LED STREET LIGHTS: CAN YOUR COMMUNITY AFFORD TO WAIT?
Quarterly Webinar: Clean Energy Communities Program

June 7, 2017
## Agenda

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<td>Pat Courtney Strong, Courtney Strong, Inc.</td>
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<td>Statewide LED Big Picture Goals</td>
<td>Brad Tito, Program Manager, Communities &amp; Local Government, NYSERDA</td>
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<td>Pathways to LED Conversion in the Mid-Hudson Region</td>
<td>Pat Courtney Strong, George Woodbury, Jen Metzger, Nina Orville, Mid-Hudson Street Light Consortium</td>
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<td>The Central NY Perspective</td>
<td>Amanda Mazzoni, Senior Planner, Central NY Regional Planning &amp; Development Board</td>
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<td>Sarah Oral, Project Engineer, Cameron Engineering &amp; Associates, LLP</td>
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<td>Casey Mastro, Energy Manager – CNY, Customer Business Development, NYPA</td>
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Webinar Panelists

Brad Tito
George Woodbury
Jen Metzger
Nina Orville
Amanda Mazzoni
Sarah Oral
Casey Mastro
LED Street Lights Offer Many Benefits:

- Energy savings of up to 65 percent – and sometimes more
- GHG reductions of 16,500 metric tons a year - in the Mid-Hudson alone!
- Improved lighting uniformity
- Enhanced pedestrian and vehicle safety
- Reduced light pollution
- An opportunity to demonstrate environmental leadership
- Ability to capitalize on SmartCities/IOT technologies
Clean Energy Communities Program

Pathways to LED Conversion in the Mid-Hudson Region: Central Hudson, O&R and NYSEG Territories
Introducing MHSC

1. Funded by NYSERDA Cleaner Greener Communities through mid-2018
2. Survey and Consortium formation
4. Steering Committee
5. Procurement Aggregation – Turnkey/Community Managed
MHSC Provides Decision Support

• Rent vs. own
• Finance options
• Technology options
• How to design a new lighting scheme for a community
• How to avoid community concerns/complaints
• Aggregated purchase of street lights for maximum savings

www.NYstreetlights.org
Consortium Members

**Dutchess**
Red Hook, Tivoli

**Sullivan**
Bethel, Tusten

**Westchester**
Bedford, Bronxville, Pelham, Scarsdale

**Greene**
Catskill

**Ulster**
Esopus, Kingston, Marbletown, New Paltz, Rosendale, T/Ulster

**Orange**
Goshen, Warwick, Newburgh

**Rockland**
Orahegetown, South Nyack

**Dutchess**
Red Hook, Tivoli
Outside of New York City, about 74% of street lights in the state are utility-owned. Local governments pay a rental charge for each fixture, plus electricity supply and other volumetric charges.

Two possible pathways to LED streetlight conversion:

1. Upgrade to utility LEDs, where available.

2. Purchase streetlight system from the utility, and convert to LEDs. 2015 NYS legislation has made this easier.
Upgrading to Utility-Owned LED Options

- LED street lights are an option you must request the utility to install.

- Towns must pay “stranded costs” of lights being replaced.

- Utility tariffs allow utilities to set pace of conversion. You can choose which of their LED sizes (watts) to install where.
Central Hudson LEDS: Costs & Savings

- One-time stranded asset charge: $117 per light in 2016 (may be higher now)

- LED annual rates mostly < rates for existing lights.

- After stranded costs are paid, up to 30% bill savings; 60-73% energy savings.
Municipal Ownership Pathway in Central Hudson Territory

- **80% annual bill reduction** (vs. 30% under utility ownership), after system purchase & LED conversion.

- Payback period on investment: 3 to 4 yrs (depending on utility streetlight purchase price).
O&R LEDs: Costs & Savings

- One-time stranded cost charge per light: $165.
- Rates are lower than rates for existing lights.
- After stranded costs are paid, about 33% bill reduction; 50-60% energy savings.
Municipal Ownership Pathway in O&R Territory

- Up to 90% annual bill reduction (vs. 33% under utility ownership), after system purchase & LED conversion.

- Payback period on investment: 3 yrs to 3-4 yrs (depending on utility street light purchase price).

- Additional possible energy savings of 20-30%.
Proposed NYSEG LEDs: Costs

- Stranded costs to be determined on case-by-case basis.
- Some rates higher, some lower than existing lights.
- Bill reduction of 10-15% on average after stranded costs; energy savings of 66%.
- *Expect PSC modifications to this proposal.*
Municipal Ownership Pathway in NYSEG Territory

- 70-75% annual bill reduction (vs. 10-15% under proposed LED tariff rate), after system purchase & LED conversion.

