

2024



METROPARKS
TOLEDO



PROJECT

BEACON

Budget Narrative

CPRG Grant
Application



Climate Pollution Reduction Grants

Implementation Grants

Budget Narrative

1. BUDGET (OPTIONAL BUDGET SPREADSHEET AND UP TO 10 ADDITIONAL PAGES MAY BE ADDED IF NEEDED AS AN APPENDIX TO THE WORKPLAN)

a. Budget Detail

The proposed GHG reduction measures as part of Project Beacon is a project for which additional funding from the CPRG program is needed to fully implement the proposed project.

Based on the engineering estimates and indicative pricing, the cost to construct the array and place into service will be no more than \$30 million. Attorneys Mike Wise and Chad Arfons from McDonald Hopkins in Cleveland are subject matter experts in the solar space and have been advising Project Beacon on structure and financing alternatives.

A project cost estimate was included in the Solar Feasibility Analysis. PV System cost is based on many variables including system size, equipment selection, site preparation, quantity of subarrays, location of the point of interconnection, etc. The budgetary project costs were developed based on typical PV system cost benchmarks as well as notable onsite conditions. The National Renewable Energy Lab (NREL) produces annual PV benchmarking studies which formed the basis of the PV System cost. The resulting project cost estimate provided the base level of detail necessary to develop project cash flows and general PV feasibility. Project cash flows should be revised at the procurement stage with actual construction costs.

Project costs were further amended to account for non-penetrating ballasted racking, union labor, overhead transmission lines from the Dura and Tyler Road parcels to the Stellantis plant, and costs associated with electrical and structural balance of system (BOS). While PV module and inverter costs have reduced in most cases since 2020, these costs were not changed due to trade tariffs and supply chain shortages common in the current market (glass, steel, polysilicon wafer).

First Solar PV panels were selected for this project because they are a local manufacturer. Additionally, Solar FlexRack was selected for racking due to their partnership and integration with First Solar.

Project Beacon can provide a positive cash flow that would help offset Metroparks Toledo's annual operating expenses. The production of the array could be sold into the grid or directly to a nearby, large industrial customer that could consume all the output onsite. The potential worth varies materially depending upon the route to market.

Ideally, the production from the array would be absorbed by a large industrial energy consumer as a behind the meter array. In addition to the wholesale market value discussed above, a large consumer absorbing the electric output onsite could lower its electric distribution costs and take advantage of the electric output from the array to reduce the plant's generation capacity and transmission peaks.



In summary, by far the greatest potential value for selling the electric output from Project Beacon is to a large industrial consumer that can buy that much power and where it could be considered onsite.

The breakdown of costs for Project Beacon are as follows:

- Module: \$5,071,000
- Inverter: \$1,057,000
- Electrical BOS: \$2,324,000
- Structural BOS: \$7,607,000
- Install Labor and Equipment: \$3,170,000
- Trans and Line: \$1,057,000
- Permitting: \$423,000
- Sales Taxes: \$845,000
- EPC Overhead: \$1,479,000
- Developer Overhead: \$1,479,000
- EPC Developer Profit: \$1,690,000
- Performance Bond: \$348,700
- Contingency: \$2,493,000

If awarded CPRG funding, it would go towards the equipment supporting this project, specifically the Electrical and Structural Balance of System (BOS). In photovoltaic (PV) construction, “balance of system” (BOS) is a term used to broadly refer to all components, equipment, structures, and services necessary to create an operational generation project, beyond the PV modules themselves. For the entire budget of \$29,043,700, the costs are broken out into two categories as shown in the attached budget spreadsheet:

- Equipment: \$20,286,000
- Other: \$8,757,700

Our current work on the \$225 million Glass City Riverwalk¹ project demonstrates that it takes a coordinated effort to ensure that we make the most of the region’s forward movement to transform our collective future. Together, we are accomplishing this vision of a united community that has a strong regional presence. The requested CPRG grant funds will play a critical role in filling a funding gap and support the broader campaign for a project with significant local and regional impact. An investment in the Project Beacon is an investment in our region’s vision to reinvent itself. All elements of the project have been shown to be technically and financially feasible and the project is ideally suited to an appropriate progression from grant award to construction.

We understand that no cost sharing/matching funds are required as part of the CPRG application, and have not included them with this request. However, Project Beacon anticipates utilizing the Inflation Reduction Act to provide up to 50% of the construction cost in the form of a federal payment after the array is placed into service.

In reviewing the Notice of Funding Opportunity, we are requesting \$9,931,000 in CPRG funds for the Electrical BOS (\$2,324,000) and Structural BOS (\$7,607,000). This would place the project in Tier E as outlined in the Notice of Funding Opportunity.

¹ <https://www.glasscityriverwalk.com/>



b. Expenditure of Awarded Funds

Project Beacon is well positioned and ready to finalize design and permitting and begin construction. The proposed timeline for the remainder of 2024 includes the preparation of bid documents, selecting the engineering, procurement, and construction (EPC) contractor, interconnection application preparation and review, and building permit review.

The timeline is contingent on the approval from Ohio EPA for the construction of the phase 1 array on the Dura site and then the US EPA approval for the construction on the phase 2 array on the Tyler site.

The plan calls for completing the array and placing it into service in 2025.

c. Reasonableness of Costs

As noted in the Solar Feasibility Analysis for this project, PV System cost is based on many variables including system size, equipment selection, site preparation, quantity of subarrays, location of the point of interconnection, etc. Budgetary project costs were developed based on typical PV system cost benchmarks as well as notable onsite conditions. The National Renewable Energy Lab (NREL) produces annual PV benchmarking studies which formed the basis of the PV System cost. The resulting project cost estimate provides the base level of detail necessary to develop project cash flows and general PV feasibility. Project cash flows will be revised at the procurement stage with actual construction costs.

The 10-MW benchmark was used for both the Tyler and Dura Road sites as it is expected that both sites would be constructed by the same developer during one mobilization. Ballasted racking (Structural BOS) is based on a budgetary quote from Solar FlexRack (\$0.16/WDC) and ballast from Lindsay Precast (\$0.20/WDC). There will be opportunities to value engineer racking and ballast to reduce structural BOS costs during the design phase of the project. As such, it is recommended that use of the conservative pricing received from structural and concrete vendors is recommended at this preliminary stage.

Exclusions in the high-level cost estimate included as part of the Solar Feasibility Analysis:

1. Underground conduit and cabling at the Stellantis Plant as it is unknown where the point of common coupling will be located on the property
2. Step-down power transformation at the Stellantis Plant as the electrical configuration of the plant is unknown
3. Upgrades to the existing substation or power distribution equipment

Operations and maintenance costs constitute the largest component of the lifecycle operating expense of a PV system. O&M activities include landscape maintenance, module washing, preventative maintenance such as inverter filter cleaning and scheduled maintenance, performance monitoring, and reactive maintenance. Average annual O&M costs for utility-scale solar range between \$5 to \$8/kWDC (\$0.005 to \$0.008/WDC) while commercial solar O&M may be \$12 to \$30/kWDC. The Tyler/Dura Road sites are somewhat larger than a typical commercial PV system but relatively small compared to utility-scale solar. For budgetary purposes \$15/kWDC/year can be used with a 2% annual escalation rate for the life of the maintenance.