

## City of Sanford, ME

Request for Proposal

Improvement of the City Streetlight System

November 6<sup>th</sup>, 2019

### Primary Contact

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## COVER LETTER

November 6<sup>th</sup>, 2019

Ian P. Houseal  
Director of Community Development  
City of Sanford, ME

Dear Mr. Houseal and Members of the Evaluation Team,

As a North American leader in the provision of LED lighting solutions designed to maximize energy efficiency and cost savings for our clients, we are pleased to submit this response to the Request for Proposal for the complete conversion of community-wide street lighting system to LED fixtures for the City of Sanford.

We have assembled a qualified team of in-house and sub-contracted professionals experienced in LED street light conversions and Smart City solutions to work collaboratively on all aspects of this project. Capitalizing on the expertise of its members and their specializations, RealTerm Energy will meet the project goals of the City. The information contained in the proposal accurately describes the services to be provided.

It is our understanding that the scope of services for the City includes the following:

- Provide a comprehensive GIS audit of the streetlights
- Prepare lighting design analysis and recommended replacement LEDs
- Provide a detailed Investment Grade Audit (IGA)
- Recommend replacement with LEDs that are smart technology-ready
- Assist with the acquisition of fixtures
- Procure and install all fixtures
- Identify financing options
- Recycle and dispose of removed materials
- Provide maintenance services as outlined in the RFP document

We have extensive experience working with groups of municipalities in the state of Maine and are presently implementing LED conversion projects in neighboring Towns. This allows for project teams to be readily available, thereby enhancing project coordination and efficiency for the City of Sanford.

We manage all our conversion projects in a transparent fashion and can start work rapidly after contract signing.

The RealTerm Energy team appreciates this opportunity to present our proposal and we look forward to the prospect of working with the City. We are passionate about what we do and want you to feel the same way about this project's results.



Angelos Vlasopoulos, Chief Executive Officer  
[avlasopoulos@realtermenergy.com](mailto:avlasopoulos@realtermenergy.com)

## 1. COMPANY PROFILE & EXPERIENCE

### 1.1. What Makes RealTerm Energy Different?

#### 1. Proven, affordable and complete turn-key services

We offer affordable, high-quality, end-to-end LED conversion and Smart City services. RTE has designed, procured, installed or is in the process of installing over 250,000 streetlights across North America. With over 30 projects in this state alone, we are the most experienced streetlight conversion provider in Maine.

#### 2. Extensive in-house expertise

Our experienced team of Project Managers act as the single point of contact throughout all stages of the LED Conversion Project and ensure that the project's goals are met.

#### 3. Cost Savings from our:

- ✓ Unique eBidding process that promotes open and fair competition
- ✓ Joint bidding and procurement opportunities
- ✓ Proper Photometric Design Services

#### 4. Vendor agnostic and robust selection process

We run a competitive and efficient bidding process for equipment and labor. We act as an informed but impartial advisor to our clients through our agnostic approach.

#### 5. Low-Cost Project Financing

We provide our clients with a range of financing options to suit their needs, including Energy Performance Contracts (EPC) in which clients pay no up-front costs, and Tax-Exempt Lease Purchase (TELP) agreements.

#### 6. Specialized in servicing small to medium sized villages, Towns, and cities

Our projects range from as far as 15 to over 40,000 luminaires and have achieved significant energy and financial savings no matter what the size.

#### 7. Affordable Smart City app and municipal asset management platform

RTE's Smart City platform, MyTown, combines citizen-centricity, a wide range of useful applications, smart maps and a valuable user network that will allow everyone to get more out of Smart City solutions.

#### 8. Lighting designs created by people, not algorithms

Our team of photometric designers use their expertise to create optimized designs based on each municipality's streetlight and roadway infrastructure, rather than using algorithms as is common industry practice.

RTE has earned and maintained a **solid reputation for quality and client-responsive service**. We hold a strong commitment to ensuring the LED conversion projects we implement exceed the expectations of our customers. This is due in part to RTE's dedicated and trusted team **good people doing great things**.

## 1.2. RealTerm Energy Overview

RealTerm Energy has designed and managed over 230 projects for municipalities across North America involving over 40 utilities and 50 different subcontractors, by combining our extensive back office with input from our dispersed field staff.

Satellite offices include:

- Pownal, ME
- Florence, MA
- Salem, NH
- Suffern, NY

Our group of over 40 full-time employees is dedicated exclusively to designing and executing high-quality and cost-effective LED street light conversions for municipalities and utilities across North America.

The compliment of this in-house team includes a:

- GIS department
- Design department
- Estimation and energy efficiency department
- Project management department
- Client services department
- Financing and accounting department, and
- Research department

### Realterm (Parent Company)

Founded in 1991, Realterm is a privately held international on-airport real estate operator and leader in infrastructure and logistics strategies, with installations in North America, Europe, and Asia. Since its inception, Realterm has grown steadily, currently managing over \$3 billion in assets. RealTerm Energy, established in 2013, is the division of Realterm that was created to deliver best-in-class technological, managerial and financial solutions for efficient energy-related projects to municipalities and public authorities.

### Company Mission

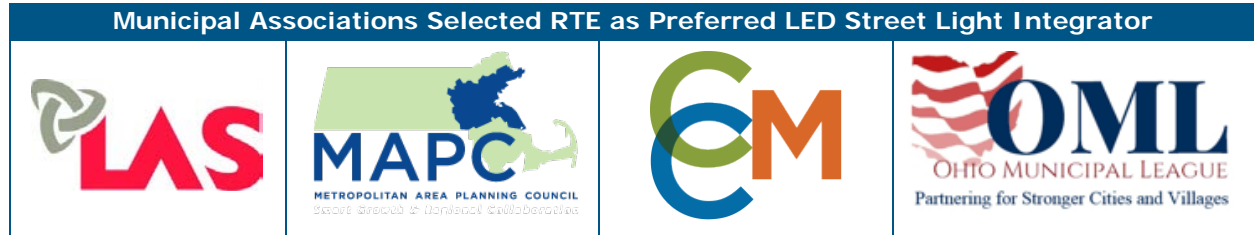
RealTerm Energy's mission is to deliver future-ready "Smart City" solutions that allow forward-thinking communities to reduce energy costs, improve the quality of life of citizens, and protect the environment. Building on Realterm's expertise as a leader in logistics infrastructure, RealTerm Energy works with municipalities and public authorities to deliver unmatched solutions for efficient energy-related projects.

"Our experience with RealTerm Energy has been nothing but positive. Refreshingly, this is an organization that excels when it comes to communication and responsiveness. The people at RTE are first-rate and I can't tell you how much we appreciated their flexibility regarding equipment delivery, as well as answering every question and concern we've had throughout the process."

Terry Helms  
Towns Official, Selectman  
Towns of Grand Isle, Maine

### 1.3. Municipal Associations

Four major North American municipal associations have selected RealTerm Energy as a preferred provider of LED street lighting services: Connecticut Conference of Municipalities (CCM), Ohio Municipal League (OML), Ontario's Local Authority Services (LAS) and most recently the Metropolitan Area Planning Commission (MAPC) of Massachusetts. RTE has also recently become a Silver Level Corporate Member of the New York Association of Towns.



### 1.4. World Bank Recognition

In addition, we are particularly proud to have stood out, on a global scale from similar service providers, as noted by the World Bank Group in 2016. RealTerm Energy's "remarkable" partnership in the joint-procurement model developed with LAS and the Association of Municipalities of Ontario has been recognized by the World Bank as being among the most efficient and successful delivery models in the world. The World Bank Group estimates that 20% of global electricity is consumed by lighting and it projects that widespread adoption of LED lighting can reduce that to 7%.

**WORLD BANK GROUP**

**Proud to be recognized by the World Bank.**

RealTerm Energy was honored to be chosen by the World Bank to help advance its global initiative of reducing electricity consumption. Post extensive research of various programs and their providers around the globe, the World Bank selected RealTerm Energy due to it being a leader in this field and its highly successful track record. In just over three years' time, our organization has upgraded over 230 municipalities and installed 147,000 luminaires.

On the world stage, RTE was invited to speak, on two separate occasions, to World Bank delegates on best practices for a successful LED municipal streetlight conversion. The first, in Washington, D.C., related to Process, Management and Control, and the second, held in Lima, Peru, was related to project finance. RealTerm Energy continues to be called upon as an industry forerunner and provides consulting services for various countries around the globe.

Access our homepage to view the complete case study: <http://www.realtermenergy.com/>

## 1.5. Project Experience Turnkey Conversions in Maine

The table below highlights RealTerm Energy's notable ongoing and completed LED conversion projects in Maine. In Maine alone, we've converted or are in the process of converting nearly 17,000 lights in over 30 municipalities. This allows for project teams to be readily available and provide a hands-on approach, thereby enhancing project coordination and efficiency for the City of Sanford.

Municipality	Fixtures	Municipality	Fixtures
City of Biddeford	2,325	Town of Norway	268
City of South Portland	1,836	Town of Rockport	247
Town of Camden	1508	Town of Freeport	222
City of Rockland	1396	Town of Thomaston	200
City of Auburn	1,253	Town of Standish	191
Town of York	788	Town of Ashland	163
Town of Rumford	648	Town of Fort Fairfield	147
Town of Falmouth	597	Town of Washburn	128
City of Caribou	525	Town of Raymond	113
Town of Houlton	509	Town of Mars Hill	113
Town of Wells	500	Town of Waldoboro	110
Town of Madawaska	435	Town of Eagle Lake	97
Town of Gorham	401	Town of Oxford	73
Town of Bar Harbor	374	Town of Island Falls	70
Town of Paris	355	Town of Grand Isle	58
Town of Windham	353	Town of Saint Agatha	58
Town of Dover-Foxcroft	324	Town of Union	36
Town of Mount Desert	275		



## Experience Managing Multiple-Municipal Conversion Projects

### State of Maine



RealTerm Energy has been selected for 4 multi-municipal, turnkey streetlight conversion projects involving collaborative procurement practices throughout the State of Maine. In all 4 cases, RTE is/was required to develop, issue and evaluate bids for products and labor:

**4 municipalities:** Falmouth, South Portland, Biddeford and Dover-Foxcroft

- Won through **RFP**
- Total luminaires being installed: **4,984**
- Project Stage: **Installation/Close Out**

**10 municipalities:** Caribou, Mars Hill, Mapleton, Grand Isle, Fort Fairfield, Island Falls, Washburn, Ashland, Madawaska, Saint Agatha

- Won through **RFP**
- Total luminaires being installed: **2,685**
- Project Stage: **Procurement**

**4 municipalities:** Windham, Gorham, Standish, and Raymond

- Won through **RFP**
- Total luminaires being installed: **2,063**
- Project Stage: **Procurement**

**3 municipalities:** Norway, Paris, and Oxford

- Project Stage: **Procurement/Installation**
- Total luminaires being installed: **696**

In all 4 cases, RTE is/was required to develop, issue and evaluate bids for products and labor.

