



FARMERS
BRANCH

Solar Feasibility Study

Department of Sustainability and Public Health
with Shor Power and Sea Oak Capital
May 19, 2020



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Today's Objectives

- Receive a report from the City's consultants on the results of the Solar Feasibility Study
- Compare green energy options
- Receive staff recommendations
- Provide direction

Background

- In April 2019, City of Farmers Branch released a request for qualifications to solicit references and technical qualifications from firms to perform a solar feasibility study of City facilities and parcels of City land, including the City's closed landfill.
- The City selected the joint submission from Shor Power and Sea Oak Capital to complete the solar feasibility study.
- On June 4, 2019 Farmers Branch City Council approved a contract with Shor Power (Resolution No. 2016-65) to explore the feasibility and cost effectiveness of installing solar infrastructure on city facilities and property with a budget of \$49,480.

Project Goals

- Assessment of environmental and financial long term benefits to the City if solar energy systems are installed.
- Assessment of the potential to install solar energy system(s) on or near municipal facilities to offset municipal electricity usage and the physical constraints associated with each facility.
- Assessment of the regulatory permitting requirements and challenges for solar projects.
- Typical construction timeline for solar projects.

Solar Feasibility Study Report

Adam Shor

Shor Power

Dan Poydenis

Sea Oak Capital



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Feasibility Study Summary

- It is feasible for the City to build solar on several of the City-owned buildings, predominantly those with a larger rooftop area, and evaluate the inclusion of solar from the potential solar landfill project during its ongoing discussions with retail electricity providers for the City's next long-term electricity contract.
- We have secured an Oncor subsidy for the rooftop projects in the amount of \$313,000 that will reduce the cost to the City, should it elect to move forward.
- We recommend the City pursue a self-ownership model of the rooftop projects and pursue a third-party ownership model of the landfill project.
- Next steps would be to complete the development of the projects so that the estimates herein can be refined to reflect actual costs and numbers which can then be relied upon for installation of the projects.

