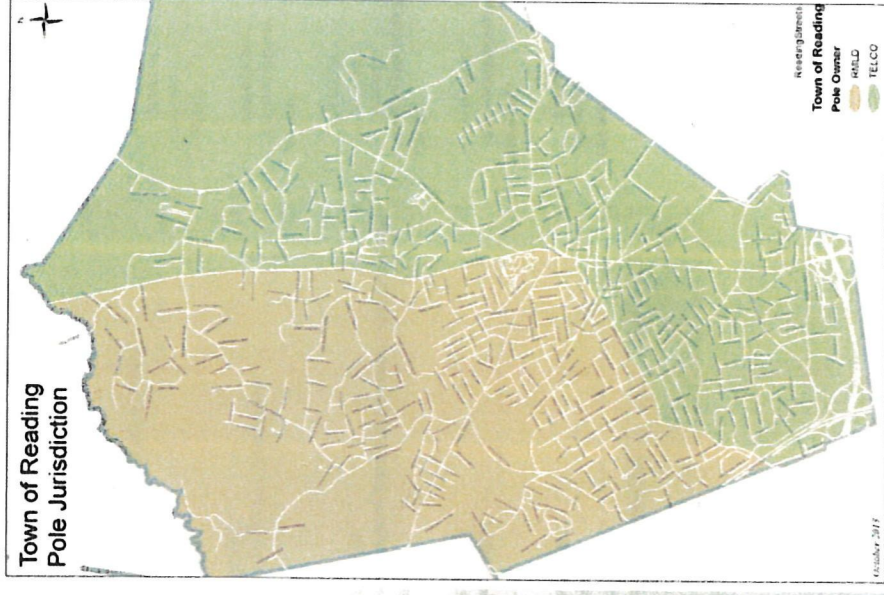
- Custodial:

Reading – split (see map) →

North Reading – RMLD

Lynnfield – Verizon

Wilmington - Verizon





# NJUNS

"Next to Go" as of April 7, 2017

## WILMINGTON

NTG Member and JobType	Count of Ticket Number
CMCTNR	16
Comcast	
TRANSFER	16
NP3PMA	7
Non-participating 3rd Party Attacher - Massachusetts	
TRANSFER	7
NP3PMA	3
Non-participating Fire Alarms - Massachusetts	
TRANSFER	3
RMID	31
Reading Municipal Light Department	
TRANSFER	26
PULL POLE	4
INSTL GUY	1
VZBMA	1
Verizon Business	
TRANSFER	1
VZMEDR	72
Verizon	
TRANSFER	55
ATTACH	1
PULL POLE	16
WMFIB	3
Town of Wilmington	
TRANSFER	3
WMGDFD	84
Wilmington Fire Department	
TRANSFER	84
(blank)	
Grand Total	217

## NORTH READING

NTG Member and JobType	Count of Ticket Number
CMCTNR	3
Comcast	
TRANSFER	3
NGMA	1
National Grid	
TRANSFER	1
NP3PMA	1
Non-participating 3rd Party Attacher - Massachusetts	
TRANSFER	1
NRDGF	44
North Reading Fire Department	
TRANSFER	44
RMID	119
Reading Municipal Light Department	
TRANSFER	13
PULL POLE	106
VZMEDR	23
Verizon	
TRANSFER	15
PULL POLE	8
(blank)	
Grand Total	191

