



Takoma Park City Council Meeting – September 21, 2016 Agenda Item 3

Work Session

Update on Streetlight Conversion Research

Recommended Council Action

Receive information about various options for converting existing streetlights to ones that are more energy efficient and direct staff on next steps.

Context with Key Issues

Staff previously presented background information to the Council in April 2015 and March 2016. In order to prepare information about this topic, staff has communicated with experts in the field of streetlighting, PEPCO officials, staff of the Maryland Department of the Environment and other governmental agencies, and vendors.

The City has about 1,577 overhead streetlights on wooden poles, owned and maintained by PEPCO. The energy use of these streetlights represents the largest single use of electricity for which the City is responsible. The conversion of the streetlights from energy inefficient bulbs to LED technology has been identified as a key factor in enhancing the City's standing in the Georgetown Energy Prize by reducing municipal energy use.

Staff has compiled a list of pros and cons of different approaches and has identified a number of issues for discussion.

Council Priority

Fiscally Sustainable Government; Environmentally Sustainable Community

Environmental Impact of Action

Conversion of existing streetlight fixtures to ones that are more energy efficient (LED technology), would reduce the City's streetlight electricity use from 765,599 kwh to 382,800 kwh annually.

Fiscal Impact of Action

Depends upon the course the City chooses to pursue. The City could save up to \$904,000, in current year dollars, over a 20 year period by converting streetlights to LED fixtures by working with PEPCO. If the City entered into a performance contract with a vendor, the City could save up to \$434,000 over the same time period.

Attachments and Links

Background Information on City Streetlight Conversion Options

BACKGROUND INFORMATION ON CITY STREETLIGHT CONVERSION OPTIONS

The City has about 1,577 overhead streetlights on wooden poles, owned and maintained by PEPCO. The energy use of these streetlights represents the largest single use of electricity for which the City is responsible. The conversion of the streetlights from energy inefficient bulbs to LED technology has been identified as a key factor in enhancing the City's standing in the Georgetown Energy Prize by reducing municipal energy use.

The City paid PEPCO \$158,154 in FY16 for operation and maintenance, and taxes and fees. The FY16 electricity costs were \$47,061. If these lights were converted from their current bulb type to LED technology, and the City continued to have PEPCO own and maintain the lights, the annual charges would be reduced to \$41,454 and the electricity costs would be reduced to \$24,000.

There are two options for converting our streetlights to LED technology:

1. Convert through PEPCO, with continued PEPCO ownership of the streetlights
2. Purchase the streetlights from PEPCO and assume ownership and maintenance

For Option 1, the City could pay PEPCO for conversion directly at about \$1,200 per fixture (total of approximately \$1.89 million), or finance it through PEPCO at a per fixture cost of about \$80 to \$100 per year for 16 years (approximately \$1,280 - \$1,600 per fixture, or a total of between approximately \$2.05 million).

For Option 2, the Public Service Commission (PSC) has approved a process for municipal purchase of streetlights and PEPCO has established a Master Sales Agreement that outlines the requirements. This would include purchasing the old streetlights from PEPCO, buying new streetlights (that they approve), establishing a call center for reports of outages or issues, contracting with an approved vendor for maintenance of streetlights, and maintaining levels of liability insurance and surety bonds to address defaults. With this option, the pole and the electric lines would remain PEPCO's. The City would own the fixture only and the use of the pole for the light is not guaranteed. Additionally PEPCO would not allow installation of any additional technology to the pole or light.

Given the technical nature of the lighting and the requirements, expertise outside of City staff would be required to pursue the direct buy option. If this approach were taken, staff recommends a Performance Contract approach where an energy services company would manage the project, guarantee energy savings and work through the process with PEPCO. The costs for the project would be bundled into a Performance Contract paid for by the energy savings, while the costs to the City remain constant. The contract term would be limited to 15 years. The Maryland Energy office has prequalified companies for this type of Performance Contracting. The City has been approached by ABM Building Services and Johnson Controls.