- Payback period on investment: 5-7 yrs (depending on utility purchase price).
Which LED Conversion Pathway is Best for You?

Consider:

- Annual costs.
- Energy savings.
- Lighting choices: Wattages, correlated color temperature (CCT), advanced control options.
- Speed of conversion.
- Convenience.
Moving Forward with Municipal Ownership

Purchase of street light system is negotiated between the utility and municipality.

With 2015 amendments to NYS Public Service Law, the purchase process has been streamlined; timeframes & requirements are set out in PSC-approved tariff rather than left wholly to utility discretion.
Purchasing the Street Light System: Basic Steps

1. Town requests purchase price estimate; utility has 90 days to respond.
2. Town notifies utility within 180 days to proceed with process.
3. Town & utility reach agreement on price/Operating Agreement
4. PSC approves sale (3-6 months.)
Purchasing the Street Light System

Utilities use different methods to calculate the purchase price. You have a right to request the data behind the cost estimates.

Carefully review the utility’s proposed Operating Agreement. Consult MHSC guidance document for your utility.

Recent purchasers: Beacon, Kingston & Poughkeepsie (Central Hudson); Clarkstown, Ramapo & Orangeburg (O&R); West Seneca and Horseheads (NYSEG).
LED STREET LIGHT CONVERSION IN NEW YORK

A Common Sense Guide for Local Governments in the Mid-Hudson Region

- Benefits
- LED Options
- Ownership
- Procurement and Financing
- Comparison of Options
MHSC Procurement and Conversion Support

- Detailed report on all aspects of the LED Conversion process
- Expert Aggregated Procurement Support for two forms of procurement:
  - Community-Managed
  - Turnkey
- Assistance for Aggregated/Collaborative Conversion (e.g. lighting design, auditing, finance options)
- Model LED Procurement RFPs
MHSC Aggregation Assistance

Community Managed Approach
- Community acts as the general contractor
- Manages audit, design, material procurement, installation services
- Manages contract, coordination with utility

Turnkey Approach
- Single contractor manages for community all aspects

Menu approach
- MHSC support
## MHSC Aggregated Procurement Assistance

<table>
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<tr>
<th>SERVICES</th>
<th>TURNKEY PROCUREMENT</th>
<th>COMMUNITY-MANAGED PROCUREMENT</th>
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<td>Full-service project management w/broad range of services included in RFP.</td>
<td>- Most competitive pricing.</td>
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<td>- Accessible to communities w/small number of lights that may not be able to access turnkey service</td>
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<tr>
<td>Billing &amp; field audit</td>
<td>Option in RFP</td>
<td>MHSC guidance re: how to conduct billing and field audit</td>
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<tr>
<td>Lighting design</td>
<td>Option in RFP</td>
<td>MHSC guidance</td>
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<tr>
<td>Labor procurement</td>
<td>Included in RFP</td>
<td>Included in RFP</td>
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<tr>
<td>Equipment &amp; materials</td>
<td>Included in RFP</td>
<td>Municipality procures equipment using state bid w/guidance from MHSC. MHSC can also provide resources for municipalities to issue RFP for equipment (e.g. DOE specifications).</td>
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<tr>
<td>Project Management</td>
<td>Included in RFP</td>
<td>Municipal project oversight</td>
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<tr>
<td>Financing</td>
<td>Contractor or MHSC guidance</td>
<td>MHSC guidance</td>
</tr>
<tr>
<td>Performance Guarantee</td>
<td>None</td>
<td>None</td>
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<tr>
<td>Maintenance Contract</td>
<td>3-year maintenance contract w/option to renew</td>
<td>3-year maintenance contract w/option to renew included in labor procurement RFP.</td>
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<td>Other municipalities can piggyback?</td>
<td>Yes</td>
<td>Yes</td>
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MHSC Expert Advice and Assistance

MHSC Support For Consortium Members:

- Purchase Price Negotiations
- Review of Documents
- Provision and Assistance with RFP Process (summer 2017)
MHSC Expert Advice and Assistance (Cont.)