- Number of municipalities deploying control networks: **3**
- Total number of controls in deployment: **2,700**

**Additionally, RealTerm Energy was recently selected through a competitive RFP process to provide LED conversion services to the Towns of Camden and five other neighboring municipalities.**

**6 municipalities:** Camden, Rockland, Thomaston, Waldoboro, Union, Rockport

- Won through **RFP**
- Total luminaires being installed: **3,497**
- Project Stage: **IGA Review**

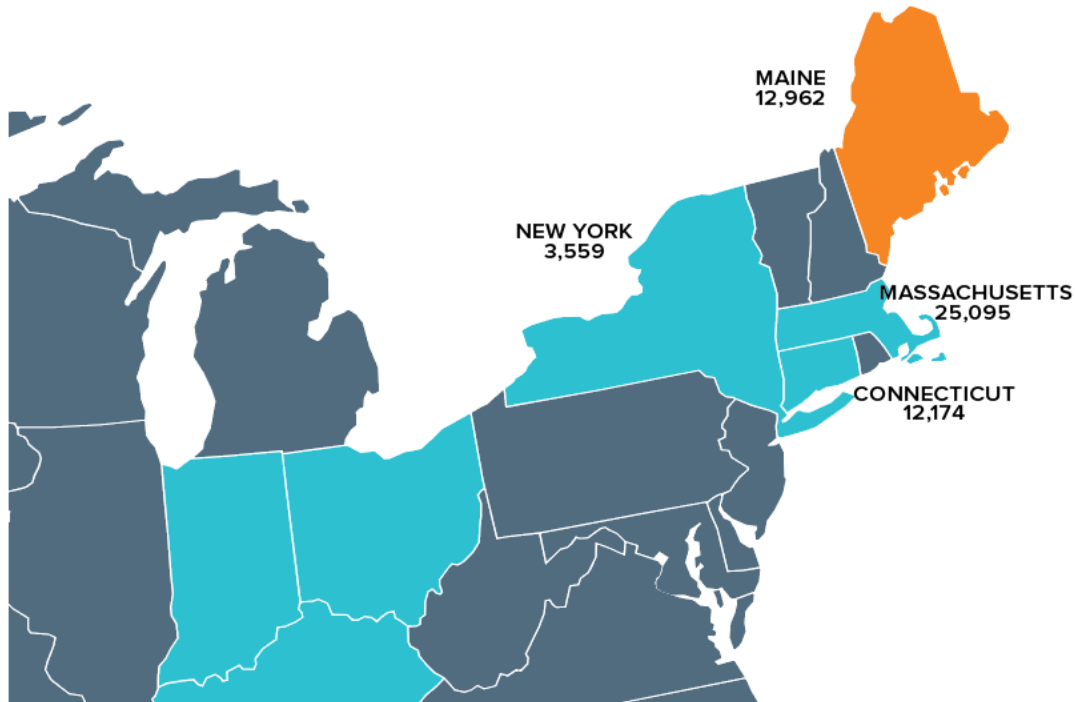


## Project Experience in Neighboring States

As can be seen from the map on the next page, RealTerm Energy specializes in implementing projects in the Northeastern US and has converted or is in the process of converting over 45,000 streetlights to LED in this region. This experience has allowed us to become extremely well-versed in local regulations and environmental conditions, and to form a network of trusted electrical contractors and other specialists in the area. The table below lists some of our more notable projects in the Northeastern area.

Municipality	Fixtures	Municipality	Fixtures
City of Brockton, MA	8,761	City of Amesbury, MA	1,242
City of New Britain, CT	5,788	Town of WaterTown, CT	1,160
City of Pittsfield, MA	5,856	Town of Seymour, CT	1,133
City of Haverhill, MA	4,611	Town of Auburn, MA	1,132
Town of Tewksbury, MA	1,711	Village of Great Neck, NY	832
Holden Municipal Light Dept., MA	1,655	City of Norwalk, CT	269
Village of Newark, NY	1,500		

## Number of Fixtures RTE is Converting or has Converted to LED in Northeastern United States



## 1.6. Utility Experience

As one of the first service providers to be selected for LED street light conversions in Maine, RealTerm Energy has taken on a leading role in ensuring that the unique installation requirements set forth by the Public Utility Commission together with Central Maine Power allow municipalities to deploy their assets as safely and efficiently as possible. RealTerm Energy's team has met extensively with CMP and Emera since the launch of the Working Group's (Falmouth, South Portland, Biddeford and Rockland) projects, collaboratively developing a workable solution.

### Updates to Central Maine Power (CMP) Terms and Conditions

Realterm Energy would like to state its ability to comply with CMP's requirements for certification and licensing, particularly following recent upgrades to their documentation. Over the course of 2018, multiple changes have been made to the CMP Terms and Conditions (T&Cs) and PUC requirements for street light installation, summarized below. These changes would allow municipalities to benefit from reduced installation pricing as there would be more contractors capable/qualified of performing street light work on CMP's grid.

Summary of the 2018 changes:

- **May 2018:** CMP's T&Cs and contract for municipal ownership of street lights were revised to allow municipalities the option of having their own qualified contractor to install, maintain and remove connections to the CMP's secondary distribution system, provided that this contractor is approved in writing by CMP [Central Maine Power Company, Request for Approval of Revisions to Terms and Conditions Section 53 (Municipal Ownership of Street Lights), Docket No. 2018-00096, Order (May 17, 2018)].
- **July/August 2018:** Due to an inconsistency in the October 7th, 2015 PUC Order, PUC Staff issued a Procedural Order on July 10, 2018 requesting comments from utilities and interested parties on whether all of the qualifications listed in the utilities' T&Cs should continue to be required of municipal contractors and employees working on street lights. Additionally, PUC Staff requested the utilities identify whether any of the qualifications listed in the T&Cs were not required of the utilities' own employees. As a result, it is very likely that the IMSA certification (traffic control) requirement, an arduous and expensive certificate to obtain, will be removed from the requirements allowing other contractors to perform street light conversions, thus lowering the installation cost for municipalities.
- We are closely working with CPM/Emera and the communities on the billing change, Dover Foxcroft, being the first community in Maine that actually completed a CMP billing change.
- We work closely with CMP and the communities during the acquisition process, helping in the reconciliation of the inventories, identifying lights that could be private and billed directly to private owners.

RTE also has an ongoing mandate directly with San Diego Gas and Electric (SDGE) to conduct audit, design and installation management services for 30,000 of its utility-owned streetlights spread out across its entire service area. This work involves photometric evaluations of various LED manufacturers best suited for specific applications. Currently we are working with SDGE to expand this service to municipality-owned lights within the service area, on the municipality's behalf.

RTE has recently worked with the following utilities providing various services including the evaluation and acquisition of utility-owned streetlights:

US Utilities/LDCs	
Central Maine Power	National Grid Massachusetts
Kennebunk Light & Power District	Eversource Connecticut
Orange and Rockland Utilities, Inc.	Rochester Gas & Electric
Emera	San Diego Gas & Electric
Florida Power & Light Company	Holden Municipal Light Department

## 2. KEY PERSONNEL

The LED street lighting services will be carried out through a fully integrated effort, staffed by experts in their fields with all the necessary skills to deliver the project, including a New England-based sales and field installation team. This is a very important part of our approach, allowing us to deliver the project on time while meeting all the required standards.

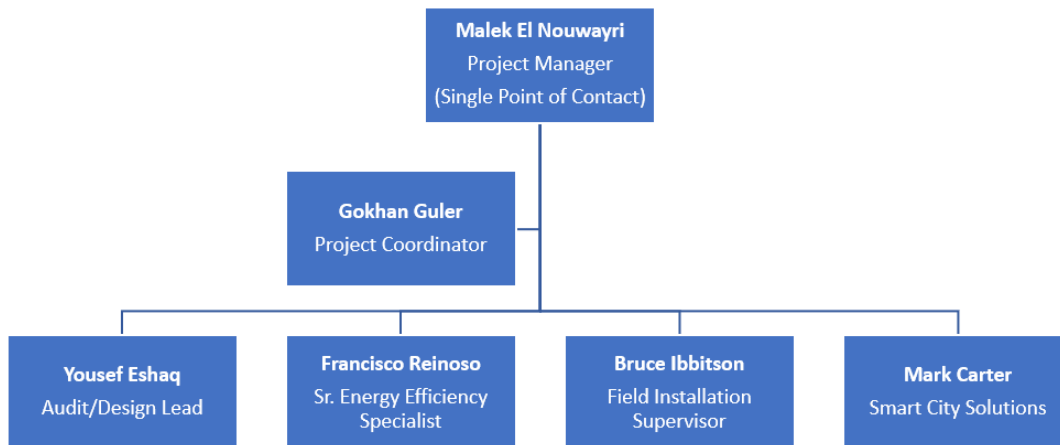
### 2.1. Organization Chart

The project team's organization chart is presented below. **Malek El Nouwayri** will lead the project as the single point of contact Project Manager. Malek brings over seventeen years of experience with a strong background in project management and quality control and is currently managing over 15 streetlight conversions projects in the state of Maine.

Malek will draw on the skills and expertise of the following team members:

- Gokhan Guler, Project Coordinator
- Yousef Eshaq, Audit / Design Lead
- Francisco Reinoso, Senior Energy Efficiency Specialist
- Bruce Ibbitson, Field Installation Supervisor
- Mark Carter, Lighting Controls and Smart City Specialist

Please find their CVs in the following pages.



## 2.2. Curriculum Vitae

### Project Role: Project Manager (Single Point of Contact)

#### Malek El Nouwayri

17+ years of  
project management  
experience



#### Professional Credentials

Member of the Quebec Order of Engineers

#### Education

McGill University

Comprehensive Project Management  
2015-2016

American University of Beirut

Bachelor of Engineering 1996–2001

#### Languages

French and English

#### Project Responsibilities

- Act as “Single Point of Contact”
- Keep municipality updated on the status of its project on a regular basis
- Assume project management responsibility for all aspects of the project
- Meet all codes, standards and budgets
- Propose solutions to any site-encountered issues

#### Relevant Projects:

- City of Brampton, ON [4,153 fixtures]
- District of Summerland, BC [1,320 fixtures]
- Sarasota County FL, [5,851 fixtures]
- Towns of Windham, ME [1,320 fixtures]
- Standish, ME [191 fixtures]
- Tewksbury, MA [1,711 fixtures]

Malek El Nouwayri, an electrical engineer, has more than 17 years of international experience in project management, execution of construction projects and sales and procurement. He has been instrumental in the successful completion of a host of multi-million-dollar projects around the globe by building a positive rapport with engineers, suppliers and clients.

His extensive experience as a design engineer, including his work with a team to complete the design aspects of power distribution and lighting installations in Angola for Agostinho University, has served him well in the areas of project planning, cost estimation, coordination between all project disciplines.

At RealTerm Energy, Malek is strategic in his project management role and is involved in the planning and organization of all resources to expertly complete the client’s projects on-time and within budget.

#### Malek’s Project Experience:

- Deputy Project Manager and Owner Representative responsible for significantly reducing overall project costs when negotiating contracts, 2010 – 2015.
- Electrical Project Engineer at MAN Enterprise LLC where he led a team of site engineers, foremen and electricians to complete all electrical installations, 2007 – 2009.
- Electrical Design Engineer at Khatib & Alami CEC for Doha International Airport, Al-Darwish Residential Airport, Al-Darwish Residential Tower (Doha, Qatar), North-South Saudi Railway, Shamassiyah Wastewater Station (Saudi Arabia), Akatu City Street Lighting (Kazakhstan), 2006 – 2007.
- Electrical Project Engineer at Alphanoor Electromechanical Works LLC, 2007 – 2008.
- Site Engineer at Consolidated Contractors International Company, 2002 – 2004.

