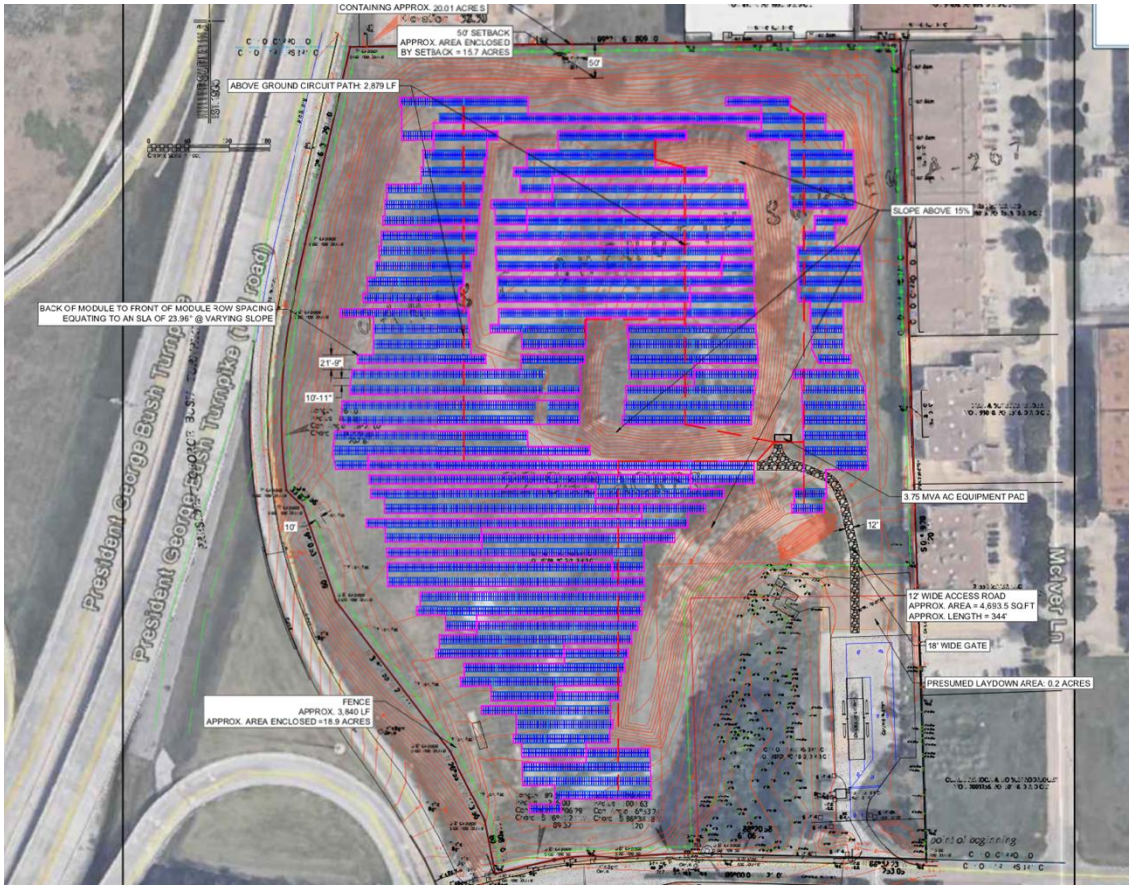
SHOR POWER

SEA OAK CAPITAL



Solar Feasibility Study

Prepared for:

The City of Farmers Branch, TX

April 14th, 2020

Based on the summary of our feasibility analysis, 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 a portion of the rooftop projects in the amount of $313,000 which will assist the City in its execution of the rooftop projects. We recommend the City pursue a self-ownership model of the rooftop projects and pursue a third-party ownership model of the landfill project. Should the City agree with our findings that the projects are feasible, the next step 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.

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Definition of Terminology

"Behind the Meter" – A behind the meter generation system is a solar project that produces power on the actual facility that is using the electricity, rather than on the grid side of the meter. The meter is physically located at the connection of the grid and the building, hence "behind the meter" refers to a project that is sited on the building side of the meter.

"In Front of the Meter" – An in front of the meter generation system is a solar project that produces power that is fed directly into the grid. The power flows from the project, to the grid, through the meter and into the building or electricity use case.

Qualified Scheduling Entity – Qualified scheduling entities (QSEs) submit bids and offers on behalf of resource entities or load serving entities (LSEs) such as retail electric providers (REPs).[1]

"REP" – Retail Electricity Provider – A Retail Electric Provider (REP) sells electric energy to retail customers in the areas of Texas where the sale of electricity is open to retail competition. A REP buys wholesale electricity, delivery service, and related services, prices electricity for customers, and seeks customers to buy electricity at retail.[2]

"Load Serving Entity" - Load Serving Entities (LSEs) provide electric service to individual and wholesale Customers. LSEs include Competitive Retailers and Non-Opt-In Entities.[3]

"Interconnection Study" – A preliminary study performed by the transmitting utility (Oncor) to determine what equipment at what cost would be required to safely and reliably interconnect a solar project to Oncor's transmission system.

"Interconnection" – The equipment and facilities required to safely and reliably interconnect a solar project to the transmission system of the transmitting utility.

"EPC" – Engineering, Procurement, and Construction firm responsible for the engineering design, procurement of hardware, and physical construction of a solar project.

"TDSP" - TDU/TDSP Delivery Charges are charges assessed by a Transmission and Distribution Utility (TDU) for the delivery of electricity to a customer over poles and wires and through other TDU facilities. Though these charges are assessed to the Retail Electric Provider (REP) and not the consumer directly, REPs may itemize these charges on consumers' electric bills.[4]

"PPA" – Power Purchase Agreement – This is a contract that an electricity buyer signs to purchase the power from a solar project.

"TCEQ" – Texas Commission on Environmental Quality – This is the State governmental body that oversees any proposed development on existing or capped landfills in the State of Texas.

1 http://www.ercot.com/services/rq/qse
2 https://www.puc.texas.gov/industry/electric/business/rep/Rep.aspx
3 http://www.ercot.com/services/rq/lse
4 https://www.dallaselectricityrates.com/oncor-energy

Summary of Findings

Shor Power and Sea Oak Capital are pleased to present our findings to the City of Farmers Branch (the "City") in relation to the solar feasibility study for the City buildings, properties and available land.

To begin the study, we spoke with members of the City local government including, but not limited to, the Mayor, Sustainability Manager, and the Fleet and Facilities Director to understand the long-term sustainability objectives, broader City goals, and the hypothesis that solar could help reduce the electricity expenses of the City. Once the objectives of the study were defined, we divided our efforts into two opportunity segments: potential rooftop solar systems and potential ground mounted solar systems. These different types of systems have implications with respect to size, cost, interconnection feasibility, structural requirements, available incentives, and market regulatory dynamics. This feasibility report will provide the results of evaluating both rooftop and ground mounted solar systems within the City.

For the rooftop projects, we began by evaluating the total electricity usage for all of the City's buildings, in addition to the area of available roof space on each building. The electricity demand of each building dictates how much power there is to potentially offset via solar, and the available roof space effectively acts as a limiting factor with respect to how large of a system can be installed on each rooftop. After reviewing each City building, we created a shortlist of buildings in which the size of the potential solar system installed relative to the power that it would generate would likely create electricity savings for the City.