## READING

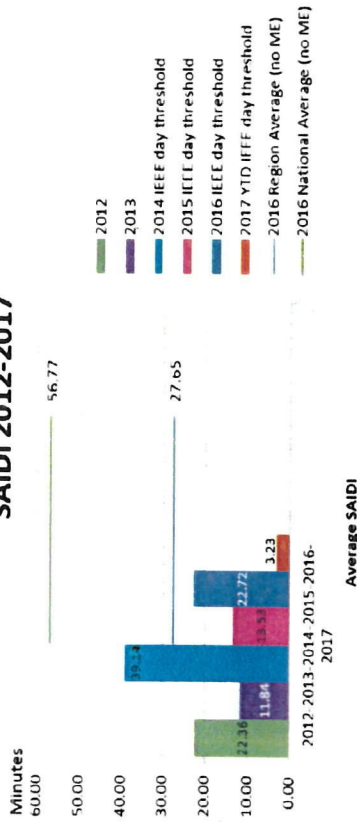
NTG Member and JobType	Count of Ticket Number
CMCTNR	9
Comcast	
TRANSFER	9
LTFMA	1
Lighttower Fiber Networks	
TRANSFER	1
NP3PMA	9
Non-participating 3rd Party Attacher - Massachusetts	
TRANSFER	9
RDNGFD	8
Reading Fire Department	
TRANSFER	8
RMID	50
Reading Municipal Light Department	
TRANSFER	23
PULL POLE	27
VZNESA	115
Verizon	
TRANSFER	111
PULL POLE	4
(blank)	
Grand Total	192

## LYNNFIELD

NTG Member and JobType	Count of Ticket Number
LFLDFD	3
Lynnfield Fire Department	
TRANSFER	3
RMID	3
Reading Municipal Light Department	
TRANSFER	3
VZNESA	13
Verizon	
TRANSFER	7
PULL POLE	6
(blank)	
Grand Total	19

# RMLD Reliability Indices

**SAIDI 2012-2017**

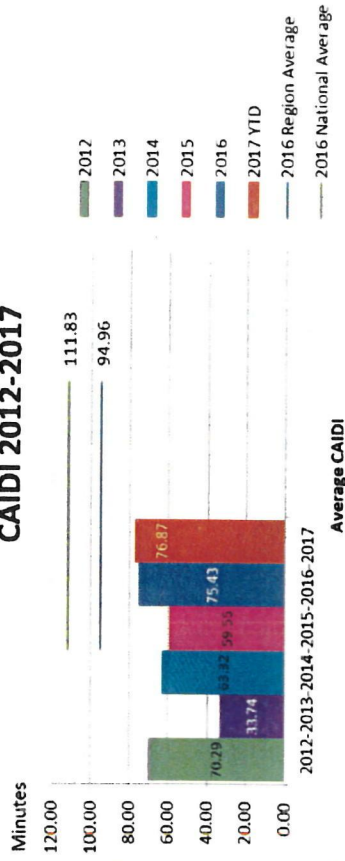


$$SAIDI \text{ (Minutes)} = \frac{\text{Total Duration of Customer Interruptions}}{\text{Total Number of Customers Served}}$$

**Note:** The major event (ME) threshold allows a utility to remove outages that exceed the IEEE 2.5 beta threshold for events. These events could be severe weather, which can lead to unusually long outages in comparison to your distribution system's typical outage.

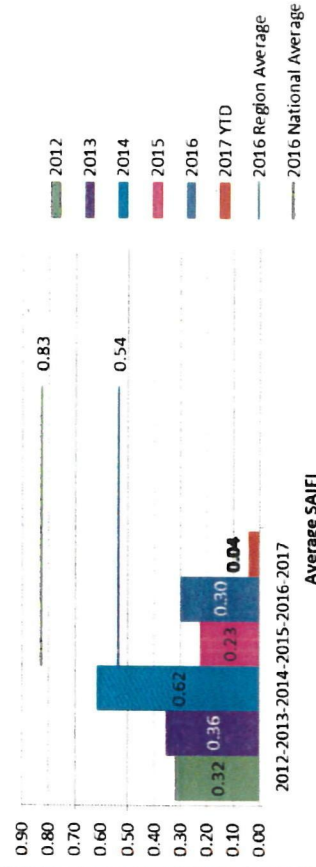
**Note:** Regional and national averages have been updated for 2016.