- Design Guidance (savings, visibility, aesthetics, safety)
- Applications for the future (IoT)
- Financial Analysis
- Financing Information (range of options available)
Financing Overview

There are various options for financing streetlight conversion including:

- Municipal Finance
- Energy Performance Contract
- New York Power Authority Energy Services Contract
- Municipal Leasing

The cost to acquire existing lights (if necessary may be bundled into any of the above financing approaches or may be funded separately by the municipality.)
Municipal Finance

Streetlight acquisition and/or conversion may be funded by a municipality through issuance of municipal debt – bonds or BANs. Considerations/Characteristics include:

- BANs are low cost and short-term.
- Bonds have low interest rate but high transaction costs.
- Impacts borrowing capacity and debt rating

Self-funding methods include use of capital funds and/or operational funds. Considerations include:

- Likely to result in incremental conversion and therefore w/o economies of scale.
- Lose opportunity to capture conversion savings more quickly.
- Many municipalities don’t have sufficient budget flexibility to accommodate.
Municipal Finance Example: Kingston

- **City of Kingston.** In October 2015 Common Council authorized bonding $2.1 million for acquisition of over 2,000 utility-owned streetlights and conversion of those plus 400+ city-owned lights to LED. The PSC approved the acquisition in March 2017 and the LED conversion procurement will be underway shortly.
Municipal Finance Example: Dobbs Ferry

Village of Dobbs Ferry. Dobbs Ferry owned its own streetlights (as do all Westchester municipalities in ConEd service territory) therefore only had to finance conversion. Two phases:

- 2011 – Cost of $104K financed via 5-year bond anticipation note. 300 LED lights purchased were installed by DPW. 3-year payback was shorter than term of financing.
- 2016 - $167K Project cost financed with capital funds ($85K balance from first LED conversion) and bond anticipation note. Project included furnishing and installation of 400 lights by vendor.
Energy Performance Contract

Energy performance contracts (EPCs) enable projects to be financed through the savings resulting from the energy improvement project. Regulated through New York State Energy Law Article 9, key characteristics include:

- **Turnkey Service** – The Energy Service Company (ESCO) provides all services associated with the project, from investment-grade energy audit, implementation and measurement and verification of performance.

- **Project Financing** – The ESCO arranges for/provides project financing (often in form of a lease). This financing doesn’t impact borrowing capacity, credit rating, etc. as it’s not in form of municipal debt.

- **Guaranteed Savings** – The ESCO provides a guaranteed level of savings (at minimum, must be sufficient to pay for the cost of the project).

- May not be available for very small projects.
Clean Energy Communities Program

EPC Example: City of Yonkers

- 12,000 lights.
- RFP issued in 2012 for energy performance contract (audit, procurement, installation).
- $8.7 million project cost repaid through 10-year lease from energy savings.
- Net savings almost $1 million/year.
- Municipal GHG reduced by 10%
“The City of Yonkers is extremely happy with the projected versus realized energy savings, we remain on target to save $1.8 million per year with a net savings to the City of $1 million to taxpayers. We are also extremely pleased with the maintenance savings so far. …As a Public Works project we are extremely pleased with the conversion, Lumen technologies performed under-budget, and way ahead of schedule and has delivered the savings they projected.”

Thomas Meier, Commissioner of Public Works
Tax-Exempt Municipal Lease

Often used to finance Energy Performance Contracts, tax-exempt municipal leases may also be employed on their own. Key characteristics include:

- Lessor provides lessee with funds to purchase equipment and lessor takes security interest.
- Lessor is repaid through lease payments and lessee builds equity over time and owns equipment outright at end of term.
- Structured correctly, a municipal lease does not impact borrowing capacity or credit rating or need voter or comptroller approval as it is an annual expenditure, not a debt.
Tax-Exempt Municipal Lease (Continued)

- Low interest costs and transaction fees.
- Available for wide range of transaction sizes.
- Tax-exempt municipal leases, as a stand-alone offering not bundled in an EPC, are frequently used for streetlight financing outside of New York State and should be considered.
Financing Considerations

Different characteristics of financing options require careful review to determine best fit for each municipality. Considerations include:

- Cost of financing (interest and transaction fees)
- Municipal borrowing capacity
- Optimal term
- Benefits vs. cost of performance guarantee

Collaborative procurement efforts reduce project costs (and thus the amount that must be financed to effect conversion) and may expand the range of financing options available.
Clean Energy Communities Program