This shortlist of buildings included City Hall, Manske Library, Farmers Branch Community Recreation Center, Margaret Young Natatorium, Children's Health Stars Center, and the new Fire Station on Alpha Road. We collaborated with a local contractor to perform a structural review of the roof construction on each of these buildings (except for the Fire Station) to determine load bearing capability. All buildings passed the initial structural review, after which we had a solar system designed for each rooftop explicitly. These project designs were then submitted concurrently to Oncor for proposed interconnection and to the Oncor Solar Photovoltaic Standard Offer Program for the purpose of securing an allocation of grant funds from Oncor that could help offset the cost to the City for the solar projects on a project-specific basis. The projects proposed for City Hall, Manske Library, Farmers Branch Community Recreation Center, and the Margaret Young Natatorium all received favorable outcomes with respect to the proposed interconnection and are currently in "Interconnection Agreement Available" status, which enables the projects to proceed, should the City elect to do so. More importantly, the four projects in this interconnection status have all individually received an allocation of grant funding from Oncor which totals approximately $313,000 across the four projects. The grant funds will be made available in the event the City elects to move forward with building the projects this calendar year. The new Fire Station on Alpha Road is on the wait list for potential grant funding from Oncor in the event that more funds become available.

Concurrently with the rooftop review, the primary piece of land we evaluated within the City is the capped landfill co-located at 1399 Valley View Lane with the Farmers Branch Citizens Collection Center. Per our review, the site can hold a slighter greater than $5MW_{dc}$ solar array, which equates to a $4.5MW_{ac}$ solar project. To put this in perspective, this is roughly 23.5 times the size of the system proposed for the rooftop of the Manske Library. This project would be considered "in front of the meter" whereas each of the rooftop projects would be considered "behind the meter." The difference between the two is explained later within this report. Due to regulatory requirements in Oncor territory, should the City elect to move forward with this $4.5MW_{ac}$ solar project, the project would require a "Qualified Scheduling Entity" and a "Load Serving Entity" to interface between the electrical grid and the City electricity demands. We have determined from our review that the project is tentatively feasible, dependent on the economics of the long-term electricity contract that the City would sign with the landfill solar project, as well as with the next electricity contract that the City is currently planning to secure.

The City is a member of the Governmental Aggregation Project, Inc. (GAP), a political subdivision corporation. GAP assists the City with contracting for electricity as well as other electricity-related projects, such as budgeting and reporting. GAP reviewed the evaluation of the solar project and their comments have been included in this report. In making this determination for the landfill solar project, we collaborated with a national engineering, procurement, and construction group to do the preliminary design work for the project. This work was submitted in the landfill interconnection impact study, which came back favorably with a cost of ~$275,000 to interconnect the project, which is low compared to other projects of similar scale across the country.

Communication with Texas Commission on Environmental Quality (TCEQ) suggests that with a defined engineering plan, it would be relatively easy to get their approval to build on the capped landfill. There are no local incentives that could be applied to the landfill project, but the project itself does achieve meaningful economies of scale relative to the rooftop projects, as the project cost per Watt installed is lower. However, the contracts associated with the landfill project will be more complicated than the rooftop "behind the meter" projects.

Based on the summary of our analysis, 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. The potential ~8,300,000 kWh generated from the proposed solar projects would represent ~64% of the City's 2019 electricity usage of ~13,000,000 kWh.

We appreciate the consideration to assist the City in this opportunity.

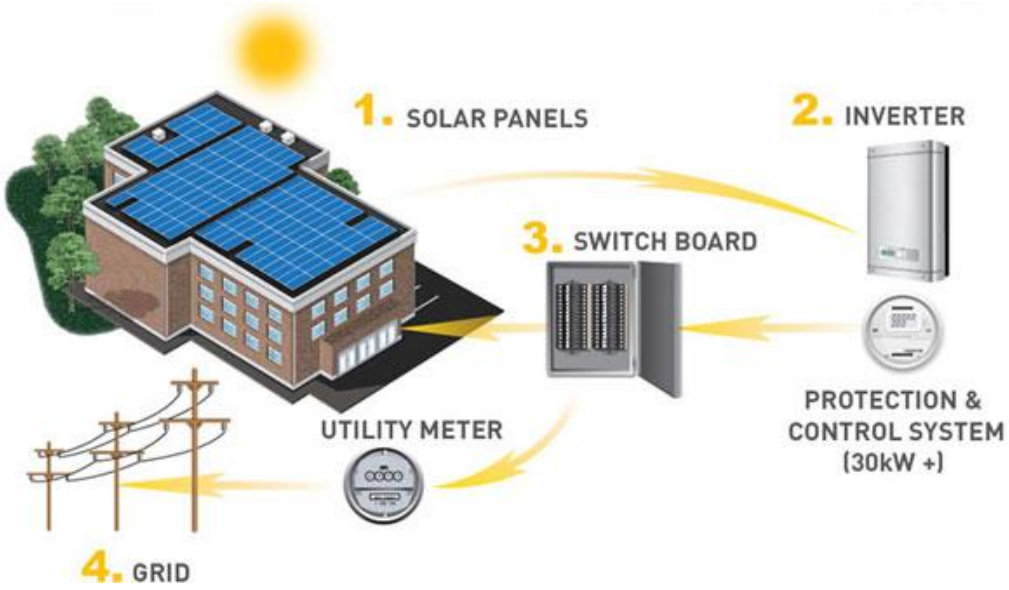
Sincerely,

Adam Shor
Principal, Shor Power

Dan Poydenis
CEO, Sea Oak Capital

Initial System Designs

As part of the feasibility analysis of each potential location, design engineers at Native Solar, a Texas based rooftop solar EPC, analyzed each City location under consideration and prepared layouts of a proposed solar facility. Best design practices commonly used in the solar industry were observed, including but not limited to identification of current roof obstructions and skylights, safety considerations such as setbacks from the edge of the roof and spacing between rows of panels, and performance considerations such as roof slope, shading and configuration. A simplified explanation of how these systems would work is immediately below for reference.[5]



The results of this design work are summarized by location in the table below.

Location	AC System Size	DC System Size	Year 1 kWh Performance
City Hall	66.6 KWac	83.6 KWdc	129,711 kWh
Rec Center	200 KWac	270 KWdc	415,047 kWh
Natatorium	53.5 KWac	60.8 KWdc	94,583 kWh
Manske Library	200 KWac	218 KWdc	343,642 kWh
Fire Station	61.2 KWac	69.2 KWdc	100,403 kWh
Landfill	4,582 KWac	5,120 KWdc	7,291,000 kWh

