

#### OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

#### ADDENDUM NO. 1 ISSUED AUGUST 6, 2021

to

#### <u>RFP NO. 10-2021</u> FOR SOLAR PROCUREMENT CONSULTANT

#### **ISSUED JULY 23, 2021**

#### PROPOSAL DUE DATE: 5:00 P.M. (EASTERN TIME), AUGUST 13, 2021

#### **<u>ATTENTION OF RESPONDENTS IS DIRECTED TO:</u>** QUESTIONS RECEIVED THROUGH 12:00 P.M. ON AUGUST 6, 2021

Issued by the Ohio Turnpike and Infrastructure Commission through Jennifer L. Stueber, Esq., General Counsel.

Jennifer L. Stueber, Esc General Counsel

August 6, 2021 Date

#### ANSWERS TO QUESTIONS RECEIVED THROUGH 12:00 P.M. ON AUGUST 6, 2021:

- Q#1 We are interested in the Commission's interest in the level of technical rigor to be put into Phase 1. The current one-month timeline for Phase 1 suggests a low level of rigor and more of a "10,000-foot approach" to the analysis and documentation needed. If a high level of rigor is expected, please see question #2 below.
- A#1 The feasibility of the potential project(s) is already confirmed. The Commission utilizes a form Request for Proposals that has been drafted. It is anticipated that stakeholder engagement will be minimal, if at all. The right-of-way is owned by the Commission; it is the Commission's intent to utilize sites that do not have environmental impacts. The Commission intends to rely on the experience and expertise of the proposer of solar projects in Ohio to be able to quickly identify a Project(s) that can be advertised through a competitive bidding process.
- Q#2 For a wide variety of factors, the timeline of Phase 1 is unrealistic, assuming a high-quality and high level of technical rigor put into this reporting process. Based on our similar experiences with public entities, we would expect Phase 1 to at least take 3-4 months, but more likely 6 or more. This perspective is based on the stakeholder engagement needs that we would expect for what could become a very large potential solar photovoltaic project within the state of Ohio, for such a prominent organization, the technical rigor to which the economic and technical components of the project should be subjected, etc. Please advise if the RFP is to be changed or if we should take an exception to the timeline within our RFP response.

Same as 2a, but for Phase 2. A proper stakeholder engagement and robust RFP writing process will likely take 2 or more months, not two weeks.

- *A#2 Please see Answer #1.*
- Q#3 Based on the RFP, it appears that the Ohio Turnpike and Infrastructure Commission is planning on a power purchase agreement (PPA) to be the primary ownership mechanism for consideration, which makes sense. The level to which the items (A-J) of Phase 1-2 are assessed / prepared for / written to the market are typically determined through a combination of stakeholder engagement and scope refinement. Certain items, such as item E (Environmental) and item H (Legal) should be discussed and prepared for during Phases 1-2, but the responsibility for these items can ultimately become the responsibility of the PPA Vendor (item E) and the Commission's legal advisors / energy procurement consultants (item H). For example, the Commission will want the PPA vendor to be legally and financially responsible for any environmental / site / geotechnical / other studies required to ensure that a site will ultimately host a large-scale solar system.

With that said, we are asking if the Commission can provide a further definition to the expectations for the rigor of Phase 1 compared to allowing the market to reply after Phase 2, and allowing the most capable and qualified solar PPA vendor's bids to be selected.

- *A#3 Please see Answer #1.*
- Q4# The RFP mentions an RFI process. Are we able to receive a copy of the RFI questions and any responses (or even a summary / compilation of responses). We are trying to understand the Commission's current ideas for expected size of the eventual solar PV systems, potential locations, and many other considerations, which would help us understand, more formally, the nuances of our Question #2 above.
- A#4 Please see attached RFI 12-2020. Additionally, the Commission issued three addenda in conjunction with the RFI process:
  - Addendum No. 1: <u>https://www.ohioturnpike.org/docs/default-source/procurement/rfi-no-12-</u>2020-solar-development-addendum-no-1.pdf?sfvrsn=3db3f7c4\_0
  - Addendum No. 2: <u>https://www.ohioturnpike.org/docs/default-source/procurement/rfi-no-12-2020-solar-development-addendum-no-2.pdf?sfvrsn=13bbf7c4\_0</u>
  - Addendum No. 3: <u>https://www.ohioturnpike.org/docs/default-source/procurement/rfi-no-12-2020-solar-development-addendum-no-3.pdf?sfvrsn=f1a0f7c4\_0</u>
- Q#5 What is the Commission's end goal(s) for the solar project(s)? Examples could include reducing electricity costs, generating revenue from leasing land to solar PV developer, eliminating carbon emissions, increasing resiliency / self-sufficiency during utility outages, preparing for new services such as EV charging for customers, etc. How these goals work with and / or against each other is a major component to a successful Phase 1 and Phase 2 and could have a major impact to how the Commission engages the market eventually in Phase 2 and beyond.

Finally, unrelated to the specific answer to each question, due to the very fast turn-around time needed for our submission of this RFP, would answers be able to be issued this week? The answers to these questions have a significant impact on our approach to our RFP response.

A#5 The Commission's primary goals for the solar Project(s) are reducing energy costs and generating revenue through the licensing of Commission owned right-of-way, while reducing carbon emissions. However, each of the additional items listed above would be welcome additions and benefits of interest to the Commission. Please see the attached data regarding the Commission's electric consumption over the last four years.

#### Q#6 Are the completion dates for Task 1-3 accurate for 2021 completion?

A#6 Yes.

#### Q#7 What is driving the aggressive project schedule? Is there any flexibility in this timeline?

A#7 The Commission has been researching background information about solar development for over one year; it issued a Request for Information in 2020 and is eager to move forward with the

ADDENDUM NO. 1 RFP No. 10-2021 SOLAR PROCUREMENT CONSULTANT PAGE 4

*identification and development of a Project(s). It is the Commission's intention to strive to meet the schedule as stated on the RFP.* 

# Q#8 What is the estimated potential project size? Is the Commission interested in projects that are rooftop, canopy, or ground-mount?

- A#8 The potential project size would be determined in Phase 1 of the Scope of Work; this will in turn be determined by the appropriate sizing as based on the location of the Project(s). The Commission would prefer rooftop or ground-mount projects, but is open to any solar Project(s).
- Q#9 Would the project(s) be connected to existing facilities to offset their electricity costs?
- A#9 Yes.
- Q#10 The schedule in this procurement indicates that the report and site options are to be submitted not later than September 15. However, given that OTIC will open the proposals on August 13, it would be unlikely the selection would make the August 16 Commission agenda for approval and then would fall to the September 20 Commission agenda, after the due date. Is this the intended schedule, or can you provide a revised one either with new dates or based on days or weeks following NTP?
- A#10 Depending on the selected consultant/proposal, there may or may not be a need to go before the Commission for approval.