## Project Role: Project Coordinator

### Gokhan Guler

**6+ years**  
project leadership &  
coordination experience

#### Education

- Bachelor of Electrical Engineering  
Istanbul Technical University  
Istanbul, Turkey

#### Certificates/Training

- OSHA Certificate – Total Safety
- High Voltage & Electrical Safety Training
- OCP Slurry Pipeline Project – HSE  
Compliance Certificate

**Languages:** English, French, Turkish

#### Project Responsibilities:

- Act as Project Coordinator
- Assist in the management of the project by keeping municipality updated on the status of its project on a regular basis
- Support all aspects of the project life cycle to ensure on-time and within budget delivery
- Tracks installations using Esri (an ArcGIS Platform)
- Handles project reconciliation and invoicing, warranty and maintenance coordination, and provides routine reporting to clients.

#### Relevant Project Experience:

- RealTerm Energy LED Streetlight Conversion projects across the U.S. and Canada

As a Project Coordinator at RealTerm Energy, Gokhan Guler is dedicated to coordinating all aspects of a project life cycle to support its most successful outcome. Gokhan's deep industry experience in the lighting sector, along with his professional skillset, enable him to quickly grasp a project's mandate, employ his formidable organizational skills, and ensure the project team has everything it needs to move the project forward. He keeps RealTerm Energy's clients informed during all phases of a project and his approach ensures that we deliver on-time while striving to carefully respect a project's budget.

Gokhan's responsibilities as a Project Coordinator encompass:

- Coordinating the overall project schedule and various process tasks amongst all departments
- Updating clients on a timely basis regarding the status of their projects
- Managing the procurement functions of a project
- Dealing with numerous project facets including project scheduling, contract creation and execution, budgeting

Gokhan's previous professional experience includes:

- Acting as Lead Electrical and Instrumentation Quality Assurance/Quality Control Engineer for a Copper Sulfide Gold Mine Expansion Project in the City of Erzincan, Turkey where he directed electrical and instrumentation subcontractor engineers for mechanical completion according to project specifications. (2018-2019)
- Leading and directing a team of 40 multi-language customer service agents for a Montreal-based online retail organization. (2017-2018)
- Overseeing team of electrical professionals as International Electrical Construction Engineer for a retail establishment in Kagithane, Istanbul. (2014–2016)
- Installing internal/external lighting solutions, fire & gas grounding systems, installations and inspections as Electrical Construction Site Engineer for a Moroccan construction organization. (2011-2013)

## Project Role: GIS and Design Lead

### Yousef Eshaq

**5+ years**

Designed lighting levels of more than 20 000 lights and produced 1000 photometric models

#### Education:

Bachelor's in Mechanical Engineering,  
Minor in Management McGill University

#### Languages:

Fluent in English and French

#### Project Responsibilities:

- Engineering street light database and customizing it to meet your needs
- Create lighting design according to the RP-8-2014 standards
- Ongoing communication with clients regarding photometric designs

#### Relevant Projects:

- City of South Portland, ME [1,729 fixtures  
Towns of Falmouth, ME [846 fixtures]
- City of Biddeford, ME [2,032 fixtures]
- Village of Great Neck, NY [832 fixtures]
- Towns of Seymour, CT [1,094 fixtures]

Yousef focuses on maximizing energy efficiency long-term for clients, while maintaining a safe and comfortable environment for citizens. He also applies his GIS expertise to manage databases, analyze data and apply spatial analysis, creating customized web maps and applications that visualize our lighting solutions.

His accomplishments at RealTerm Energy include:

- Building 100+ GIS maps utilizing ESRI software.
- Leading the RFQ, product evaluation and selection of appropriate lighting manufacturers for 20+ projects.
- Completing field audits and data reconciliation with utility inventories.

His responsibilities as the Lead Audit and Lighting Designer in any given project include:

- Completing field audits and data reconciliation with utility inventories.
- Determining the correct fixtures and wattages to ensure that RP-8-2014 standards are met wherever possible
- Applying his mechanical engineering expertise whenever there are situations that are out of the ordinary.

Prior to joining RealTerm Energy, Yousef's professional experience includes working at General Electric, as a Mechanical and Lighting Engineer where he:

- Led the production of three GE lighting fixtures from early stages to launch.
- Designed a lighting accessory that was successfully installed in Target stores across USA.
- Completed Gonio and Sphere lighting tests on various lighting fixtures.
- Tested the mechanical integrity of lighting fixtures.

## Project Role: Senior Energy Efficiency Specialist

### Francisco Reinoso, M.E.S.

5+ years  
of specialization in  
energy solutions  
and efficiency



#### Education:

Masters, Environment and Sustainability,  
University of Western Ontario (2012 – 2013)

Bachelor, Business and Public Relations,  
University of Marina Mercante, Buenos Aires,  
Argentina (2006 – 2009)

#### Awards:

United Nations MINUSTAH Medal (2011)

2012-13 Rotary Ambassadorial Scholarship  
(University of Western Ontario)

2013 Masters in Environment and Sustainability  
Excellence Award (University of Western Ontario)

#### Languages:

English, Spanish, Portuguese, French

#### Project Responsibilities:

- Development of technical and financial calculations
- Evaluation of different manufacturers, performance of luminaires, etc.
- Development and evaluation of competitive bid process for installers

#### Relevant Projects:

- Towns of Falmouth, ME [846 fixtures]
- City of Brockton, MA [7,269 fixtures]
- City of New Britain, CT [5,788 fixtures]
- Towns of Seymour, CT [1,133 fixtures]
- 

Francisco's areas of expertise are of great benefit to both RTE's firm and our clients. His deep expertise in environment and sustainability, energy efficiency, international business development, and planning and administration lends itself to the successful outcomes of the diverse client projects he oversees. Francisco thrives on working on multiple projects in a fast-paced environment, delivering high quality work within tight timeframes. He is solution-oriented, results-driven and has worked on over 100 LED municipal street light projects for RealTerm Energy.

As a senior energy efficiency specialist, Francisco assists the sales team with data collection, reviews and analyses for the development of Initial Energy Assessments and Investment Grade Audits regarding LED street lighting conversions for municipalities. He also evaluates projects' technical and financial indicators including energy and maintenance savings, project costs, cash flows based on defined interest loans, payback periods, ROI, NPV and IRR.

Other responsibilities include:

- Managing the day-to-day operations of the RTE team
- Supporting the sales team in researching other markets for new business opportunities and the creation of financial models
- Proposing innovative ways to enhance energy savings and project returns
- Reviewing and responding to municipal and private Request for Proposals in North American and Latin American countries

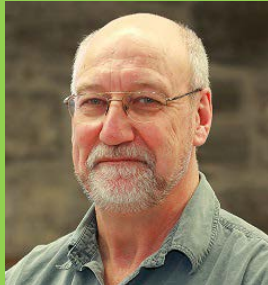
Prior to joining RealTerm Energy, one of Francisco's former positions was as Supervisor of Strategic Area (Academic Department) for the Joint Chiefs of Staff College in Buenos Aires, Argentina. He was involved in the planning, coordination and execution of war-game exercises, provided training and mentorship to new civil and military staff members within the Academic Department, and participated in a peacekeeping mission to Haiti for which he won a UN medal.



## Project Role: Field Installation Supervisor

### Bruce Ibbitson

**25+ years**  
of facilities and  
maintenance  
management  
experience



#### Education

B.Ed., Technical Education, University of Toronto, Toronto

Mechanical Engineering Technologist, Sault College AAT, Sault-St-Marie, Ontario

#### Qualifications and Training

Health & Safety Certified, Level 2  
Project Management/Scheduling Training

#### Project Responsibilities:

- Ensure the installations runs smoothly with minimal delays
- Provide weekly installation status reports
- Maintain quality control

#### Relevant Project Experience:

- Village of Great Neck, NY [832 fixtures]
- Village of Newark, NY [1,500 fixtures]
- City of Brockton, MA [7,269 fixtures]
- City of Fulton, KT [300 fixtures]
- City of Timmins, ON [3,661 fixtures]
- City of Kenora, ON [1,737 fixtures]
- City of Dryden, ON [1,338 fixtures]

As Field Installation Supervisor, Bruce makes regular visits to your community, meeting with municipal staff, officials and local installers during all phases of the project and ensuring a smooth conversion to LEDs for our clients.

Bruce sources and qualifies electrical contractors, reviews installation project requirements and provides technical data for contracts. He also prepares quote requests for electrical contractors and is the dispatch point for service and warranty requests.

His responsibilities as Field Installation Supervisor include:

- Assist the Municipality negotiating the appropriate installation options
- Source qualified electrical contractors
- Review installation project requirements and oversee the actual installation
- Visit work sites to review progress and facilitate stakeholder communication
- Ensure full compliance with installation specifications and quality requirements

Bruce brings more than 25 years' experience in facilities management and team supervision in hospital, construction and school board settings, working in unionized and non-unionized settings. Bruce has expertise in liaising with municipal and regulatory personnel for planning and compliance, and the maintenance of high levels of safety.

Bruce has served as a member of seven different municipal boards and committees and is currently a councillor for the Township of St. Joseph, Ontario.

## Project Role: Lighting Controls and Smart City Specialist

### Mark Carter

25+ years of automation, enterprise software, embedded semiconductor and lighting controls experience



#### Professional Credentials:

United States Army's Engineer Officer Basic Course (EOBC), Fort Leonard, MO

#### Education:

Bachelor of Science in Chemical Engineering, Concentration in Process Control, from the University of Maine

#### Languages:

English

#### Project Responsibilities:

- Coordinate and supervise solution sales approach to identify client's underlying needs and ensure desired goals are met

#### Relevant Projects Relating to Smart Control Deployments:

- City of South Portland, ME
- City of Biddeford, ME
- Town of Wells, ME
- Town of Falmouth, ME
- Village of Great Neck, NY
- City of Brockton, MA
- Town of Tewksbury, MA
- City of Auburn, ME
- Town of Rumford, ME
- Town of Norway, ME
- Town of Mars Hill, ME

As Vice President – Sales, Mark is responsible for providing leadership and driving both strategy and growth across RealTerm Energy's sales teams. His role is critical in both developing and implementing our strategic initiatives as well as monitoring our national sale teams' performance to ensure desired goals and targets are met or exceeded.

Mark has twenty-five years' executive-level experience in the controls industry. This experience encompasses industrial automation, building automation and lighting controls. He brings a broad knowledge of device networking and Smart City applications to help clients fulfill their IoT (Internet-of-Things) vision.

He is an excellent communicator with a solution sales approach to identify our clients' underlying needs. A former client of Mark's shared that "he is a great strategic thinker who is able to come up with creative concepts to solve complex problems and meet key business requirements." Mark excels at fostering long-term business development relationships from CEO to end-user and is a thoughtful and innovative member of our management team.

Prior to joining the RealTerm Energy, Mark:

- Held a variety of sales management positions with Honeywell International, Echelon Corporation and CIMCON Lighting.
- Drove growth with sales teams of varying sizes in multiple markets to include automation controls, enterprise software, embedded semiconductor and lighting controls.
- Developed and operated an international business development consulting firm.
- Graduated from the United States Army's Engineer Officer Basic Course (EOBC), Fort Leonard, MO.

