



CITY OF DETROIT

COLEMAN A. YOUNG MUNICIPAL CENTER
2 WOODWARD AVE.,
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WWW.DETROITMI.GOV

Date: July 19, 2024

TO: Latisha Johnson, District 4 Councilmember

FROM: Trisha Stein, Chief Strategy Officer
Tepfirah Rushdan, Director, Office of Sustainability
Jay Rising, Chief Financial Officer

RE: Solar Initiative Memo

Please provide responses to the questions below concerning the Neighborhood Solar Initiative:

1. **What community outreach has been done in the Solar Initiative neighborhoods, and will there be continued outreach as the initiative progresses?**

In the Fall of 2023, ten neighborhoods applied to host solar arrays in their communities. Through vigorous community engagement and information sessions eight finalist areas were selected. Each neighborhood group designed the solar site location they felt was best for their community. They proposed replacing the most vacant areas that are prone to illegal dumping with solar arrays and they proposed the community benefit boundaries.

The neighborhood groups in the 8 finalist areas continue to be engaged and will work with the developers to agree upon the terms of the neighborhood agreements around the design of the solar arrays including fencing and vegetation.

2. **What is the estimated financial impact of the solar arrays on residents?**

Residents near the solar farms will have the opportunity to receive \$15-25k of energy efficiency benefits which will lower their utility bills by reducing their electricity consumption. The options for benefits include: windows, repairing roofs, residential solar panels, energy-efficient appliances, home insulation and air sealing, energy-efficient furnaces and hot water heaters, installing smart thermostats, energy-efficient lighting, and battery backups.

Additional financial impacts include:

- Increased property values from investments that stabilize the neighborhoods: O'Shea saw a 68% growth in assessed value after the solar park was developed from Tax Year 2017 to 2023. In same period, the properties within the current 8 finalist areas saw 16% growth in assessed values.
- Increased reliability of the grid by improving infrastructure and equipment in the solar neighborhoods that will be required for the interconnection of the solar projects.
- At least 100 jobs for Detroiters, including training, throughout the construction process.
- Public health benefits that improve air quality and economic benefits at an estimated \$14 million annually by generating green energy locally thru renewables and reducing the amount of energy



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from polluting coal plants. Please see attached for additional information from Lightstar and the Detroit Health Department (DHD) re: health impacts from solar developments.


3. **Does the city have any authority over the design of the solar arrays? What measures or design considerations are incorporated into the current plan for the solar array installations to ensure effective implementation of Green Stormwater Infrastructure (GSI) practices? Specifically, how are the solar arrays designed or situated to mitigate potential flooding or adverse effects from increased stormwater runoff generated by the solar panels and associated infrastructure?**

Included in both developer contracts, Lightstar and DTE have committed to negotiate and enter into a neighborhood agreement with the neighbors on the design of the solar arrays including the vegetation and fencing that will be surrounding the solar panels. This work will be done in coordination with the Department of Neighborhoods, Office of Sustainability, Planning & Development Department and City Planning Commission. Both developers have agreed to incorporate urban agriculture in and around the solar arrays, if this is something the community supports. Lightstar is a national leader in agrivoltaics and has included some examples of existing solar arrays that have included farming to show what could be possible. Please see attached.

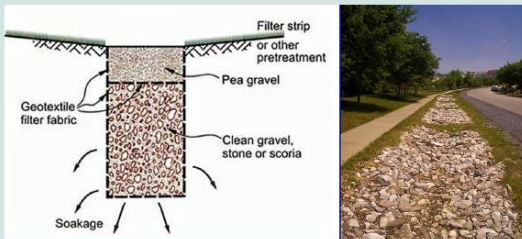
Additionally, information on stormwater drainage was included in Lightstar's presentation to the Public, Health & Safety Committee. Most of the stormwater controls will be done through stabilizing the area with grass to help drainage and speed of run off. See slide below:

Stormwater – what does it look like?

During Construction



Post-Construction



Most of the stormwater controls are done through stabilizing the existing area with grass to help with drainage and speed of run off.

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4. What is the significance of the acreage that the city is planning to utilize for the Solar Initiative?