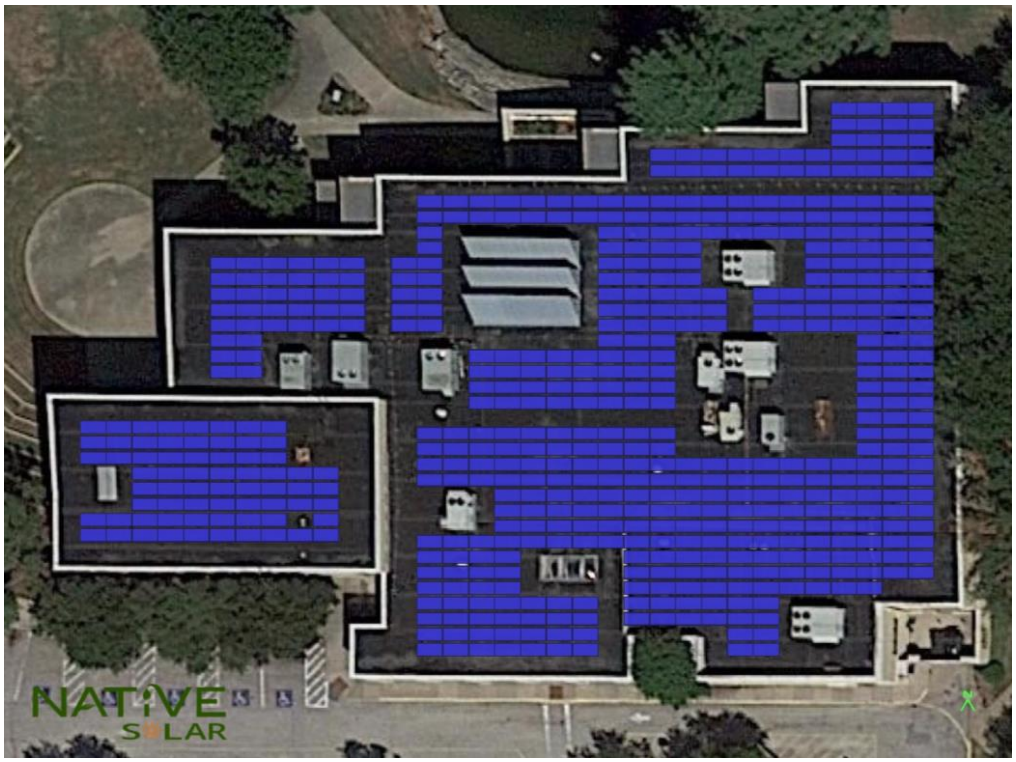
[5] https://www.infiniteenergy.com.au/commercial/how-solar-works-for-business/

