



Reading Municipal Light Department  
RELIABLE POWER FOR GENERATIONS

230 Ash Street  
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## AGENDA

### REGULAR SESSION

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

WEDNESDAY, AUGUST 12, 2015

6:30 PM

230 Ash Street, Winfred Spurr AV Room  
Reading, MA 01867

1. Call Meeting to Order – D. Nelson, Vice Chair
2. Approval of Minutes – D. Nelson, Vice Chair

*Suggested Motion:* Move that the Citizens' Advisory Board approve the Minutes of the January 14, 2015, meeting as written.

*Suggested Motion:* Move that the Citizens' Advisory Board approve the Minutes of the March 11, 2015, meeting as written.

3. General Manager's Report – C. O'Brien, General Manager
  - Organizational and Reliability Studies - Next Steps
  - Municipal Services Update
  - RMLD GM Meetings with Member Town Managers/Administrators Update
4. Integrated Resources Report – J. Parenteau, Director of Integrated Services
  - Purchase Power
  - Community Solar Update
5. Financial Report – B. Fournier, Business Manager
6. Engineering & Operations Report – H. Jaffari, Director of Engineering & Operations
7. Next Meeting – D. Nelson, Vice Chair
8. Adjournment – D. Nelson, Vice Chair

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



## Town of Reading Meeting Minutes

### Board - Committee - Commission - Council:

RMLD Citizens Advisory Board

Date: 2015-01-14

Time: 6:30 PM

Building: Reading Municipal Light Building

Location: Winfred Spurr Audio Visual Room

Address: 230 Ash Street

Purpose: Regular Meeting

Session: General Session

#### Attendees: **Members - Present:**

Mr. George Hooper, Chair (Wilmington); Mr. David Nelson, Vice Chair (Lynnfield); Mr. Mark Chrisos (North Reading)

#### **Members - Not Present:**

Mr. David Mancuso, Secretary (Reading) Mr. Dennis Kelley (Wilmington)

#### **Others Present:**

Mr. Thomas O'Rourke, RMLD Board of Commissioners  
Mr. Hamid Jaffari, Ms. Kathleen Rybak

**Minutes Respectfully Submitted By:** Mr. George Hooper, Chair

#### Topics of Discussion:

##### 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. **Introductions – G. Hooper, Chair**

Chair Hooper introduced Mr. Mark Chrisos the new North Reading representative to the CAB. Mr. Chrisos noted that he has lived in North Reading since 1993. Mr. Chrisos' professional background and training is in environmental health and safety with 25-30 years in that business. For the past two years, Mr. Chrisos has worked for Con Edison of New York as a regional project developer for large renewable projects in Massachusetts (solar and wind) including some for municipalities.

##### 3. **Approval of Minutes from October 22, 2014, Meeting – G. Hooper, Chair:**

*Materials: Draft October 22, 2014, Minutes*

Mr. Nelson made a **Motion** that the Citizens' Advisory Board approve the minutes of the October 22, 2014, meeting as written, seconded by Mr. Chrisos. Hearing no further discussion, **Motion carried 3:0:2** (3 in favor, 0 opposed, 2 absent).

##### 4. **Follow-up on Presentation to Towns – H. Jaffari, Director of E&O**

Chair Hooper noted that RMLD did a great job with the Wilmington presentation – staff were able to put minds at ease on a lot of issues and questions. Mr. Jaffari provided an overview of the RMLD presentations, which were made to each of the four towns. The presentations included the RMLD Mission Statement, the Organizational and Reliability Studies, the LED street light program, tree trimming, and charging stations and commercial rebates. Wilmington also had a presentation on RECs.

Mr. Jaffari reviewed the reliability indices and spoke about some of the programs put in place to address reliability including maintenance programs and a revamped tree-



trimming program, which now focuses on the main roads and feeders (where all the switches are) and then going to the laterals, which are protected by the fuses. The old tree-trimming program cuts back five feet, and we have requested an increase to eight feet (on a three-year cycle). The national standard is ten feet. Mr. Hooper asked about the arborist. Mr. Jaffari noted that there is a new tree-trimming contract with Mayer Tree Services, which started as of January 1. As part of the new program, the RMLD website has a tab for tree trimming that shows (for each community) a map and routes where the tree contractor is trimming. RMLD has met with all Town Managers, DPW Directors, and Tree Wardens to get their feedback on the tree-trimming program. As part of the tree-trimming contract, Meyer Tree Services will develop an IVM (Integrated Vegetative Management) Plan for any community that, under MGL (Part I, Title XIV, Chapter 87, Section 14) requests such plan. Once that is completed, reviewed, and approved, RMLD will sit down again with the DPW Directors and Tree Wardens to finalize the plan.

Mr. Jaffari noted that the reliability and organizational studies will review the current situation and then compare RMLD against other organizations of similar size for benchmarking. Leidos will do a gap analysis in order to give us recommendations moving forward for the next 20 years. Mr. Jaffari noted that the RMLD system lacked maintenance, which we now know about and have begun to address deficiencies. Substations had not been tested and maintained (some equipment for almost ten years). After coming on board, Mr. Jaffari hired a testing company so we have a benchmark from that point. The reliability study will focus on the current situational analysis, determine deficiencies and appropriate planning and maintenance, as well as the day-to-day engineering and operational activities. Leidos will compare RMLD with best practices and make recommendations in five-year segments including the cost estimates and budget recommendations. The final reports should be completed by March, with presentations for the Board and CAB to follow. This will set the tone for what RMLD needs to do for the next 20 years to be more efficient, productive, and reliable. RMLD will have a road map to prioritize capital and operational spending. The two studies will be merged to see if we have adequate staffing required to achieve the goals; what skill sets are necessary in order to prepare the workforce for the future challenges in our industry. Mr. Chrisos asked about the age of the workforce. Mr. Jaffari responded that half of the RMLD workforce are/or are becoming eligible for retirement within five years.

Mr. Nelson noted that he has observed over his last three years on the CAB that RMLD is evolving into a more efficient, safe, reliable service, which actually costs less money in the long-run, and questioned if that was a trend. Mr. Jaffari noted that most municipalities are more reactive than proactive. At RMLD, our strategy is to be proactive rather than reactive, we even raised it one notch up to be more proactive with all the maintenance programs that have been initiated. As an example, in a study RMLD found that there are about 1,800 (1/3 of the transformers in the system) that are over 20 years old and we are scheduling replacement to avoid costly environmental issues. Mr. Jaffari noted that last year RMLD spent close to \$80,000 just for cleanup. Now we have a program in place and are moving in the right direction. Mr. Nelson noted the emphasis that RMLD is placing on preventive maintenance and training, which is a positive thing.

Mr. Jaffari went on to talk about the LED pilot program, which has been implemented in all towns. In response to a request from Commissioner Talbot, Mr. Jaffari is putting together a document that explains the strategy and the science to designing the streetlights - how they are set up, how many feet apart they need to be for proper illumination; the standards for design - what height, what illumination. The decision whether communities need to install or remove any lights will need to be made by the towns. There were no significant comments regarding the LED lights noted by staff or CAB members.

Mr. Jaffari continued with his overview of the town presentations noting that Ms. Parenteau's presentation included the charging station at Analog, commercial and residential rebates, the water heater program and other cost-saving DSM programs. The Wilmington, presentation included discussion of RECs. Mr. Chrisos asked if the lighting district is generating RECs. Mr. Jaffari replied the RECs are not generated. Because of the programs that RMLD has in place, you get a Mass energy credit that is given. RMLD received \$1.9m via the sale of RECs and the money received was applied against the fuel charge, effectively reducing the cost to all ratepayers. It offset some of the energy costs – a win/win for both the ratepayers and utilities.