### 3. PROJECT DESCRIPTIONS AND REFERENCES

<b>Client:</b>  South Portland, ME	<b>Client Contact:</b> Tex Haeuser Planning and Development Director  (207) 767-7649   <a href="mailto:chaeuser@southportland.org">chaeuser@southportland.org</a>
<b>Project Description:</b> This project was one of four participating municipalities, won through an RFP in early 2016. The turn-key scope of work includes the design and implementation of community-wide street light enhancements and conversions to LED fixtures, as well as a small pilot project and assistance incorporating smart controls. Installation is scheduled to finish in early 2019.	
<b>Start / End Date:</b>	November 2016 / Ongoing
<b>Project Value US\$:</b>	\$1,686,000
<b>No. of Fixtures:</b>	1,729

<b>Client:</b>  Dover-Foxcroft, ME	<b>Client Contact:</b> David Johnson Finance Director/Treasurer  (207) 564-3318 ext. 1012   <a href="mailto:djohnson@dover-foxcroft.org">djohnson@dover-foxcroft.org</a>
<b>Project Description:</b> This project is a turn-key LED street light conversion, including GIS audit, design, installation management and pilot projects for both cobrahead and decorative fixtures. Installation for this project finished in late 2018. After careful review of the results of the local pilot project.	
<b>Start / End Date:</b>	March 2017 / October 2018
<b>Project Value US\$:</b>	\$342,626
<b>No. of Fixtures:</b>	332

<b>Client:</b>  Falmouth, ME	<b>Client Contact:</b> Kimberly Darling Energy and Sustainability Coordinator  (207) 699-5337   <a href="mailto:kdarling@falmouthme.org">kdarling@falmouthme.org</a>
<b>Project Description:</b> This project was one of four participating municipalities, won through an RFP in early 2016. The turn-key scope of work includes the design and implementation of community-wide street light enhancements and conversions to LED fixtures, as well as a small pilot project and assistance incorporating smart controls. Installation was completed in August 2018.	
<b>Start / End Date:</b>	September 2016 / August 2018
<b>Project Value US\$:</b>	\$399,809
<b>No. of Fixtures:</b>	590

<b>Client:</b> Village of Great Neck, NY	<b>Client Contact:</b> Joe Gill Clerk Treasurer  (516) 482-2000   <a href="mailto:jgill@greatneckvillage.org">jgill@greatneckvillage.org</a>
<b>Project Description:</b> RealTerm Energy installed cobrahead and decorative fixtures, as well as the adaptive controls and smart city applications. We first conducted a GIS mapping and data collection of the Village's streetlight assets, along with a photometric design plan for all cobrahead and decorative fixtures. Pre-survey inventory: 740; Post-survey inventory: 832	
<b>Start / End Date:</b>	January 2017 / May 2018
<b>Project Value US\$:</b>	\$117,000
<b>No. of Fixtures:</b>	832

<b>Client:</b> City of Pittsfield, MA	<b>Client Contact:</b> Ricardo Morales, City Engineer City of Pittsfield  (413) 499-9330   <a href="mailto:rmorales@cityofpittsfield.org">rmorales@cityofpittsfield.org</a>
<b>Project Description:</b> The City of Pittsfield engaged RealTerm Energy at the end of 2017 to convert approximately 6,000 HID lights to LED, including a comprehensive GIS audit and design process, procurement of materials and labor and project management services. The project is currently in the photometric design stage with installation scheduled for completion by March 2019.	
<b>Start / End Date:</b>	November 2017 / Ongoing
<b>Project Value US\$:</b>	\$302,000
<b>No. of Fixtures:</b>	5,856

## 4. PROJECT APPROACH AND SERVICES

### 4.1. GIS Audit

At RealTerm Energy, the GIS audit is a foundational component of our approach. Our experienced survey team collects geospatial and descriptive data pertaining to all important streetlight attributes to create a comprehensive picture of your current streetlight network and reveals any gaps and errors that might exist in the inventory data. Using this approach helps the remaining steps in the conversion process run more efficiently.

Our customized Esri application captures and records detailed data from streetlights and their surroundings and enables us to document as many attributes per data point as the City requests, including information about the location, type and pole condition.

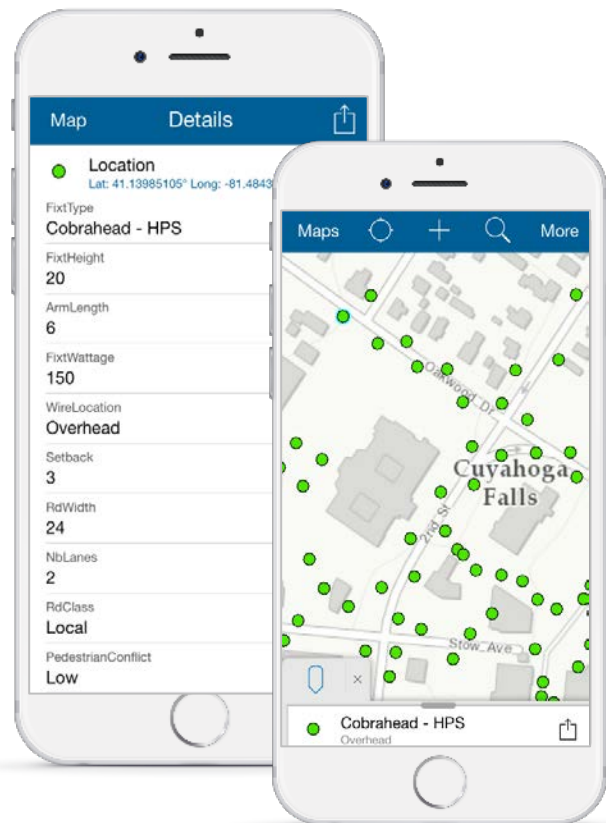
In addition, our geospatial team takes precise measurements to ensure our lighting design team can specify the appropriate fixture types and wattages. The most critical of these observations are:

- Pole height
- Road width
- Existing wattage
- Road class
- Fixture type

Some advantages of the streetlight application include:

- Access survey data online
- Export all data to MS-Excel, KML/KMZ, Shapefile or File Geodatabase formats
- Compatible with virtually any smart phone and tablet
- The City's key team members receive online login access, ensuring full transparency of the project from start to finish.
- Post-audit, your staff will be able to identify each light in the system and view its history and attributes.

Click the following link to explore a sample of RealTerm Energy's detailed street light survey: [ArcGIS Map](#)



RealTerm Energy will develop an Audit Report which will include:

- Deficiencies in the current street lighting network
- Baseline energy use, energy cost and operations & maintenance costs
- Estimated retrofit energy use and operations & maintenance costs
- Estimated sources of funding, including rebates
- Calculation of estimated total conversion cost (remaining design tasks, product, and installation), energy reduction, and simple payback

The Audit Report will be developed based on the inventory, utility bill analysis, and consultation on controls and/or other products.

## 4.2. Financial Stability

### Tax Exempt Lease-Purchase Agreements (TELP)

Numerous municipalities have opted for TELP for their LED upgrades. RealTerm Energy possesses extensive experience in structuring this financing option.

#### Advantages of TELP

- No creation of debt
- Typically, no voter approval needed
- Conservation of working capital
- Building of Equity
- Full ownership
- Flexibility, convenience and cost-effectiveness

Several other important factors to consider:

- Provides effective solutions during revenue shortfalls and other unexpected situations
- Enables the prompt acquisition of modern equipment and technology upgrades, and continues to provide quality public services
- Appropriates annually
- Ties to the useful life of the equipment
- Allows for the lowering of cost to administer a lease versus a bond

### Energy Savings Performance Contract (ESPC)

The cash flows associated with implementing energy efficiency projects create unique opportunities for alternative financing structures. One option a municipality may wish to consider is the Energy Savings Performance Contract (ESPC). A growing number of municipalities across North America are achieving performance efficiencies without increasing capital expenses and/or taxpayer burden through ESPCs.

#### Advantages of an ESPC

RealTerm Energy:

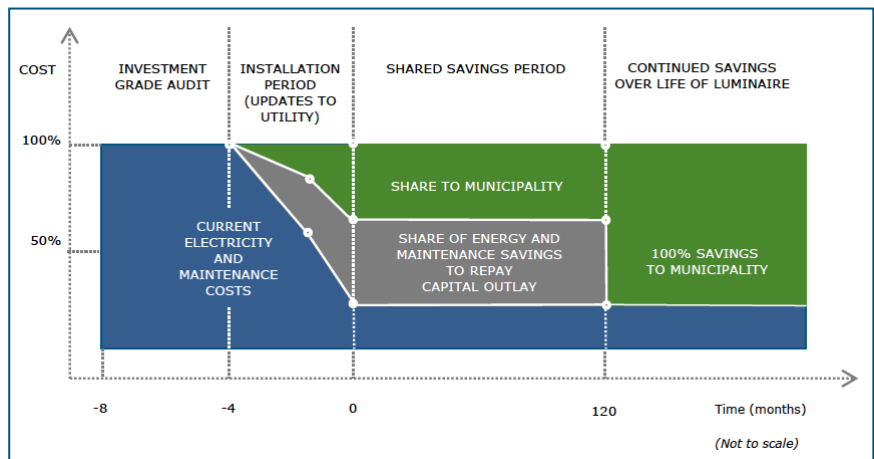
- Finances 100% of the up-front capital investment by the municipality with an agreement to provide a fixed repayment structure, based on the calculated energy savings.
- Guarantees the LED upgrade will yield a specified reduction in energy over a contracted term.
- Ensures the guaranteed savings generated will be sufficient to finance the total project without pursuing capital funding.

- Directs a share of the energy and maintenance savings to the municipality from year one.
- Provides maintenance services over the contracted term and therefore transfers any operating risks from the municipality to itself.
- Includes street light maintenance costs in the monthly payment over the contracted term.
- Ensures that at contract completion, the Municipality retains the full value of the energy and maintenance savings.

With an ESPC, the municipality can immediately take advantage of energy-efficient LED technology without having to add stress to its ratepayer base or borrow project funds. This frees up municipal resources that can then be assigned to other uses deemed important by the municipality.

RealTerm Energy has financed 14 projects on behalf of municipalities (see table below) whereby we use our own capital to finance all project costs up front. The municipality and RealTerm Energy share in the energy and maintenance savings over the 10-year term until the capital costs are repaid. RealTerm Energy is responsible for the maintenance of the streetlights during this time, ensuring their functionality for warranty related issues. The split of the savings between the client and RealTerm is determined in advance, including all warranty maintenance work on the street lights and control nodes and related equipment. At the end of the 10-year period, 100% of the energy and maintenance savings are enjoyed by the client, as shown in the graph below.

The Energy Savings Performance Contract (ESPC) specifies a series of shared energy and maintenance savings that inflate at pre-set amounts (3% for energy and 2% for labour) such that a 10-year series of cash flows are pre-determined, thereby offering a hedge against inflation to the municipality.



The following table provides a list of projects implemented by RealTerm Energy using the ESPC.

