

To: City Manager Joyal
Cc: Christopher Parker, AICP
Donna Benton, AICP
William Baber
From: Jackson Kaspari, PhD
Date: May 30th, 2024
Re: June 5th Council Workshop on
Energy Projects

ISSUE:

The Energy Commission supports a series of projects which will be presented to the City Council at a workshop scheduled for June 5th, 2024.

INTENT:

This memo outlines the key points of the projects to be discussed.

GOALS:

Provide a concise description of the energy projects in advance of the City Council Workshop.

Update on the Dover Community Power program

Before diving into three new energy projects, let's take a moment to evaluate the success of the Dover Community Power program through the Community Power Coalition of New Hampshire (CPCNH).

- The program has resulted in \$772,000 of community benefit through the first five months since launching at the end of October, 2023.
- The Dover Community Power program is currently offering the lowest default electric rate in NH at 8.1 cents/kWh and the municipal accounts are also utilizing this rate.
- Approximately 12,800 electric accounts are enrolled which is a 1.4% net decrease from the launch.
- 51 electric accounts are taking advantage of the higher renewable content products.
- Community feedback has been very positive overall.

Connection to City Council Goals

The following three energy projects are supported by the Dover Energy Commission and would help implement Council Goals #3 and #6.

Council Goal #3: Our City is Resilient

Council Goal #6: Our City Has Sustainable Financial Policies

Energy Savings Performance Contracting

Energy Savings Performance Contracting (ESPC), is a proven financial tool that allows entities like municipal governments to conduct energy management projects in a budget neutral way.

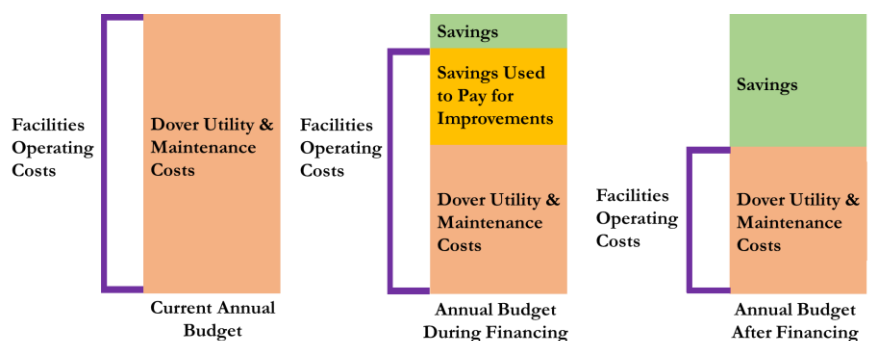


Figure 1. A general depiction of how energy savings performance contracting interacts with Dover's budget.

Figure 1 introduces the concept. Dover maintains a host of different facilities that span many municipal departments, all of which have associated utility and maintenance costs. These comprise the facilities operating costs at this moment and appear in the annual budget. Under an ESPC arrangement, Dover would be guaranteed by an energy service company that the energy and operational savings realized through efficiency and weatherization upgrades would

more than pay for the cost of those upgrades. This is done through a Tax-Exempt Lease Purchase (TELP). Once the lease purchase obligation is fulfilled, the City would then see the full benefit of the improvements in the form of savings as the long-term operations costs are reduced.

WWTF PV Solar

Dover's current solar provider, ReVision Energy, conducted analysis for the potential of a photovoltaic (PV) solar array to power the Wastewater Treatment Facility (WWTF).



Figure 2. Aerial image depicting the potential 2.0 MW AC PV solar array on the WWTF parcel.

The potential location for the solar array is depicted in Figure 2. Based on the land area, setbacks and environmental constraints, ReVision estimates that the parcel could support a 2 MW AC (2.67 MW DC) array which would consist of approximately 4,500 panels. This would produce over 3M kWh annually, offsetting 173% of the current electrical demand of the WWTF. The excess power could then be net metered to serve other municipal facilities further reducing the purchased electricity obligations of Dover's energy portfolio, helping the City on its path towards the 2035 renewable energy target for municipal facilities. The largest barrier in NH for PV solar projects of this size is the Eversource NH interconnection queue. With the rate at which interconnection applications are being processed, it could be at least two years before Eversource would approve the construction and system integration. If Dover is to proceed with this project in a reasonable time span, then it is critical that it enter the interconnection queue soon. One option is, for the cost of \$34,000, Dover could partner directly with ReVision, pending the Council's authorization, to start the interconnection process. The Energy Commission supports moving forward with this option given the success of the past two projects with the City, the scale and logistics of this particular site, and that if the project is constructed with ReVision, Dover would benefit from the standardization of equipment, monitoring software and maintenance.

WWTF PV Solar Financial Estimates

The Investment Summary and Projects Savings/Revenue details are listed below:

Investment Summary

Turnkey System Cost (incl. Allowances)	\$6,930,400
Permitting & Site Preparation Allowance	\$96,000
Utility Applications & Upgrades Allowance	\$41,000
Average Annual O&M cost (Recommended)	\$7,000
Direct Pay (IRA)	-\$2,079,000
Depreciation Benefits	\$0
Rebate/Grant (Estimate)	\$0
Net investment	\$4,858,400

Project Savings/Revenue

Energy Savings (Year 1)	\$649,861
Renewable Energy Credits (Year 1)	\$100,285
Simple Payback (Years)*	7
Purchase 25-Year Internal Rate of Return*	14.99%
25-Year Net Savings (Warranty Period)	\$16,392,695
40-Year Net Savings (Commercial Lifespan)	\$34,620,679

**Analysis assumes energy savings invested back into company (untaxed)*

Through the Inflation Reduction Act (IRA), Dover would apply for Direct Pay which would provide a 30% rebate worth over \$2M. This brings the initial net investment to approximately \$4.858M. This is a worthwhile investment for the City as the simple payback is anticipated to be 7 years. During the 25-year warranty period for the system, Dover could benefit from over \$15M in avoided energy costs while reducing its environmental burden.

Clean Energy New Hampshire recently reported that it expects a 2 – 3 MW project to cost around \$2/DC watt based on analysis of recent NH based solar projects. Applying that ratio to Dover's potential 2.67 MW DC array yields a cost of \$5.34M, confirming that the estimate from ReVision is reasonable and in-line with other NH projects of this scale.

Standby Group Net Metering

Municipalities in NH can earn revenue through partnering with in state renewable power producers such as solar, hydro, biomass, etc. Through a group net metering (GNM) arrangement, municipalities allow these power producers to ensure to the regional independent system operator (ISO) for New England (NE), ISO-NE, that there is

guaranteed demand for the power production. This allows the producers to earn more in the ISO-NE market and thus, they are able to compensate the municipality based on the amount of load allocated to the program. The City partnered with Standard Power of America previously with an agreement of this nature. The only drawback of these agreements is that any meters participating in the program are unable to be served by City based PV solar, whether it's physically behind the meter or being net-metered.

Freedom Energy Logistics (FEL), understanding that long term contracts present a barrier for municipalities who are considering expanding municipal PV solar has an offering that is on a month-to-month basis allowing extreme flexibility as Dover continues to evolve its energy plans. The agreement with FEL would yield Dover approximately \$16,000 in revenue annually.