**CAIDI 2012-2017**



$$CAIDI \text{ (Minutes)} = \frac{\text{Total Duration of Customer Interruptions}}{\text{Total Number of Customers Interruptions}}$$

**SAIFI 2012-2017**



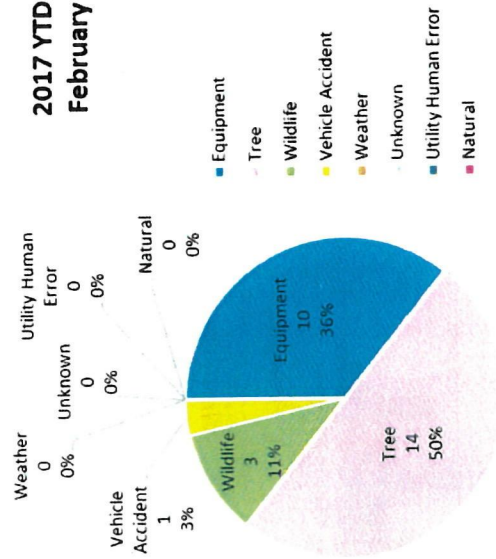
$$SAIFI = \frac{\text{Total Number of Customer Interruptions}}{\text{Total Number of Customers Served}}$$



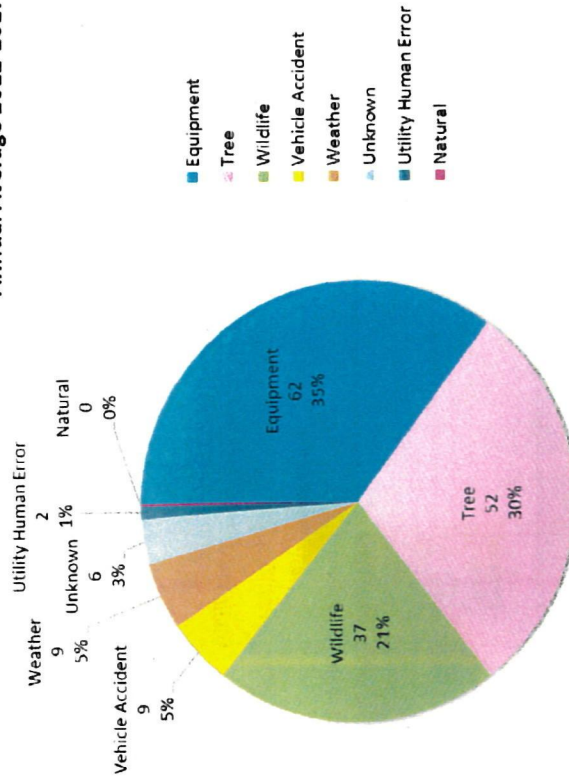
# Outages Causes

Outages Causes YTD (from eReliability website)

2017 YTD  
February



Annual Average 2012-2017





# Questions ?



6

6

6

April 14, 2017

Town of Reading Municipal Light Board

Subject: IFB 2017-33 Hourly Rates for Overhead Line Construction and Maintenance Work as needed, Storm Management Line Construction and Restoration

Pursuant to M.G.L. c. 30 § 39M, on March 22, 2017, an invitation for bid was placed as a legal notice in the Middlesex East Section of the Daily Times Chronicle, on COMMBUYS, and in the Central Register requesting sealed bids for Rates for Overhead Line Construction and Maintenance Work as needed, Storm Management Line Construction and Restoration.

An invitation for bid was sent to the following thirty companies:

ABM Electrical Power Services, LLC	Harlan Electrical Construction	Northeast Line Construction Corp.
Albanese Brothers, Inc.	Hawkeye - Elecnor Group	One Source Power
Dagle Electrical Construction Corp.	Hi Volt Line Construction & Maintenance	ONVIA
ElecComm Corp.	IB Abel Inc.	Power Line Contractors
Evans Line Construction Co.	K.B. Aruda Construction, Inc.	Prime Vendor, Inc.
Evermore Light and Power	Mass Bay Electrical Corp.	Project Dog
Fischbach & Moore	Matrix NAC, LLC	Shay Enterprise
GEOD Consulting	Maverick Construction	Spencer Contracting
Grattan Line Construction Corp.	McDonough Electric Construction	Thirault LLC
Hamilton Electric Co., Inc.	MEC Power Group	Utility Service & Assistance, Inc.

