

# Memorandum



CITY OF DALLAS

DATE September 16, 2022

TO Honorable Mayor and Members of the City Council

SUBJECT **September 6, 2022 Environment & Sustainability Committee Questions Follow-Up**

This memo is a follow-up to the question received from the Environment & Sustainability Committee members on September 6, 2022, related to the installation of Solar Photovoltaic (PV) on City facilities.

**1. Can multiple solar PV systems be purchased at once or in bulk to ensure that the City receives the best price possible for future projects?**

Building Services Department (BSD) will package as many systems together as is feasible and are funded for future solicitations. This will ensure the City receives the best price available, including any discounts or savings generated by purchasing multiple systems at once. BSD will also coordinate with other departments within the City to engage in broader discussions on how to leverage the expansion of solar PV systems to secure a beneficial rate for the purchase, installation, and future maintenance of solar PV systems on City-owned facilities.

**2. Please provide a list of the utility costs and cost savings for the City's investment in solar PV systems.**

The annual energy usage for the Dallas West Branch Library is 354,880 kilowatt hours (kWh), costing \$23,839. The 148 kilowatt (kW) solar PV system is expected to reduce/offset the annual energy usage of this facility by 66%, to approximately 119,627 kWh, reducing the annual energy costs at this facility by approximately \$15,803.

The annual energy usage for the Fretz Park Recreation Center is 379,008 kWh, costing \$22,471. The 120 kW solar PV system is expected to reduce/offset the annual energy usage of this facility by 49%, to approximately 193,585 kWh, reducing the annual energy costs at this facility by approximately \$10,993.

The annual energy usage for the Pleasant Oaks Recreation Center is 246,777 kWh, costing \$37,389. The 155 kW solar PV system is expected to reduce/offset the annual energy usage of this facility by 57%, to approximately 182,903 kWh, reducing the annual energy costs at this facility by approximately \$21,473.

**3. Can battery backup systems be added to the three current solar PV projects?**

Battery energy storage can be added to three current solar PV projects. Though adding battery energy storage would provide some resiliency to the facility, it may

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not provide any significant additional energy and cost savings to the project. Additional electrical improvements, which are unfunded, would be required at each facility to provide resiliency from battery energy storage.

Due to the available roof space at the three facilities, there would be insufficient excess energy generation from the solar PV system to warrant the use of battery energy storage. Based on the proposed solar PV system sizes, they would offset an average of approximately 57% of the total energy used by the three facilities.

Adding a 1-hour battery energy storage system at all the three facilities would increase the project cost approximately by \$828,750 for equipment only and does not include any required electrical infrastructure upgrades, and would increase the simple pay-back period to 40.1 years compared to 21.9 years without battery storage.

**4. Can battery backup system be added to a building along with solar PV to provide resiliency during loss of power in weather related emergencies similar to winter storm Uri?**

Battery energy storage can be added to a building along with solar PV to provide resiliency in during loss of power in weather related emergencies. However, the majority of the public facing buildings such as City libraries and recreation centers do not have large enough rooftops to install adequate solar PV to charge battery energy storage to operate the facility for 24-hours in emergencies. Power purchased from a provider or power from an external source, such as a generator, would be required to completely charge the batteries.

Using Pleasant Oaks Recreation Center as an example, to provide 24-hours of battery backup power, it is estimated to cost between \$1.5m – \$2.1m for the purchase, installation, and required electrical upgrades based on the condition of the existing electrical infrastructure at the building. Based on the current cost estimates and lack of adequate roof space to provide excess energy for charging, BSD does not recommend adding battery backup systems to its current solar PV systems at this time.

**5. How are facilities selected for consideration of future solar PV systems?**

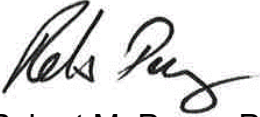
The Building Services Department utilizes the criteria listed below for selecting City facilities for installing future solar PV systems:

- Energy benchmarking data from assessments
- Required minimum energy offset of >30% in annual building energy usage
- Consideration of identified Equity Priority Areas
- Public facing buildings

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Please contact John Johnson, Director of the Building Services Department, or me should you have any questions or concerns.



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Assistant City Manager

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