EPC CLIENTS	LUMINAIRES	COMPLETION DATE
Georgina	4,232	5/27/2016
Whitchurch-Stouffville	3,200	11/16/2016
Orangeville	2,789	5/27/2016
Kincardine	1,148	11/08/2015
Elliot Lake	1,141	25/07/2015
Niagara-on-the-Lake	1,034	12/05/2015
Minto	716	04/05/2015
Blind River	693	20/03/2015
Iroquois Falls	577	30/03/2015
Cramahe	418	28/07/2015



EPC CLIENTS	LUMINAIRES	COMPLETION DATE
Hamilton	392	04/09/2015
Powassan	227	15/09/2015
Grenville-sur-la-Rouge	175	27/04/2016
Burk's Falls	159	20/08/2015
<b>Grand total (14 projects)</b>	<b>16 901</b>	

### 4.3. Photometric Design

*Our in-house lighting design team uses the GIS-based street light data to develop a customized photometric design plan, optimizing lighting quality, energy savings and safety levels.*

One value-added service that distinguishes RealTerm Energy from others in the industry is its comprehensive photometric design methodology. We look at your conversion project as an opportunity to fix past mistakes and design your streetlight network properly. Instead of just replacing HID lights with their LED equivalents, we actually examine the surrounding area and infrastructure to determine which types and wattages are needed.

All designs created by our lighting design team have the following advantages:

- Utilize the lighting industry's premier photometric calculation tool, AGi32.
- Follow the RP-8-2018 Roadway Lighting recommendation produced by the IES (Illuminating Engineering Society).
- Are based on the City's streetlight and roadway infrastructure, not on algorithms or simple one-for-one replacements as is the general industry practice.
- Maximize energy savings.
- Reduce glare, back-light and up-light and incorporate light trespass and dark sky considerations to avoid light pollution.
- Allow for choice of color temperature (i.e. 3000k, 2700k or a hybrid approach).

We address unique regional characteristics such as neighborhoods, schools, hospitals, tourist attractions, areas of concern and areas with higher frequencies of accidents and/or vehicle-bicycle-pedestrian conflicts. This includes looking at crash data of the last five years to identify areas of where light levels and/or spacing have affected public safety.

Upon approval of the photometric designs, LED design specifications are imported and mapped within our Esri application so that the installation teams know what LED fixture to install at each location and our project manager can track the installation in real-time.



*"Thanks again for the great work done by RealTerm Energy for the City of Victoria. You and your team have been extremely responsive and tremendously helpful. We can attest that it has been well worth the investment and I would highly recommend that others follow suit to ensure proper lighting levels and maximum energy savings."*

Ed Robertson, Assistant Director,  
Public Works, City of Victoria, BC

The sample graphic above is a digital rendering of RealTerm Energy's photometric calculations that take into account the GIS inventory survey data and the lighting recommendations for the given street, intersection, sidewalks and pedestrian crosswalks.

#### 4.4. Rebates and Incentives

*Incentives provide municipalities with a way to reduce the overall costs of their streetlight conversion without sacrificing the scope or quality of service.*

Once designs have been confirmed by the City, our team processes and submits any necessary paperwork on your behalf to secure available rebates and incentives. An incentive may have more than one track or way of being evaluated, each of which is subject to different requirements. We will work with the City to determine which incentive track they qualify for in order to maximize the available benefits. Receipt of incentives is always dependant on utility approval, as well as the availability of state funding.

RealTerm Energy's extensive experience with incentive programs across North America has resulted in over \$12.5 million in incentives for our clients.

#### Efficiency Maine Incentives

Our team is preparing Efficiency Maine incentive applications for several of our clients in Maine. We are very familiar with Efficiency Maine's incentive structure and process for exterior lighting and will ensure the City receives the maximum available incentives.

Efficiency Maine offers both prescriptive and custom incentive tracks depending on the incentive amount. For an LED fixture to qualify, the following eligibility criteria for fixtures must be met:

- Streetlight and/or parking light that is located on a Municipality-owned pole
- Listed on the DesignLights Consortium's (DLC) standard Qualified Products List
- The selected installation contractor must be an Efficiency Maine Qualified Partner

## 4.5. Project Management

*Our project management approach and extensive experience in LED streetlight conversions ensures your project will be delivered on time and on budget.*

One of RealTerm Energy's experienced project managers will act as the Single Point of Contact (SPOC) throughout all stages of your LED conversion project to ensure your project's objectives are met.

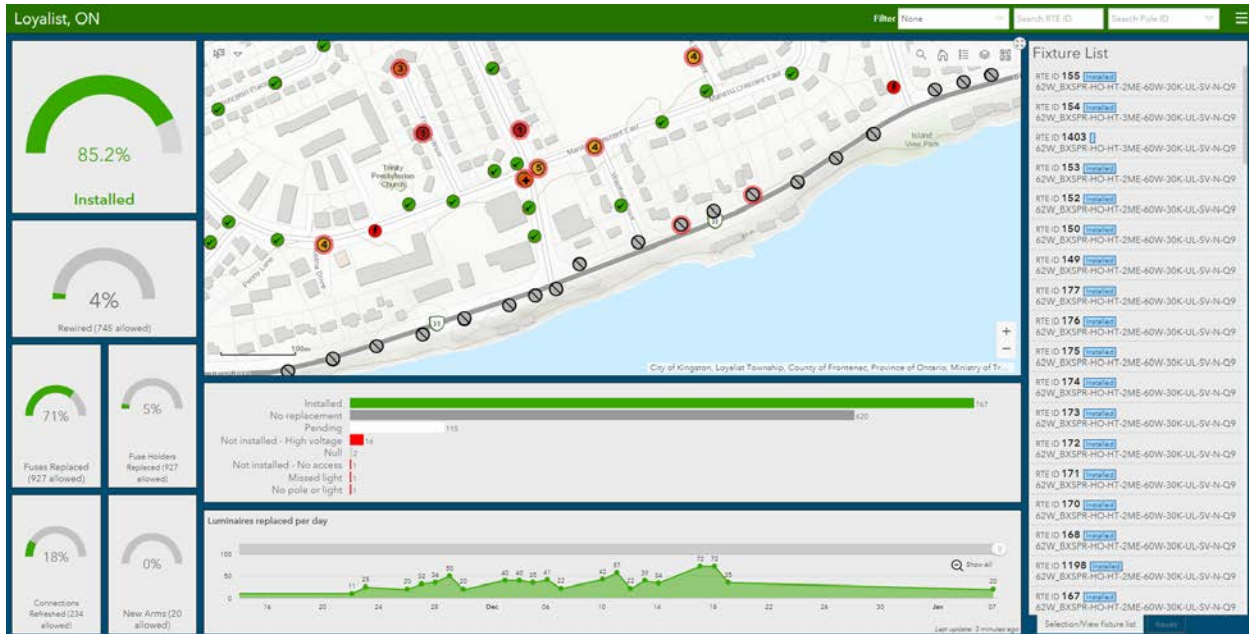
We deploy a proven approach to turn-key conversions, focusing on efficiency to achieve the highest degree of energy savings and assurance of safe and comfortable light levels. We tailor our work according to the City's unique needs and street light infrastructure requirements, current lighting guidelines, and state and federal legislation.

The City of Sanford can be reassured that their experienced project manager, supported by a team of in-house street light professionals, will significantly reduce the number of staff hours required to oversee the conversion project.

### Reporting

Your project manager will regularly review the project status and progress via our real-time Esri street light application allowing for quick identification of any potential issues and/or delays and the quick mobilization of appropriate resources to keep your project on time and budget. Project updates are provided at a frequency meeting the City's needs.

Furthermore, the City's key staff members would be given access to our installation dashboard, allowing them to view installation progress in real time. Please see a sample image below of an installation report.



## 4.6. Project Challenges and Solutions

Being prepared on all fronts and knowing what to look for as a project progresses is what will ensure a successful outcome. RealTerm Energy knows that proper assessment of project risks, due diligence in partner selection, and good project management will minimize overall problems and challenges that might impact the City when implementing the LED project.

However, as in any project some issues may arise. The RTE team has identified several common issues that may require special attention during the different project phases. The following table provides a listing of some of these challenges and their mitigation measures.

Problems / Challenges	Mitigation Measure
<b>Pre-Installation phase</b>	
Inability to build citizen consensus/ limited stakeholder involvement.	<ul style="list-style-type: none"> <li>• Allow for comprehensive citizen input through public consultation events and public relations.</li> </ul>
Incomplete or missing roadway lighting data and inventory.	<ul style="list-style-type: none"> <li>• Complete a GIS/GPS Field Survey verification audit to ensure data integrity prior to the start of design and installation work.</li> <li>• RTE’s customized GIS based application allows for quick identification of discrepancies.</li> </ul>
Errors in the GIS data collected by an external party.	<ul style="list-style-type: none"> <li>• Identify a process at the start of the project to vet and discuss any changes to be made to the GIS data.</li> <li>• RTE can identify any anomalies, collection errors and other site-specific conditions that will impede the project costs, or timetable.</li> <li>• During RTE’s field installation assessment of the existing infrastructure, errors in the GIS data will be recorded and passed onto the GIS department for assessment and correction as encountered.</li> </ul>
Changes in the City’s regulatory approvals such as traffic or health & safety plans.	<ul style="list-style-type: none"> <li>• Meet with regulators to mitigate any effects of changes</li> <li>• Keep abreast of possible changes.</li> </ul>
Revised construction plans that change the existing lighting infrastructure as the design of the street lights is taking place.	<ul style="list-style-type: none"> <li>• Identify the area with a list of fixtures affected and any changes to the lighting infrastructure’s inventory data during the project launch meeting.</li> </ul>

Problems / Challenges	Mitigation Measure
Availability of licensed linemen.	<ul style="list-style-type: none"> <li>• Advertise extensively before and during the proposed work schedule to ensure an adequate labour supply.</li> </ul>
<b>Installation Phase</b>	
Pole condition tested, and replacement is required.	<ul style="list-style-type: none"> <li>• On-Site Lineman can “knock-test” the pole’s condition and record its state in RTE’s Esri installation application.</li> <li>• Pole Owner to be advised of poles that should be replaced.</li> <li>• Luminaire replacement may be delayed pending Pole Owner’s imminent decision to replace or not. Only in extreme poor pole conditions would the luminaire not be installed for fear of any activity on/near the pole may cause the pole to fail.</li> </ul>
Luminaire/controls delivery delayed.	<ul style="list-style-type: none"> <li>• Allow for active vendor participation during the design process to ensure availability of luminaires/controls.</li> </ul>
Efficient monitoring of installation teams.	<ul style="list-style-type: none"> <li>• Provide the most accurate information regarding installation status to all stakeholders in a transparent manner and in real time.</li> <li>• Work with RTE’s Esri-based GIS/GPS application which allows all stakeholders to know where the installers are and the status of their assigned work.</li> </ul>
Unforeseen circumstances within the City’s and/or with respect to the lighting infrastructure cause scope creep during execution of project.	<ul style="list-style-type: none"> <li>• Work with the City’s on reduction of scope or break project into additional phases to accommodate budget changes.</li> </ul>
Major safety incident disrupts project.	<ul style="list-style-type: none"> <li>• Ensure that the Electrical Contractor’s employees attend the Client’s H&amp;S Orientation if available.</li> <li>• Ensure proper H&amp;S procedures on site; continuous auditing of safety on site.</li> </ul>
Close proximity of davit arm to high voltage lines.	<ul style="list-style-type: none"> <li>• Note the location and a discussion should take place with the utility to determine if a safer location is available.</li> </ul>
Change in team personnel during project execution.	<ul style="list-style-type: none"> <li>• Identify personnel replacements with necessary qualifications.</li> </ul>

Problems / Challenges	Mitigation Measure
Prime and/or Installation contractor goes bankrupt during execution of the contract.	<ul style="list-style-type: none"> <li>• Ensure that contractors' financial situation is requested and fully understood prior to award of contract.</li> <li>• Provide material/labor and performance bonds for this project.</li> </ul>
Contractor dismissed for non-performance during execution of the contract.	<ul style="list-style-type: none"> <li>• Ensure proper controls are in place on contract, no front-end loading of contractor payments, and proper bonding in place.</li> </ul>
<b>Maintenance Phase</b>	
Tracking of multiple high priority requests.	<ul style="list-style-type: none"> <li>• RTE's Computer-based Maintenance Management System (CMMS) allows our team to effectively manage, view, track, and report multiple service requests in a timely manner.</li> </ul>
Knowledge / data transfer.	<ul style="list-style-type: none"> <li>• The experience and knowledge gained throughout the project will be retained by the City's staff due to RTE's provision of a commissioning binder.</li> </ul>

#### 4.7. Acquisition of Streetlights

*RealTerm Energy supports local ownership. When municipalities gain control of their streetlight assets, they reduce energy and O&M costs, improve operating efficiency, and take advantage of new emerging "smart" technologies.*

RealTerm Energy can assist the City of Sanford in the purchase and acquisition of its streetlights from the Central Maine Power (CMP).