Mr. Jaffari noted that the presentations were very well received by all communities, selectmen and town administrators. Presentations will be done again in the future. Chair Hooper asked if there were any questions or comments. There were no questions regarding the town presentations.

Mr. O'Rourke reported on the awards ceremony for the Annual RMLD T-Shirt Contest noting that it was a great evening.

**5. Review and Approval of CAB Policies #1 and #2 – D. Nelson, Vice Chair**

*Materials: CAB Policy No 1 and CAB Policy No. 2*

Mr. Nelson reported that over the last several meetings the CAB has been reviewing CAB Policy No. 1 and No. 2, which were sent out by RMLD for legal review. Mr. Nelson noted that he has looked at the policies, and that they are above and beyond what he thought they could be revised as - they are on target and go along with the 20-Year Agreement. Chair Hooper noted that he had reviewed them and thought everything was positive. The group agreed that the policies are always changeable/amendable should there be a need. However, (as with the policies at RMLD) there will be a three-year review period for all policies.

Mr. Nelson made a **Motion** that the CAB approve CAB Policy No. 1 and CAB Policy No. 2 as revised and written, seconded by Mr. Chrisos. Hearing no further discussion, **Motion carried 3:0:2** (3 in favor, 0 opposed, 2 absent).

Mr. Nelson thanked RMLD and Ms. O'Brien for looking at these policies along with the RMLD policies. Chair Hooper thanked Mr. Nelson for bringing this forward.

**6. Coverage for the 2015 BOC Meetings – G. Hooper, Chair**

Mr. Nelson agreed to cover the January 29th Commissioners meeting. Mr. Chrisos agreed to cover the February 26th meeting.

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

The next CAB meeting was scheduled for February 11, 2015, at 6:30 p.m. FY16 Operating and Capital Budget review meetings were scheduled for April 15 and April 22 with one of the meetings taking place in Wilmington.

Mr. Nelson asked for an update on the vacancy on the Board of Commissioners. Mr. O'Rourke reported that a meeting has been scheduled for January 27 to vote on a candidate for the vacancy.

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

Mr. Nelson made a **Motion** to adjourn the Citizens' Advisory Board meeting, seconded by Mr. Chrisos. Hearing no further discussion, **Motion carried 3:0:2 (3 in favor, 0 opposed, 2 absent).**

The Citizens' Advisory Board Meeting adjourned at 7:18 p.m.

Minutes Approved on: \_\_\_\_\_







## Town of Reading Meeting Minutes

### Board - Committee - Commission - Council:

RMLD Citizens Advisory Board

Date: 2015-03-11

Time: 6:30 PM

Building: Reading Municipal Light Building

Location: Winfred Spurr Audio Visual Room

Address: 230 Ash Street

Purpose: Regular Meeting

Session: General Session

#### Attendees: **Members - Present:**

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

#### **Members - Not Present:**

Mr. Mark Chrisos (North Reading)

#### **Others Present:**

Mr. John Stempeck, RMLD Board of Commissioners  
Ms. Jane Parenteau, Ms. Kathleen Rybak, Mr. Bill Seldon

**Minutes Respectfully Submitted By:** Mr. David Mancuso, Secretary

#### Topics of Discussion:

##### 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. **Approval of Minutes – G. Hooper, Chair**

*Materials: Draft October 22, 2014, Minutes; Draft November 19, 2015, Executive Session Minutes (provided to CAB members only).*

Mr. Nelson made a **Motion** that the Citizens' Advisory Board approve the Minutes of the October 22, 2014, meeting as written, seconded by Mr. Kelley. Hearing no further discussion, **Motion carried 4:0:1 (4 in favor, 0 opposed 1 absent).**

Mr. Nelson made a **Motion** that the Citizens' Advisory Board approve the Minutes of the November 19, 2014, Executive Session as written, seconded by Mr. Mancuso. Hearing no further discussion, **Motion carried 4:0:1 (4 in favor, 0 opposed 1 absent)**

##### 3. **RFP – Wholesale Power Supply 2016-19 – J. Parenteau, Director of Integrated Resources**

*Materials: Memo dated March 6, 2015: 2015 Request for Proposals (RFP) Wholesale Power Supply*

Ms. Parenteau presented the RFP for Wholesale Power Supply for 2016-19. Ms. Parenteau noted that when suppliers provide heat-rate index pricing, they build a basis component into the risk associated with the heat-rate – there is no way to hedge that and (for that particular cost provision) this may increase the electricity price. Therefore, RMLD is looking to develop a new product to break out the heat-rate, the basis, and the NYMEX gas price, so that we can target and monitor those and lock in



the gas price separate from the heat-rate, separate from the basis point. This approach is in the development stages – we are working with suppliers and determining the associated risk for RMLD if we were to enact this type of contract.

Presented are the maximum quantities that RMLD would act on over the next four years (laddering and layering), with the provision that we get either fixed rate pricing, heat rate pricing, or the third model presented if it works with various suppliers and is priced attractively.

Ms. Parenteau noted that Integrated Resources would be endeavoring in the coming year to update the Power Supply Plan with the goal of looking at our efficiency programs and environmental programs to show the boards the cost/benefits of the various components. If constituents want to be green and want RMLD to invest in renewables, there are costs associated with that. Integrated Resources will lay out sections within the strategy so the CAB and Board know the effect of that when comparing those types of projects to other contracts. We also want to show the rate impact so that you will be able to have a conversation with constituents about rates (energy, capacity and transmission) based on the plan and the reports that we give to you. At the end of the day, they want to know how much more or less it is going to cost them. We are hoping to update all of those indices to make it more transparent and customer-focused so they know exactly what the impact is.

Ms. Parenteau noted that when looking at the energy costs, which this type of product is managing, RMLD has been able to maintain the average cost under five cents. Looking back to 2010, RMLD's average energy costs were about \$40m; they are about \$33m now. Some of that has to do with gas prices and commodity prices, but a lot has to do with laddering and layering – securing and fixing prices over a four-year period and portions of that. We are on the spot market and taking advantage of some low prices, but we are looking at those too, and fine-tuning those to determine if we should be adjusting the open position and what is the risk associated with that. We want to have in place the ability to act on this as we are monitoring the markets – updating the power supply – and make those changes going forward.

Mr. Nelson asked if other municipalities are involved. Ms. Parenteau responded that Ms. O'Brien has enacted a quarterly power supply meeting that includes a consultant, an attorney, as well as three other municipalities (who are on the larger side and have the role of conducting power supply). The group brainstorms – tries to find out what market trends are, and as a result of that, we came up with that new product – extracting the basis point from the heat-rate.

Mr. Stempeck asked if all the suppliers do this kind of breakdown. Ms. Parenteau responded that a lot will not do a heat-rate index contract because of Dodd Frank laws which address the hedging in positions and tax implications. Of the approximate ten suppliers that provided pricing in November, about half do not entertain heat-rate indexing, but half will. Ms. Parenteau noted that every contract is negotiated separately. We evaluate the various components of the contracts and weigh all the different aspects. Pricing is weighed heavily, but it is not the only factor. The whole portfolio approach has worked well for RMLD; when prices are low we like to fix them, but if we have the ability to diversify our suppliers and perhaps diversify some product types, that's advantageous as well.