End of Addendum No. 1



# OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION 682 Prospect Street Berea, Ohio 44017 purchasing@ohioturnpike.org

#### REQUEST FOR INFORMATION SOLAR ENERGY DEVELOPMENT PROJECT RFI No. 12-2020

ISSUE DATE: December 18, 2020

INQUIRY END DATE: 5:00 PM (Eastern) on January 15, 2021

RESPONSE DUE DATE: 5:00 P.M. (Eastern) January 22, 2021

#### **TABLE OF CONTENTS**

I.	INTRODUCTION:	1
II.	BACKGROUND:	1
III.	POTENTIAL LOCATIONS	2
IV.	INQUIRY PERIOD:	2
V.	INFORMATION SUBMISSION INSTRUCTIONS:	2
VI.	RFI CONTENT:	3
EXI	HIBIT A - OHIO TURNPIKE MAP	A
EX	HIBIT B - POTENTIAL SOLAR ENERGY DEVELOPMENT SITES	B

### I. <u>INTRODUCTION:</u>

The Ohio Turnpike and Infrastructure Commission ("Commission") issues this Request for Information for a Solar Energy Development Project. This is a Request for Information ("RFI"), and does not constitute a commitment, implied or otherwise, that the Commission will initiate any procurement action because of this RFI. For the purposes of this RFI, a "Respondent" shall mean any interested party who submits a response to this RFI. The information contained in the responses to this RFI will help the Commission to advance evaluation and development efforts for the Project, which may result in the launch of a formal Project and associated procurement activities.

This RFI is designed to provide Respondents with the information necessary for the preparation of an appropriate response. It is not intended to be comprehensive, and each Respondent is responsible for determining all factors necessary for submission of a comprehensive response. Responses should be based on the material contained in this RFI or any other relevant information the Respondent believes is appropriate. By submitting a response, each Respondent agrees that it will not bring any claim or have any cause of action against the Commission, its members, officers, directors, administrators, employees, representatives, and agents based on any misunderstanding concerning the information provided or concerning Commission's failure, negligent or otherwise, to provide the Respondent with pertinent information as intended by this RFI. Information submitted in response to this RFI will become a public record of the Commission.

#### II. <u>BACKGROUND</u>:

The Ohio Turnpike and Infrastructure Commission, a body corporate and politic constituting an instrumentality of the State of Ohio, is responsible for operating and maintaining the Ohio Turnpike, a toll road officially known as the James W. Shocknessy Ohio Turnpike. The Ohio Turnpike is a limited access highway facility extending 241 miles across northern Ohio. The Turnpike runs east to west across the northern part of the full width of the State of Ohio and connects the principal cities in the northern part of Ohio, including Toledo, Cleveland, and Youngstown. The Turnpike connects to the Pennsylvania Turnpike on the eastern end and to the Indiana Toll Road on the western end, serving the long-distance, east-west traffic corridor that includes New York City, Pittsburgh, and Chicago. Fully open since October 1, 1955, it is designated as Interstate Route 80/90 between the Ohio-Indiana State Line and Interchange 142 in Lorain; Interstate Route 80 between Interchange 142 in Lorain and Interchange 218 in Youngstown; and Interstate Route 76 between Interchange 218 in Youngstown and the Ohio-Pennsylvania State The Turnpike provides three eastbound and westbound highway travel lanes between Line. Interchanges 59 and 218 and two eastbound and westbound highway travel lanes in all other sections. There are 31 interchanges on the Turnpike, 26 of which provide access to and from various U.S, Ohio, and Interstate Routes. Along the Turnpike mainline, there are seven pairs of service plazas that provide a variety of services to travelers and there are eight maintenance building facilities at thirty-mile intervals. The Ohio Turnpike and Infrastructure Commission's Administration Building Campus is in Berea, Ohio, with direct access to the Ohio Turnpike. Please see the attached Ohio Turnpike Map in Exhibit A.

Additional information regarding the Commission and the Ohio Turnpike can be found at <u>https://www.ohioturnpike.org/home</u>.

Like other government agencies, the Commission seeks innovative ways to utilize solar energy to optimize the use of publicly owned property, reduce operating expenses, raise additional revenues and become more environmentally responsible. Thus, to explore whether solar energy opportunities on the Turnpike could reduce operating expenses, unlock additional revenues to keep its facilities in a state of good repair and further its current energy initiatives, the Commission is assessing whether solar energy development at, around, and/or atop Commission-owned real property and/or buildings would make business sense.

## III. <u>POTENTIAL LOCATIONS</u>

The Commission controls and maintains real estate parcels in addition to its right-of-way, including undeveloped property, Service Plazas and Toll Plazas, across the 241-mile Turnpike. This RFI seeks information and recommendations regarding the best potential site locations among the Commission's assets to narrow the scope of a potential Project and optimize the value to the Commission. Please see attached Exhibit B for an inventory of 5-acre minimum parcels identified as potentially suitable for the Project.

An online interactive map is available at: <u>https://solar-locations-ohioturnpike.hub.arcgis.com/</u>.

### IV. INQUIRY PERIOD:

All interested parties are welcome to submit specific questions or requests for clarifications of the RFI requirements. Respondents are expected to raise any questions, exceptions, or additions they have concerning the RFI prior to the end of the Inquiry Period indicated on the cover page. These questions shall be addressed in writing and emailed to <u>purchasing@ohioturnpike.org</u>. Do not contact the Commission by phone. Do not direct questions regarding the RFI to anyone other than through the email address provided. At the completion of the Inquiry Period, a summary of all questions and answers will be compiled, posted on the Commission's website (<u>Answers to Inquiries here</u>), and provided via email to the interested parties on file. If it becomes necessary to provide additional clarifying data or information or to revise any part of this RFI, addenda will be posted publicly (at the same link as answers) and provided directly to all recipients of this RFI.

#### V. INFORMATION SUBMISSION INSTRUCTIONS:

Submissions in response to this RFI (each being a "Response") shall be organized, with an index, ordered in the same manner as the response items and Scope of Services requested by this RFI. Respondents must timely submit a Response electronically to <u>purchasing@ohioturnpike.org</u> in pdf format before the deadline specified on the cover page of this RFI. Paper copies received will be considered non-responsive.

The Respondent is required to adhere to the rules and regulations promulgated by the Commission and the State of Ohio, and all terms and conditions set forth in this RFI. Additionally, the Respondent agrees to the following:

- A. A Respondent may withdraw or modify its proposal only if notice of such withdrawal or modification is prior to the proposal opening date as identified on the front cover of this RFI.
- B. Once opened, the Respondent agrees that its Response cannot be altered, modified or withdrawn.

- C. By submitting a Response, the Respondent acknowledges it has read this RFI, understands it, and agrees to be bound by the terms and conditions set forth herein.
- D. The Commission is not responsible for the accuracy of any information regarding this RFI that was gathered through a source other than the Commission's website or otherwise the inquiry process described in the RFI.

Under no circumstances will the Commission be responsible for any costs incurred by any Respondent in submitting a Response.

#### RFI Confidentiality

All Respondents are strongly discouraged from including any information in any response to this RFI that Respondents consider to be a "trade secret," as that term is defined in Section 1333.61(D) of the Ohio Revised Code. All information submitted in any response to this RFI is public information, unless a statutory exception exists that exempts it from public release. If any information in the RFI is to be treated as a trade secret, the RFI must:

• Identify each and every occurrence of the information within the RFI with an asterisk before and after each line containing trade secret information and underline the trade secret information itself.

• State clearly in conspicuous print "This RFI includes information considered a 'trade secret'" on the first page of the Response.

• Include a page immediately after the first page of the Response listing each page in the RFI that includes trade secret information, as well as the number of occurrences of trade secret information on each page.