RealTerm Energy's acquisition services include the following:

- Guidance in determining the steps required for the acquisition process
- Assessment of cutover costs
- Facilitation in transfer of ownership

The following describes the steps involved in acquiring your streetlights from CMP.

1. Once the City is ready to move forward with the acquisition, they need to submit the Notice of Intent and request the new Net Book Value.
2. CMP will prepare the Customer-Owned Street Light Agreement, prepare the Net Book Value detail to send to the City.
3. The City will sign, scan and return the Agreement to its EMERA Account Manager.
4. CMP will prepare the invoice and send the City the instructions for where to send the payment.
5. When the payment is received, the City will own the fixtures.



6. CMP will send the attached documents back with the applicable signatures along with a workflow spreadsheet. This spreadsheet needs to be completed and returned in a designated timeframe as the replacements begin.

#### 4.8. Investment Grade Audit

*At RealTerm Energy, we use our unique advanced methodology and processes to produce an investment grade analysis of your current streetlight system's performance that compares the status quo with the post-conversion LED system.*

An Investment Grade Audit (IGA) reveals all when it comes to your project. It is a detailed energy audit that presents the financial benefits generated, energy savings achieved and the return on investment from converting the City's streetlights to LEDs.

The IGA is a comprehensive report that can be used as a helpful tool for communicating and summarizing the advantages of the LED conversion to non-expert decision-makers, stakeholders and community members.

Once the materials and installation contractor are selected and the photometric designs are complete, RealTerm Energy produces an IGA Report that provides:

- 1) A complete analysis of the City's current streetlight infrastructure's performance. This includes both energy consumption and operating costs and is established as the Baseline.
- 2) A comparison of the projected energy consumption associated with the post-conversion LED system. It uses data from field surveys conducted, confirmed pricing from suppliers and installers, and the specified LEDs following photometric designs.

This report is based on precise, fixture-by-fixture inventory and design, and provides the optimal fixture types, wattages, light distributions, dimming profiles (if applicable) and quantities for approval by the City in preparation for procurement.

#### 4.9. Procurement

*Our eBidding and procurement process offers an approach that focuses on efficiency and reduces the potential for bias by promoting a standardized evaluation centered on a robust scoring method.*

An impartial procurement process is a critical part of a successful LED conversion project, particularly with regards to fixture selection. Only through a careful analysis of multiple fixtures can municipalities be ensured that the optimum solution is chosen for their project.

##### Fixtures

RealTerm Energy acts as an informed but impartial advisor to our clients through our vendor agnostic approach. Our team works with clients to first identify their needs and capacity, and then competitively select equipment and installation services to address those needs.

After RealTerm Energy completes the GIS audit and gains a detailed understanding of the existing streetlight infrastructure, our team runs a competitive eBidding process on behalf of the City to assist in the selection of equipment and installation contractors to best suit your needs.

Equipment suppliers and installation contractors must:



- Meet RTE’s technical requirements (derived from RTE’s detailed GIS audit data)
- Be financially strong
- Have a good installation base
- Have a robust production or installation capacity
- Have an excellent reputation and track record
- Have been in business for a sufficient time to properly evaluate their equipment or services

We produce a detailed evaluation with product recommendations based on a robust set of criteria, including price, failure rate and IP ratings. A sample evaluation summary is illustrated in the table below. Please note that the evaluation criteria and weighting can be customized to fit the needs of the City of Sanford.

RealTerm Energy carries out all services related to ordering, delivery, receipt, verification and inspection (including inventory control), and/or administration of all equipment and labor purchases.

Lumen/Watt/ \$ Weight	Fixture Cost Weight	Photometric Weight	10 Year Operation	Total Possible Score
5	30	25	40	100

<b>Total Quantity</b>	<b>3850</b>
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Supplier - Manufacturer	Total Price (\$)	10 Year Operation Cost	Average Lumen Per Watt Per Dollar Score	Total Fixture Cost Score	10 YR Operations Cost Score	Photometric Performance Score	Total Score
Supplier 1	\$428,484	\$1,142,650	4.8	29.1	27.0	20.3	81.2
Supplier 2	\$499,806	\$1,161,593	4.1	24.9	26.6	24.2	79.8
Supplier 3	\$671,680	\$772,611	3.4	18.6	40.0	20.6	82.5
Supplier 4	\$533,856	\$1,164,352	3.6	23.3	26.5	23.9	77.4
Supplier 5	\$443,052	\$774,389	5.0	28.1	39.9	22.6	95.6

### Smart Controls and Other Smart City Solutions

In a world that is rapidly changing, municipalities need to be future-ready, connected and technologically equipped. Given that the City of Sanford owns a pole-mounted fiber optic broadband network, the RealTerm Energy team recommends that the City orders LED fixtures with dimmable drivers and 7-pin NEMA photocell receptacles, ready to be paired with photocells, networked controllers and Smart City devices should the client want to integrate such systems in the future.

We take a thoughtful, agnostic approach to smart streetlight controls and Smart City design - emphasizing the need for both citizen and municipal participation to identify requirements, pain points and opportunities.

We are currently assisting in the deployment of over 20,000 smart controls across Ontario and over 12,700 smart controls in the Northeastern US region. We have deployed or are currently deploying adaptive control and Smart City pilots and municipality-wide installations within the following municipalities:

City of South Portland, ME	City of Brockton, MA
City of Biddeford, ME	City of Leominster, MA (Pilot)
City of Auburn, ME	Village of Great Neck, NY
Town of Rumford, ME	City of Peterborough, ON
Town of Mars Hill, ME	Town Norway, ME
	Town of Auburn, MA

#### 4.10. Installation

*We have ongoing communication with our clients before, during, and after the installation process to minimize disruption to traffic, cyclists, and pedestrians while adhering safety standards and maximizing the efficiency of installation crews.*

##### Installation Oversight

Our project manager and field installation supervisor outline installation protocols and provide necessary training to the installation team. This ensures all work is done to the highest standards and is fully documented. Procedures are worked out in advance to ensure safety, guarantee compliance with municipal, state and federal regulations, and establish guidelines for handling exceptions and reporting problems.

We aim to:

- Minimize disruption to traffic, pedestrians and residents
- Maximize safety and environmental standards
- Minimize the installation timeline
- Maximize productivity

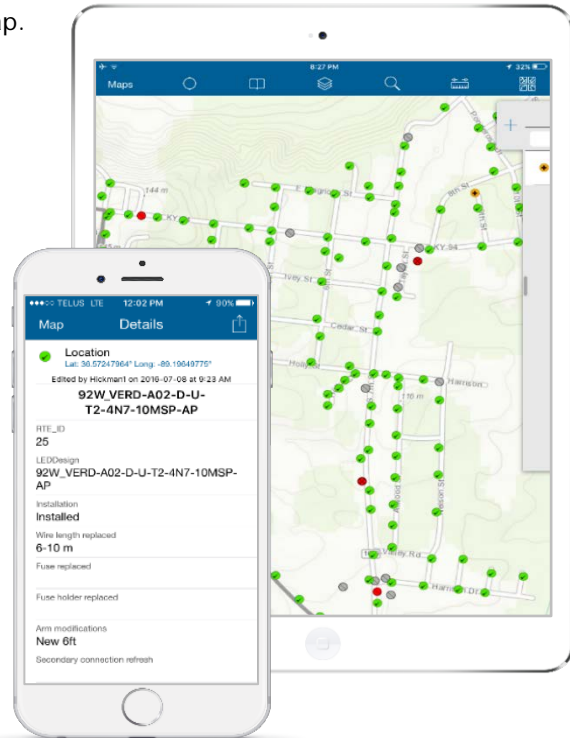
All installation personnel will use RealTerm Energy's customized GIS streetlight app, which builds on the GIS survey and design data. Use of this app is extremely important as it tells the installation crew which LED luminaire to install at each individual location and confirms what has been installed and removed.

The installation team can also use the app to view and/or record any streetlight infrastructure that requires a return trip for corrective action. The app allows the installation team to build on the data that was captured during the GIS audit phase.

In addition, team members and any municipal stakeholders can review project progress in real-time via a web-map.

The key aspects of our installation phase include:

- Pre-installation training to installation teams
- Traffic management
- Environmental management
- Progress reporting
- Invoice review and processing
- Change order management
- Utility billing / rate changes
- Incentives and/or rebates application and processing
- Ongoing quality control and spot-checks
- Inventory control
- Continuous data reconciliation
- Post-installation training to City staff



### Traffic Control Plan

Traffic management is a vital part of a safe and efficient LED conversion. We will work with City officials, stakeholders and the Sanford Police Department in the development, approval, and implementation of a Traffic Management Plan prior to and during the installation period in order to properly respond to local conditions.

RealTerm Energy will coordinate traffic management and keep the necessary authorities informed of our activities, as well as liaise with the City on any concerns or issues so that all constraints can be taken into consideration and milestone requirements and deadlines can be met.