Sealed bids were received from two companies: Powerline Contractors, Inc., and Matrix NAC, LLC.

The sealed bids were publicly opened and read aloud at 11:00 a.m. on April 6, 2017, in the Town of Reading Municipal Light Department's General Manager's Conference Room, 230 Ash Street, Reading, Massachusetts.




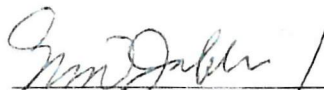
The bids were reviewed, analyzed and evaluated by staff and recommended to the General Manager.

Move that bid 2017-33 for: Hourly Rates for Overhead Line Construction and Maintenance Work As Needed, Storm Management Line Construction and Restoration be awarded to: Power Line Contractors, Inc., as the lowest responsible and eligible bidder on the recommendation of the General Manager.

This project will be paid from various operating and capital accounts as work dictates.

  
\_\_\_\_\_  
Stephen W. DeFerrari

  
\_\_\_\_\_  
Hamid Jaffari

 / For CO  
\_\_\_\_\_  
Coleen O'Brien

Hourly Rates for Overhead Line Construction and Maintenance Work as needed, Storm Management Line Construction and Restoration  
IFB 2017-33

Bidder:	Power Line Contractors, Inc.				Matrix NAC, LLC			
	YEAR 1 <i>on or about May 15, 2017 - May 14, 2018</i>	YEAR 2 <i>on or about May 15, 2018 - May 14, 2019</i>	YEAR 3 <i>on or about May 15, 2019 - May 14, 2020</i>	YEAR 1 <i>on or about May 15, 2017 - May 14, 2018</i>	YEAR 2 <i>on or about May 15, 2018 - May 14, 2019</i>	YEAR 3 <i>on or about May 15, 2019 - May 14, 2020</i>		
<b>Crew Rate - Regular Hourly</b>								
Leader Lineworker	130.00	132.00	134.00	103.88	106.48	109.34		
First Class Lineworker/Journeyman	120.00	122.00	124.00	98.65	101.15	103.87		
Material Handler (Bucket Truck)/Digger Derrick	30.00	32.00	34.00	103.00	106.61	110.34		
<b>Crew Rate Per Hour:</b>	<b>\$280.00</b>	<b>\$286.00</b>	<b>\$292.00</b>	<b>\$305.53</b>	<b>\$314.24</b>	<b>\$323.55</b>		
<b>Crew Rate - Emergency Hourly (Storms)</b>								
Leader Lineworker	231.00	233.00	235.00	121.86	124.91	128.27		
First Class Lineworker/Journeyman	211.00	213.00	215.00	115.72	118.66	121.84		
Material Handler (Bucket Truck)/Digger Derrick	55.00	57.00	59.00	103.00	106.61	110.34		
<b>Crew Rate Per Hour:</b>	<b>\$497.00</b>	<b>\$503.00</b>	<b>\$509.00</b>	<b>\$340.58</b>	<b>\$350.18</b>	<b>\$360.45</b>		
<b>Annual Cost - Regular Time (estimate)</b>								
# of Hours Per Year (estimate)	800	800	800	800	800	800		
<b>Total Estimate Per Year (hours x rate):</b>	<b>\$224,000</b>	<b>\$228,800</b>	<b>\$233,600</b>	<b>\$244,424</b>	<b>\$251,392</b>	<b>\$258,840</b>		
<b>Annual Cost - Emergency (estimate)</b>								
# of Hours Per Year (estimate)	40	40	40	40	40	40		
<b>Total Estimate Per Year (hours x rate):</b>	<b>\$19,880</b>	<b>\$20,120</b>	<b>\$20,360</b>	<b>\$13,623</b>	<b>\$14,007</b>	<b>\$14,418</b>		
<b>Total (Regular and Emergency) Combined</b>								
<b>Annual Total:</b>	<b>\$243,880</b>	<b>\$248,920</b>	<b>\$253,960</b>	<b>\$258,047</b>	<b>\$265,399</b>	<b>\$273,258</b>		
<b>Three-Year Total:</b>	<b>\$746,760</b>				<b>\$796,704</b>			





**From:** [Tracy Schultz](#)  
**To:** [RMLD Board Members Group](#)  
**Cc:** [Jeanne Foti](#)  
**Subject:** AP Warrants and Payroll  
**Date:** Tuesday, April 11, 2017 12:42:00 PM

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Good afternoon,

There were no Account Payable Warrant questions for the following dates:  
March 17, March 24, March 31, and April 7.