#### **Evaluation**

This RFI shall serve to provide information for the Commission to evaluate Respondents' Responses and recommendations for solar energy development on Commission property. Once the Commission reviews the RFIs received, it may in its sole discretion determine whether to issue further procurement.

#### VI. <u>RFI CONTENT:</u>

#### Responses to this RFI should address the following items:

- 1. Respondent must provide a profile of its company's operations including:
  - a. Name, business address, telephone number, website address, incorporation location(s).
  - b. The number of years the company has been in the business of developing, designing and/or installing renewable energy generation systems.
  - c. A primary contact for the Respondent, including name, job title, address, telephone, and email address.
  - d. A description of Respondent's business background and any other information about Respondent's business organization that Respondent deems pertinent to the RFI.
- 2. What relevant qualifications and experience does Respondent have in designing, developing, and delivering large (>100kW) solar energy projects?

- 3. What relevant qualifications and experience does Respondent have in designing, developing, and delivering medium to small (<100kW) commercial solar energy projects?
- 4. Approximate size (in terms of kW or kWh) that would make a project cost-effective, including optimal size combinations of multiple solar arrays on different facilities (if recommended and applicable).
- 5. What specific experience does Respondent have in third-party financing of solar energy projects completed or underway on publicly-owned property, especially highway, roads or transportation related property? Please provide contact information for the public agencies for which these projects were developed.
- 6. Are there any concerns with any of the information that has been provided in this RFI? Please explain those concerns and provide proposed solutions or mitigations to address those concerns.
- 7. Are there any local, county, state, or federal legal issues (including pending legislation and/or lawsuits) that would hinder the feasibility of the Project? If so, then what are they and how could they be resolved?
- 8. What delivery methods are available for this Project? What are the advantages of each delivery method? What are the disadvantages of each delivery method? Which delivery method does Respondent prefer and why?
- 9. What are the key success factors facilitating and barriers impeding success that would make delivering a solar energy project more or less likely for the Commission?
- 10. What are the advantages and disadvantages of one large singular site versus multiple sites packaged together into one project?
- 11. What are the various location types at which your company has installed solar energy (i.e., open field, roof top, carport, etc.)?
- 12. If multiple sites were packaged together, what are the possible packaging options? What are the advantages and disadvantages of each option? Which option does your firm prefer? Some possible packaging options may include:
  - Total project capacity as single award;
  - Bidding blocks (e.g., with each respondent proposing a minimum of 1MW);
  - Allow bidders to "cherry pick" the list;
  - Quote each facility/site separately;
  - Group into blocks by system types and sizes, by building types & sizes, by financing mechanism, by geography, etc.;
  - Include a minimum system size (e.g., 100 kW or 250kW) Project Site.
- 13. Based upon the information provided in this RFI, what type of site defined by location, size and other relevant characteristics presents the best opportunity for placement of a solar energy project on the Ohio Turnpike and why?
- 14. What type of site offers the best opportunity for replication on other sites along the Ohio Turnpike? What are the advantages and disadvantages of this type of site?

- 15. How should sites be pre-qualified for bid without the time and expense of detailed engineering at each site? What site assessment tools or qualifiers should be utilized?
- 16. What information would a private developer require in order to facilitate project development?
- 17. Based upon the delivery methods identified above, who would own the assets, equipment and capital plant in each delivery method? What are the essential terms of the contract for these delivery methods, including the optimal concession period?
- 18. What financing structure is the most feasible and would provide the best value for the Commission?
- 19. Do you anticipate public or utility (other than adopted tariffs) funding or incentives being available for the Project? If so, then what would be the anticipated source of these funds or incentives and how do they add value to the Project?
- 20. Is a solar energy project installation and operation possible without a public subsidy, and if not, what specific subsidies would be required, from whom and why?
- 21. What threshold financial arrangements would be necessary or other critical factors resolved to successfully complete the Project? Please outline in order of relative importance.
- 22. What major steps are needed from Notice of Award for the Project to full operation of the Project? What are the approximate elapsed times associated with these identified steps? What are the key decision points in the process (including go/no go decisions) and why?
- 23. What are the critical path items for the procurement for this Project and why?
- 24. Looking ahead, would Respondent be interested in submitting a committed proposal for the development of the Project? Are there any particular concerns that may prevent Respondent from engaging in the project development? How might those concerns be resolved?
- 25. What are the key elements of a RFQ for a solar energy project? Please provide references to other RFQs that you are aware of that have effectively elicited innovative proposals for solar energy projects on publicly-owned property and resulted in successfully completed projects.
- 26. What is the minimum amount of time that your firm requires for developing and submitting a Statement of Qualifications ("SOQ") for the Project after issuance of a potential RFQ?
- 27. What are the key elements of a RFP for a solar energy project? Please provide references to other RFPs that have effectively elicited innovative proposals for solar energy projects on publicly-owned property and resulted in successfully completed projects.
- 28. What is the minimum amount of time required by Respondent for developing and submitting a committed detailed proposal for the Project after issuance of a potential RFP?
- 29. Please provide any comments on other creative project scope ideas, procurement options, technical considerations, etc. that the Commission should take into account.

- 30. What are the top risks for successful delivery of this Project and why? What potential impact could the identified risks have? What potential mitigation strategies could be employed to decrease the identified risks?
- 31. In Respondent's experience, what type of public benefit and economic development could a solar energy project foster in terms of new businesses and job creation?
- 32. In Respondent's experience, what type of environmental advantages would a solar energy project have on the Ohio Turnpike?
- 33. What challenges related to communication with local officials, communities and business does Respondent foresee and what strategies are suggested to be employed to maintain open and transparent relationships?
- 34. Other than the answers already provided, what information would help Respondent make the business decision to engage in the development of the Project?
- 35. What are the options and methods for including the local workforce and/or disadvantaged business enterprises in the project development, construction or operation and maintenance?
- 36. What are the potential options for decommissioning and other considerations at the end of the contract term?

Ohio Turnpike and Infrastructure Commission Ohio Turnpike Map

#### **EXHIBIT A - OHIO TURNPIKE MAP**







#### **EXHIBIT B - POTENTIAL SOLAR ENERGY DEVELOPMENT SITES**

![](_page_15_Picture_0.jpeg)

# "World's Most Modern Superhighway" Solar Development Project

The following pages depict potential sites for solar development. The Commission does not represent or warrant any specific information about the suitability of the sites listed, or the local ordinances, rules, regulations and/or other laws governing building, zoning or other permits, if any, that may be required for possible development.