Across the city, there are approximately 10,000 acres of vacant residential land. The up to 200 acres proposed for the Neighborhood Solar Initiative represents just 2% of the total vacant residential land. The 3 phase 1 areas total 104 acres, which represents 1%.

In order to determine the number of acres required to meet the goals of the solar initiative and the City's commitment to reduce its carbon footprint, the City first determined that it would require roughly 33 MWs of solar facilities in order to generate enough solar power to offset the City's electricity consumption. We then conducted an analysis of other solar projects to determine that the average acres per MW was 7.5, resulting in an initial projection of nearly 250 acres. Through the competitive bid process, developers proposed how many MWs they could fit on our sites and we learned that fewer acres would be required, resulting in the final projection of 200 acres to produce the needed 33 MWs.

5. What will the maintenance costs be for the solar panels and the land itself? Who is paying for the maintenance?

The developers will be responsible for maintenance of the solar panels and the land. The cost for maintenance is included in the PPA price the City will pay per the developer contracts.

6. The initiative will currently only power the 127 municipal buildings in the City. Will the City consider expanding the initiative to allow homeowners and businesses the option to utilize and benefit from solar energy?

The solar renewable energy that will be produced does not directly power the 127 municipal buildings, instead it goes into the grid where the energy is sold into the market. The renewable energy produced for the City will be an offset of our municipal facilities' electricity use and as such the City will receive Renewable Energy Credits (RECs). Owner-occupied homeowners surrounding the solar arrays will receive energy efficiency upgrades of \$15-25k that could include residential solar, depending on the assessment of the home and its needs to be solar ready.

There is currently no regulatory framework for the City to provide the type of community shared solar system that would provide direct benefit to specific homeowners and businesses, although the Administration supports the State of Michigan enacting legislation that would permit such community solar projects. If community solar legislation passes, the Mayor will propose to build small solar fields to help power homes for local neighborhoods where the neighbors request it.

7. One of the main purposes driving the initiative is combatting blight. What security measures will be put in place to ensure that the solar fields do not become blighted from trash and illegal dumping?



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Additionally, how will the City prevent or respond to the possibility of individuals stripping the solar panels for parts?

Lightstar and DTE are responsible for installing fencing around the solar projects to provide security to the solar panels. They also may choose to install cameras or other security features to monitor and protect the solar equipment. To our knowledge, O’Shea has not seen any attempts to strip or steal solar equipment, and any such theft would be prosecuted by the Detroit Police Department and the Law Department or County Prosecutor’s office. Fencing the projects will also make the area less open to illegal dumping. The Neighborhood Agreements will furthermore provide direct points of contact for residents to report any safety or security concerns to Lightstar and DTE.

8. The 250 acres of solar fields are stated to produce 33 megawatts of energy. Is there a possibility for the panels to generate more power, exceeding the amount of energy needed to power the City’s municipal buildings? If so, how will the excess energy be utilized?

The current expected energy generation for the Phase I solar project sites have been modeled based on historic patterns of solar generation in State. It is possible that more energy could be generated at the solar project sites if the City experienced exceptionally sunny seasons. In such an event, the City would pay for the energy generated from the solar projects as provided in the proposed solar contracts and receive the RECs for the solar energy generation. The actual energy generated in all cases is being sold and disbursed into the electrical grid. There are not separate transmission lines that provide energy directly to municipal buildings.

9. According to the contracts between the developers and the City, whenever the useful life of the solar panels comes to an end, the land shall be returned to the City as a green field. What will be the land’s future use, and who will determine what that use is?

Per their contract, the solar developers are required to decommission the project (i.e., remove and properly dispose or salvage the solar panels within 12 months (DTE) and 6 months (Lightstar) from the termination of the contract) and return the Solar Project Property, other than streets, alleys and utility infrastructure and easements, to a condition substantially similar to its predevelopment condition. The panels are recycled at general-purpose glass recycling facilities, where their glass — and sometimes their metal frames — are recycled, and the remaining components are thrown away or burned.

After project expiration, the City (through its Administration and City Council at that time) will determine what is to be done with the former solar project sites. The City could choose to upgrade the sites with new solar technology (and potentially save money by taking advantage of any remaining infrastructure and the interconnection upgrades performed as part of the solar projects) or develop the sites for other another use that is most appropriate 35 years from now. Through a planning process with community engagement and data analysis, the City would work to better understand the needs and opportunities for these sites to determine the appropriate future use.



