

Town of Waldoboro
Economic Development Committee
Minutes
June 16, 2017

1. Call to Order and Quorum

Jan Visser, Chairman, called the meeting to order at 8:00 a.m. Members present were Bob Butler, Seth Hall, John Lawrence, Bob Morin, George Seaver, and Ted Wooster.

Also present were Julie Keizer, Waldoboro Town Manager, and Paul Vesel, Realterm Energy.

2. Realterm

Visser turned the meeting over to Paul Vesel, who made a presentation about converting to LED street lights. His company, RealTerm, specializes in the field.

Vesel passed out a study of current street light electricity consumption in Waldoboro compared to consumption after converting to LED fixtures.

A. The Study

In a nutshell, the study suggested that Waldoboro would reduce *annual* street light electricity consumption from 49,182 kWh to 16,520 kWh, an annual reduction of 32,662 kWh.

Waldoboro would purchase its 110 street light fixtures, including mast arms, from Central Main Power at an estimated cost of \$99.00, each, and would then replace them with LED fixtures and lights.

Realterm estimates a project cost of \$49,094. This amount includes purchase of the mast arms from CMP, removal of the old fixtures, and the purchase and installation of new LED replacement fixtures on the existing mast arms. The old fixtures would be recycled.

After the upgrade to LED fixtures, the town's *annual* electricity expense would decrease from \$18,807 to \$1,957. The study estimated annual maintenance costs of \$880.

Over a ten-year period, *annual* net savings, assuming a 10-year financing at 3%, would increase from \$10,286 to \$15,250.

B. Realterm Background

Realterm is based in Annapolis, Maryland. The company started out as an owner/operator of logistical facilities in municipal transportation markets. It had a lot of large, flat roofs, on which it deployed solar arrays.

Street lighting conversions became a Realterm focus when LED costs began to come down. The cost reductions made LED street light conversions viable. Also contributing to Realterm's interest was the Maine State Legislature's mandate that CMP sell fixtures to towns to enable towns to realize energy savings. Vesel said that Realterm has done a lot more community conversion projects than the competition.

Realterm has taken projects as small as 14 lights and as large as 1000 lights.

The company started with 3 people. Initially, it sub-contracted everything. The turning point came with an RFP from the Province of Ontario, which selected RealTerm as their turnkey contractor for conversion services. That project allowed the company to bring everything in-house and to eliminate sub-contracting. In-house control also eliminated the issue of quality, and it allowed RealTerm to lower costs. Realterm now has 45 full-time employees. They work throughout the year, including the winter months.

Realterm continues to hire electrical sub-contractors because it makes sense to work with local contractors, who understand the peculiarities of local grids. It's a fact that every utility is different, and local knowledge is critical.

Realterm is not married to any particular supplier of LED lights. However, the company does look to a limited universe of suppliers. Quality, warranty, technology, the number of units in use (Realterm does not want to experiment with new providers) and financial stability are the factors that drive Realterm's selection of LED manufacturers. Current providers include General Electric, Phillips, Eaton Cooper, Cree and Leotek, a Taiwanese company.

C. CMP and LED Conversions

CMP owns the street lights in Waldoboro and leases them to the town. The lease rates are built into CMP's charge for electricity.

In order to convert to LED street lights, Waldoboro would purchase each lighting unit from where the mast arm attaches to the pole out to the fixture. Waldoboro would be purchasing fully depreciated infrastructure. The only part of each lighting unit that has value would be the mast arm. New, they cost \$60 to \$80, each. Waldoboro would probably pay CMP \$100 to \$150 for each arm mast and fixture. In effect the town would be purchasing the arm mast, the air rights and a shield against future increases in tariffs. The space the arm with fixture occupies on the pole would be allocated to Waldoboro. The old fixtures would be recycled.

The rental of the space for the mast arm on the pole is part of CMP's delivery charge. Typically, mast arms do not require replacement. The average replacement rate of mast arms is about 2%.

CMP charges on the basis of the name plate wattage on the pole, not on actual use. LED wattage equivalents are about 65% of standard street light wattages.

Every conversion to LED opens the possibility of also installing adaptable smart controls, making the LED replacement fixture future proof. Smart ready fixtures allow one to screw in a smart control at any point in time. This means that the town would be able to overlay all manner of other services on the mast, including, *inter alia*, surveillance video and Wi-Fi.

D. Other Conversion Considerations

Realterm would assist the town if CMP came back with purchase numbers that didn't make sense.

Vesel cautioned against doing the lighting conversion one-to-one. He suggested looking at the whole design, ensuring an optimization of wattage at each pole before converting a single pole.

The conversion, itself, is simple. One swaps out the hardware and installs a fuse and fuse holder on the pole where the mast and pole intersect. The fuse holder is a demarcation point between where CMP's ownership interest ends and the town's ownership interest begins. The fuse protects CMP and the town from power surges, and it allows the town to perform maintenance by simply disconnecting the fuse. CMP participation in maintenance is not required.

