

Sterling Municipal Light Department
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2014 Annual Town Report

Respectfully submitted is the one hundred and fourth report of the Sterling Municipal Light Department (SMLD).

POWER

The SMLD's customer base has 3,778 accounts as of December 31, 2014. We have 3,392 Residential, 12 Large General Service (LGS), 52 Medium General Service (MGS), 310 Small General Service (SGS), one Wholesale and one Town Streetlight account.

A total of 59,536,905 kilowatt hours (kwhrs) of electricity were sold during the calendar year 2014. This represents a decrease of 263,310 kwhrs from calendar year 2013. Sterling's hourly peak demand was 11,732 kW set in September of 2014. That is a reduction from the peak set in 2013.

The SMLD uses reliable indices to monitor how our distribution system is performing and to measure our response time to system interruptions. The 2014 *Average Service Availability Index* (ASAI) of electricity for Sterling residents was 99.9984 %. The 2014 *Customer Average Interruption Duration Index* (CAIDI) numbers represent the average time required to restore service to a customer per sustained outage. These numbers came in at 60.3 minutes and were 12% lower than 2013. Overall, our system interruptions have been decreasing. This is a reflection of the continued system and substation upgrades being performed by our Operations Department.

Our transmission costs continue to rise but not at the same double digit percentages we have seen in the last few years. We are fortunate to avoid some of these costs by using locally produced solar energy from the E.H Perkins and Wiles Road facilities that have provided enough energy for over 540 homes. These two solar projects helped make the Town of Sterling ***number one*** in the country for solar watts per customer and also a top three finalist for public power utility of the year by the Solar Electric Power Association (SEPA).

In January and February of 2014 energy market prices reach record highs due to natural gas constraints. This was primarily caused by our increased dependence on natural gas for energy production. In 2000 we produced 5% of power from natural gas and in 2014 that number was closer to 47%. The reliance on natural gas has caused many fossil fueled generators and local nuclear plants to shut down. This has left fewer options during the cold periods when natural gas is reserved for heating purposes first and then electric generators.

OPERATIONS

The following list summarizes the projects completed and in progress for the Operations Department

- James Road - Completed an upgrade to the second of our three large underground developments. When underground projects were developed over 30 years ago the wire was directly buried causing difficulty locating and repairing any damage. We installed all new conduit, over 5,500' of new primary cable and 2,000' of new cable for the street crossings to pedestals. This will guarantee continued reliability and will allow for expedited repairs should the need arise.
- John Dee Road - Completed the installation of 3,000' of new 1/0 tree wire (high voltage cable that is heavily insulated and tree resistant) and the removal of bare #4 copper wire. We are in the process of completing the installation of a new secondary cable and 1/0 neutral for better system reliability and grounding.
- Bean Road - Replaced 4500' of existing copper wire with tree wire and new neutral wire and installed new transformers and 600' of 1/0 secondary cable to improve system reliability.
- Pleasant View Drive - Replaced 500' of existing copper wire with tree wire and installed new transformers and secondary wire to improve system reliability.
- North Cove Road - Completed upgrade to higher voltage improving system performance and reliability.
- Hill Top Drive, Sunset Drive and Loring Way - Removed old copper wire, installed 3000' of new tree wire and installed new transformers. Upgrade will provide better voltage and system reliability to the area.
- Merrill Road - Installed 1,700' of new 1/0 tree wire, primary and neutral wire to replace the #4 copper wire in place, providing better reliability to the area.
- Redstone Hill Road - Installed 1500' of 1/0 tree wire to increase reliability to the area and installed 500' of 3 phase wire to extend our system and provide 3 phase power to a new development. Installed 4,200' of new secondary cable and removed 2,400' of open wire copper to provide better system grounding capabilities.
- Old Princeton Road East and West - Removed #6 copper wire and replaced it with the installation of 1,800' of new tree wire and neutral wires to increase the reliability to an area that had been showing up too often on the trouble calls.
- Tuttle Road - Removed 3,300' of copper wire and installed 1,650' of new tree wire to provide improved reliability.
- Installed 7 new house services and 11 new poles.

These projects were performed as part of our continuing effort to upgrade our distribution system to minimize outages and improve our system reliability. In all, we installed over 39,030' of new wire and removed 22,775' of old cable. Thank you to the customers in these areas for their patience while the upgrades were being performed. We trust that this work will improve our infrastructure and will provide many years of reliable service to you.