The CNY Perspective

Amanda Mazzoni
## Options for Conversion

<table>
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<tr>
<th>LED Conversion Option</th>
<th>Steps</th>
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| 1. Municipal Purchase Option                             | The municipality contacts the utility and asks for a purchase price quote. The municipality and utility then have a 180 day evaluation and negotiation period to determine a purchase price that works for both parties.  
Municipalities must purchase a minimum of 100 lights or 10%, whichever is greater.  
Within 60 days of executing a purchase agreement, the utility is responsible for submitting to the NYS PSC for final approval.  
The municipality then owns and maintains streetlights. They may use internal staff for maintenance or hire a contractor for maintenance. The utility will no longer charge a monthly rental fee or maintenance fees.  
The municipality is then responsible for converting to LED using internal staff or hiring a contractor to perform the work. |
| 2. Utility Ownership Option (currently only available in National Grid territory, expected to be available in NYSEG and RG&E territories September 1, 2017) | The municipality is responsible for paying the utility the Average Net Book Value (ANBV) of lights being replaced. The municipality can contact the utility directly or through the CNY RPDB to receive the ANBV figure and an inventory of existing streetlights.  
The municipality then must determine which wattage of LED they would like to replace each existing lamp with. Municipalities must convert 100 lights or 15%, whichever is greater.  
Municipalities submit a formal letter to the utility requesting the conversion. The utility will convert the lamps to LED. The utility will maintain ownership of the lights and will be responsible for ongoing maintenance. Municipalities’ monthly electricity charges will be adjusted downward in accordance with the LED tariff structure. |
Assistance Available: CNY Bright Lights

- Cost Benefit Analysis report for utility-owned LED option
- Template letters, handouts (i.e. Template letter to request purchase price quote)
- Assistance throughout discussions with utilities
Clean Energy Communities Program

CNY Bright Lights Results

CNY Bright Lights Initiative
Summary of Utility-Owned LED Streetlight Analyses

23 Participating Municipalities
7,757 Total Cobra Head Streetlights (23 x 1,685 streetlights per muni)

$161 Average Buyout Cost Per Lamp ($48 - $400)
$8,343 Average Annual Savings ($635 - $54,044)
7.5 years Average Project Payback (2.3 - 14.5 years)
CNY Bright Lights Results, Cont.

1. Village of Minoa
2. Town of Granby
3. Town of West Monroe
4. Town of Richland
5. Village of Pulaski (50%)
6. Village of Hannibal
   - 639 cobra head streetlights
   - Annual saving $12,514.75 combined
More Information

http://www.cnyenergychallenge.org/cny-bright-lights

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The Long Island Perspective
Long Island Ownership Model

- All municipalities on Long Island own and maintain the street lights located within their borders.
- Municipalities are charged a “per pole” rate each month.
- Municipalities must notify PSEG-LI when they upgrade to LEDs to ensure that their billing rate will be lowered.
Methods for Conversion

- Replace as you go
- Bulk replacement
  - RFP
  - NYPA
- Multi-jurisdictional RFP
Long Island Case Studies

Village of Roslyn – “Replace as you go”

- Replacing cobrahead-style HPS with decorative LEDs
- Monthly per-pole cost on converted fixtures down 64%
- Savings from conversions used to upgrade additional fixtures
- So far 162 of 306 streetlights have been converted (53%)
Long Island Case Studies

Town of Hempstead – Bulk Purchase/Install (80% financed)

- Upgraded 34,552 HPS streetlights to LEDs over 8 months
- Utilized a Public Works bid to procure fixtures, included installation in the contract
- Net savings of $43.1 million over 20 years, ROI after 7 years
- 2015 Town had 16,000 streetlight repair requests, 2016 had 6,000 (mid-conversion), 2017 on pace to have 3,500 repairs
Long Island Case Studies

City of Long Beach – Ongoing contract with service provider

• Contract with the service provider includes all lighting needs (procurement, installation, maintenance, etc.)
• Upgraded over 1,100 streetlights since Superstorm Sandy
• Fixtures replaced one street at a time
• Savings from conversions added to general fund
Long Island Case Studies

Town of Babylon – RFP with ability to “piggy back”

- RFP issues for LED upgrades to all 13,250 LPS and HPS streetlights
- Upgrades are estimated at $3.64 million, annual savings expected to exceed $900,000
- Installed LEDs in a pilot area to test validity of negative perceptions
Long Island Case Studies

A few more LED streetlight conversions of note*

• Town of Smithtown – early adopter - 12,000 streetlights converted since 2010, saving $520,000 annually

• Village of Hempstead – installed 2,700 LEDs as part of a policing initiative, saving $220,000 annually

• Town of Southold – all 220 streetlights converted, saving $10,120 annually

* Source: Newsday, January 14, 2017
Important Contacts

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Clean Energy Communities Program

NYP A Services for a Clean Energy Future
Street Lighting Project
Finance
NYP A Turnkey Solutions
Who We Are