![](_page_15_Picture_3.jpeg)

# **Exhibit B**

Map by Ohio Turnpike

![](_page_16_Picture_0.jpeg)

Photo by American Public Power Association on Unsplash

The Ohio Turnpike and Infrastructure Commission "World's Most Modern Superhighway"

**Potential Solar Field Example** 

![](_page_16_Picture_4.jpeg)

![](_page_17_Picture_0.jpeg)

Photo by Ohio Turnpike

# The Ohio Turnpike and Infrastructure Commission Typical Service Plaza Building

![](_page_17_Picture_3.jpeg)

![](_page_18_Picture_0.jpeg)

Photo by shutterstock.com image-photo/parking-solar-panel-carports-786805852

The Ohio Turnpike and Infrastructure Commission Potential Solar Canopy Example

![](_page_18_Picture_3.jpeg)

![](_page_19_Picture_0.jpeg)

#### **Potential Solar Locations**

- 1 Interchange 13 S.R. 20 (2)Indian Meadow Service Plaza (3) Tiffin River Service Plaza (4) Interchange 25 – S.R. 66 5 Interchange 34 – S.R. 108 Interchange 39 – S.R. 109 (6) 7 Interchange 71 – I-280 (8) Blue Heron Service Plaza (9) Wyandot Service Plaza (10) Interchange 91 – S.R. 53 (11) Erie Islands Service Plaza (12) Commodore Perry Service Plaza (13) Interchange 110 – S.R. 4
  - (17) Vermilion Valley Service Plaza (18) Interchange 145 – S.R. 57 (19) Great Lakes Service Plaza (20) Tow Path Service Plaza (21) Interchange 180 – S.R. 8

(16)

**PotentialSolar Locations** 

Middle Ridge Service Plaza

- (22) Interchange 187 I-480
- (23) Portage Service Plaza
- (24) Brady's Leap Service Plaza
- (25) Interchange 234 I-680
- (26) Mahoning Valley Service Plaza
- (27) Glacier Hills Service Plaza
- (14) Interchange 118 S.R. 250
- (15) Interchange 135 Baumhart Road

CABLE ELECTRIC GAS EIBER OPTIC - WATER - SAN SEWER RELOCATED FIBER OPTIC ABANDONED FIBER OPTIC

Legend

- STM SEWER SAN SEWER/WATER
- OIL
- COAL
- ELECTRIC/CABLE
- GAS WELL LIGHT
- TOLL PLAZA LOCATION (TYPICAL)

![](_page_19_Picture_20.jpeg)

SERVICE PLAZA BUILDING STRUCTURE LOCATION (TYPICAL)

![](_page_19_Picture_22.jpeg)

PASSENGER VEHICLE PARKING AREA AVAILIBLE FOR POSSIBLE SOLAR CANOPY INSTALLATION

\* PARKING AREAS DO NOT HAVE ANY EXISTING CANOPIES FOR SOLAR

# The Ohio Turnpike and Infrastructure Commission **Potential Solar Locations**

![](_page_19_Picture_27.jpeg)

![](_page_20_Picture_0.jpeg)

Location	Interchange 13 - S.R. 20
County	Williams
Jurisdiction	Holiday City
Acres	6.48
Mile Post	13.3
P.P.N.	08332000003000
Notes	Interchange infield area

Site is clear and next to toll plaza.

Electrical Distribution Service Area **Toledo Edison** 

![](_page_20_Picture_4.jpeg)

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar Field** 

Interchange 13 – S.R. 20

Approx. 6.48 Acres

![](_page_20_Picture_9.jpeg)

![](_page_20_Picture_10.jpeg)

![](_page_21_Picture_0.jpeg)

![](_page_21_Picture_1.jpeg)

TOTAL 2.87 Acres

Electrical Distribution Service Area **Toledo Edison** 

# The Ohio Turnpike and Infrastructure Commission

### **Potential Solar**

![](_page_21_Picture_5.jpeg)

) Indian Meadow Service Plaza

Milepost 20.8 Approx. 2.87 Acres

![](_page_21_Picture_8.jpeg)

![](_page_21_Picture_9.jpeg)

![](_page_22_Picture_0.jpeg)

#### Potential Solar Structure

Auto Canopy – 2.53 Acres Auto Canopy – 0.91 Acres **TOTAL 3.44 Acres** 

![](_page_22_Picture_3.jpeg)

Electrical Distribution Service Area
Toledo Edison

# The Ohio Turnpike and Infrastructure Commission

## **Potential Solar**

![](_page_22_Picture_7.jpeg)

Approx. 3.44 Acres

![](_page_22_Picture_9.jpeg)

![](_page_22_Picture_10.jpeg)

![](_page_23_Picture_0.jpeg)

Location	Interchange 25 - S.R. 66
County	Fulton
Jurisdiction	Franklin
Acres	19.23
Mile Post	25.4
P.P.N.	09-019808-00.000
Notes	Interchange infield area

Site is clear and next to toll plaza.

Electrical Distribution Service Area Midwest Energy Cooperative

![](_page_23_Picture_4.jpeg)

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Field Interchange 25 – S.R. 66

Approx. 19.23 Acres

![](_page_23_Picture_8.jpeg)

![](_page_23_Picture_9.jpeg)

![](_page_24_Picture_0.jpeg)

Location	Interchange 34 - S.R. 108
County	Fulton
Jurisdiction	Dover
Acres	5.24
Mile Post	34.6
P.P.N.	08-018988-00.000
Notes	Interchange infield area

Location	Interchange 34 - S.R. 108
County	Fulton
Jurisdiction	Dover
Acres	0.90
Mile Post	34.6
P.P.N.	08-018988-00.000
Notes	Interchange infield area

Location	Interchange 34 - S.R. 108
County	Fulton
Jurisdiction	Dover
Acres	2.53
Mile Post	34.7
P.P.N.	08-018988-00.000
Notes	Interchange infield area

All sites are clear and next to toll plaza.

Electrical Distribution Service Area
Toledo Edison

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar Fields** 

Interchange 34 – S.R. 108

Approx. 8.67 Acres

![](_page_24_Picture_10.jpeg)

![](_page_24_Picture_11.jpeg)

![](_page_25_Picture_0.jpeg)

![](_page_25_Picture_1.jpeg)

Site is cleared flat and next to toll plaza

Electrical Distribution Service Area Tricounty Rural Electric

![](_page_25_Picture_4.jpeg)

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar Field** 

) Interchange 39 – S.R. 109

Approx. 26.09 Acres

![](_page_25_Picture_9.jpeg)

![](_page_26_Picture_0.jpeg)

Location	Interchange 71- I 280
County	Wood
Jurisdiction	Lake
Acres	5.43
Mile Post	71.6
P.P.N.	N/A
Notes	Interchange infield area

Site has a few trees, is flat next to toll plaza.

Location	Interchange 71 - I 280
County	Wood
Jurisdiction	Lake
Acres	5.43
Mile Post	71.8
P.P.N.	N/A
Notes	North Side Ingress Egress Ramp

Site is cleared flat and in interchange area.

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Fields Interchange 71 – I-280 Approx. 10.86 Acres

7

![](_page_26_Picture_7.jpeg)

Electrical Distribution Service Area **Toledo Edison** 

#### **Potential Solar Field**

Location	Blue Heron Service Plaza
County	Sandusky
Jurisdiction	Woodville
Acres	3.07
Mile Post	76.9
P.P.N.	280900010400
Notes	Northwest corner of proper

Site is cleared flat but not 5 acres.

#### Potential Solar Structure

Auto Canopy – 2.1 Acres Auto Canopy – 1.02 Acres **TOTAL 3.12 Acres** 

Electrical Distribution Service Area **Toledo Edison** 

![](_page_27_Picture_6.jpeg)

![](_page_27_Picture_7.jpeg)

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar** 

8) Blue Heron Service Plaza

Milepost 76.9 Approx. 6.19 Acres

![](_page_27_Picture_12.jpeg)

#### **Potential Solar Field**

Location	Wyandot Service Plaza
County	Sandusky
Jurisdiction	Woodville
Acres	3.05
Mile Post	77.1
P.P.N.	280900010400
Notes	Southeast corner of proper

Site is cleared flat but not 5 acres.