### Potential Subcontractor

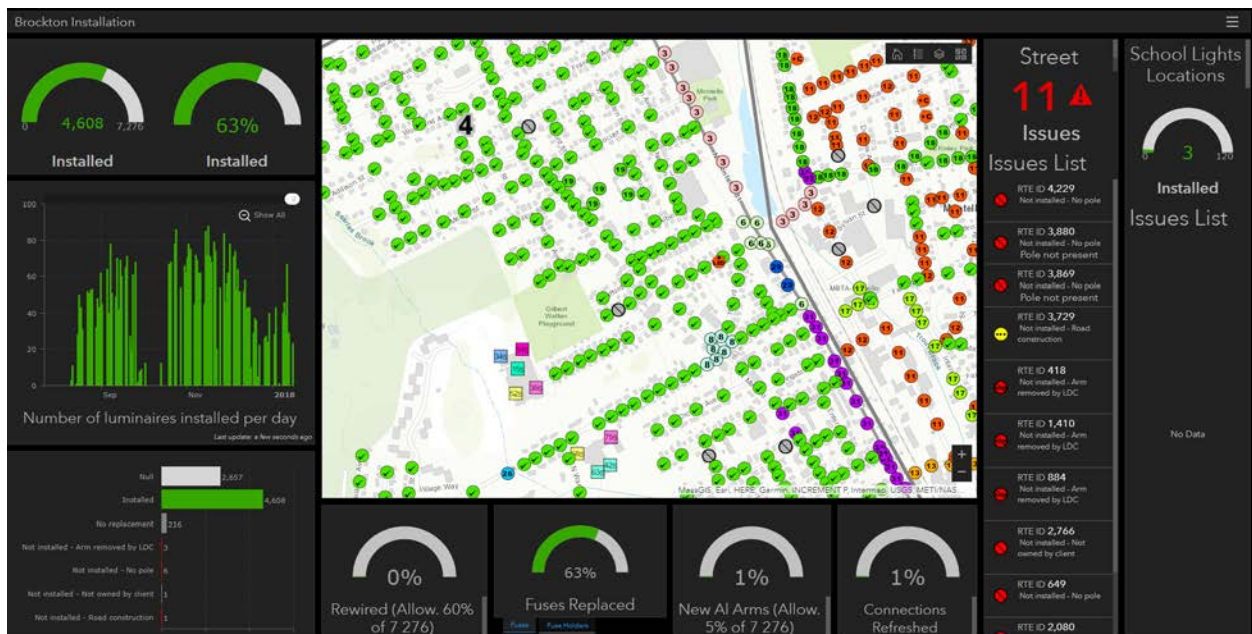
In business since 1964 in Caribou, Maine, RL Todd & Son is a second-generation family-owned business. The company employs 20 electrical experts and provides electrical contracting for a wide range of residential, commercial, industrial, agricultural and utility services. They have a service crew that provides smaller installations and focuses on energy efficiency, as well as a Utility Services division that can provide services such as high voltage construction, horizontal directional drilling and heavy transportation.

In the last year, RL Todd has completed a number of private and public LED lighting upgrade projects, including an LED street light conversion for the City of Brewer, which required the replacement of 875 fixtures. RL Todd is committed to safety, providing ongoing training to all of its employees. The company employs several qualified employees, who meet the requirements for both OSHA 1910.269 and the Maine High Voltage Safety Act. Working as both prime and sub-contractors, RL Todd & Son ensures it

is always covered by workman’s compensation, liability and equipment insurance. Please refer to the letter in Appendix C confirming RL Todd & Son’s authorization to perform street light retrofits on CMP’s network.

### Reporting

Use of the streetlight app is a mandatory requirement for any subcontractor that does installation work for RealTerm Energy, because it allows our team to validate precisely the work being conducted in the field at each fixture location and to provide reports and status updates (see sample update report below) at the frequency desired by the City.



### 4.11. Construction Administration

Completion of the project commissioning will occur at the end of the installation phase to quickly address any errors, punch list items, or troubleshooting needs.

RealTerm Energy can quickly validate the installation data against the reconciled and approved GIS audit data, allowing our team to quickly and accurately identify any locations where the data is inconsistent. This ensures tremendous precision that establishes a finite subset of the installation locations that require additional review and/or a return trip with an installation crew.

Before the final commissioning begins, RealTerm Energy deploys the following checks to ensure all components of the new street light system are properly installed and functioning at 100% capacity:

- Spot check of all fixture types
- Ensure compliance with all CMP guidelines
- Ensure installation is in accordance with manufacturer guidelines

Upon completion of the contract, RealTerm Energy transfers a Commissioning Binder to the City. This ensures that you and your team have all complete and necessary information going forward. This will include but is not limited to:

Closing and Contractor letters	Disposal approvals
Luminaire and photocell warranties	Lighting designs
Cost outline	Customer care information
All collected metadata on the streetlights and their LED replacements	Final installed mapping (ESRI, KMZ and Excel Spreadsheet Format)
Insurance	Emergency contact details of our key staff
Final incentive and/or rebate application documentation	Billing change confirmation from the utility

As part of the project’s closeout phase, RealTerm Energy is prepared to train the City’s relevant staff in all aspects of routine operation, maintenance and safety.

#### 4.12. Maintenance Services

RealTerm Energy offers multiple types of maintenance services. We have provided a maintenance cost estimate based on the number and type of fixtures within the inventory provided.

**Should the City want to engage RealTerm Energy for maintenance services, a separate contract shall be negotiated.**

##### 1-Year Workmanship Warranty

RealTerm Energy and our installation sub-contractor warrant all workmanship completed within the demarcation point for a period of one (1) year following the completion date of the installation. All outages related to workmanship issues will be fixed for no additional cost during the Installation Warranty period. (The demarcation point of the routine maintenance services is the electrical connection inside the fixture).

The luminaire and photocell are covered by their manufacturer’s ten (10) year warranties. During the 1-Year Workmanship Warranty period, RealTerm Energy will work with the manufacturer to repair or replace the defective items at no additional cost.

##### Maintenance Services

The City must be prepared to begin providing maintenance services immediately after the streetlights are purchased from CMP and until the final LEDs are installed.

RealTerm Energy’s maintenance work consists of providing streetlight maintenance and emergency services for the fixtures included in this scope of work, including lens cleaning on an as-needed basis. RTE will have all the required tools, equipment, apparatuses, facilities, and material available and readily accessible to perform the work that is necessary to maintain the lighting systems. We will manage all of the various maintenance components as listed below:

- **Electrical Contractor (EC) Management**
  - Dispatches EC for standard and emergency repairs
  - Provides EC mobile tools to locate reported streetlights and document issues and remedies
  - Review of all invoices to ensure they adhere to their contract with municipality
  
- **Map-based online outage reporting system**
  - Simplifies the reporting of any streetlight issues
  - Maintains the accuracy of your GIS database
  - Creates outage map for EC detailing equipment needed for repairs
  - Allows tracking of repairs throughout the process
  
- **RMA (Return Merchandise Authorization) Services**
  - Reduces work of municipal staff to prepare, submit, and track RMAs
  - RTE completes RMA for any products under warranty and provides to EC for shipment
  - RTE tracks returns until they are completed and new product returned to the municipality
  
- **Smart Controls Management (If applicable)**
  - Integrates to Smart Control CMS (Central Management System) to receive alerts of streetlight issues (Cimcon, Ubicquia, & Verizon)
  - Updates CMS database of replaced streetlight nodes to ensure both GIS and CMS databases are accurate and synched
  - Able to remote test light status to ensure streetlight is not working before sending EC to pole, saving time and money

RealTerm Energy will only respond to requests generated and approved by the City of Sanford during the term of the maintenance contract. RTE may also support the City in preparing and submitting insurance claims for fixtures damaged in vehicular accidents. This will be negotiated on a case-by-case basis for an additional cost.

Service requests will be classified into two (2) levels of priority:

- **Level 1 Maintenance Request (Low Priority)** applies to lights deemed to be non-critical by the City. This includes repair of street, parking lot or pathway lights consisting of furnishing a qualified lighting maintenance technician (or technicians) and a service vehicle, removing and replacing any combination of lamp, lens, photocell, ballast, or igniter, etc.
  
- **Level 2 Maintenance Request (High Priority)** applies to lights deemed to be of significant safety consideration by the City. RTE will dispatch a qualified lighting maintenance technician (or technicians) and a service vehicle to repair the light within 3 working days of receiving authorization to proceed.

Furthermore, we have a qualified workforce ready to respond to emergency calls that may be received from time to time and to promptly make temporary and permanent repairs. These emergency services can be provided within 5 hours of receipt of notification, for an additional charge to be determined on a case-by-case basis.

## Additional Lighting Equipment

If additional LED streetlights are installed by the Client or become part of the maintenance requirements of the Client, they may be added to the Maintenance Agreement at the same program rates in effect at the time of such request(s).

All Utility-owned equipment and traffic signal poles are excluded from the Maintenance Agreement.

Unless otherwise agreed upon between the parties, non-LED street lights, non-LED pathway lights and non-LED park lights are excluded from the Maintenance Agreement.

## Maintenance Agreement Term

RealTerm Energy can provide the City of Sanford with a The Maintenance Agreement is usually for a term of five (5) years beginning on date the City acquires its lights from CMP.

## Making a Service Request

The City of Sanford may send an e-mail to [service@realtermenergy.com](mailto:service@realtermenergy.com) which must include the following information:

1. Service Level Request: 1 or 2.
2. Municipal street address nearest to light.
3. RTE ID number that identifies the fixture (this information can be obtained from the map provided to the City)
4. Description of the issue. (i.e. failed light, flickering, day burner etc.)

RTE will acknowledge receipt of the email request within one business day.

RTE will dispatch an electrical contractor to repair the luminaire within the time frame chosen in accordance with the corresponding service level. Upon completion of the repairs the City will be notified via email – as well as in a monthly report – as to the status of the repairs and a description of the maintenance work completed.

Please note, that Eversource-owned equipment and traffic signal poles are excluded from this maintenance plan.

## Customer Service Call Center

As part of our service offering, RTE will also maintain a toll-free telephone line 24 hours per day, 365 days per year where dispatchers will receive and address concerns from members of the public and track all activity, including the following information:

- Name and contact details of the resident
- Date the call was made
- Type and description of request
- Person responsible for request resolution
- Request status
- Action taken
- Date of resolution



- Feedback given to resident

RTE's staff will respond to requests in as timely a manner as possible, which may include nighttime visits to the sites in question to investigate the issues.

## 5. PROJECT SCHEDULE

RealTerm Energy is committed to delivering projects on budget and on schedule to the complete satisfaction of its clients. Our extensive experience working on LED streetlight conversion and our clear understanding of what is required ensures the project is successful. For every project we work on, we develop and maintain an MS Project schedule and continuously contribute to innovative and cost-effective techniques to minimize error and waste. Furthermore, by working in close cooperation with our client and project teams, we can anticipate potential issues and resolve them before they have a negative impact on the project schedule and budget.

Assuming that a notice to proceed is issued on or before February 5, 2020, we are confident that we can complete the project by October 30, 2020 with an estimated project schedule as follows:

- **February 2020:** Kick off meetings with the city staff and collection of documentation
- **March 2020:** Audit
- **April – June 2020:** Design and product selection/ IGA approval
- **July – September 2020:** Procurement and Installation
- **October 2020:** Project Closeout
- **Estimated Completion Date:** October 30, 2020

However, at times the acquisition process may delay the timeline given the Utility's response time.

## 6. VALUE-ADDED SERVICES:

### 6.1. Smart City Solutions

We understand that the City of Sanford is interested in implementing various Smart City solutions at some point in the future. RealTerm Energy has a wide range of Smart City options that can offer and will tailor a solution to the City's specific needs.

We can suggest a number of solutions including air quality, water quality, soil moisture and waste management sensors, as well as smart streetlight controls to further reduce the energy consumption of your streetlight network. For citizen engagement, improved governance and municipal asset management, our popular MyTown application can be implemented.