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10. The OCFO has stated that 21 of the homes that the City is acquiring for the initiative are occupied. How many of those occupied properties are in District 4?

There are 10 owner-occupied homes in the Gratiot Findlay area.

11. What are the expected benefits of the Solar Initiative for utility companies such as DTE?

What is known from the bid process are the annual revenues for each developer which are equal to the total PPA payments. Lightstar will receive an estimated \$2.56 million in annual PPA payments for the State Fair and Gratiot/Findlay sites, and DTE will receive an estimated \$2.91 million for the Airport/Van Dyke site. This sums up to the \$5.47m of annual PPA payments the Administration has shared in the analysis that can be found at this link: ([Cost Benefits Analysis.pptx](#)). Additionally, the City will receive the sales revenues from selling the generated electricity which will offset the City's net payment; this is estimated to be over \$2 million.

The City is paying for solar power to be produced and create more renewable energy for the grid, making the grid more reliable by increasing local capacity in the neighborhoods (having local generation near the demand). The additional capacity to strengthen the grid in the neighborhoods will come from upgrading the infrastructure and equipment needed to support the neighborhood solar facilities.

12. How much of an improvement to our air quality can we expect as a result of installing these solar arrays?

Solar technologies improve air quality by providing energy without direct emissions, displacing the need for electricity from coal, natural gas, and oil power plants which produce harmful pollutants and emissions.

In collaboration with the Office of Sustainability, the Health Department evaluated the impact of transitioning from coal-fired power plants to solar energy using the EPA COBRA tool. By inputting baseline coal emissions data and projected reductions from solar energy in the city of Detroit, the tool simulated changes in air quality. The results indicated that as we work toward cleaning Michigan's energy grid, we will see significant reductions in pollutants here in Detroit such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and carbon dioxide (CO₂). COBRA estimated substantial health improvements, including fewer respiratory and cardiovascular illnesses and premature deaths. The economic valuation shows savings in healthcare costs and increased productivity. Overall, the scenario demonstrated that shifting from coal to solar energy by 13% would lead to improved air quality, public health, and economic benefits for Detroit at a conservative



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estimated value of just of \$14 million. Please see attached for additional information from the Detroit Health Department (DHD) re: health impacts for solar developments.

13. Please explain how the DTE credit process will work for residents.

Residents will not receive a credit directly from DTE from this project. Owner-occupied homeowners near the solar developments will receive \$15-25k of energy efficiency benefits which will lower their utility bills by reducing their electricity consumption. The options for benefits include: windows, repairing roofs, residential solar panels, energy-efficient appliances, home insulation and air sealing, energy-efficient furnaces and hot water heaters, installing smart thermostats, energy-efficient lighting, and battery backups.

There are three types of credits available from the solar projects.

First, there are tax credits from the federal government incentivizing clean energy. The tax credits will be received by the developer to offset their construction costs and are only available to the developer. These tax credits lower the cost of the project and have already been included in the PPA prices the City will pay per the developer contracts.

Second, there are Renewable Energy Credits (RECs) the City will receive which are not tax credits but instead are an acknowledgement of the renewable energy produced for the City as an offset of our municipal facilities' electricity use. As we have previously stated, RECs have little monetary value.

The third, yet to be defined or approved by the MPSC, is called the MiGreen Power Program's "avoided cost of compliance" credit. The value of the credit isn't know yet because it was part of the newly passed energy law in late 2023, so it hasn't been calculated before. While the City and DTE are unable to give an estimate for the credit at this moment, any amount is an upside to the estimated cost to the City and would only further reduce the cost.

14. Please explain whether these solar arrays will contribute to the heat island effect and if so, are there any strategies being implemented to minimize this effect?

Current research indicates that solar panels do not contribute to greater "heat island" effect than any other typical structures in a City, like roads, parking lots, and buildings, and can be less than similar sized buildings or asphalt or concrete surfaces. Photovoltaic solar cells are generally thin and have a low thermal mass, which does not store and radiate heat like brick, concrete, or asphalt surfaces do. Please see attached for additional information from Lightstar and the Detroit Health Department (DHD) re: heat islands and health impacts for solar developments.