#### Potential Solar Structure

Auto Canopy – 2.18 Acres Auto Canopy – 0.95 Acres **TOTAL 3.13 Acres** 

Electrical Distribution Service Area **Toledo Edison** 

![](_page_28_Picture_6.jpeg)

![](_page_28_Picture_7.jpeg)

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar** 9 Wyandot Service Plaza

> Milepost 76.9 Approx. 6.18 Acres

![](_page_28_Picture_11.jpeg)

![](_page_29_Picture_0.jpeg)

Location	Interchange 91 - S.R. 53
County	Sandusky
Jurisdiction	Sundusky - Rice
Acres	12.57
Mile Post	91.9
P.P.N.	131000000700 & 100
Notes	Interchange infield area

Site needs vegetation cleared.

Electrical Distribution Service Area **Toledo Edison** 

![](_page_29_Picture_4.jpeg)

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Field 10 Interchange 91 – S.R. 53 Approx. 12.57 Acres

![](_page_29_Picture_7.jpeg)

#### **Potential Solar Field**

LocationErie Islands Service PlazaCountySanduskyCity\_TownRileyArea Acres1.01Mile\_Post100.2PPN08250000800NotesEast side of property

#### Potential Solar Structure

Auto Canopy – 1.53 Acres Auto Canopy – 0.99 Acres Auto Canopy – 0.77 Acres **TOTAL 3.29 Acres** 

Electrical Distribution Service Area
Toledo Edison

![](_page_30_Picture_5.jpeg)

![](_page_30_Picture_6.jpeg)

# The Ohio Turnpike and Infrastructure Commission Potential Solar

1) Erie Islands Service Plaza

Milepost 100.0 Approx. 4.31 Acres

![](_page_30_Picture_10.jpeg)

Potential Solar Structures Auto Canopy –1.55 Acres Auto Canopy –1.2 Acres TOTAL 2.75 Acres

Electrical Distribution Service Area **Toledo Edison** 

![](_page_31_Picture_2.jpeg)

![](_page_31_Figure_3.jpeg)

# The Ohio Turnpike and Infrastructure Commission

# **Potential Solar**

![](_page_31_Picture_6.jpeg)

Commodore Perry Service Plaza

Milepost 100.0 Approx. 2.75 Acres

![](_page_31_Picture_9.jpeg)

![](_page_32_Picture_0.jpeg)

Location	Interchange 110 - S.R. 4	
County	Erie	
Jurisdiction	Groton	
Acres	12.33	
Mile Post	110.4	
PPN	29-60031.000	
Notes	Interchange infield area	

LocationInterchange 110 - S.R. 4CountyErieJurisdictionGrotonAcres5.39Mile Post110.3PPN29-60031.001NotesNorthwest corner of property

Site may need a few trees removed. Site may need a few trees removed.

Electrical Distribution Service Area **Ohio Edison** 

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Fields 13 Interchange 110 – S.R. 4 Approx. 24.93 Acres

![](_page_32_Picture_7.jpeg)

![](_page_32_Picture_8.jpeg)

![](_page_33_Picture_0.jpeg)

Location	Intechange 118 - S.R. 250	
County	Erie	
Jurisdiction	Milan	
Acres	5.77	
Mile Post	118.4	
PPN	50-61031.000	
Notes	Interchange infield area	

Site may need a few trees removed.

Electrical Distribution Service Area **Ohio Edison** 

![](_page_33_Picture_4.jpeg)

The Ohio Turnpike and Infrastructure Commission

Potential Solar Field 14) Interchange 118 – S.R. 250

Approx. 5.77 Acres

![](_page_33_Picture_8.jpeg)

Location	Interchange 135 - Buamhart Rd.
County	Lorain
Jurisdiction	Brownhelm
Acres	24.71
Mile Post	136.0
PPN	0100070000014 - 05
Notes	Interchange infield area

![](_page_34_Picture_1.jpeg)

Site may need a few trees removed.

Electrical Distribution Service Area
Ohio Edison

![](_page_34_Picture_4.jpeg)

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Field 15 Interchange 135 – Baumhart Road

Approx. 44.53 Acres

![](_page_34_Picture_8.jpeg)

![](_page_35_Picture_0.jpeg)

#### Potential Solar Structures Auto Canopy –2.86 Acres Auto Canopy –1.42 Acres TOTAL 4.28 Acres

Electrical Distribution Service Area **Toledo Edison** 

![](_page_35_Picture_3.jpeg)

# The Ohio Turnpike and Infrastructure Commission

# **Potential Solar**

**16** Middle Ridge Service Plaza

Milepost 139.5 Approx. 4.28 Acres

![](_page_35_Picture_8.jpeg)

![](_page_36_Picture_0.jpeg)

Potential Solar Structures Auto Canopy –3.37 Acres Auto Canopy –0.81 Acres TOTAL 4.18 Acres

w XX

Electrical Distribution Service Area **Toledo Edison** 

# The Ohio Turnpike and Infrastructure Commission

Potential Solar

![](_page_36_Picture_6.jpeg)

Vermilion Valley Service Plaza

Milepost 139.5 Approx. 4.18 Acres

![](_page_36_Picture_9.jpeg)

![](_page_36_Picture_10.jpeg)

![](_page_37_Picture_0.jpeg)

Location	Interchange 145 - S.R. 57
County	Lorain
Jurisdiction	Elyria
Acres	5.06
Mile Post	145.2
PPN	0624029101004
Notes	Interchange infield area

Site is clear; possible grading issues.

Electrical Distribution Service Area **Ohio Edison** 

# The Ohio Turnpike and Infrastructure Commission

**Potential Solar Field** 

18) Interchange 145 – S.R. 57

Approx. 5.06 Acres

![](_page_37_Picture_8.jpeg)

![](_page_37_Picture_10.jpeg)

Potential Solar Structures Auto Canopy –1.39 Acres Auto Canopy –1.38 Acres TOTAL 3.77 Acres

Electrical Distribution Service Area The Illuminating Company

![](_page_38_Picture_2.jpeg)

![](_page_38_Picture_3.jpeg)

# The Ohio Turnpike and Infrastructure Commission Potential Solar

![](_page_38_Picture_5.jpeg)

**19** Great Lakes Service Plaza

Milepost 170.1 Approx. 3.77 Acres

![](_page_38_Picture_9.jpeg)

![](_page_39_Picture_0.jpeg)

Potential Solar Structures Auto Canopy –1.31 Acres Auto Canopy –0.78 Acres TOTAL 2.09 Acres

Electrical Distribution Service Area The Illuminating Company The Ohio Turnpike and Infrastructure Commission Potential Solar

![](_page_39_Picture_4.jpeg)

Milepost 170.1 Approx. 9.45 Acres

![](_page_39_Picture_6.jpeg)

![](_page_40_Picture_0.jpeg)

Location	Interchange 180 - S.R. 8
County	Summit
Jurisdiction	Boston Heights
Acres	6.55
Mile Post	180.1
PPN	N/A
Notes	Interchange infield area Possible Grading Issues

Possible grading concerns.