POWER SUPPLY

In an effort to diversify our power resources and stabilize purchased power costs, we buy electricity through fixed contracts and the open market. These costs reflect the generation and delivery of electricity to the Town of Sterling. There are many circumstances beyond our control that make the cost of electric energy fluctuate. These include periods of peak power demands during extreme temperatures, unexpected plant shutdowns and spikes in fuel prices. Changing costs are triggered by a number of unpredictable events from the fluctuating fuel commodity markets to global unrest. Natural gas prices have declined in the last few years, but we remain challenged with the uncertainty of the delivery during cold spells due to the constraints on the gas transmission lines. This leads to curtailments at the generating plants requiring them to switch to oil, a costlier alternative. Energy produced from natural gas has risen from 5% in 2000 to 47% in 2014 and is expected to continue to rise until new gas transmission pipelines can be put in place. Despite these concerns in 2014 our power costs have remained stable.

Although fuel remained steady our transmission costs continued to rise. These costs have increased mainly since transmission owners receive large returns between 11-14% on their 6.6 billion dollar investments in transmission line upgrades in New England. This cumulative number is expected to rise to 11 billion in 2017 putting additional upward pressure on transmission prices. The Regional Network Service (RNS) rate rose by 22% from \$605,664 in June 2011 to May 2012 to an expected cost of \$940,264 from June 2014 to May 2015 a 55% increase. This cost is expected to continue to rise to an estimated cost of \$1,166,155 in June 2017, an additional 25% increase. Along with other Municipal Light Plants and Associations we continue to contest these charges in Washington with our Legislators and the Federal Energy Regulatory Commission (FERC). The outcome of these meetings resulted in the filing of various bills that brought some relief. The returns were lowered from 11.4% to 10.54 however we will continue to contest that the returns be closer to the industry average of 9.2%.

Our power supply consists of a mixed portfolio of power agreements that include E.H Perkins and Wiles Road solar projects and hydro power, specifically from Baltic Mills, Contoocook Hydro, Mechanicsville Hydro, Energy Stream Hydro, Methuen Falls Hydro, Public Authority State of New York Hydro (PASNY) and Centennial Falls Hydro Electric Facility. In 2014 over 25-35% of our power was received from renewable energy sources from the Berkshire and Princeton Wind projects. This exceeds the Massachusetts requirement (Municipal Light Plants are exempt) for renewable energy supply in power portfolios of 20% by 2020. In addition to the nuclear power we receive power from the Millstone III Plant and the Seabrook Power Plant in New Hampshire. Our power portfolio is 75% carbon free. Other sources of our power supply come from the MMWEC Stony Brook Plant, combined cycle units I & II and the Carbolon generating facility.

We continue to offer the following assistance programs to our Residents:

- HELPS Home Energy Audit (no cost to residents)
- Energy Star® Rebate Program
- Solar Installation Assistance
- Kill-A-Watt™ Electricity Usage Monitor
- TESCO Surge Arrester
- Customer Data/Billing Portals
- Multiple Payment Options

Other community activities/contributions sanctioned by the SMLD Light Board:

- Our Annual Open House
- Install and Pay for the Town Common Lighting
- Sterling Fair (provision of power)
- Banner Hanging
- Town Street Lights – In September of 2014 with the help of a Municipal Light Plant Energy Efficiency grant from the MA DOER we began to replace Town Street Lights with new LED fixtures. This project is expected to take up to two years and will provide a considerable savings to the Town of Sterling. The SMLD continues to provide a reduced rate and full maintenance for all 489 streetlights for the Town of Sterling.
- Provide funds for annual maintenance for all town owned generators.
- Offer the Round-Up Program to our customers to benefit the Sterling Neighbor-to-Neighbor (N-2-N) Program
- In March of 2014 the Sterling Energy Committee was formed. With a commitment of \$50,000 from the SMLD Board of Commissioners and \$110,000 from an awarded Municipal Energy Efficiency grant we will provide assistance for the LED streetlight change-out-program. In addition, energy efficient improvements will be made to five out of seven town buildings that were noted in the energy audits performed by GDS Associate's in September 2012. These audits used a level II, the American Society of Heating, Refrigeration and Air Conditioners Engineers (ASHRAE) standards. The improvements will include review of HVAC controls in both Police and Fire Stations, new LED lighting in the Butterick, Library and SMLD buildings. We will also do a review of all heating systems from an independent engineering firm to provide ideas for improvements or replacements take place over a two year period.
- In December 2014, the SMLD was awarded a \$1,463,194 Community Clean Energy Resiliency grant that will allow us to install a solar battery storage system to provide emergency back-up power to the police and dispatch center for many hours during a catastrophic event. This project will also be used to provide system benefits to SMLD on a daily basis.

CHANGES AT SMLD

In May 2014 Brian Pierce was elected to a three-year term on the Light Board Commission.

Natural Gas, With strong support from many of the businesses and residents in Sterling and after two informational meetings were held to discuss the economic benefits and cost associated with bringing natural gas into the town of Sterling,

A special town meeting was held on November 14, 2014, for the sole purpose of this vote, the town of Sterling residents voted 100 in favor to 29 against, to authorize the creation and operation of a municipal gas plant as allowed by Massachusetts General Laws, Chapter 164, section 36, and place such municipal gas plant under the authority of the Sterling Municipal Light Department Board. Upon such authorization, the municipal gas plant shall be combined with the Sterling Municipal Light Department to form the Sterling Municipal Light & Gas Department, which shall do business as "Energy Sterling".