To facilitate the Council discussion, staff developed the following list of pros and cons for each of the options:

PEPCO Conversion

PRO

Simplest
Cost effective
Most quickly deployed
Keeps responsibility with Pepco
Least risk to City
Can be done with existing staff
Guarantees space on pole

CON

Limited to options PEPCO offers
Slower implementation of smart features
Would be one to one conversion, not full assessment of lighting needs
Done in neighborhood segments
PEPCO has history of billing errors

Performance Contract

PRO

Serves as City's advocate
May develop model for other jurisdictions
Risk is on the contractor
Includes a full lighting inventory and analysis
Likely best technology

CON

There may be a long lag time before LED fixtures can be installed, as an RFP to select vendor is needed & negotiations with PEPCO may be slow
May require staff supplementation
Pole space not guaranteed; what happens if poles are moved or lines buried underground?
City would assume maintenance after 15 years
After 15 years, fixtures and technology may be old

In addition to the list of pros and cons, staff has a number of comments/issues:

1. Because no other jurisdiction has gone through the Performance Contract process with PEPCO, there is no jurisdiction or company that can share with us its experience with PEPCO. PEPCO also has no experience going through the process and we anticipate they may be particularly cautious since a precedent would be set.
2. PEPCO's program to allow conversion to LED fixtures is new for them and, due to the inexperience, there has been some confusion resulting from the information they have provided; for example, the information presented about LED brightness by PEPCO was presented in wattage equivalents, but not described that way, leading to confusion in City staff conversations with Maryland staff.
3. The vendor companies, ABM Building Services and Johnson Controls, will not provide much information up front. A contract for the first phase of investigation (\$50,000-\$60,000) would be required to determine if moving forward with a Performance Contract is something that either the vendor or the City would want. If we moved forward, that cost would be rolled into the project.
4. While working with PEPCO may provide the greatest financial savings, PEPCO has had a problem with billing. Current bills for the 72 streetlights that have been converted to LED so far still show pre-LED billing rates. City staff is pursuing refunds.

5. Staff capacity to talk with PEPCO about conversion or to work with a vendor company on a Performance Contract is thin. The City may need to hire a consultant familiar with streetlight conversion to advise the City on moving forward and to protect the City's interests.

POSSIBLE ACTIONS

- A. Issue an RFP for a consultant to advise us on how to move forward. Besides having assistance from someone familiar with the technology and processes, services could include assistance on lighting assessments (for example, identifying areas where a lighting analysis may be useful), advice on reasonable costs, etc.
- B. Issue an RFP for an energy services vendor and go through the first stage of a Performance Contract.
- C. Proceed with working with PEPCO on a conversion plan; make a decision on whether to finance the conversion through PEPCO.

LED STREETLIGHT CONVERSION OPTIONS

Option	Type	Annual Electricity Use	Annual Operating Expenses*	Combined 20 Year Cost
OPTION 1A	Pepco Conversion - City funded	382,800 kwh	\$65,379 **	\$3,199,980
OPTION 1B	Pepco Conversion - Pepco Financed	382,800 kwh	193,523 for year 1 - 16 \$65,379 for year 17 - 20	\$3,357,881
OPTION 2	Performance Contract	382,800 kwh	\$205,216 Year 1 - 15 \$118,427 Year 16 - 20	\$3,670,375
STATUS QUO	Current Condition	765,599 kwh	\$205,216	\$4,104,320

* for purposes of this comparison, the cost for energy and services remain at FY16 levels, no inflation rate was added

** total fixture purchase cost of \$1,900,000 is not shown in annual operating expenses, but is reflected in 20 year costs

STREET LIGHT DETAILS	CURRENT STATUS	PEPCO CONVERSION
# of overhead streetlights	1,577	1,577
Electricity Use	765,599 kwh	382,800 kwh
Annual O & M	\$119,150	\$21,952
Annual tax & fees	\$39,004	\$19,502
Electricity Cost	\$47,061	\$23,925
ANNUAL COST	\$205,216	\$65,379