![](_page_40_Picture_3.jpeg)

Electrical Distribution Service Area
Ohio Edison

The Ohio Turnpike and Infrastructure Commission

Potential Solar Field 21 Interchange 180 – S.R. 8

Approx. 6.55 Acres

![](_page_40_Picture_8.jpeg)

![](_page_41_Picture_0.jpeg)

Location	Interchange 187 - I-480
County	Portage
Jurisdiction	Streetsboro
Acres	4.83
Mile Post	186.9
PPN	35-023-00-00-002-000
Notes	Interchange infield area

LocationInterchange 187 - I-480CountyPortageJurisdictionStrretsboroAcres3.74Mile Post187.0PPN35-023-00-002-000NotesInterchange infield area

# The Ohio Turnpike and Infrastructure Commission

Potential Solar Field
 Interchange 187 – I-480
 Approx. 8.57 Acres

![](_page_41_Picture_6.jpeg)

Electrical Distribution Service Area **Ohio Edison** 

![](_page_42_Picture_0.jpeg)

#### Potential Solar Structures

Auto Canopy –1.33 Acres Auto Canopy –0.45 Acres Auto Canopy –0.13 Acres **TOTAL 1.91 Acres** 

![](_page_42_Picture_3.jpeg)

Electrical Distribution Service Area **Ohio Edison** 

# The Ohio Turnpike and Infrastructure Commission Potential Solar

23) Portage Service Plaza

Milepost 197.0 Approx. 1.91 Acres

![](_page_42_Picture_8.jpeg)

![](_page_43_Picture_0.jpeg)

Potential Solar Structures Auto Canopy –1.54 Acres Auto Canopy –0.51 Acres TOTAL 2.05 Acres

Electrical Distribution Service Area **Ohio Edison** 

![](_page_43_Picture_3.jpeg)

The Ohio Turnpike and Infrastructure Commission Potential Solar

![](_page_43_Picture_5.jpeg)

24) Brady's Leap Service Plaza

Milepost 197.0 Approx. 2.05 Acres

![](_page_43_Picture_8.jpeg)

Location	Interchange 234 - I-680
County	Mahoning
Jurisdiction	Beaver
Acres	9.51
Mile Post	234.2
PPN	N/A
Notes	Ramp area eatbound to Turnpike

Site may need some trees removed.

Electrical Distribution Service Area
Ohio Edison

![](_page_44_Picture_3.jpeg)

The Ohio Turnpike and Infrastructure Commission

**Potential Solar Field** 

25) Interchange 234 – I-680

Approx. 9.51 Acres

![](_page_44_Picture_8.jpeg)

![](_page_45_Picture_0.jpeg)

#### **Potential Solar Structures**

Auto Canopy –1.45 Acres Auto Canopy –0.72 Acres **TOTAL 2.17Acres** 

![](_page_45_Picture_3.jpeg)

Electrical Distribution Service Area **Ohio Edison** 

The Ohio Turnpike and Infrastructure Commission Potential Solar

26) Mahoning Valley Service Plaza

Milepost 237.9 Approx. 2.17 Acres

![](_page_45_Picture_8.jpeg)

![](_page_46_Picture_0.jpeg)

Potential Solar Structure: Auto Canopy –1.55 Acres Auto Canopy –0.86 Acres TOTAL 2.41 Acres

![](_page_46_Picture_2.jpeg)

Electrical Distribution Service Area **Ohio Edison** 

The Ohio Turnpike and Infrastructure Commission Potential Solar

**Glacier Hills Service Plaza** 

Milepost 237.2 Approx. 2.41 Acres

![](_page_46_Picture_7.jpeg)

_									
No	LOCATION	COUNTY	JURISDICTION	ACRES	MILE POST	P.P.N	NOTES	lectrical Service Area	
1	Interchange 13 - S.R. 20	Williams	Holiday City	6.48	13.3	08332000003000	Interchange infield area	l'oledo Edison	
2	Indian Meadows Service Plaza	Williams	West Unity	2.87	20.8	8433000019000 & 5000	Automotive solar canopies	Toledo Edison	
3	Tiffin River Service Plaza	Williams	West Unity	3.44	20.8	8433000019000	Automotive solar canopies	Toledo Edison	
		Williams County	Total Acres	12.79					
4	Interchange 25 - S.R. 66	Fulton	Franklin	19.23	25.4	09-019808-00.000	Interchange infield area	Midwest Energy Cooperative	
5	Interchange 34 - S.R. 108	Fulton	Dover	5.24	34.6	08-018988-00.000	Interchange infield area	Toledo Edison	
5	Interchange 34 - S.R. 108	Fulton	Dover	2.53	34.7	08-018988-00.000	Interchange infield area	Toledo Edison	
5	Interchange 34 - S.R. 108	Fulton	Dover	0.90	34.6	08-018988-00.000	Toledo Edison		
6	Interchange 39 - S.R. 109	Fulton	Pike	26.08	40	20-041849-02.000 & 00.000	Interchange infield area	Tricounty Rural Electric	
	-	Fulton County	Total Acres	53.98					
7	Interchange 71-1280	Wood	Lake	5.43	71.6	N/A	Interchange infield area	í oledo Edison	
7	Interchange 71-1280	Wood	Lake	5.43	71.8	N/A	North side ingress egress ramp	Toledo Edison	
		Wood County	Total Acres	10.85					
8	Blue Heron Service Plaza	Sandusky	Woodville	3.07	76.9	280900010400	Solar field portbwest corper of property	Toledo Edison	
8	Blue Heron Service Plaza	Sandusky	Woodville	3.12	76.9	280900010400	Automotive solar canonies	Toledo Edison	
9	Wuandot Service Plaza	Sandusky	Wooduille	3.05	76.9	280900010400	Solar field southeast corper of property	Toledo Edison	
9	Wuandot Service Plaza	Sandusku	Wooduille	3.13	76.9	280900010400	Automotive solar caponies	Toledo Edison	
10	Interchange 91- S.D. 53	Sandusky	Sunducku - Dioo	12.57	919	13100000700 8, 100	laterelease infield area	Toledo Edison	
11	Frieldande Service Plaza	Seeducky	Dilou	1.01	100	82500000800	Selar field eastride of property	Tolodo Edison	
-1-1	Erie Islands Service Plaza	Sandusky	Diley	2.29	100	92500000000	Outemptive celer especties	Toledo Edison	
12	Cremendaria Denni Service Plaza	Candusky	Dilau	3.23	100	925000000000	Automotive solar canopies	Toledo Edison	
12	Commodore Perry Service Plaza	Sandusky	Taxal Acces	2.13	100	82300000200	Automotive solar canoples	Toledo Edison	
10	L 110 C D 4	Sandusky County	Total Acres	31.33	110.4	20, 60021,000			
13	Interchange IIU - 5.R. 4	Erie	Groton	12.33	110.4	29-60031.000	Interchange infield area	Uhio Edison	
13	Interchange IIU - 5.R. 4	Erie	Groton	5.33	110.3	23-60031.001	Northwest corner of property	Uhio Edison	
14	Intechange 118 - S.R. 250	Erie	Milan	5.77	118.4	50-61031.000	Interchange infield area	Uhio Edison	
		Erie County	Total Acres	23.49					
15	Interchange 135 - Buamhart Rd.	Lorain	Brownheim	24.71	136	0100070000014-05	Interchange infield area	Uhio Edison	
16	Middle Ridge Service Plaza	Lorain	Amherst	4.28	139.5	500026102034 & 011 & 060	Automotive solar canopies	Ohio Edison	
17	Vermilion Valley Service Plaza	Lorain	Amhesrt Township	4.18	139.5	500027000015 & 013 & 012	Automotive solar canopies	Ohio Edison	
18	Interchange 145 - S.R. 57	Lorain	Elyria	5.06	145.2	0624029101004	Interchange infield area	Ohio Edison	
		Lorain County	Total Acres	38.23					
19	Great Lakes Service Plaza	Cuyahoga	Broadview Heights / Brecksville	3.77	170.3	58523100	Automotive Solar Canopies	The Illuminating Company	
20	Tow Path Service Plaza	Cuyahoga	Broadview Heights / Brecksville	2.09	170.3	58523100	Automotive solar canopies	The Illuminating Company	
		Cuyahoga County	Total Acres	5.86					
21	Interchange 180 - S.R. 8	Summit	Boston Heights	6.55	180.1	N/A	Interchange infield area - Possible Grading Issues	Ohio Edison	
		Summit County	Total Acres	6.55					
22	Interchange 187 – I–480	Portage	Streetsboro	4.83	186.9	35-023-00-00-002-000	Interchange infield area	Ohio Edison	
22	Interchange 187 - I-480	Portage	Strretsboro	3.74	187	35-023-00-00-002-000	Interchange infield area	Ohio Edison	
23	Portage Service Plaza	Portage	Freedom	1.91	197	18-045-00-00-030-000	Automotive solar canopies	Ohio Edison	
24	Brady's Leap Service Plaza	Portage	Freedom	2.05	197	18-045-00-00-030-000	Automotive solar canopies	Ohio Edison	
		Portage County	Total Acres	12.52					
25	Interchange 234 - I-680	Mahoning	Beaver	9.51	234.2	N/A	Ramp area eatbound to Turnpike	Ohio Edison	
26	Mahoning Valley Serice Plaza	Mahoning	Springfield	2.41	237.2	N/A	Automotive solar canopies	Ohio Edison	
27	Glacier Hills Service Plaza	Mahoning	Springfield	2.17	237.2	N/A	Automotive solar canopies	Ohio Edison	
		Mahoning	Total Acres	14.09					
		Total Acres	210.35						