There were no Payroll questions for the following dates:  
March 20 and April 3.

This message will be included in the Board Packet for the RMLD Board Meeting on  
Thursday, April 20, 2017.

Tracy Schultz  
Executive Assistant  
**Reading Municipal Light Department**  
230 Ash Street. Reading. MA. 01867  
Tel: 781.942.6489

TOWN OF READING MUNICIPAL LIGHT DEPARTMENT  
RATE COMPARISONS READING & SURROUNDING TOWNS

April-17

	RESIDENTIAL 750 kWh's	RESIDENTIAL-TOU 1500 kWh's 7525 Split	RES. HOT WATER 1000 kWh's	COMMERCIAL 7,300 kWh's 25,000 kW Demand	SMALL COMMERCIAL 1,080 kWh's 10,000 kW Demand	SCHOOL RATE 35000 kWh's 130.5 kW Demand	INDUSTRIAL - TOU 109,500 kWh's 250,000 kW Demand 80/20 Split
READING MUNICIPAL LIGHT DEPT.							
TOTAL BILL	\$109.93	\$188.38	\$133.61	\$986.35	\$196.12	\$4,579.40	\$731,263.56
PER KWH CHARGE	\$0.14657	\$0.12559	\$0.13361	\$0.13512	\$0.18159	\$0.13084	\$0.10629
NATIONAL GRID							
TOTAL BILL	\$152.35	\$359.59	\$188.82	\$2,053.27	\$312.29	\$5,877.72	\$1,646,998.81
PER KWH CHARGE	\$0.20313	\$0.23972	\$0.18882	\$0.28127	\$0.28916	\$0.16793	\$0.23940
% DIFFERENCE	38.59%	90.88%	41.32%	108.17%	59.24%	28.35%	125.23%
EVERSOURCE(NSTAR)							
TOTAL BILL	\$143.50	\$253.51	\$189.19	\$1,233.41	\$203.03	\$5,692.17	\$1,095,603.32
PER KWH CHARGE	\$0.19133	\$0.16901	\$0.18919	\$0.16896	\$0.18799	\$0.19120	\$0.15925
% DIFFERENCE	30.54%	34.57%	41.60%	25.05%	3.53%	46.14%	49.82%
PEABODY MUNICIPAL LIGHT PLANT							
TOTAL BILL	\$88.38	\$172.43	\$117.07	\$952.31	\$151.07	\$4,709.23	\$638,286.46
PER KWH CHARGE	\$0.11784	\$0.11495	\$0.11707	\$0.13045	\$0.13988	\$0.13455	\$0.09278
% DIFFERENCE	-19.60%	-8.47%	-12.38%	-3.45%	-22.97%	2.84%	-12.71%
MIDDLETON MUNICIPAL LIGHT DEPT.							
TOTAL BILL	\$98.74	\$201.66	\$132.75	\$959.51	\$168.44	\$4,762.93	\$807,171.40
PER KWH CHARGE	\$0.13165	\$0.13444	\$0.13275	\$0.13144	\$0.15596	\$0.13608	\$0.11733
% DIFFERENCE	-10.18%	7.05%	-0.65%	-2.72%	-14.12%	4.01%	10.38%
WAKEFIELD MUNICIPAL LIGHT DEPT.							
TOTAL BILL	\$117.36	\$217.17	\$146.88	\$1,111.54	\$178.18	\$5,210.58	\$869,964.30
PER KWH CHARGE	\$0.15648	\$0.14478	\$0.14688	\$0.15227	\$0.16499	\$0.14887	\$0.12646
% DIFFERENCE	6.76%	15.28%	9.93%	12.69%	-9.14%	13.78%	18.97%