



Diane Nichols Tradd
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Craig Thomas
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MEMORANDUM

TO: Eileen M. Donoghue, City Manager

EMD

FROM: Katherine Moses, Energy Manager

SUBJECT: COUNCIL MOTION OF 7/24/18 BY COUNCILOR ELLIOTT
REQUEST CITY MANAGER EXPLORE THE POSSIBILITY OF INSTALLING SOLAR TREES IN THE CITY

The City of Lowell has utilized multiple avenues to increase solar energy production for the benefit of the municipality, its residents/businesses, and the environment. Per Councilor Elliott's motion request, we can continue to explore different ways to utilize solar resources for the benefit of the City.

By way of background, a solar tree is a type of ground-mounted solar system that has the appearance of a tree due to the orientation of the solar panels. Examples of various types of solar tree configurations are found below:



Sources: <https://news.energysage.com/solar-trees-everything-need-know/> and <https://spotlightsolar.com/products/>

Advantages of these solar trees include:

- Requires less ground space than traditional ground-mounted solar panels
- Can provide shade underneath the panels
- Some models allow for tracking of the sun, which can increase output
- Some models can adjust the "leaves" of the solar trees for optimal orientation for increased production on a smaller footprint
- Some models can also integrate charging capabilities
- Adds aesthetic value to properties where they are installed

Disadvantages of these types of trees include:

- Higher overall cost than traditional solar systems. Traditional ground-mounted solar systems have an average price per watt of \$2.85-\$4.09/W whereas many solar tree configurations have a cost between \$6.00-\$17.60/W
- Limited number of vendors compared to traditional solar panels, which can also drive up price
- Uncertainty in incentive levels under approaching SMART incentive regulations, which could decrease the economic viability of the project
- Uncertainty on whether systems like this could be built under the standard Power Purchase Agreements used with other solar systems for the municipality

Solar trees can offer an interesting mechanism for increasing solar energy production within the City. However, there may be a cost premium for this integration. If it is the desire of the City Council to explore the possibility further, the Department of Planning and Development could create a Request for Information to explore additional possibilities of integrating these structures into our renewable energy portfolio.

DNT/ns
09/05/18

cc: Diane Tradd, Assistant City Manager/DPD Director
Philip Ferreira, Housing and Energy Programs Manager