City Hall Proposed Solar Layout

Recreation Center Proposed Solar Layout

Margaret Young Natatorium Proposed Solar Layout

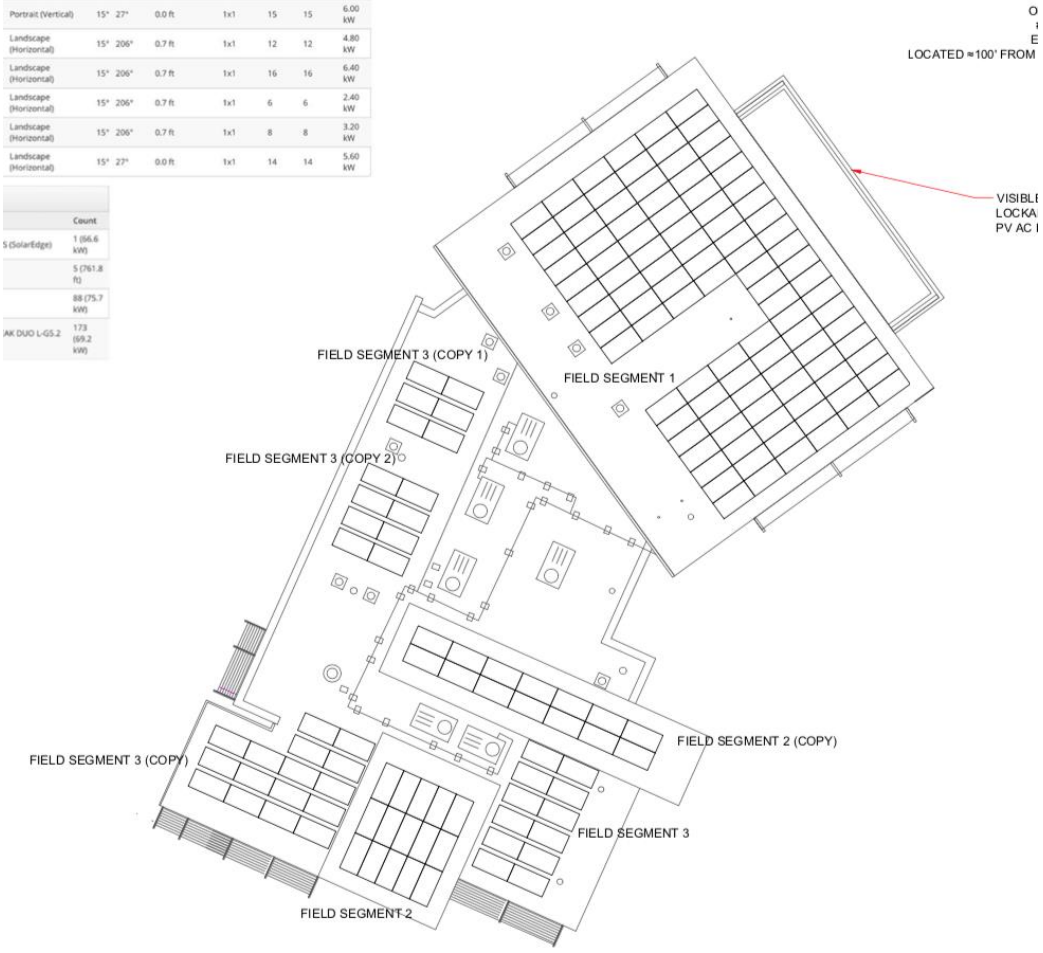
Manske Library Proposed Solar Layout



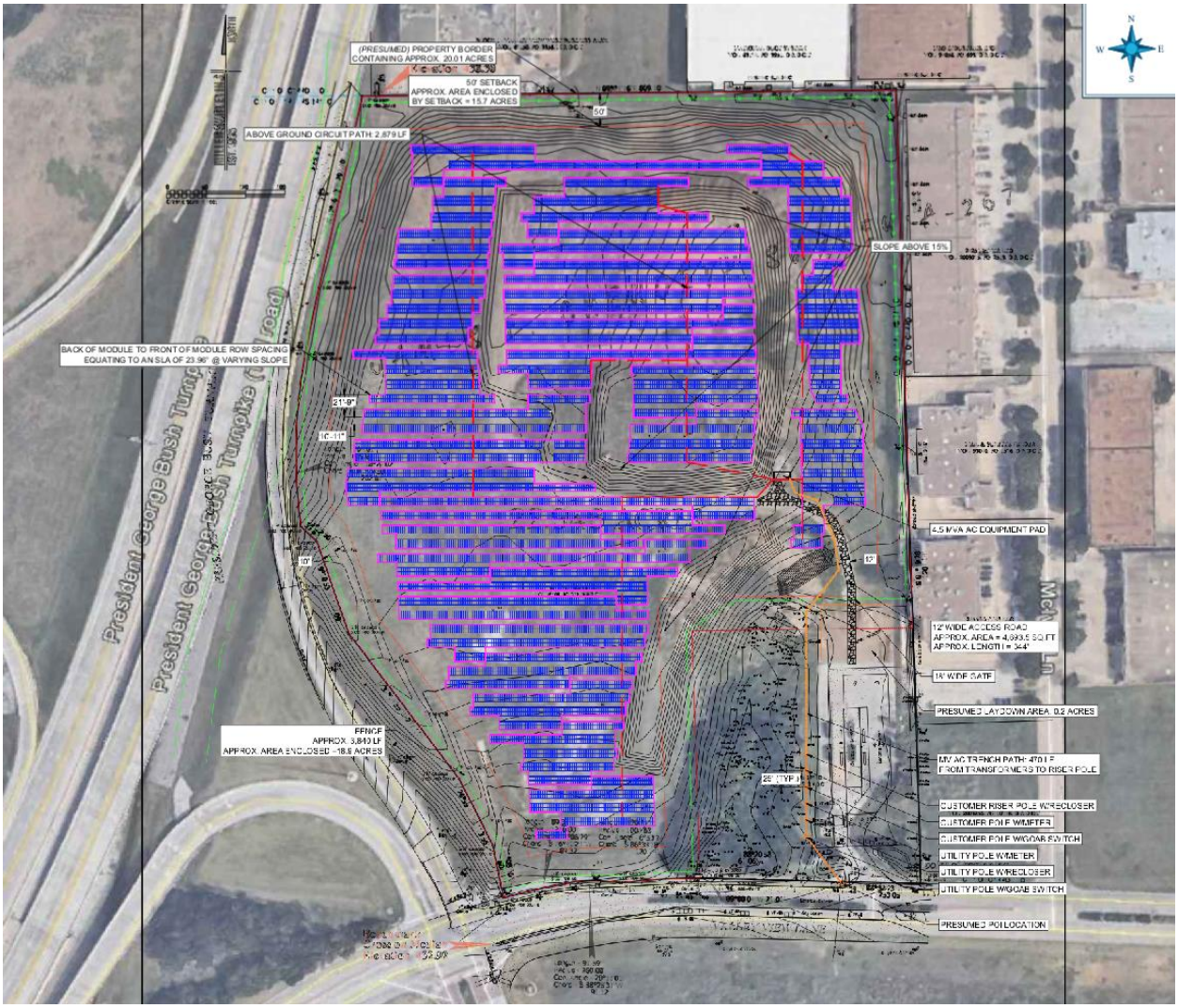
Fire Station Proposed Solar Layout

Portrait (Vertical)	15°	235°	0.0 ft	1x1	102	102	40.8 kW
Portrait (Vertical)	15°	27°	0.0 ft	1x1	15	15	6.00 kW
Landscape (Horizontal)	15°	206°	0.7 ft	1x1	12	12	4.80 kW
Landscape (Horizontal)	15°	206°	0.7 ft	1x1	16	16	6.40 kW
Landscape (Horizontal)	15°	206°	0.7 ft	1x1	6	6	2.40 kW
Landscape (Horizontal)	15°	206°	0.7 ft	1x1	8	8	3.20 kW
Landscape (Horizontal)	15°	27°	0.0 ft	1x1	14	14	5.60 kW

	Count
S (SolarEdge)	1 (66.6 kW)
	5 (761.8 ft)
	88 (75.7 kW)
AK DUO L-G5.2	173 (69.2 kW)



Landfill Proposed Solar Layout



The layouts prepared for the initial system designs consist of what is commonly referred to as a "30% design set." This indicates that the layout is generally about 30% of the way through the engineering and design process that would ordinarily occur to obtain a building and electrical permit, and for an EPC contractor to rely upon during a construction process.

If the City were to proceed with the projects above, an independent engineer would be engaged to review and comment on the design and engineering drawings of the EPC contractor. Customarily, a refreshed 30% drawing would be presented for review and comment by the City and an independent engineer followed by 60% and 90% progress sets of drawings for review and comment prior to agreeing upon the final construction set. During this process, optimization and advanced engineering would refine the design of the solar systems to reach the best cost-benefit system for the City.

While this process will likely result in changes to the numbers set forth above, it is customary to conduct feasibility analysis on a 30% set of drawings.

In terms of the forecasted system performance, we anticipate an industry standard approximate .5% degradation of the system output year over year. For example, if the first year estimated kWh for the City Hall is 129,711, we would anticipate year 2 generates 129,062 (Y1 * .995%).

The momentum in the solar industry is toward a 35-year useful life. Generally, projects start with a 35-year assumption and then shorten it if appropriate for various site-specific reasons. For example, if a certain location is believed to require a roof replacement in year 30, and the cost to decommissioning and reinstall the solar facility was cost prohibitive, then the useful life would be reduced to 30 years to track the amount of time the City believes the solar system can be in operation.

Analysis of the current electrical rate and potential future rates if solar projects are implemented

Current Rate

The City currently pays an "all-in" averaged price of ~$.11301/kWh for electricity across all of its buildings and other electricity uses (e.g. streetlights). The "all-in" pricing refers to both the electricity and Oncor's charges for transmission, distribution, demand and other customer and metering charges ("TDSPs"). Breaking that down, the TDSP represent on average roughly $.0618 cents of the $.11301 cents per kWh total. Excluding the TDSPs charged for street lighting, the TDSP charges represent $.04301 cents per kWh on average. TDSP charges are specific for each electricity use within the City. From our discussions with various Retail Electricity Providers as well as the City's electricity contract consultant, GAP, the average electricity rate of $.04971 cents per kWh included in the $.11301 cents per kWh may be slightly reduced in the next contract the City signs with a Retail Electricity Provider due purely to a potential drop in underlying electricity rates. Preliminary bids that GAP has solicited for the City's next electricity contract suggest an average electricity rate reduction of $.008 cents per kWh, bringing the average electricity rate to approximately ~$.041 cents per kWh. Again, this electricity rate is not inclusive of TDSP charges. Given the time between these initial indications and when a contract will be ultimately signed, this is merely an early indication of where the City's electricity rate will fall.

Projected Rate(s) for projects and why

The rate that the City will pay in its next long-term contract for electricity with a Retail Electricity Provider is still to be determined through the efforts of the City's consultant GAP. Assuming that the rates will trend down from where they are today, and in order to sustain savings from a possible solar installation within the City, the levelized cost of electricity[6] for the

[6] Levelized cost of electricity is by definition the approximate rate of electricity that is achieved by dividing the cost of the system and associated cost to maintain the system by the amount of power the system will produce over its usable lifetime, which is generally 30 years for a rooftop solar system.

rooftop solar projects will likely need to be in the $.07 cents per kWh range. This is based on an assumption of City ownership of the rooftop projects and the fact that the rooftop solar offsets both the electricity rate as well as the transmission and distribution rate, i.e. the "all-in" rate referenced above. With assistance from GAP, we've been able to determine the average TDSP charges for the buildings being evaluated for solar is roughly $.024 cents per kWh. Adding that to the average electricity rate of ~.$049 cents per kWh, this equates to ~ $.073 cents per kWh for electricity and TDSP charges for each of the buildings. This is due to the fact that from the electrical grid's perspective, the rooftop solar is just part of the building, and it thereby reduces the demand that the grid experiences from the respective building that has solar installed on it. This reduction in the electricity required by the building simultaneously reduces the number of kWh that is required to be delivered to the building. Therefore, in order to achieve savings with the rooftop systems, the levelized cost of electricity from those systems must be compared to the electricity rate plus the TDSPs from Oncor that GAP will assist the City in achieving via the next electricity contract.

The economics of the proposed landfill project are slightly different, given that the landfill is "in front of the meter." This means that the project delivers power to the grid before delivering power to the user of the electricity. Given the regulatory environment that this project would exist under, the City could sign a power purchase agreement (PPA) with the landfill project at a specified rate whereby the City would contractually agree to buy the power produced by the proposed solar project on the landfill. This rate would be explicit to the electrical component of the "all-in" pricing that the City ultimately sees on its bill from its Retail Electricity Provider. Said differently, the PPA rate for solar from the landfill project would not be inclusive of the transmission and distribution charges levied by Oncor. Thus, in order to achieve savings from the proposed landfill solar project, the PPA rate would likely need to be in the range of $.05-.06 cents per kWh, which does not include the $.0618 cents per kWh for TDSP charges from Oncor. The landfill project is significantly more influenced by the regulatory requirements than the rooftop projects. We will provide more details on the regulations in the section below.