Mr. Nelson made a **Motion** that the RMLD Citizens' Advisory Board recommend to the RMLD Board of Commissioners to authorize the General Manager to execute one or more Power Supply Agreements in accordance with RMLD's Wholesale Power Supply Plan for power supply purchases for a period not to exceed 2016 through 2019 and in amounts not to exceed 31 megawatts in 2016, 29 megawatts in 2017, 27 megawatts in 2018, and 25 megawatts in 2019, as presented by the Director of Integrated Resources, seconded by Mr. Mancuso. Hearing no further discussion, **Motion carried 4:0:1 (4 in favor, 0 opposed, 1 absent).**

**4. Next Meeting - G. Hooper, Chair**

The next CAB meeting will be held April 15, 2015, at 6:30 p.m. in Wilmington.

Ms. Parenteau reported that she has spoken with Ms. O' Brien and Mr. Jaffari, and they indicated that the Reliability Study should be completed by March 13th. The Organizational Study is due to be finalized by the end of March. Presentations to the Board and CAB are anticipated sometime in April.

**5. Motion to Adjourn - G. Hooper, Chair**

Mr. Nelson made a **Motion** to adjourn the Citizens' Advisory Board meeting, seconded by Mr. Kelley. Hearing no further discussion, **Motion carried 4:0:1 (4 in favor, 0 opposed, 1 absent).**

The Citizens' Advisory Board Meeting adjourned at 6:43 p.m.

Minutes Approved On: \_\_\_\_\_



# INTEGRATED RESOURCES REPORT

To: Coleen O'Brien

From:  Maureen McHugh, Jane Parenteau 

Date: July 21, 2015

Subject: Purchase Power Summary – Draft June, 2015

Energy Services Division (ESD) has completed the Purchase Power Summary for the month of June, 2015; subject to any fiscal year final adjustments.

### ENERGY

The RMLD's total metered load for the month was 60,474,350 kWh, which is a 1.68% decrease from the June, 2014 figures.

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

Resource	Amount of Energy (kWh)	Cost of Energy (\$/Mwh)	% of Total Energy	Total \$ Costs	\$ as a %
Millstone #3	3,575,562	\$6.71	5.91%	\$23,992	0.93%
Seabrook	5,697,093	\$6.69	9.42%	\$38,091	1.48%
Stonybrook Intermediate	1,392,976	\$28.81	2.30%	\$40,136	1.56%
Shell Energy	11,636,800	\$69.64	19.24%	\$810,387	31.46%
NextEra	8,875,000	\$54.86	14.67%	\$486,881	18.90%
NYPA	1,853,631	\$4.92	3.06%	\$9,120	0.35%
ISO Interchange	5,629,197	\$34.35	9.31%	\$193,342	7.50%
NEMA Congestion	0	\$0.00	0.00%	-\$176,518	-6.85%
Coop Resales	9,891	\$130.90	0.02%	\$1,295	0.05%
BP Energy	9,357,600	\$47.73	15.47%	\$446,638	17.34%
Hydro Projects*	3,342,735	\$88.41	5.53%	\$295,540	11.47%
Braintree Watson Unit	257,077	\$42.30	0.43%	\$10,874	0.42%
Saddleback Wind	199,840	\$202.52	0.33%	\$40,472	1.57%
Exelon	8,656,400	\$41.13	14.31%	\$355,995	13.82%
Stonybrook Peaking	0	\$0.00	0.00%	\$0	0.00%
Monthly Total	60,483,802	\$42.59	100.00%	\$2,576,246	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 June, 2015.

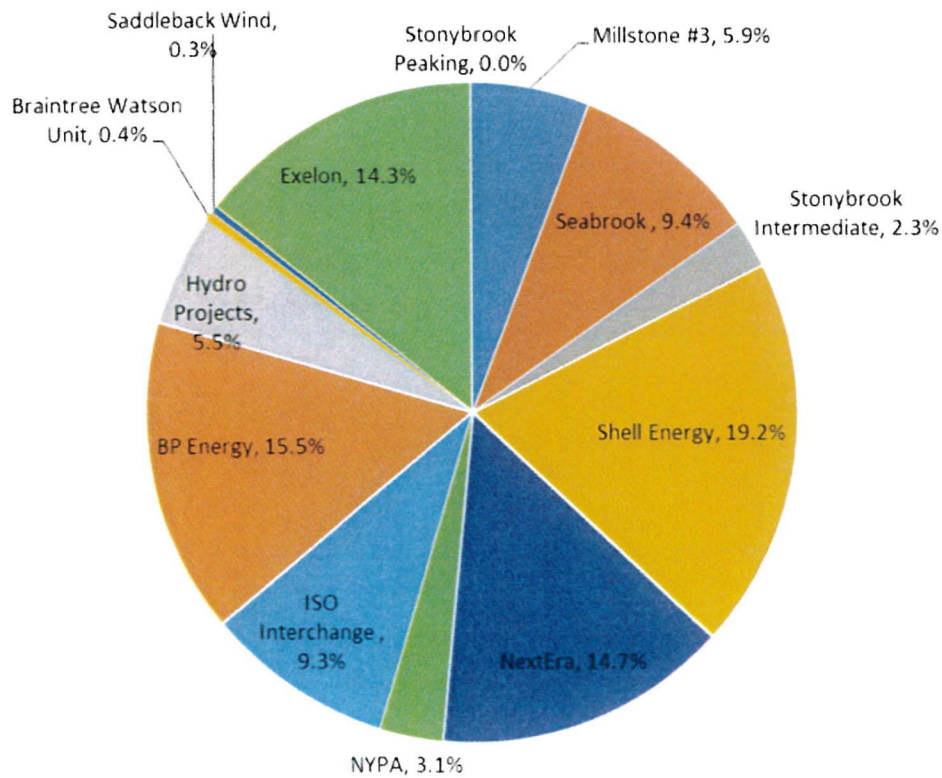
**Table 2**

Resource	Amount of Energy (kWh)	Cost of Energy (\$/Mwh)	% of Total Energy
ISO DA LMP * Settlement	7,668,489	26.71	12.68%
RT Net Energy ** Settlement	-2,039,292	5.65	-3.37%
ISO Interchange (subtotal)	5,629,197	34.35	9.31%

\* Independent System Operator Day-Ahead Locational Marginal Price

\*\* Real Time Net Energy

### **JUNE 2015 ENERGY BY RESOURCE**



## CAPACITY

The RMLD hit a demand of 133,390 kW, which occurred on June 23, at 6 pm. The RMLD's monthly UCAP requirement for June, 2015 was 222,944 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	34.45	\$170,533	11.81%
Seabrook	7,910	29.95	\$236,916	16.41%
Stonybrook Peaking	24,981	2.03	\$50,700	3.51%
Stonybrook CC	42,925	7.76	\$333,250	23.08%
NYPA	4,019	4.19	\$16,834	1.17%
Hydro Quebec	0	0	\$19,923	1.38%
Nextera	60,000	5.90	\$354,000	24.52%
Braintree Watson Unit	10,520	11.15	\$117,298	8.12%
ISO-NE Supply Auction	65,637	2.20	\$144,216	9.99%
Hydro Projects	2,002	0.00	\$0	0.00%
<b>Total</b>	<b>222,944</b>	<b>\$6.48</b>	<b>\$1,443,670</b>	<b>100.00%</b>