#### RealTerm Energy's Smart City Solution: MyTown

##### *City Hall in the Palm of Your Hand*

Currently, there are numerous visions of a "Smart City". However, most Smart City solutions today are expensive, technology-first, IOT device-oriented, and are typically offered by large conglomerates looking to sell technology. While technology does form a part of RealTerm Energy's Smart City solution, our vision is much broader than that and is comprised of three main components:

- 1) Citizen-Centricity:** A free, user-friendly app that makes it simple to report a problem like a pothole, a streetlight outage or a parking concern and one can use the handheld device's built-in GPS and camera to help pinpoint the problem area for follow-up by staff. Access and transparency enable citizens, staff and elected officials to be informed and responsive, leading to better government.
- 2) Smart Maps, powered by Luciad:** A secure, real-time geo-visualization platform that allows citizens and cities to connect, interact and view all IOT devices on one platform. Smart Maps tracks and displays information on buses, garbage collection, snow removal equipment, air quality sensors, video surveillance, and smart municipal streetlighting, amongst other features.
- 3) Valuable User Network:** A secure municipal network where pre-screened and qualified participants (e.g. City Managers, City CFOs, Mayors, Elected Officials, etc.) can interact freely in a protected environment. Sharing their collective knowledge and information for the benefit of all stakeholders. **MyTown** allows for the free sharing of data, ideas, information and best practices. As the network grows, and more municipalities, services, and partners are added, a virtuous cycle emerges, and significant value to the user-base is created.



MyTown, currently used by over 30 municipalities, is a user-friendly app that displays public notices and events, election information, contact numbers for municipal departments, a customizable garbage and recycling calendar and links to the municipalities' social media platforms.

Our software makes it simple to report a problem like a pothole, a streetlight outage or a parking concern and one can use the handheld device's built-in GPS and camera to help pinpoint the problem area for follow-up by staff. This feature also triages incoming information, automatically directing it to the appropriate tier of government for action thus minimizing overlapping or misdirected notifications.

Access and transparency enable citizens, staff and elected officials to be informed and responsive, leading to better government. MyTown offers citizens the information they need and allows them to provide input on issues of concern.

New features and functionality are continually being developed and added to MyTown in response to ongoing municipal feedback.

### MyTown Starter Package:



### Popular Tile Add-Ons:



## 6.2. The Future of Building Automation

A Smart City harnesses the power of its data to run more efficiently. At RealTerm Energy we take it one step further. In partnership with our sister company, **BrainBox AI**, we offer our clients an opportunity to optimize existing HVAC control systems in their municipal buildings, schools, universities and hospitals, by using Artificial Intelligence (AI) technology.

### Introducing AI to HVAC: The Future of Building Automation

BrainBox AI's technology converts existing HVAC installations into autonomous HVAC systems using AI and cloud computing. A self-adapted artificial intelligence technology to proactively optimize the energy consumption of one of the largest climate change contributors: **Buildings**

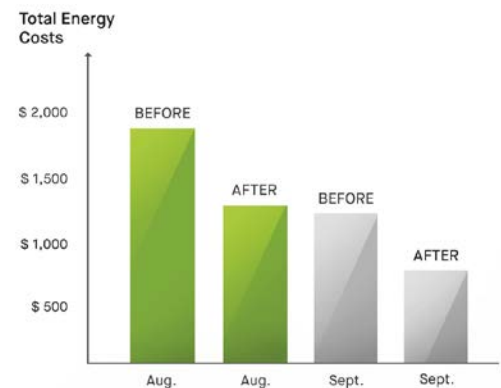


BrainBox AI can analyze information from a multitude of internal and external data points, combining time series data with deep learning engines and delivering high quality predictions for each zone of the building. Its advanced technology enables it to make exceptionally accurate predictions about the built environment, empowering the deployment of over 25 algorithms to drive the HVAC system. The result is a 24/7 self-operating building that is functioning at optimal efficiency and ensuring maximum comfort.

BrainBox AI's technology converts existing HVAC installations into autonomous HVAC systems using AI and cloud computing. The solution is designed to predict a building's thermal load and enable the HVAC system to operate autonomously, in real-time, leading to the following benefits:

### BrainBox AI's Unique Advantage

- **Easy installation** in less than half a day
- Reduced total energy costs by **25-35%**
- Savings generated in less than 3 months
- Improved **occupant comfort**
- Decrease in building's carbon footprint by **20-40%**
- Extended useful life of the building's HVAC system
- Reduced **maintenance costs** of your building's existing HVAC equipment.



## Utilizing the Power of Artificial Intelligence

Our AI engine, together with our proprietary process, allows you to move from reactive to pre-emptive operations management in four steps.

**Step 1: Installation:** The BrainBox AI engine is installed in the building in less than half a day.

**Step 2: Getting Acquainted:** For a period of 4-6 weeks the AI engine learns your building's specific operating behavior by gathering data sets every 5 minutes. BrainBox AI then creates a building energy profile (different for each zone of the building) for making informed predictions about future energy flow.

**Step 3: Optimizing Flow:** Using over 25 customized algorithms working in real time, our AI engine instructs your existing HVAC system on how to operate more intelligently and efficiently. BrainBox AI enables energy savings within 3 months.

### Step 4: Continuous Improvement

Our solution continually amalgamates and analyzes all generated data to further optimize operational efficiency and discover other unique insights. Beyond energy savings, BrainBox will be able to provide additional actionable insights in the future.



## APPENDIX A: PROPOSAL FORM






1)	<b>Audit / Project Design Phase</b> (audit and project design per fixture installed)	\$ 14.45 /fixture
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2)	<b>Construction Phase</b> (labor per fixture to install cobra head-type luminaire on utility poles including all associated equipment / fixture) (Excluding Police Department Traffic Detail where required.)	\$ 138.70 /fixture
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3)	<b>Closeout Phase</b> (closeout of the project per fixture installed)	\$ 3.25 /fixture
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4)	<b>System Maintenance Phase</b>	
	Routine Maintenance:	
	Please refer to Section 4.12 in the main body of the response.	
	Additionally, please note that as an alternative to the unit (per fixture) pricing, RealTerm Energy can offer a cost-plus maintenance contract.	
	Note that Year 1 fee per fixture is lower than subsequent years given that the 1-year labor warranty on luminaire and photocells is included in item 2) Construction Phase.	
	Year 1 (lump sum for routine maintenance/fixture)	\$ 4.60 /fixture
	Year 2 (lump sum for routine maintenance/fixture)	\$ 12.35 /fixture
	Year 3 (lump sum for routine maintenance/fixture)	\$ 12.70 /fixture
	Year 4 (lump sum for routine maintenance/fixture)	\$ 13.10 /fixture
	Year 5 (lump sum for routine maintenance/fixture)	\$ 13.50 /fixture
	Damage and Emergency Maintenance:	
	Please refer to Section 4.12 in the main body of the response.	
	Labor (repair damaged or emergency maintenance of fixture)	\$ 340.00 /hour
	Materials Mark-up (percentage)	18.00%



<b>5) Luminaires and Equipment:</b>		
Cobra-head style luminaires including associated equipment (propose up to six models including all associated equipment installed)		
1.	18W_ATBX P20 MVOLT R2 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 140.65 /fixture
2.	23W_ATBX P30 MVOLT R2 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 145.15 /fixture
3.	28W_ATBX P40 MVOLT R2 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 151.40 /fixture
4.	41W_ATBX P50 MVOLT R2 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 156.40 /fixture
5.	70W_ATBS P40 MVOLT R3 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 202.70 /fixture
6.	81W_ATBM P10 MVOLT R3 3K MP NL P7 (Acuity brands LED Cobrahead)	\$ 226.50 /fixture
Decorative fixture retrofits (OPTIONAL BID) (labor and materials per fixture for each type of retrofit fixture)		
1.	38W_MSPL2 P20 30K AS S B 4 P7 NL2X2 (Acuity Brands LED Pendant) 	\$1,330.90 /fixture
2.	45W_WFCL2 P20 30K AS BK L5 S P7 NL1X1 (Acuity Brands LED Caged Acorn Post Top) 	\$1,626.50 /fixture
3.	38W_MSPL2 P20 30K AS S B 7 SS P7E NL2X 2 WLDF13 200 BK P7 (Acuity Brands LED Bell Downlight) 	\$1,591.25 /fixture
4.	36W_ULA-A5-D-U-ASYM-VM9-7030-4N7-10K-GN-UXXXX (Eaton LED Acorn Post Top) 	\$ 849.15 /fixture
5.	40W_LXF-AF24-40-D-U-SL3-7030-4N7-10MSP-A-BK-UXXXX (Eaton LED Traditional Post Top) 	\$ 689.15 /fixture
6.	128W_UFLD-C25-D-U-66-T-AP-7030-4N7-10K-UXXXX (Eaton LED Floodlight)	\$ 693.90 /fixture
7.	184W_UFLD-C40-D-U-66-T-AP-7030-4N7-10K-UXXXX (Eaton LED Floodlight)	\$ 758.60 /fixture
Brackets necessary for new streetlight locations (propose up to three brackets including all associated equipment installed)		
1.	Cobrahead 6 ft Bracket Arm (Davit Arm for Cobrahead)	\$ 372.95 /bracket
2.	Cobrahead 8 ft Bracket Arm (Davit Arm for Cobrahead)	\$ 490.60 /bracket
3.	1 BC 90R15F BK QSM (Bracket for LED Decorative Light #4 - MSPL2)	\$ 417.25 /bracket
Miscellaneous material mark-up where not otherwise stated (percentage)		18.00%

List all Sub-Contractors:
RL Todd & Son


The undersigned certifies that the prices above include the cost of all work to complete the project as herein described, whether specifically stated or not.

<b>The undersigned estimates completion of the work by:</b>	October 30, 2020
The undersigned acknowledges the receipt of addenda #:	October 15, 2019

The undersigned further agrees that after notification by the City of the acceptance of his/her proposal, he/she will execute a contract with the City within thirty (30) days, Saturdays, Sundays and holidays excepted, and that he/she will commence the work within one hundred twenty (120) days after the execution of the contract unless otherwise specified in Supplemental Specifications or directed by the City in writing, and that he/she will prosecute the work to its completion.

The undersigned hereby further declares that the only person or parties interested in this proposal as principals are named below; that the proposal is made without any connection with any other person or party making any proposal for the same work; and that no person acting for or employed by the City of Sanford is directly or indirectly interested in this proposal or in any contract which may be made under it or in profits expected to arise therefrom, except as provided by the City Charter. The full names and addresses of all persons or parties interested in this proposal as principals are named below; (Give first and last names in full; and in case of a corporation, give names and addresses of President, Treasurer and Manager; and in case of a partnership, give names and addresses of members):

Sean Neely, President - 2160, de la Montagne, Suite 600, Montreal, QC, H3G 2T3
Angelos Vlasopoulos, Chief Executive Officer - 2160, de la Montagne, Suite 600, Montreal, QC, H3G 2T3

<b>FIRM NAME</b>	RealTerm Energy US Services, L.P.
<b>INDIVIDUAL NAME</b>	Angelos Vlasopoulos
<b>TITLE</b>	Chief Executive Officer
<b>LEGAL ADDRESS</b>	201 West Street, Annapolis, Maryland 21401
<b>PLACE OF BUSINESS</b>	201 West Street, Annapolis, Maryland 21401
<b>FIRM'S IRS ID #</b>	47-4394187
<b>DATE</b>	November 6, 2019
<b>TELEPHONE #</b>	514-422-0316
<b>FAX #</b>	
<b>E-MAIL ADDRESS</b>	avlasopoulos@realtermenergy.com
<b>SIGNATURE</b>	

## **APPENDIX B: SPECIFICATION SHEETS & TEST REPORTS**

The Specification sheets and test reports are attached in a separate electronic zip file.

## APPENDIX C: WARRANTY LETTERS

The Warranty letters are attached in a separate electronic zip file.