On average, CMP swaps out current lights every four years. LED's have a life of 100,000 hours and are swapped out every 23.1 years.

LED fixtures direct light exactly where needed. They typically have a 10-year warranty.

The town could apply for a grant to provide partial financing of the conversion to LED.

Municipalities typically consider three LED variables: efficiency, cost and visual acuity.

Most manufacturers will lose 4 to 8% of lumens per watt when going from 3,000 lumens to 4,000 lumens. When moving from 4,000 lumens to 3,000 lumens the light is softer. At 4,000 lumens visual acuity is greater. For example, in an area where snow is removed at night, the plow operator would see with greater clarity at 4,000

lumens than would be the case at 3,000 lumens. Some communities adopt a hybrid solution. They specify 4,000 lumens in downtown areas, and they use a softer light in residential areas. Note that utilities may use smart controls to dim lights.

Realterm typically advises towns on the science of light. They remain neutral on the mix of lights the town chooses.

At \$100 per fixture, including the arm, Realterm estimates Waldoboro's cost of buying the fixtures from CMP at about \$11,000. The estimated payback from converting to LED is 3.6 years. With predictable savings, the conversion is relatively easy to finance.

Two towns in Maine, York and Wells, have opted for tax-exempt lease financings (TELF). TELF financings are attractive to commercial banks because the savings LED fixtures generate are so predictable. TELFs have a much faster approval process. In addition, the financing is off-balance sheet. It's a year-to-year expense, not an upfront, capitalized purchase. The savings in electricity are sufficient to repay the financing. At the end of the lease term, the bank transfers title to the assets (fixtures) over to the town.

LED conversions are an opportunity to rectify and improve lighting to provide more safety and to improve the aesthetic impact.

LED lights lose about 0.6% of their intensity per annum. Losses requiring replacement usually occur within the first 2 or three months of use; the warranty covers free replacement.

After the conversion there is greater transparency regarding maintenance and the pole charge.

Barriers to the conversion are largely imaginary. Up-front costs seem high to some municipalities and obfuscate the savings potential.

Initially, CMP required three trips to the pole to complete the conversion: One to de-commission the old fixture, one to install the new fixture, and one to commission the new fixture. Three trips are very expensive. Realterm hit upon a solution by hiring CMP's contractor, OnTarget, to do the work in one trip. CMP is comfortable with OnTarget and has confidence in its work. With one trip to the pole, OnTarget could convert each pole in Waldoboro to LED in 14 to 16 minutes. OnTarget would convert Waldoboro's 110 streetlights to LED in about one week.

Realterm has one outstanding issue to negotiate, not with CMP, but with the Public Utility Commission. PUC allows only a specific company or companies to work on the electrical grid. That PUC condition needs to be amended so that it does not apply to street light conversions.

Realterm structures each conversion as a turnkey project. It organizes a launch meeting to educate the town. It completes a GIS audit of each pole, collecting very specific information about the pole and using the information to create and to keep up-dated, an asset management database. Data flows from the GIS audit to the town and to CMP to ensure that CMP (not some else) actually owns the poles. Realterm then finalizes the terms and conditions of the town's purchase of the existing fixtures with CMP. The next step is to design the system and to review the design with the town, being sure to include future uses. After receiving input from the town, Realterm finalizes the design and then sits down with the town one more time to review it prior to commencing the work.

Vesel stressed that community outreach is critical. Very likely, the conversion would be the most visible energy project the town could do. Realterm would support the outreach effort, posting FAQs on the town website and providing answers. It would explain the stages of the project and its duration and scheduling. Realtime would also clarify the savings the town would realize and provide support at an open public forum. Vesel said that Realterm has an app that the town could post on its website so people could watch the project unfold in real time.

Vesel underscored the importance of completing an analysis of the life cycle of the LED fixtures to arrive at a more accurate cost of the project.

Hall asked if Waldoboro businesses might be allowed to tag along with a town project to convert their outdoor lighting to LED. Vesel said he would check on that.

(Note: In a subsequent communication to Vesel, Butler suggested that a private/public effort could create economies of scale for the town and participating businesses and **non-profits, allowing** the town to implement more uniform lighting standards everywhere.)

Vesel asked, rhetorically, "What can go wrong?" If the infrastructure were in terrible shape, the cost of project would increase. For example, the condition of wiring on the poles could be deficient or the poles, themselves, could require replacing.

Julie Keizer is looking into whether a contract for conversion services has to be competitively bid. Pre-qualification issues would be an important determiner of whether bidding was necessary.

E. Motion to Forward the LED Streetlight Study to the Select Board

Seaver made a motion to forward the Realterm study to the Waldoboro Select Board for its consideration. Butler seconded the motion. The vote on the motion was unanimous

3. Solar Lease RFP

Hall moved to forward the solar lease RPF to the Waldoboro Select Board. Wooster seconded the motion. The vote was unanimous.

Respectfully submitted,
Bob Butler, Interim Secretary