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	\$23,992	\$170,533	\$194,525	4.84%	3,575,562	0.0544
Seabrook	\$38,091	\$236,916	\$275,007	6.84%	5,697,093	0.0483
Stonybrook Intermediate	\$40,136	\$333,250	\$373,386	9.29%	1,392,976	0.2680
Hydro Quebec	\$0	\$19,923	\$19,923	0.50%	-	0.0000
Shell Energy	\$810,387	\$0	\$810,387	20.16%	11,636,800	0.0696
NextEra	\$486,881	\$354,000	\$840,881	20.92%	8,875,000	0.0947
* NYPA	\$9,120	\$16,834	\$25,954	0.65%	1,853,631	0.0140
ISO Interchange	\$193,342	\$144,216	\$337,558	8.40%	5,629,197	0.0600
Nema Congestion	-\$176,518	\$0	-\$176,518	-4.39%	-	0.0000
BP Energy	\$446,638	\$0	\$446,638	11.11%	9,357,600	0.0477
* Hydro Projects	\$295,540	\$0	\$295,540	7.35%	3,342,735	0.0884
Braintree Watson Unit	\$10,874	\$117,298	\$128,173	3.19%	257,077	0.4986
* Saddleback Wind	\$40,472	\$0	\$40,472	1.01%	199,840	0.2025
Coop Resales	\$1,295	\$0	\$1,295	0.03%	9,891	0.1309
Exelon Energy	\$355,995	\$0	\$355,995	8.86%	8,656,400	0.0411
Stonybrook Peaking	\$0	\$50,700	\$50,700	1.26%	-	0.0000
<b>Monthly Total</b>	<b>\$2,576,246</b>	<b>\$1,443,670</b>	<b>\$4,019,915</b>	<b>100.00%</b>	<b>60,483,802</b>	<b>0.0665</b>
<b>* Renewable Resources</b>						<b>8.92%</b>

## **RENEWABLE ENERGY CERTIFICATES (RECs)**

Table 5 shows the amount of banked and projected RECs for the Swift River Hydro Projects through June 2015, as well as their estimated market value.

**Table 5**  
**Swift River RECs Summary**  
**Period - January 2015 - June 2015**

	<b>Banked RECs</b>	<b>Projected RECs</b>	<b>Total RECs</b>	<b>Est. Dollars</b>
Woronoco	0	1,550	1,550	\$74,400
Pepperell	0	3,639	3,639	\$174,672
Indian River	0	1,796	1,796	\$86,208
Turners Falls	<u>0</u>	<u>1,059</u>	<u>1,059</u>	<u>\$0</u>
Sub total	0	8,044	8,044	\$335,280
RECs Sold			0	\$0
Grand Total	0	8,044	8,044	\$335,280

## **TRANSMISSION**

The RMLD's total transmission costs for the month of June, 2015 were \$1,094,390. This is an increase of 78.49% from the May transmission cost of \$613,139. In June, 2014 the transmission costs were \$824,454.

**Table 6**

	<b>Current Month</b>	<b>Last Month</b>	<b>Last Year</b>
Peak Demand (kW)	133,390	138,424	142,696
Energy (kWh)	60,483,802	58,248,608	60,533,499
Energy (\$)	\$2,576,246	\$2,012,239	\$2,523,075
Capacity (\$)	\$1,443,670	\$1,547,092	\$1,428,943
Transmission(\$)	\$1,094,390	\$613,139	\$824,454
Total	\$5,114,306	\$4,172,470	\$4,776,472



ENERGY EFFICIENCY

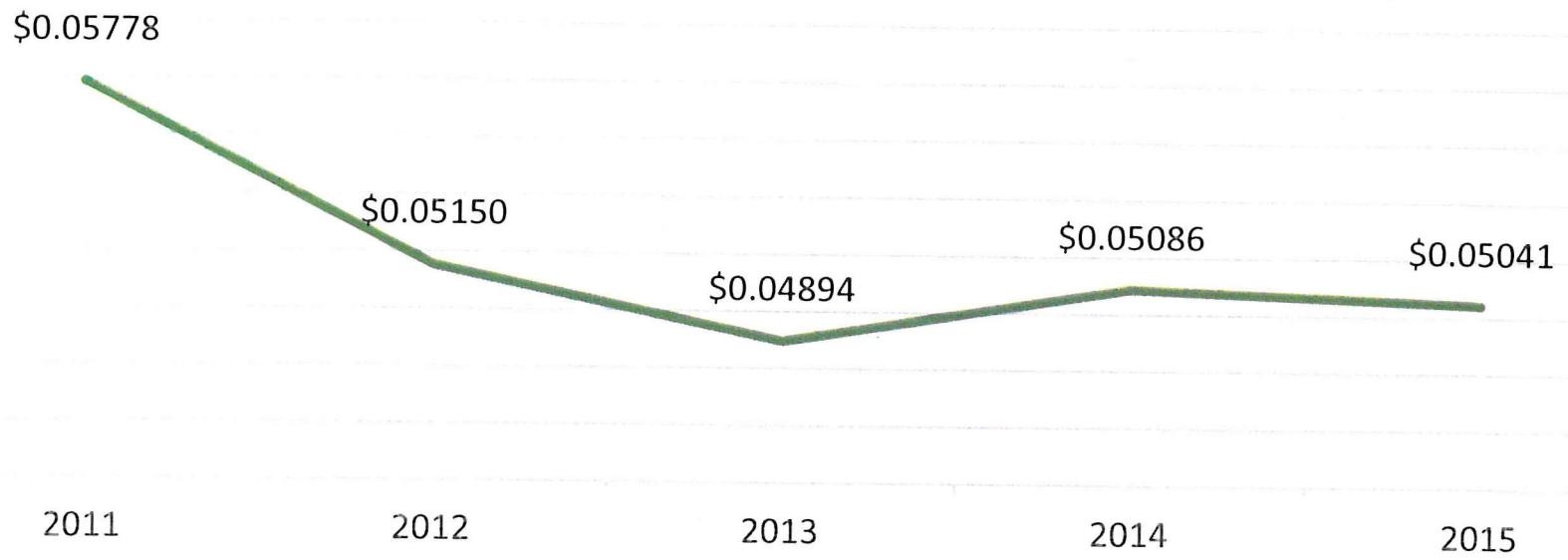
Table 7 shows the comprehensive results from the Energy Conservation program. The amount of savings is broken down by both demand and energy for the Commercial and Residential sectors.