# The Ohio Turnpike and Infrastructure Commission

# **Summary of Potential Solar Site Locations**

The preceding pages depict potential sites for solar development. The Commission does not represent or warrant any specific information about the suitability of the sites listed, or the local ordinances, rules, regulations and/or other laws governing building, zoning or other permits, if any, that may be required for possible development.

![](_page_47_Picture_4.jpeg)

Ohio Turnpike Electricity Usage and Cost, 2017 through 2020, By Location															
	Location	Admin Bldg	Tech Bldg	MB1 Kunkle	MB2 Swanton	MB3 Elmore	MB4 Castalia	MB5 Amherst	MB6 Boston	MB7 Hiram	MB8 Canfield				
2017	Total Annual Usage (kWh)	768,600	626,880	233,400	234,800	371,600	223,200	247,800	223,560	311,080	222,280				
		\$69,255.61	\$04,067.21	\$26,475.11	\$25,255.65	\$45,400.70	\$25,975.29	\$20,712.60	\$22,012.59	\$55,070.56	\$25,024.79				
2018	Total Annual Usage (kwn)	/54,200	576,320	227,400	214,200	409,700	221,840	240,160	211,720	362,000	244,480				
	Total Annual Cost (\$)	\$79,822.36	\$54,314.99	\$25,863.14	\$21,118.51	\$43,786.11	\$22,261.39	\$24,296.74	\$20,324.88	\$36,823.68	\$22,150.45				
2019	Total Annual Usage (kWh)	823,800	527,040	214,200	187,700	337,300	242,480	227,440	182,040	3/9,120	218,440				
	Total Annual Cost (\$)	\$81,307.69	\$46,824.05	\$24,175.18	\$18,354.46	\$35,920.05	\$22,375.56	\$21,466.56	\$16,563.51	\$35,779.64	\$19,285.75				
2020	Total Annual Usage (kWh)	817,800	520,480	173,400	159,400	276,000	198,520	212,880	176,640	273,680	238,480				
	Total Annual Cost (\$)	\$76,906.14	\$47,471.43	\$21,463.28	\$17,720.91	\$33,591.31	\$20,005.97	\$21,251.96	\$16,841.37	\$28,804.18	\$21,247.03				
Average	Total Annual Usage (kWh)	791,100	562,680	212,100	199,025	348,650	221,510	232,070	198,490	331,470	230,920				
Average	Total Annual Cost (\$)	\$81,822.50	\$53,324.42	\$24,993.68	\$20,606.93	\$39,176.06	\$22,154.55	\$23,432.02	\$19,135.59	\$34,120.97	\$21,427.01				
					-		-								
	Location	SP1N IM	SP1S TR	SP3N BH	SP3S WY	SP4N EI	SP4S CP	SP5N MR	SP5S VV	SP6N GL	SP6S TP	SP7N PR	SP7S BL	SP8N GH	SP8S MV
2017	Total Annual Usage (kWh)	2,066,100	2,096,100	1,244,800	1,234,800	1,445,920	1,095,440	1,784,560	1,745,280	932,960	990,080	1,049,960	1,139,600	2,192,200	2,071,600
2017	Total Annual Cost (\$)	\$189,723.73	\$191,909.92	\$134,821.48	\$135,042.46	\$148,480.89	\$115,752.25	\$176,002.49	\$172,466.28	\$100,741.70	\$105,376.60	\$105,244.93	\$110,810.36	\$196,834.24	\$192,093.85
2010	Total Annual Usage (kWh)	2,108,400	2,105,100	1,280,640	1,296,960	1,442,960	1,136,160	1,592,000	1,552,160	861,920	947,560	1,031,520	1,164,880	1,979,600	2,153,200
2018	Total Annual Cost (\$)	\$169,560.47	\$170,752.79	\$124,448.17	\$123,253.69	\$131,847.54	\$106,273.72	\$149,341.01	\$134,755.19	\$85,999.95	\$92,910.75	\$91,719.19	\$100,540.01	\$161,431.50	\$173,253.85
	Total Annual Usage (kWh)	1,995,300	2,053,200	1,224,400	1,293,040	1,346,080	1,112,480	1,623,040	1,607,760	896,080	911,040	992,320	1,155,920	2,055,200	2,226,800
2019	Total Annual Cost (\$)	\$154,140.09	\$158,284.55	\$111,023.32	\$117,054.24	\$116,384.05	\$99,428.79	\$134,468.13	\$134,748.27	\$82,639.41	\$82,956.20	\$82,082.01	\$94,127.96	\$155,686.04	\$167,638.79
	Total Annual Usage (kWh)	1.792.200	1.846.800	1.211.280	1.221.760	1.288.960	1.037.600	1.454.080	1.382.160	841.440	901.920	917.280	1.135.120	2.084.580	2.025.800
2020	Total Annual Cost (\$)	\$144.864.11	\$147.854.13	\$111.941.95	\$112.257.50	\$115.036.40	\$95.063.16	\$129.852.67	\$122.993.39	\$77.065.61	\$81.422.70	\$77.498.41	\$93.436.29	\$165.599.32	\$169.468.00
	Total Annual Usage (kWh)	1.990.500	2.025.300	1.240.280	1.261.640	1.380.980	1.095.420	1.613.420	1.571.840	883.100	937.650	997.770	1.148.880	2.077.895	2.119.350
Average	Total Annual Cost (\$)	\$164 572 10	\$167 200 35	\$120 558 73	\$121 901 97	\$127 937 22	\$104 129 48	\$147 416 08	\$141 240 78	\$86 611 67	\$90,666,56	\$89 136 14	\$99 728 66	\$169 887 78	\$175 613 62