Summary of the permitting process(es) and associated costs with regulatory agencies (e.g. ONCOR, TCEQ, City)

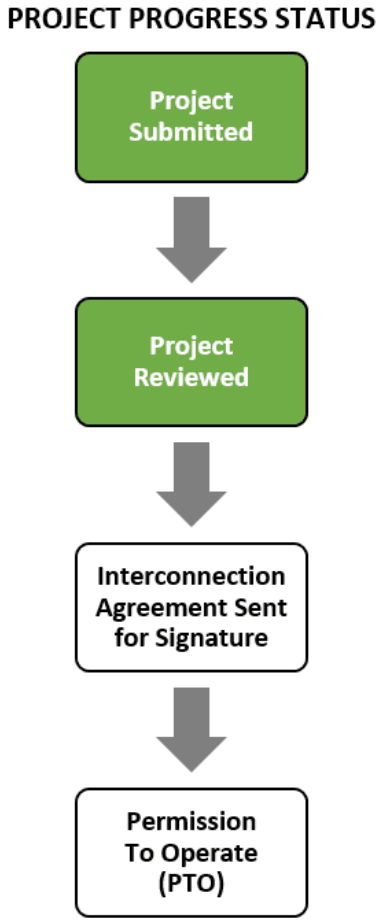
There are several permitting processes associated with building solar projects, all of which depend on where the project is located and how the project would ultimately be built and connected to the grid. The foremost process is interconnection permitting. This takes place via Oncor, the utility that controls the operation of the grid for the City and surrounding areas.

Oncor

To begin with, we communicated with two Oncor employees, Sam Widhalm, Senior Engineer in the Assets Planning, DG Resource Integration group, and Jerry Bates, Area Manager, Oncor/Customer Relations. Sam was our primary point of contact for all aspects associated with interconnection. He helped oversee the pre-screen, which was an internal Oncor initial evaluation on whether any of the proposed projects would be difficult to interconnect. Once the pre-screen came back with positive initial results, we determined it would be sufficient to move

forward to full interconnection applications for each of the proposed rooftop projects, as well as the proposed landfill solar project.

The application process is different depending on the scale of the project being proposed. For each of the rooftop projects, a local contractor submitted preliminary design drawings, single line electrical diagrams, proposed hardware specifications, as well as building specific details related to the meter numbers and the meter locations. We worked with Farmers Branch staff including Katy Evans, Sustainability Manager, and Kevin Muenchow, Fleet and Facilities Director, to identify building specific and electricity meter details, in addition to getting Kevin's sign-off for Oncor to proceed with the interconnection studies. While we forecasted that each of the rooftop interconnection applications would result in a material cost for each, we were pleasantly surprised that Oncor ultimately performed each of the studies at no expense to the City. Each rooftop interconnection application currently stands in a "Interconnection Agreement Sent for Signature" Stage in the diagram below.

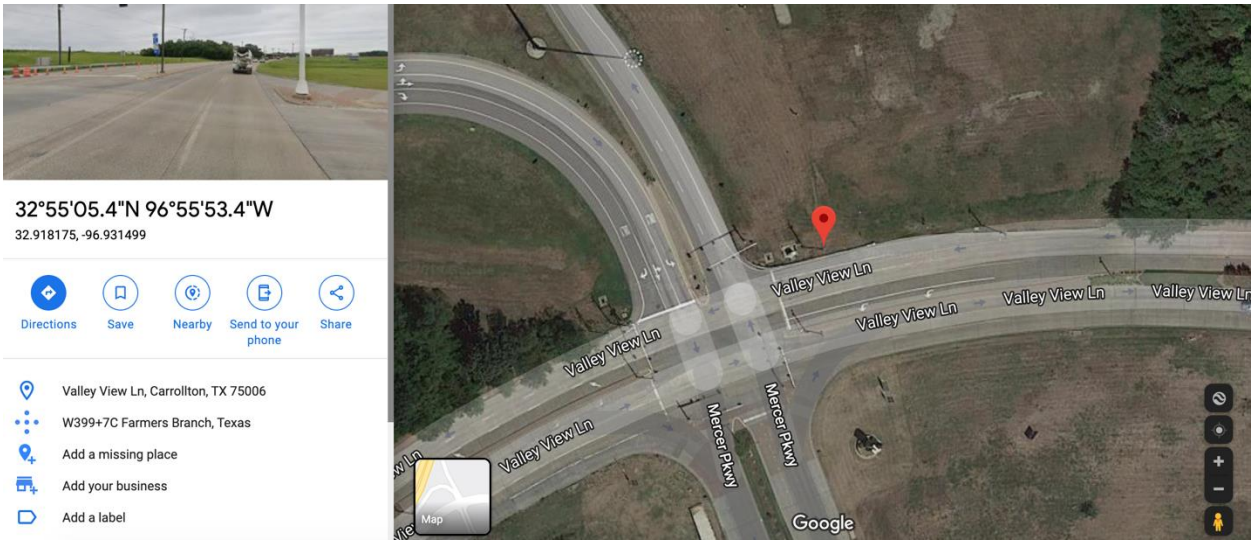


Per Oncor's guidance: "*This step initiates the completion of processing of (the) project by Oncor. An email notification will be sent when the designated installer sends out the interconnection agreement for signature. Oncor works with end-use customer and their designated installer to complete the Interconnection Agreement and issue a Permission to Operate (PTO) letter. Oncor*

initiates meter and account changes so that the chosen Retailer will have the billing information necessary for the installed system. The designated Installer must sign the Interconnection Agreement and End-Use Customer must sign the Customer Affirmation Schedule designating your Installer as a party to the Interconnection Agreement. Please reference the Oncor Interconnection Guide at www.oncor.com/dg. Please be advised that not all Retailers offer buy-back plans or credits for excess energy sent to the grid, and as the end-use customer it is up to you which Retailer you choose."

The interconnection process for the landfill is similar, albeit with a substantially longer time required for the study, as well as a more in-depth level of engineering required given the materially larger scale of the project relative to the proposed rooftop projects. We collaborated with a M+W Group, a national EPC firm with Gigawatts of solar engineering and construction work experience, to prepare the engineering and initial project site layout for the proposed landfill project. Once the engineering was completed, the documentation was submitted and the City directly paid Oncor the $4,275.35 cost of the study from the Feasibility Study budget. There were three elective items for the study, expected in-service date, GPS coordinates for the Point of Interconnection, and a meter selection based on how frequently the meters coordinate with the market. To that end, we proposed that the expected in-service date of the proposed landfill solar project would be September 30th, 2020. This date was projected for the purposes of the interconnection study, but does not require that the project be placed in service by this date. If however the project moves forward after a three month period post the receipt of the interconnection study, February 28th, 2020, then the project will be required to resubmit for a second interconnection study to determine nothing has changed in the interim with respect to the project's ability to interconnect via Oncor.

Based on guidance from Oncor with respect to the most cost-effective location for the proposed Point of Interconnection, we picked the southwestern-most electrical pole on the site. This location was further informed by a discussion with Shane Davis, Director of Sustainability and Public Health for the City of Farmers Branch, regarding the location of the existing landfill gas passive venting infrastructure on the capped landfill.