Table 7				Total \$		Total		Total \$			
Commercial	Year	Capacity Saved (kW)	Energy Saved (kwh)	Capacity	\$/kW	Energy	\$/kWh	Rebate	Rebate/kWh	Rebate/kW	Cost Benefit
Total to date	FY07-14	16,169	63,959,276	\$ 1,561,065		3,543,375		\$ 1,732,385	\$ 0.03	\$ 107.14	\$ 3,372,054
Current	FY15	325	1,089,726	\$ 44,619	\$ 11.45	65,384	\$ 0.06	\$ 239,901	\$ 0.22	\$ 738.75	\$ (129,898)
Residential											
Total to date	FY07-14	2,609	2,252,774	\$ 257,422		117,229		\$ 718,531	\$ 0.32	\$ 275.42	\$ (343,881)
Current	FY15	285	141,125	\$ 39,143	\$ 11.45	8,468	\$ 0.06	\$ 130,795	\$ 0.93	\$ 459.12	\$ (83,185)
Total											
Total to date	FY07-14	18,778	66,212,049	\$ 1,818,487		3,660,603		\$ 2,475,916	\$ 0.04	\$ 131.85	\$ 3,003,174
Current	FY15	610	1,230,851	\$ 83,762	\$ 11.45	73,851	\$ 0.06	\$ 370,696	\$ 0.30	\$ 608.08	\$ (213,083)

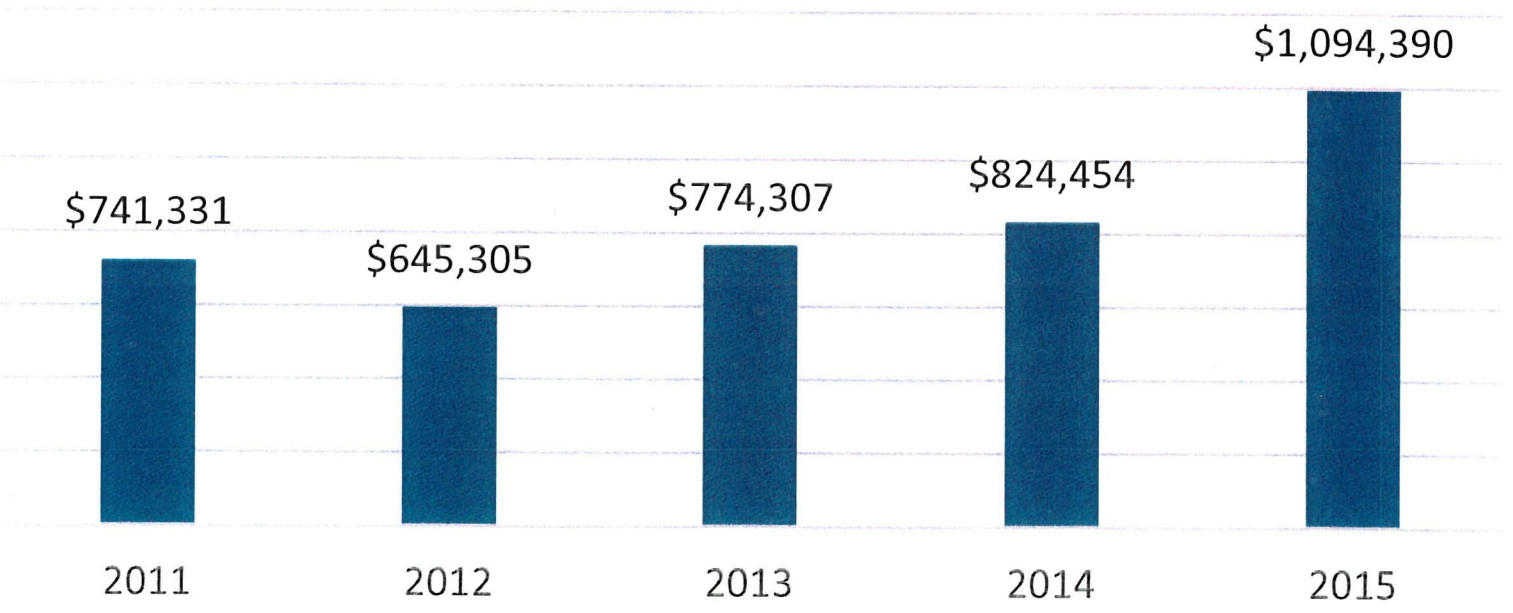
Table 8 shows the breakdown for residential appliance rebates by type and year.

Table 8																									
	Washing Machine		Refrigerator		Dishwasher		Dehumidifier		Central A/C		Window A/C		Thermostat		Audits		Renewable		Air Source Heat Pump		HP Water Heater		Fan		
Year	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	QTY	Dollars	
2007																									
2008	86	\$ 4,300	47	\$ 2,350	55	\$ 2,750	7	\$ 175	17	\$ 1,700	10	\$ 250	23	\$ 230	107	\$ 14,940									
2009	406	\$ 20,300	259	\$ 12,950	235	\$ 11,750	40	\$ 1,000	41	\$ 4,100	50	\$ 1,250	114	\$ 1,140	107	\$ 14,940									
2010	519	\$ 25,950	371	\$ 18,550	382	\$ 19,100	37	\$ 925	64	\$ 6,400	49	\$ 1,225	127	\$ 1,270	64	\$ 8,960	6	\$ 20,700							
2011	425	\$ 21,250	383	\$ 19,150	313	\$ 15,650	47	\$ 1,175	57	\$ 5,700	65	\$ 1,625	118	\$ 1,180	180	\$ 26,960	4	\$ 18,000							
2012	339	\$ 16,950	354	\$ 17,700	289	\$ 14,450	38	\$ 950	44	\$ 4,400	56	\$ 1,400	105	\$ 1,050	219	\$ 32,731	3	\$ 14,000				9	\$ 2,250	3	\$ 30
2013	285	\$ 14,250	336	\$ 16,800	311	\$ 15,550	29	\$ 725	24	\$ 2,400	54	\$ 1,350	57	\$ 570	375	\$ 75,000	3	\$ 15,000	\$ 19	\$ 1,900	4	\$ 1,000	5	\$ 50	
2014	322	\$ 16,100	333	\$ 16,650	298	\$ 14,900	27	\$ 675	38	\$ 3,800	76	\$ 1,900	83	\$ 1,245	363	\$ 72,600	4	\$ 17,250	\$ 20	\$ 2,000	11	\$ 2,750	7	\$ 70	
2015	257	\$ 12,850	256	\$ 12,800	261	\$ 13,050	26	\$ 650	27	\$ 2,700	36	\$ 900	41	\$ 615	314	\$ 62,800	7	\$ 19,000	\$ 24	\$ 2,400	12	\$ 3,000	3	\$ 30	
Total	2639	\$ 131,950	2339	\$ 116,950	2144	\$ 107,200	251	\$ 6,275	312	\$ 31,200	396	\$ 9,900	668	\$ 7,300	1729	\$ 308,931	27	\$ 103,950	63	\$ 6,300	36	\$ 9,000	18	\$ 180	