The certificate of the above vote has been submitted to the Department of Public Utilities for review and we expect to hear back from them in early 2015.

Tree trimming services continued to be provided primarily by outside contractors using a competitive bid process. Additional tree trimming is also performed by the SMLD line crew that involves a 5 year rotating cycle in areas where we see an increased growth or system problem.

In December 2014 we received our new bucket truck. The installation of the new body and bucket were performed on the cab chassis that we purchased in the fall of 2013. By purchasing a cab/chassis one year and budgeting for the bucket the next we were able to systematically replace our main fleet of bucket and digger trucks. By using an annual replacement schedule it enhances our reliability, reduces maintenance costs and minimizes the impact to our capital budget.

In 2014 the SMLD had no workers' compensation claims or lost time. This is the fourth consecutive year with no claims. This has not only lowered our workmen's compensation insurance premiums, but also qualified the SMLD to receive the American Public Power Safety Award. This award recognizes the Public Power Utilities across the country who achieves this milestone. Our improved safety record continues to reduce our premiums providing additional savings to our ratepayers.

We continue to work with the Water Department on the installation of equipment and software for electronic readings and monitoring, thus utilizing our new Advanced Meter Infrastructure (AMI) for their water meter readings.

Structural Repairs/Renovations

In our 2013 town report we expressed the need to perform structural repairs to our 130 year-old office building located 50 Main Street. Over the years the building had begun to deteriorate, primarily caused by shifted main beams and rotting support posts. A plan was developed to address the current structural and operational issues and to update the building to serve us for another 130 years. After receiving a bid of \$37,550 from Green and Robinson to repair and replace the main beams and supporting posts they began work under the direction of the Philpot Corporation. In April of 2014 we began demolition in the areas necessary to allow access to correct these deficiencies. Debris was removed using seven 30 ton dumpsters. There was what seemed like miles of electrical and cable wires removed from the ceilings and

walls. We also needed to remove 4 (yes 4!) ceilings from the first floor to allow unobstructed access for the new beams. The demolition work was performed by the SMLD's operations crew that included Tom Sparks, Line Superintendent, Darren Borge, Operations Supervisor and our line crew made up of Chad Allen, Timothy (Tim) Gray, Brian Foley, John Nordquist and Brian Provonsil. During the winter of 2014-2015 John Nordquist, who is a licensed electrician, was invaluable in relocating circuits during the demolition process and also installed all new electrical and fire alarms throughout the entire building. As renovations progressed Tim Gray utilized his carpentry skills and became the SMLD liaison to the Monty Tech Industrial Technology students who provided countless hours in the reconstruction of our building. Following the repairs to the posts and beams, we felt this would also provide an ideal time to renovate the office area to be more energy efficient and customer friendly. The work included all new insulation in the walls that were built out an additional 3.5" for maximum results, a new vestibule at the entryway to further reduce heating and air conditioning costs, foam insulation, new wallboard, electrical panels, fire alarm system, access system with security cameras, LED light fixtures and new heating system to replace the 4 systems currently operating within one building. We knew that by performing these additional improvements it would extend the duration of the project, but the results would prove to be beneficial and consequently be a tremendous energy savings to the SMLD. Completion date for this project is expected to be in the spring of 2015.

It is essential that we work closely with other Town of Sterling Departments in order for the SMLD to provide the best possible service to the residents and businesses in Sterling. We want to extend a sincere thank you to all the Town Departments and their employees for the assistance that they have provided to the SMLD throughout the year including the generous accommodations provided to us for meetings held at their facilities during our building renovations.

We thank the DPW personnel for their assistance throughout the year by providing maintenance to our vehicles and assisting us during roadway excavations.

We thank the Water Department for their contribution in lowering our peak power demand by shedding loads during peak periods. This helps to reduce our transmission costs, thus creating a savings that benefit all ratepayers.

Congratulations to the SMLD employees on another accident free year. Once again, we were awarded the American Public Power Safety Association 2014 Safety Award of Excellence. It is quite an honor to be recognized nationally and clearly demonstrates the commitment of the SMLD employees.

Once again, I would like to thank the SMLD employees for their collaboration during these transitional times. I recognize that they have made many adjustments and have been faced with many challenges during the yearlong renovations of our building. Their teamwork and skills that were utilized in this project will demonstrate a great savings to our ratepayers will offer many benefits well into the future.

Respectfully Submitted,

Sean Hamilton
General Manager

Sterling Municipal Light Board Members:
Michael Rivers, Chairman
Matthew Stelmach, Vice Chairman
Brian Pierce, Clerk

February 08, 2015