		\$104,572.10	<i>Ş107,200.33</i>	<i>\$120,550.75</i>	<i>Ş121,501.57</i>	<i>VIL1,331.22</i>	\$104,125.40	<i>ŞI,</i> , <u>410.00</u>	<i><b>J</b></i> <b>IIIIIIIIIIIII</b>	<i>\$00,011.07</i>	\$50,000.50	\$05,150.14	<i>\$33,72</i> 0.00	<i>Ş</i> 103,007.70	<i><b><i>↓</i></b><i>1</i>, <i>3</i>, <i>013</i>. <i>02</i></i>
	Location	TP2	TP13	TP25	TP34	TP39	TP52	TP59	TP64	TP71	TP81	TP91	TP110	TP118	
2017	Total Annual Usage (kWh)	647,680	649,760	294,000	582,880	192,400	424,160	755,500	362,800	816,600	158,400	573,680	231,960	647,126	
2017	Total Annual Cost (\$)	\$62,358.04	\$68,861.73	\$30,181.59	\$60,115.94	\$21,829.43	\$43,433.58	\$80,306.04	\$36,661.51	\$85,388.09	\$18,683.47	\$59,851.23	\$23,774.99	\$66,469.04	
2010	Total Annual Usage (kWh)	685,200	641,040	290,040	548,960	193,840	418,800	756,400	372,160	782,640	163,200	593,200	225,480	656,083	
2018	Total Annual Cost (\$)	\$64,347.61	\$61,356.47	\$30,551.57	\$51,618.24	\$20,885.73	\$39,064.84	\$73,199.26	\$34,624.67	\$74,873.38	\$20,766.04	\$56,543.86	\$21,006.24	\$60,173.51	
	Total Annual Usage (kWh)	614,860	559,320	260,200	516,880	179,280	380,800	754,000	357,840	790,920	157,200	583,280	215,520	645,161	
2019	Total Annual Cost (\$)	\$62,511.25	\$51,651.21	\$27,948.81	\$46,912.59	\$20,650.56	\$34,113.72	\$70,434.39	\$31,362.80	\$73,671.41	\$19,513.04	\$53,522.62	\$18,484.44	\$56,708.19	
	Total Annual Usage (kWh)	592.800	545.840	257.640	485.000	171.840	305.520	574.900	316.000	707.440	153.272	566.080	200.400	582.874	
2020	Total Annual Cost (\$)	\$56.374.50	\$51,275,76	\$31,137,93	\$44,559,44	\$18,961,83	\$27.027.35	\$55.471.88	\$27,756,69	\$67,417.05	\$19,444,36	\$52,910.03	\$17,795,24	\$52,304,63	
	Total Annual Usage (kW/h)	635 135	598 990	275 470	533 430	184 340	382 320	710 200	352 200	774 400	158 018	579.060	218 340	632 811	
Average	Total Annual Cost (\$)	\$61 397 85	\$58 286 29	\$29 954 98	\$50 801 55	\$20 581 89	\$35,909,87	\$69 852 89	\$32,601,42	\$75 337 48	\$19 601 73	\$55 706 94	\$20 265 23	\$58 913 84	
		Ş01,337.03	\$30,200.23	\$25,554.50	\$50,001.55	\$20,501.05	\$55,505.07	\$05,052.05	\$52,001.42	<i>үгэ,</i> зэт.чо	Ş15,001.75	\$55,700.54	\$20,205.25	Ş30,313.04	
	Location	TP135	TP140	TP142	TP145	TP151	TP152	TP161*	TP173	TP180	TP187	TP193	TP209	TP215	TP216
	Total Annual Usage (kWh)	235.520	476.320	419,240	658.000	484,280	403,120	.365	644.040	313,240	608,280	339.080	486,440	227,360	312,760
2017	Total Annual Cost (\$)	\$24,108,75	\$47.631.91	\$41,953,15	\$66.825.17	\$48.522.59	\$40,585,78	\$743.65	\$64,997,44	\$30,919,80	\$62,167,99	\$34,263,65	\$49,909,62	\$23.007.43	\$31,539,66
	Total Annual Usage (kW/h)	211 320	462 600	406 200	643 800	440 680	349 920	712 880	576 970	336 320	514 560	320.840	458 960	238 880	317 840
2018		\$19 282 /2	\$41 324 50	\$36 361 29	\$57 530 10	\$39 1/1 00	\$31 9/9 27	\$69,812,000	\$53 325 86	\$29 /121 22	\$47 378 86	\$29 150 24	\$42 361 12	\$21 9/18 /2	\$78 /00 5/
	Total Annual Usago (k)(h)	202.40	205 160	200 240	621 040	400 840	220 720	742 560	500 220	227,431.23	J47,520.00	200 720	406 200	242 200	254 720
2019	Total Annual Cost (\$)	\$17,116,60	\$22,100	\$22 222 00	\$52 047 01	\$25 241 06	\$20,720	\$68 346 30	\$50,441,10	\$78 627 24	\$10 172 74	\$25,400,01	\$26 202 66	\$20,004,62	¢21 6/10 20
	Total Annual Usago (k)M(h)	317,110.09 101 340	272 060	206 120	332,947.01	206 600	220,007.08	300,340.30	30,441.10	₹20,052.34 24£ 120	340,175.74 AAA 220	201 060	30,202.00	→20,094.03 106 E20	21,040.30 250 210
2020	Total Annual Cast (\$)		5/5,900 \$22,002,01	\$24 506 22	490,280	\$24 664 00	\$20,106,04	\$66 361 39	492,400 \$42,210,20	540,120	444,320 \$20,161,04	501,900	421,320	100,520	230,240
		207.COC	32,382.91	334,390.32	243,872.12	354,004.09	şz9,106.94	300,201.38	\$43,310.39	<i>γ∠9,/</i> 01./4	×52,101.84	⇒20,005.47	ې ۶۵۶,447.32	ο,//δ.1b	γ22,243.1b
Average	Total Annual Usage (KWN)	207,690	427,010	402,950	603,280	432,850	350,280	/20,66/	5/5,933	333,360	507,170	315,650	443,230	223,740	285,890
	Total Annual Cost (\$)	\$19,135.96	\$38,840.82	336,533./1	\$55,293.62	\$39,417.64	\$32,432.28	\$68,139.90	\$53,018.70	\$29,686.28	\$47,208.11	\$28,742.57	\$41,/31.01	\$20,457.16	\$25,957.92

\*data for 2017 at TP161 does not appear to be correct and is omitted from the annual average

![](_page_49_Figure_0.jpeg)

![](_page_50_Figure_0.jpeg)