The results of the Oncor Interconnection Impact Study for the landfill were formally received February 28th, 2020 and have come back extremely favorable, from a cost standpoint, for a project of this scale. The cost to interconnect the project per Oncor is $274,859.20. From Oncor: "*Completed Impact Studies are valid for three months. If after three months there is not a decision to proceed, then the Impact Study will expire. If the customer elects to proceed past this initial three- month period, then the project will be re-evaluated based on any policies, standards or codes that have changed since the previous Impact Study was completed. The project will also be subject to a new Impact Study fee.*

If within these three months another project is proposed on the same feeder or substation by another developer, then Oncor will approach the existing customer to complete their project. Preparation of the contract cost could take up to six weeks. After the final contract price is submitted to the customer, funding will be required within two weeks. If funding is not secured, then the existing Impact Study will expire."

TCEQ

Given the fact that the Texas Commission on Environmental Quality has oversight to any proposed work for on former landfill sites, we were obliged to determine early on what requirements would need to be satisfied in order to build on the capped landfill.

Landfill work falls under Subchapter T: Permitting Standards for Owners and Operators of Commercial Industrial Nonhazardous Waste Landfill Facilities. Because solar is built on capped landfills across the country regularly now, this is becoming a more common use case for otherwise unbuildable land. However, historically low power prices in Texas have resulted in a far fewer landfill solar projects in the state to date. This may be changing, as per our conversation with Gayatri Bitracanti, an Environmental Permit Specialist in TCEQ's Municipal Solid Waste Division. She stated that there are 2-3 other potential landfill solar projects currently being evaluated at this time in Texas, one being near the City of Houston which is discussed in more detail below.

From a process standpoint, for any kind of proposed surface disturbance to a capped landfill, TCEQ Form 20787: Authorization to Disturb Final Cover Over Closed Municipal Solid Waste Landfill for Non-Enclosed Structure (included in the supplemental information) and all of the corresponding attachments must be submitted for review to TCEQ.[7] This focuses on a work plan authorization request, a Deed's recordation confirming the site is a landfill, and drawings signed, sealed, and submitted by a Professional Engineer. Initial conversations with Chuck Marsh at Weaver Consultants Group suggest a budget of $15,000-20,000 for this work. These documents need to be submitted to TCEQ and then they have 30 days to approve of the proposed work plan, or provide a Notice of Deficiency, (N.O.D.) If a N.O.D. is provided, there is another 14 days of review once an updated work plan is submitted to TCEQ. Once the forms are submitted to the TCEQ, a project manager will be designated to shepherd the request for authorization through the organization. There is no fee for this authorization request beyond the cost for the Professional Engineer to draw up the plan in the first place.

[7] https://www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw_closeduse.html

City of Farmers Branch
Permitting within the City would follow standard City building permit processes, although, per City officials, some consideration would be given to waiving permitting fees for each of the projects as the projects would be for the explicit benefit of the City itself.

Analysis of regulations and allowable options within those rules

The primary influencing regulation for the proposed projects is whether the project is "in front of the meter" or "behind the meter." This dictates how the electricity is perceived by the grid, and ultimately how it influences the value of the electricity. As described in the section on potential rates above, the value of solar on a building's rooftop is greater in a relative sense than the value of solar located off premises. This is due to the ability of a rooftop project to offset some of the TDSP charges, where an "in front of the meter" project cannot offset the TDSP charges. This has an influence on the economics of the project, but not on the ability of any of the projects to move forward.

To operate in Oncor territory, the "in front of the meter" proposed landfill project will require a Qualified Scheduling Entity[8] (QSE) due to its proposed project size. This will allow it to interface with the electrical grid in order to be able to supply power to the grid in an orderly fashion once operational. This QSE serves to interface with the Load Serving Entity, which can also double as the Retail Electricity Provider. The QSE role can come at an additional cost to the PPA rate, given that the QSE is a different entity than the actual landfill solar project. However, from our discussions with MP2, a Retail Electricity Provider in the Texas market, it is possible to have the QSE role built into a long term electricity procurement contract that the City would sign with a Retail Electricity Provider, assuming the City had also signed a PPA with the landfill solar project to procure the electricity to offset against all of the City's electricity demands (e.g. buildings, street lights, and any other use cases the city has). This is one of the most important aspects in negotiating the city's next power contract in the event the city elects to move forward with a PPA for the proposed the landfill solar project. Said more simply, the landfill project will have additional third parties involved to manage the operation of the solar plant, but depending on the City's next Retail Electricity Provider, that entity could provide economic advantages by simultaneously performing those roles in addition to their Retail Electricity Provider role.

As noted in the above permitting section, TCEQ does have regulatory oversight on the closed landfill. However, the regulatory requirements are fairly straightforward for building a non-enclosed structure on a closed landfill, provided that the disturbance to the landfill cap is minimal and the engineering plan is well documented. This engineering plan would be a component of any engineering, procurement, and construction (EPC) contract for the landfill solar project and would not inhibit the project from moving forward. This landfill solar project would be the 2nd or 3rd landfill solar project in the state that TCEQ would be evaluating. At this moment, there is a similar, albeit larger, 75MW solar project being proposed for a landfill near

[8] http://www.ercot.com/services/rq/qse

Houston that would provide power to the City of Houston.[9] MP2, one of the Retail Electricity Providers we spoke with during the diligence for this report is actively involved with assisting the landfill project in Houston.

Analysis of project taxation: 1) sales tax, 2) personal property tax, 3) real property tax

In the most general terms, analysis of the forecasted operating expenses of a solar project include an analysis of three different types of taxation a solar project may face; (1) personal property tax, (2) real property tax, and (3) sales tax.

The applicable of each of the foregoing taxes varies significantly on a state by state and town by town basis.

Personal Property Tax
In general terms, personal property tax addresses the taxation applicable to the solar equipment in the field at a particular location. It some states, solar is exempt from personal property tax. In others it is calculated in a manner similar to other equipment: by assessing the value of the equipment, agreeing upon a depreciation schedule, and determining the annual tax burden by utilizing an industrial or commercial mill rate in the town. In instances in which personal property tax is applicable, solar system developers and towns frequently negotiate "PILOT" agreements, or "payment in lieu of taxes" agreements that pre-agree to the personal property taxation of a solar project over an extended period of time to offer certainty to both sides.

Real Property Tax
Conversely, real property tax considers only the real estate or real property of a particular location, without consideration of the equipment that is onsite. Generally, this is calculated by determining the assessed value of the real estate and applying a town mill rate to it.

Sales Tax
Finally, sales tax can be applicable to the sales of electricity generated by the solar facility. In most states, solar facilities are exempt from sales tax, but this must be considered on a case by case basis as a structure is determined and a power sale arrangement is finalized.

For purposes of our analysis herein and based on a conversation with Farmers Branch Mayor Robert Dye, we have assumed that the solar facilities are exempt from each of the foregoing three taxes. Additionally, GAP has confirmed that Cities in Texas are exempt from personal, property and sales taxes.

[9] https://www.houstonchronicle.com/news/houston-texas/houston/article/Hopes-rise-that-proposed-solar-farm-will-14490863.php

Procurement summary and initial turnkey cost estimates based on the site-specific projects

For each opportunity, we requested a line item breakout of the currently forecasted construction costs. These costs can vary significantly as commodity and equipment prices fluctuate, and also by virtue of conducting an RFP or competitive bidding process. However, for purposes of this feasibility study, it was important to set a baseline for cost estimates to perform the necessary analysis set forth in this report.