Proposed Rooftop Solar Projects

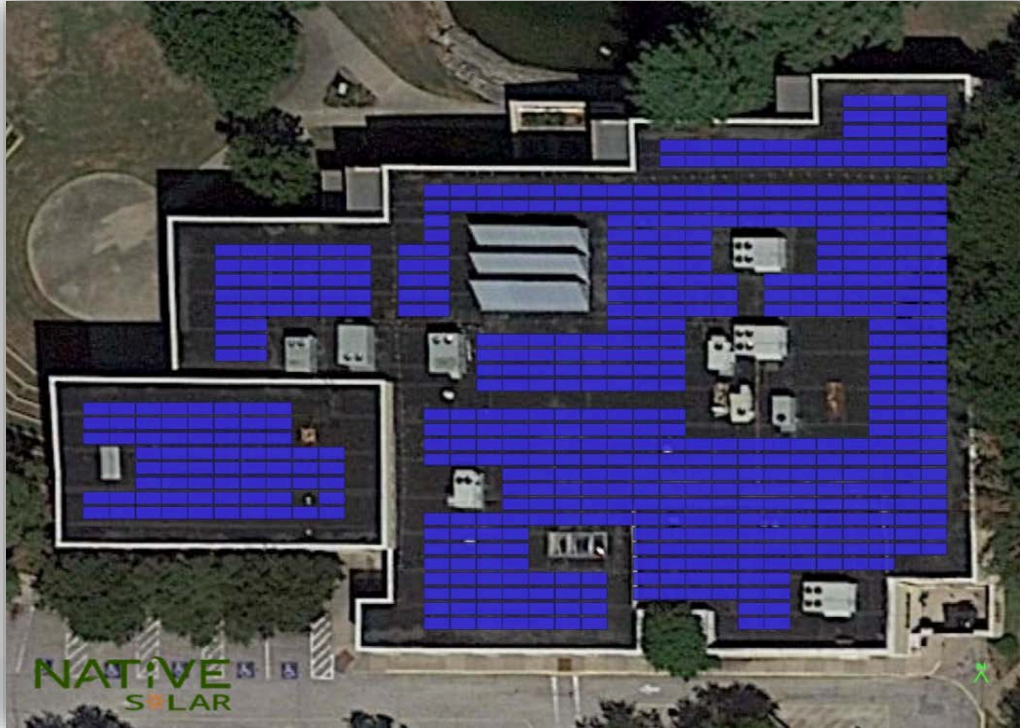


City Hall
System Size: 83.6 KWdc
Year 1 Production: 129,711 kWh



Margaret Young Natatorium
System Size: 53.5 KWdc
Year 1 Production: 94,583 kWh

Proposed Rooftop Solar Projects



Manske Library
System Size: 218 KWdc
Year 1 Production: 343,642 kWh



Community Recreation Center
System Size: 270 KWdc
Year 1 Production: 415,047 kWh

CONTAINING APPROX. 20.01 ACRES

50' SETBACK
APPROX. AREA ENCLOSED
BY SETBACK = 15.7 ACRES

ABOVE GROUND CIRCUIT PATH 2.879 LF

BACK OF MODULE TO FRONT OF MODULE ROW SPACING
EQUATING TO AN SLA OF 23.96' @ VARYING SLOPE

27'-0"

10'-11"

10'

3.75 MVA AC EQUIPMENT PAD

12' WIDE ACCESS ROAD
APPROX. AREA = 4.6935 AC SQFT
APPROX. LENGTH = 346'

18' WIDE GATE

PRESUMED LAYDOWN AREA 0.2 ACRES

FENCE
APPROX. 3,840 LF
APPROX. AREA ENCLOSED = 18.9 ACRES

President George Bush Turnpike (road)

President George Bush Turnpike (road)

McNair Ln

This represents ~56% of the City's total annual municipal electricity needs.



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Project Considerations: Discussion Points

- City Ownership vs. Third Party Ownership
- Connection to Retail Electricity Provider (REP) Contract
- “Behind the Meter” vs. “In Front of the Meter” Regulatory Considerations
- Projected Costs vs. Savings
- Recommendations

Staff Recommendations: Green Energy

Katy Evans

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Department of Sustainability
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FARMERS BRANCH STRATEGY MAP

FOCUS AREAS



FUTURE-LEARNING
INITIATIVES



CONNECTED
NEIGHBORHOODS



COMMUNITY
ENGAGEMENT



HIGH
PERFORMANCE



SUSTAINABILITY



BRANDING & ART



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Why go green?



Cost Savings



Lead by Example



**FY 21 CBO7
Execute
Sustainability
Initiatives**



Reduce Footprint

Green Energy Options

Project	Pros	Cons	Cost
No change to current programs	<ul style="list-style-type: none"> • Cost savings up front 	<ul style="list-style-type: none"> • Environmental footprint remains the same • Cost may increase over time 	<ul style="list-style-type: none"> • \$0
Renewable Energy Credits (RECs)	<ul style="list-style-type: none"> • Can be purchased separately from the city's electricity contract • Allows you to notionally "re-separate" renewable power so that it is dedicated to you • Each REC is independently tracked and verified • Effectively reduce footprint 	<ul style="list-style-type: none"> • The city is still purchasing power from traditional power sources 	<ul style="list-style-type: none"> • Averages about \$10k per year, but may vary • Calculated as a percentage of the electricity bill
Green Energy Contract	<ul style="list-style-type: none"> • Supports renewable energy • Leading by example • Reduced footprint 	<ul style="list-style-type: none"> • Renewable energy typically comes with a higher rate 	<ul style="list-style-type: none"> • Varies; TBD based on City's next electricity contract
Landfill Solar Project	<ul style="list-style-type: none"> • Can generate up to 56% of the City's annual municipal electricity needs • High visibility 	<ul style="list-style-type: none"> • Regulatory hurdles • Feasibility depends on the City's next Retail Electricity Provider (<i>Most REPs do not allow net metering, which is a key component of the project</i>) • High upfront cost 	<ul style="list-style-type: none"> • Estimated \$7,434,457
Rooftop Solar Projects	<ul style="list-style-type: none"> • Energy cost savings • High visibility • Incentivized by Oncor 	<ul style="list-style-type: none"> • High upfront cost • Operation and maintenance • 30 year life 	<ul style="list-style-type: none"> • Varies (see next slide)

Rooftop Solar

Manske Library

Upfront Cost:	\$580,728
ONCOR Incentive:	\$114,070
Net Cost:	\$466,658
30-Year Savings:	\$983,627

Cost recovered in Year 11

Recreation Center

Upfront Cost:	\$670,905
ONCOR Incentive:	\$120,000
Net Cost:	\$550,905
30-Year Savings:	\$1,174,908

Cost recovered in Year 11

Staff Recommendation

- Staff recommends installing rooftop solar infrastructure on the Manske Library and Recreation Center using fund balance, as it provides a high rate of return over the lifespan of the project.
- Staff recommends the City move forward with procuring green energy in its next electricity contract.





Questions?