• Country’s largest state public power organization
• Generate some of the most affordable renewable electricity in North America
• Maintain 16 generating facilities and over 1,400 circuit-miles of transmission lines
• National leader in promoting energy efficiency and the use of renewable and clean energy technologies
• Diverse customer base includes large and small businesses, not-for-profit organizations, community-owned electric systems and rural electric cooperatives and government entities
• Our low-cost power helps support hundreds of thousands of jobs statewide while reducing public-sector costs
NYPAs Authority

Public Authority’s Law (PAL) 1005 (17) authorizes NYPAs to finance and design, develop, construct, implement, provide and administer energy-related projects, programs and services for:

• Any public entity
• Any not-for-profit institute of higher education within NYS
• Any public or nonpublic elementary or secondary school
• Any recipient of NYPAs’s economic development power programs
• Any municipal distribution agency power
NYPA Energy Services Profile

- Delivery of Energy Services to New York State public entities and municipalities for over 25 years
- Over $2 billion has been invested in over 5,200 facilities state-wide
- NYPA services can be provided in any combination to meet specific customer needs:
  - Site identification, screening and auditing
  - Design & Construction Management
  - Financing & Incentive Acquisition Assistance
  - Advisory Services
CEC Opportunity – Street Lighting

- Guidance throughout entire process
  - Including purchasing
- Single Point of Contact
- Turnkey Services
  - ASHRAE Level I Lighting Audit
  - Engineering and Design
  - Bidding and Procurement
  - Construction Management
- Energy and Maintenance Savings
- Low Cost Financing for qualified customers
# Clean Energy Communities Program

Register here: nypa.gov/LEDStreetlight

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<th>Simplicity</th>
<th>Financing</th>
<th>Savings</th>
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| • Access to a network of qualified energy services companies  
• NYPA support for all vendor work  
• Management to expedite projects in a cost-effective manner | • Eligible municipalities can use the energy and maintenance savings to pay back project financing including financing used for the purchase of streetlights from a local utility | • NYPA searches for opportunities to achieve savings for customers  
• Our energy projects save our customers millions of dollars each year and have also resulted in significant air quality improvements |
NYS PSC Order – S70 Street Light Transfer

Timeframe for Pricing Proposal and Evaluation:

- Utilities will be allowed a 90 day response period to provide proposed purchase price once ask is made.
- Municipalities are approved to request one price quote per 12 month period.
- Municipalities will have 180 days from the issuance of an initial proposed purchase price to evaluate and commit to move forward in good faith with purchase process.
- Utilities must file PSL 70 petition (for the Commission approval of the proposed sale) with the Commission within 60 days of executed purchase agreement.
- Utilities required to provide the cost of LED conversion of existing utility owned lights to allow municipalities the opportunity to compare the costs of purchasing and converting vs converting without purchase.
Financing & Incentives

Provide low-cost financing for energy efficiency and other energy projects for NYS municipalities, public schools districts and government entities.
Financing – Tax Exempt Muni Lease

• No upfront capital needed: For qualified participants, NYPA will finance all up-front development and project milestone costs with a competitive-interest rate loan.
• Rates: Interest rate determined by type of loan and fiscal stress score.
• Flexible term: Term of loan can be structured based on payback of project to create positive cash flow.
• State and utility incentives can be applied to projects as available and applicable.
## Summary Terms for Tax Exempt Municipal Lease (TEML) Financing

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<th>Definition</th>
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<tr>
<td>Eligible Borrowers</td>
<td>Local Government, School Districts, State Entities</td>
</tr>
<tr>
<td>Eligible Properties</td>
<td>Covered under 1005 §(17) of the PAL, provided the projects are tax-exempt according to IRS regulation*</td>
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<tr>
<td>Eligible Contractors</td>
<td>Selection based on NYPA’s procurement policy</td>
</tr>
<tr>
<td>Maximum Term</td>
<td>Up to 15 years with exceptions</td>
</tr>
<tr>
<td>Fixed Interest Rate (Range)</td>
<td>Current Indicative Rates 2.5% - 4.0%</td>
</tr>
<tr>
<td>Required Documents for Underwriting</td>
<td>3 years of audited financials and current year budget</td>
</tr>
<tr>
<td>Time to Underwrite</td>
<td>90 days</td>
</tr>
<tr>
<td>Insurance Requirements</td>
<td>Customer must include equipment in property insurance</td>
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</tbody>
</table>
NYPA Staff by CEC Region

**Nate Anctil**: Capital District
North Country

**Casey Mastro**: Finger Lakes Region
Mohawk Valley
Central NY
Southern Tier

**Jesse Scott**: Mid-Hudson

**Joe Crimi**: Western NY

**Jeff Laino**: Long Island
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Questions?