**Fiscal Year  
2011-2015  
Fuel Charge**

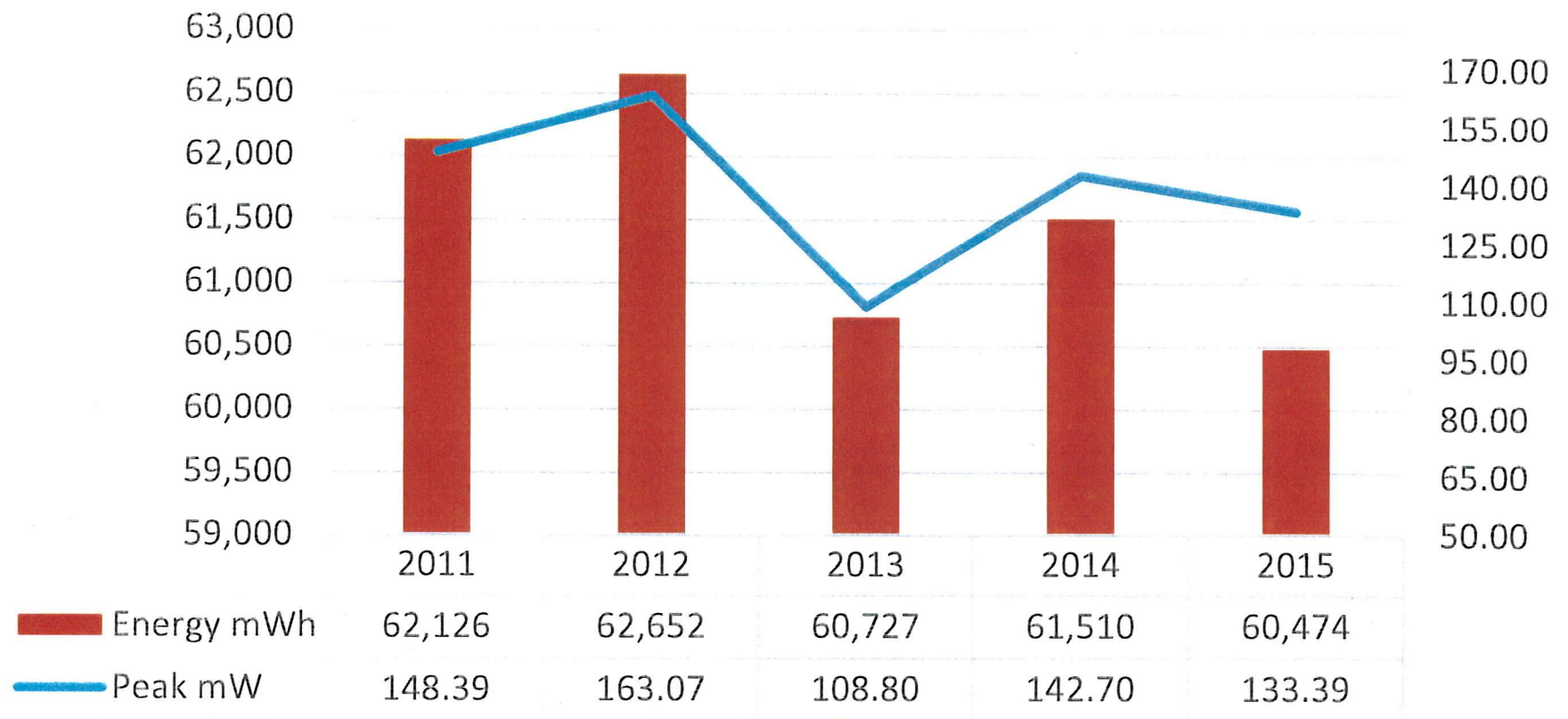


Transmission Costs  
June  
2011-2015



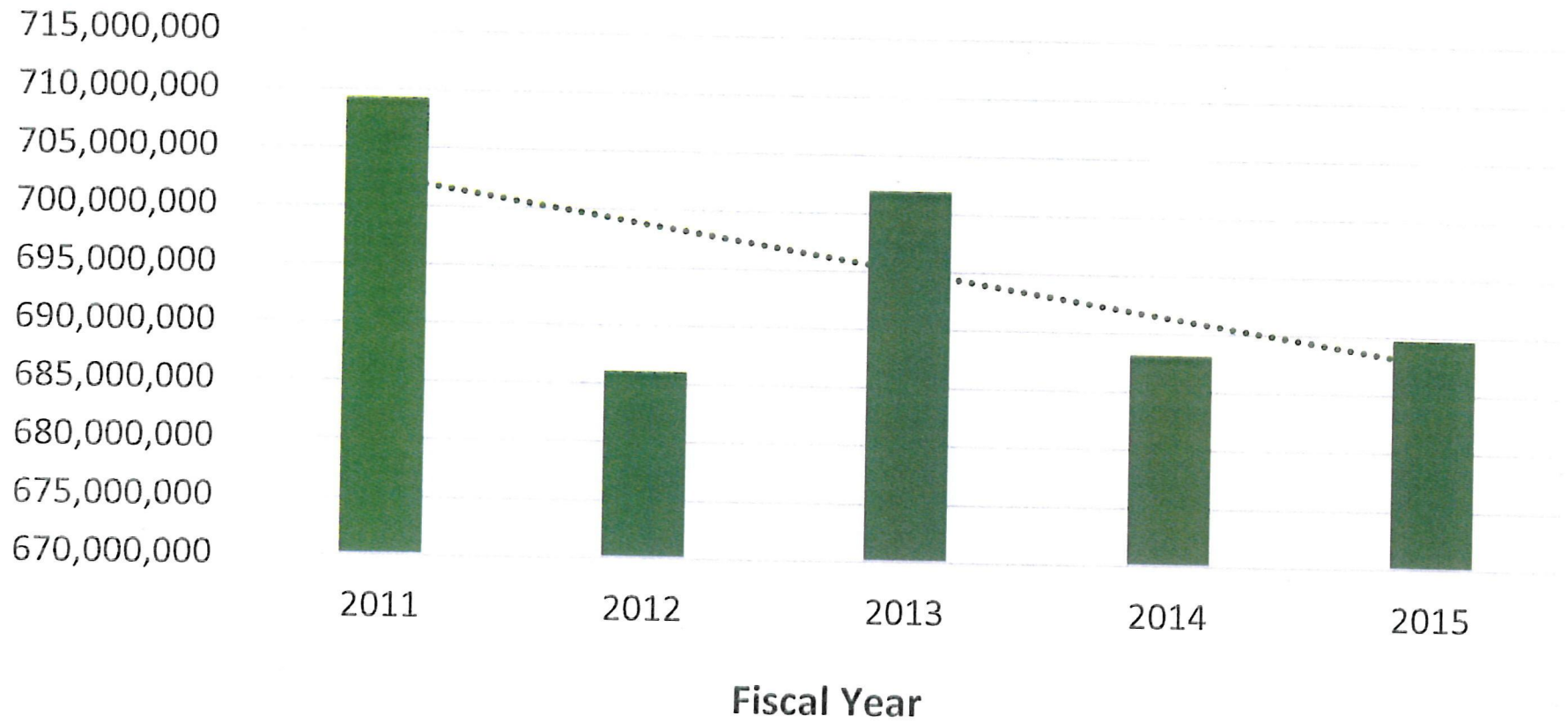


## Energy Usage & Peak Demand June



# FINANCIAL REPORT

## kWh Sold 2011-2015





# ENGINEERING & OPERATIONS REPORT

# READING MUNICIPAL LIGHT DEPARTMENT

## Engineering and Operations Monthly Report

June 2015

### CAPITAL IMPROVEMENTS

Construction Projects:		% Complete FY14-15 Status	Month	YTD*
102	Pole Line Upgrade - Lowell Street, Wilmington	75%	\$44,461	\$204,499
104	Upgrade Old Lynnfield Center URDs (Cook's Farm)	60%	\$161,136	\$238,071
106	URD Upgrades – All Towns <ul style="list-style-type: none"><li>Center Village, Lynnfield</li><li>Ohio Street, Wilmington</li></ul>	On-going	\$3,892	\$59,701
212	West Street – Force Account, Reading	60%	\$28,231	\$84,843
New Customer Service Connections:				
113	Service Installations – Residential: This item includes new or upgraded overhead and underground services.	On-going	\$9,800	\$129,833
Special Projects/Capital Purchases:				
116	Transformers and Capacitors Purchases		\$7,369	\$155,649
117	Meter Purchases/500 Club (RF Mesh Network)		\$41,436	\$149,004
126	Communication Equipment (Fiber Optic)		\$15,925	\$21,689
131	LED Street Light Conversion		\$14,407	\$40,657