Below is a matrix summarizing the estimated construction costs for each of the locations:

Location	DC System Size	Cost per DC Watt	Total Cost
City Hall	83.6 KWdc	$2.08	$174,387
Rec Center	270 KWdc	$2.02	$545,905
Natatorium	60.8 KWdc	$2.08	$132,021
Manske Library	218 KWdc	$2.09	$455,728
Fire Station	69.2 kWdc	$2.16	$150,000
Landfill	4,582 kWdc	$1.48	$6,784,457

The costs set forth in the table above are numbers that we believe reflect conservative forecasts that can be significantly improved upon by enhanced cost-benefit analysis and competitive bidding. Additionally, each site was priced without any reliance on any additional site or sites being completed, meaning there were no efficiencies or economies of scale considered in the pricing. The impact of COVID-19 on the economy has also brought about significant upheaval in the labor market and equipment markets, such that EPC firms are very strongly motivated to build projects at the moment and are able to do so at lower costs. This provides leverage for negotiation with respect to pricing.

In particular, the rooftop systems carry equipment costs that can be materially reduced by the economies of scale the landfill would offer.

We also want to make clear that these costs exclude any transactional costs, soft costs or interconnection costs imposed by Oncor, and reflect the turnkey construction costs of the solar facility itself that the City can expect to have within the scope of a standard turnkey EPC contract.

A line item by line item forecast can be provided upon request. The initial conservative EPC budgets for the rooftop projects are included in the supplemental information supporting this report.

Analysis of Available Transaction Structures – PPA, ownership, hybrid

As the City reviews the opportunity to build solar facilities on city building rooftops and/or the capped landfill, there are options to consider with respect to the ownership structure and corresponding asset management responsibilities for the projects.

Power Purchase Agreement (PPA)

The first type of arrangement is a Power Purchase Agreement ("PPA") previously referenced in sections above. A PPA is a contract that an electricity user can enter into to buy power from a solar project. The contract generally stipulates one of two pricing structures: a fixed price that may escalate at a fixed percentage over time or a fixed discount to a floating price usually correlating to an agreed upon index that the utility utilizes to determine the general electricity rates applicable to the PPA Buyer. Whether the environmental attributes, such as carbon credits, renewable energy certificates and other "green" commodities are included in a PPA is a point negotiated by the PPA buyer and seller.

A PPA may have other terms and conditions relating to guaranteed production, operations and maintenance, and similar provisions that are generally applicable to the underlying project for supply contracts in other asset classes. This "third party ownership" model, is the predominant model in market because it allows the City an opportunity to receive some level of guaranteed electricity savings without having any upfront capital outlay or ongoing operational obligations with respect to the underlying solar facility. In other terms, it allows the City to participate in economic benefits of a solar project without having to assume its burdens. The savings generated by purchasing lower cost power from the project relative to the electrical grid is the motivation for moving forward with a PPA. Given the City's municipal status, and the fact that it doesn't pay federal taxes for the core of its operations, third party ownership for these projects would enable them to monetize solar investment tax credits, worth roughly 26% of the tax basis of the project through the end of 2020[10], as a mechanism to improve the economics of the projects.

City Ownership

The second type of arrangement is where the solar projects are City owned, and the City assumes the cost to build the projects, after which the City oversees the long-term operation and maintenance (O&M) of the projects. This type of arrangement generally necessitates an ongoing O&M and/or asset management agreement and similar arrangements to ensure that the solar project is fully operational year over year. The performance of the solar facility, and

[10] The solar investment tax credit is worth 26% of the tax basis of a solar project for projects that begin construction or spend more than 5% of their cost on project related expenses before the end of 2020. If neither of these elements are achieved, the solar investment tax credit drops to 22% of the tax basis of the solar project for projects that begin construction in 2021, and 10% thereafter under current legislation.

how well it is managed day-by-day, will dictate the ultimate return the City recoups on its upfront investment. The primary differences between this arrangement and that of the PPA is that the City assumes the complete burden and benefit, both upfront and over time, with respect to the solar facility. Additionally, given that the City has municipal status and doesn't pay federal income taxes, the City would not be eligible to monetize the tax credits under this ownership structure.

Hybrid

The third option is a hybrid of the first two options. It is a PPA with an early buyout clause that allows the City to purchase the asset at a fair market value after the IRS recapture period associated with the tax credits passes. Said differently, this hybrid model allows for third party ownership and therefore third party financing of the projects, with provisions in the contract that allow the City to purchase the projects from the third party PPA provider at some pre-determined time after the projects have been operational, usually for more than 5 years. This allows for the monetization of the federal tax credits, but still provides meaningful savings to the City during both the initial term of the PPA and afterwards, assuming the City elects to exercise the fair market value early buyout clause. Should the City not elect to exercise the fair market early buyout clause, the PPA would resemble the first PPA option described above where the third party PPA provider would continue to operate and maintain the project and the City would continue to purchase the electricity generated by the project.

Recommendations

Based on the entirety of the information in this feasibility study, it is our initial recommendation that the City pursue self-ownership (Option 2) with respect to the proposed rooftop projects given the scale of those projects doesn't lend themselves to third party ownership. The project cash flows in a proposed PPA are likely insufficient to cover additional expenses required by a third party owner. Self-ownership of the proposed rooftop projects would, however, create meaningful electricity expense savings to the City over the 30-year life of the rooftop projects.

Secondarily, it is our recommendation that if the City would like to proceed with the proposed landfill project, the most economically advantageous manner would be for the City pursue a PPA with the proposed landfill project (Option 1 or 3, as described above) given that the capital expenses associated with a 5.12MW_{dc} project are substantially larger than those of the proposed rooftop projects, the operational burdens are much more significant, and the value of monetizing the federal investment tax credits is also increased given the scale of the project. Should the City desire to own the asset in the future, a PPA with an early buyout clause would allow for that optionality whilst simultaneously allowing for the monetization of the tax credits.

Analysis of Available Power Sale Contracts

As of the date of this study and based upon the feasibility work completed to date, it is unlikely the City will be able to sell power from these proposed solar projects to another user. This is particularly the case for the rooftop projects, where the power generated from those projects would literally flow directly into the building on which the project is located to help offset and reduce electrical demand the grid sees from the building. There is the possibility of having

multiple electricity offtakers for the landfill project, should the City elect not to purchase the entirety of the electricity output from the project, although the likelihood of that remains small. Thus, the power sale contracts that would be options for the City would be in line with the three options (PPA, City ownership, or PPA with an early buyout clause) referenced in the section immediately above. This is something that could be explored further in the event the projects proceed into a development phase.

For the avoidance of any doubt, GAP is the City consultant with respect to assisting the City with their next long-term electricity contract.

Analysis of Available Subsidies – ONCOR small scale projects and federal tax credits

There are two available subsidies available for consideration for the proposed solar projects.

Oncor Solar Photovoltaic Standard Offer Program

The first is Oncor's Solar Photovoltaic Standard Offer Program, which is geared explicitly for rooftop solar installations, less than 200kW$_{ac}$ in size, that do not provide more than 75% of the maximum electrical demand for the building.[11] Additionally, the program is open to a shortlist of qualified installers, of which Native Solar is one. Each of the proposed rooftop projects were designed explicitly with this in mind. The program generously offers up to $0.50/Watt of a grant subsidy, paid directly to the installer of the project, until the funds associated with the program are used up. The budget for the program in 2020 is roughly $2.2M and is fully allocated across projects that have submitted their applications thus far through 3/26/20.

Submissions were made to the program on behalf of each of the rooftop projects, including the City Hall, Manske Library, Margaret Young Natatorium, Farmers Branch Recreation Center, and the Children's Health StarCenter. It was during this submission process that a change in organization structure occurred at the StarCenter and the proposed solar project for that rooftop was put on hold. Across the initial four projects, our submissions have secured a total allocation of $313,000 in Oncor funds divided across the projects based on the size of their proposed solar system. Additionally, the proposed project for the new Fire Station on Alpha Road has also been submitted to the Oncor program and is currently on the wait list. Projects that are granted an allocation but do not move forward eventually give up their allocation of funds, which are then used on wait list projects.

Federal Solar Investment Tax Credit

The second subsidy opportunity is the use of the federal solar investment tax credit and bonus depreciation benefits.[12] A solar project that begins construction and is placed in service in 2020 qualifies for a 26% federal tax credit. This credit is based on the tax basis of the project, essentially the cost of the project inclusive of hardware costs, labor costs, financing costs, and

[11] The full 2020 Oncor Solar Photovoltaic Standard Offer Program summary is provided in the supplemental information.

[12] https://www.seia.org/initiatives/solar-investment-tax-credit-itc

reasonable developer margin. In order to monetize this federal tax credit, the owner of the project must be an entity that pays federal income taxes. Given the City's municipal status, the City would not be able to monetize the solar investment tax credit in a City ownership model.

Recommendations

In order to monetize the investment tax credits for the City's benefit, a federal tax-paying third party would be required to own the project(s) upon which the tax credit was to be taken. There are non-negligible legal expenses incurred when monetizing investment tax credits, which generally require a project of a certain size and scale to make it worthwhile to do so. At this point, it remains our recommendation that the City pursue a self-ownership model for the proposed rooftop projects, whereas pursuing the investment tax credit model via third party ownership for the proposed landfill project makes good economic sense. Similarly, a project is eligible to accelerate its depreciation from a standard MACRS schedule[13] to a much more accelerated "bonus" depreciation schedule. This schedule is subject to various tax rules that are impact dependent on whether the underlying project also assumes recourse or non-recourse debt that can get complicated and require exact inputs to calculate that are generally not available until a project is at a much more advanced stage. The depreciation benefits can be further discussed upon request.

Financial Analysis and Preliminary Modeling

The financials of a solar project operate similarly to infrastructure investments in that they require a substantial upfront capital outlay in order to commission a hard asset that is forecasted to generate a return of, and on, that capital overlay over a prolonged period of time. The returns tend to be similar to infrastructure returns in that they are generally stable relative to other types of assets, but also tend to take a significant period of time for the investment to begin showing a positive return. Therefore, the decision for the City is whether the significant cost that must be invested upfront is worth the benefit you hope to receive over time.

It is also important to note that the actual costs and benefits of any solar project are difficult to predict until the project completes the development cycle. The actual costs will be known once permits, interconnection studies and market conditions are known. The benefits of solar project will not be known until design and engineering is complete, system sizes are confirmed, technology is selected and business deals (PPAs, taxes, real estate contracts, etc.) are finalized. Therefore, the numbers outlined below must be coupled with a statement that they are general estimates generated by a feasibility study but are subject to significant change should the City elect to proceed with the development of the solar projects. It is not until the City would be in a position to commit to equipment providers and laborers (through an EPC) that the costs would be able to locked in to a certain margin of error.

[13] The modified accelerated cost recovery system (MACRS) is a depreciation system used for tax purposes in the U.S. MACRS depreciation allows the capitalized cost of an asset to be recovered over a specified period via annual deductions. The MACRS system puts fixed assets into classes that have set depreciation periods. (https://www.investopedia.com/terms/m/macrs.asp)

In terms of the capital outlay, the table below summarizes costs estimated to be expended in order to develop, design, build and interconnect each solar project. The EPC Cost column sets forth a conservative turnkey cost to build the applicable project. The Estimated Development, Soft and Transaction Costs column includes items like design, permitting, legal, environmental, etc. that will be expended in addition to the turnkey EPC cost to complete the installation process. The Total Cost column sums the two aforementioned columns. We note that any incentives from Oncor are excluded from these calculations.

Location	EPC Cost	Estimated Development, Soft and Transaction Costs	Total Cost
City Hall	$174,388	$75,000	$249,388
Rec Center	$545,905	$125,000	$670,905
Natatorium	$132,021	$75,000	$207,021
Manske Library	$455,728	$125,000	$580,728
Fire Station	$150,000	$75,000	$225,000
Landfill	$6,784,457	$650,000*	$7,434,457
Total	$8,242,499	$1,125,000	$9,367,499

*includes system impact study cost from Oncor

Rooftop

Once an estimate of costs is established, the investment analysis progresses to a determination of the benefit generated by the solar facility once it is installed. With respect to the rooftop systems for which we have recommended the City pursue self-ownership, this benefit is primarily derived from arbitraging the now presumably free electricity against the rate the City otherwise would have paid. This analysis is included in the supplemental materials to this report as outlined in the Native Solar rooftop project specific summaries. We note that this positive savings arbitrage must be netted against the operating expenses the City will incur to ensure the solar project is fully functional. As we mentioned previously in this report, the City will enjoy the full benefits and burdens of the solar facility under a self-ownership model. Therefore, things like operations and maintenance expense, insurance, and other operating expenses must be considered in arriving at the net benefit to the City.

Landfill

In terms of the landfill, we note that we have suggested the City pursue a third-party ownership model. Under this model the city will not incur any upfront capital outlay and therefore it begins profitable participation in the solar economics of the landfill as soon as it is installed. The roughly

$7.5M cost outlined in the table above will be assumed by a third party and the City will benefit primarily through arbitraging its current electric rate against the rate in the PPA it negotiates with the owner of the landfill.

With the current design we have considered in this report, the landfill is expected to generate 7,291,000 kWh in its first year of operation. Assuming that base case generation, the City will benefit $72,910 for each $.01/kWh it purchases power under the PPA relative to its other electricity purchase obligations. For example, if the City is generally purchasing power at $.0927/kWh (excluding the TDSP charges for street lighting), and it purchases power from the landfill at $.083 under a PPA, it would derive a Y1 benefit in the amount of $70,722.7.

Supplemental Information

1) Project Specific Preliminary Sales Reports for the City Hall, Rec Center, Natatorium, Manske Library & Fire Station from Native Solar
2) Project Specific EPC budgets and a blank EPC agreement from Native Solar for the rooftop projects
3) Rooftop project structural review report from Plainview Engineering
4) Oncor pre-screen materials that were completed prior to interconnection applications being filed for all prospective projects, both rooftop and landfill
5) Oncor Landfill Solar Interconnection Study Invoice (Paid)
6) Solar Photovoltaic Standard Offer Program (Oncor Incentive) 2020 Program Manual
7) Landfill Interconnection Report from Oncor complete with engineering details from the Interconnection Application
8) Pre-Sales Layout and equipment selection for the Landfill project from Exyte
9) TCEQ Form 20787 - Authorization to Disturb Final Cover Over Closed Municipal Solid Waste Landfill for Non-Enclosed Structure
10) TCEQ Form 20714 – Correspondence Cover Sheet – Waste Permits Division
11) Bio on Gayatri Bitracanti, Waste Permits Division, Texas Commission on Environmental Quality
12) TCEQ Subchapter T: Permitting Standards for Owners and Operators of Commercial Industrial Nonhazardous Waste Landfill Facilities