\*Preliminary Numbers for Year-End

<b>Routine Construction:</b>	<b>Jun</b>	<b>YTD*</b>
Pole Setting/Transfers	49,109	437,882
Overhead/Underground	42,797	469,173
Projects Assigned as Required <ul style="list-style-type: none"> <li>• 4W13 Cable Replacement</li> <li>• I-95 Rotary, Reading</li> </ul>	11,597	304,627
Pole Damage/Knockdowns <ul style="list-style-type: none"> <li>• Work was done to repair or replace five (5) damaged poles</li> </ul>	4,736	51,010
Station Group	1,860	117,441
Hazmat/Oil Spills	0	3,831
Porcelain Cutout Replacement Program	299	26,403
Lighting (Street Light Connections)	0	20,869
Storm Trouble	0	35,672
Underground Subdivisions (new construction)	8,267	68,755
Animal Guard Installation	178	7,009
Miscellaneous Capital Costs	19,761	274,062
<b>TOTAL:</b>	<b><u>\$ 138,604</u></b>	<b><u>\$ 1,816,734</u></b>

\*Preliminary Numbers for Year-End



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## MAINTENANCE PROGRAMS

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### **Aged/Overloaded Transformer Replacement through June 30, 2015**

#### *Padmount:*

*Single-Phase: 12.66% replaced (of those over 20 years old)*

*Three-Phase: 7.69% replaced (of those over 20 years old)*

#### *Overhead:*

*Single-Phase: 10.23% replaced (of those over 20 years old)*

*Three-Phase: 3.33% replaced (of those over 20 years old)*

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### **Pole Testing System-wide (600-1,000 poles/year) (as of 7/26/2015)**

Year-one inspection complete: 645 poles tested (~10%)

- 390 silver tag (PASSED)
- 191\* red tag (FAILED): **88 have been replaced**
- 22 double red tag (CONDEMNED): **22 have been replaced**

**60 of 110 transfers have been completed**

\*42 red tag (failed) poles were revaluated and removed from the list.

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### **13.8kV/35kV Feeders – Quarterly Inspections**

5W8, 5W9, 5W4, 5W5, 4W7, 4W23, 3W8, 3W18, 3W6, 3W13, 3W5, 3W15, 4W5, 4W6, 4W9, 4W13, 4W10, 4W12, 4W16, 4W30

*Miscellaneous branches and vines were found and removed.*

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### **Manhole Inspections**

*Pending.*

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### **Porcelain Cutout Replacements (with Polymer)**

As of June 30, 2015, there are 282 remaining porcelain cutouts to be replaced. 90% complete.

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### **Tree Trimming**

1,500 spans (January – June)

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### **Substations:**

#### **Infrared Scanning (Monthly)**

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<i>Station 3</i>	Scanning complete through June – no hot spots found
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<i>Station 4</i>	Scanning complete through June – no hot spots found
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<i>Station 5</i>	Scanning complete through June – no hot spots found
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#### **Substation Maintenance Program**

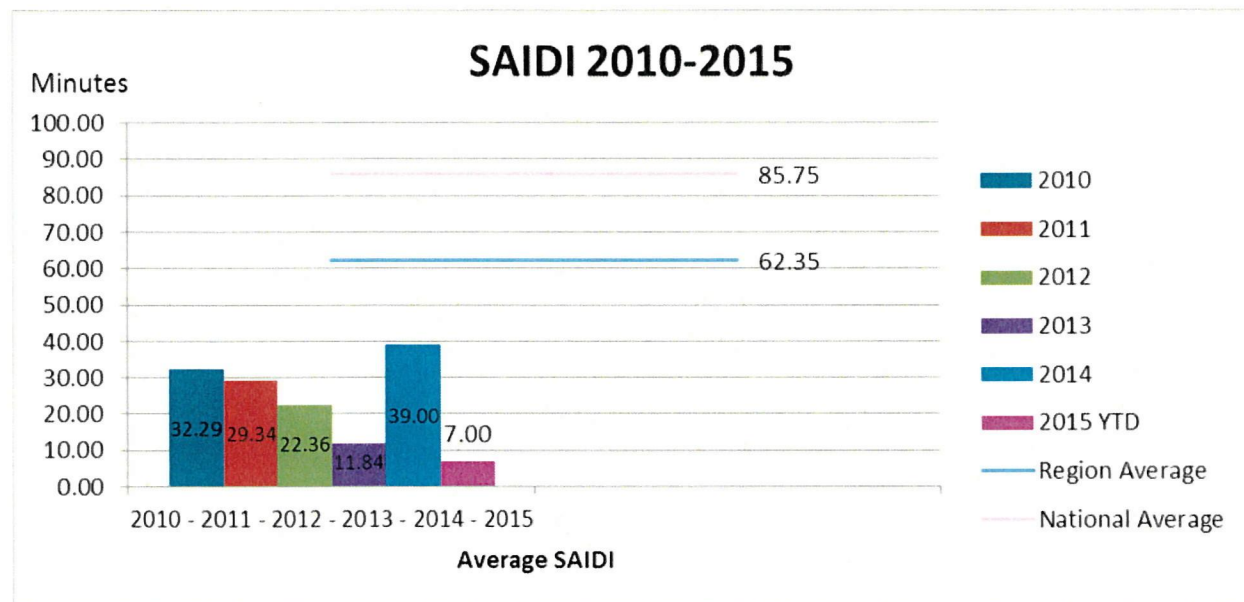
- *Inspection of all three stations by UPG complete.*
-

## SYSTEM RELIABILITY

Key industry standard metrics have been identified to enable the RMLD to measure and track system reliability.

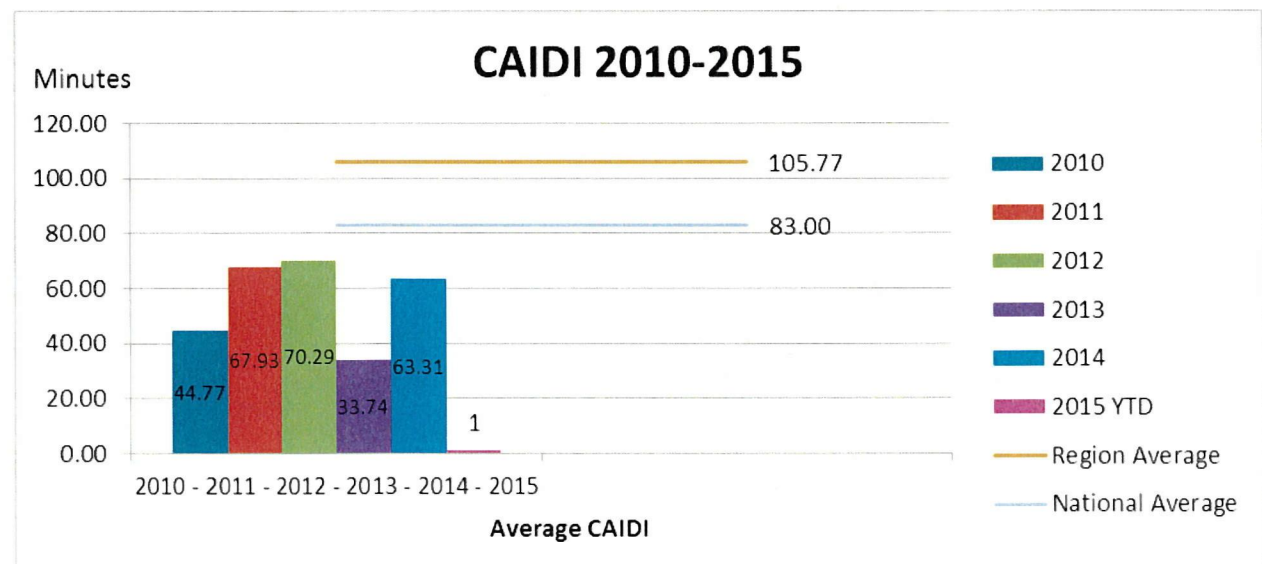
**SAIDI (System Average Interruption Duration Index)** is defined as the average interruption duration (in minutes) for customers served by the utility system during a specific time period.

SAIDI = the sum of all customer interruption durations within the specified time frame ÷ by the average number of customers served during that period.



**CAIDI (Customer Average Interruption Duration Index)** is defined as the average duration (in minutes) of an interruption experienced by customers during a specific time frame.

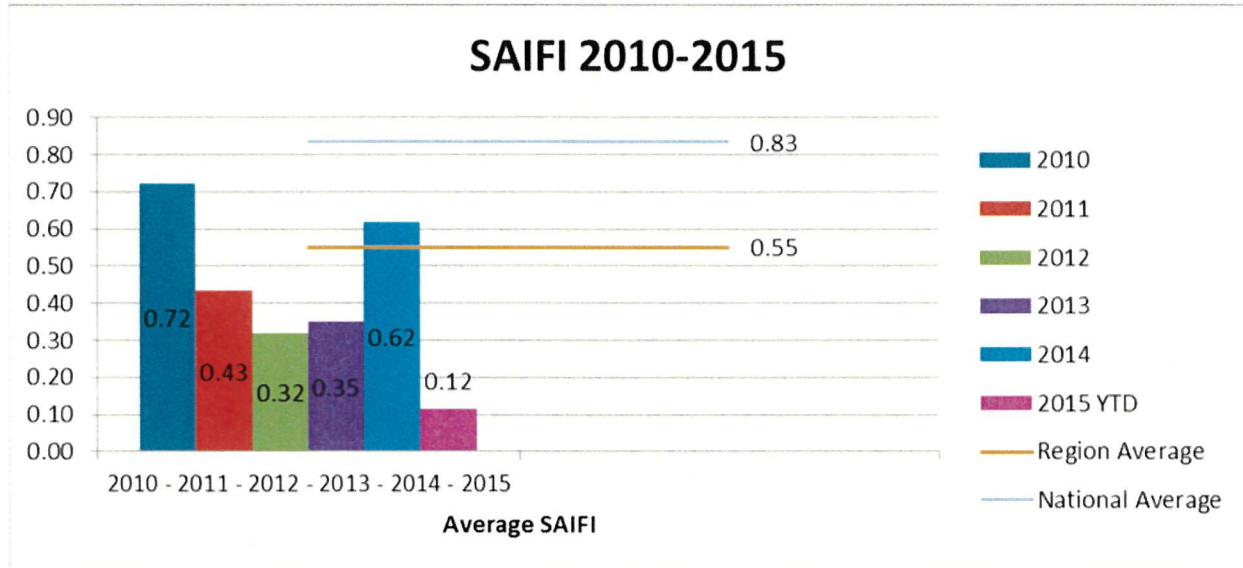
CAIDI = the sum of all customer interruption durations during that time period ÷ the number of customers that experienced one or more interruptions during that time period.



This metric reflects the average customer experience (minutes of duration) during an outage.

**SAIFI (System Average Interruption Frequency)** is defined as the average number of instances a customer on the utility system will experience an interruption during a specific time period.

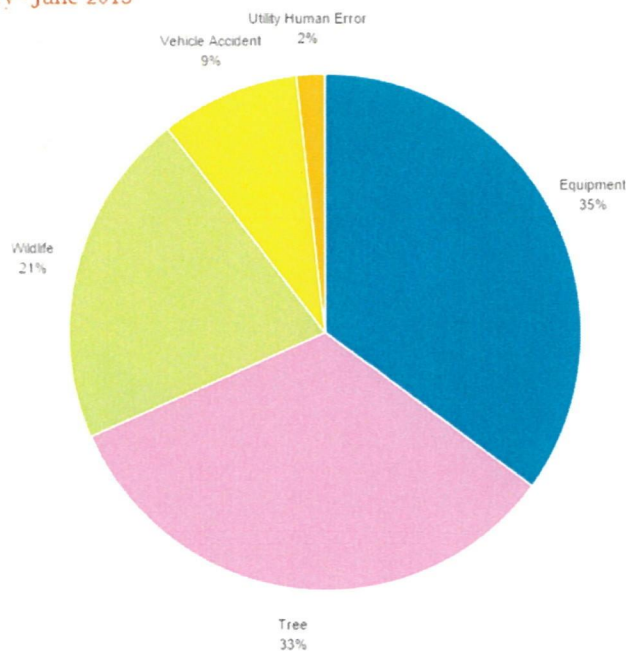
SAIFI = the total number of customer interruptions ÷ average number of customers served during that period.



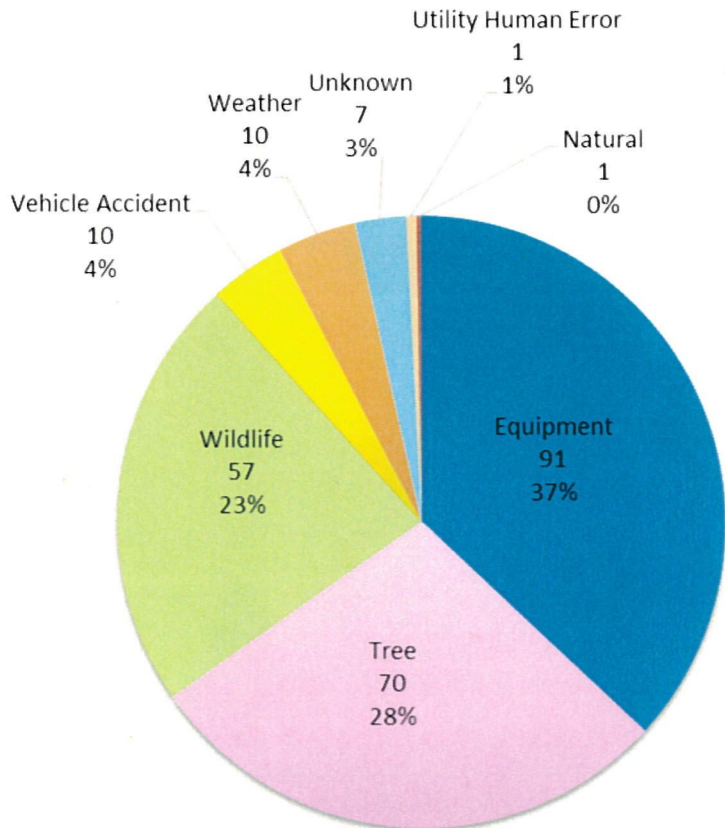
**Note:** Since SAIDI, SAIFI and CAIDI are sustained interruption indices; only outages lasting longer than one minute are included in the calculations.

# Outages Causes Calendar YTD (from eReliability website)

January - June 2015



Outage Cause	Count
Equipment	20
Tree	19
Wildlife	12
Vehicle Accident	5
Utility Human Error	1
<b>Total</b>	<b>57</b>



**Outage Causes**  
Annual Average 2010-2015

- Equipment
- Tree
- Wildlife
- Vehicle Accident
- Weather
- Unknown
- Utility Human Error
- Natural