FLEMING SOLAR, LLC
APPLICATION FOR A CERTIFICATE TO CONSTRUCT A MERCHANT ELECTRIC GENERATING FACILITY

Application Documents
Case No. 2020 – 00370

May 2021

APPLICATION OF FLEMING SOLAR, LLC
FOR CONSTRUCTION CERTIFICATE TO CONSTRUCT A
MERCHANT ELECTRIC ENERATING FACILITY
FLEMING COUNTY, KENTUCKY
CASE NO. 2020-00370

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2.0 **PROPOSED SITE DESCRIPTION**
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Contact Person: Dominic Salinas (512) 684-1995

3.0 **PUBLIC NOTICE EVIDENCE**
KRS 278.706(2)(c)
Contact Person: Dominic Salinas (512) 684-1995

4.0 **COMPLIANCE WITH LOCAL ORDINANCES AND REGULATIONS**
KRS 278.706(2)(d)
Contact Person: Dominic Salinas (512) 684-1995

5.0 **SETBACK REQUIREMENTS**
KRS 278.706(2)(e)
Contact Person: Dominic Salinas (512) 684-1995

6.0 **PUBLIC INVOLVEMENT ACTIVITIES**
KRS 278.706(2)(f)
Contact Person: Dominic Salinas (512) 684-1995

7.0 **EFFORT TO LOCATED NEAR EXISTING GENERATING FACILITIES**
KRS 278.706(2)(g)
Contact Person: Dominic Salinas (512) 684-1995

8.0 **PROOF OF SERVICE**
KRS 278.706(2)(h)
Contact Person: Dominic Salinas (512) 684-1995

9.0 **EFFECT ON KENTUCKY'S ELECTRIC TRANSMISSION SYSTEM**
KRS 278.706(2)(i)
Contact Person: Julius Horvath (512) 684-1995

10.0 **LOCAL ECONOMIC IMPACT**
KRS 278.706(2)(j)
Contact Person: Dominic Salinas (512) 684-1995

11.0 **ENVIRONMENTAL VIOLATION RECORD**
KRS 278.706(2)(k)
Contact Person: Dominic Salinas (512) 684-1995

12.0 **SITE ASSESSMENT REPORT**
KRS 278706(2)(l)
Contact Person: Dominic Salinas (512) 684-1995

13.0 **ENVIRONMENTAL PERMIT LIST**
KRS 278.704(1)
Contact Person: Dominic Salinas (512) 684-1995

14.0 **SIGNATURE**
807 KAR 5:110 §(3)
Contact Person: Dominic Salinas (512) 684-1995

1.0 APPLICANT INFORMATION

KRS 278.706(2)(a) *The name, address and telephone number of the person proposing to construct and own the merchant electric generating facility.*

Name: Fleming Solar, LLC
Attn. Greg Nelson, CEO

Address: 1221 South Mopac Expressway
Suite 225
Austin, Texas 78746

Phone: (512) 684-1995

2.0 PROPOSED SITE DESCRIPTION

KRS 278.706(2)(b): *A full description of the proposed site, including a map showing the distance of the proposed site from residential neighborhoods, the nearest residential structures, schools, and public and private parks that are located within a two (2) mile radius of the proposed facility.*

2.1 Proposed Facility Description

Fleming Solar, LLC (Fleming Solar) proposes to develop the 80-megawatt (MW) photovoltaic (PV) Fleming Solar Project (Project) in Fleming County, Kentucky. The Project would be built on portions of approximately 830 acres (Project Area). The majority (94.4%) of the Project Area currently is in agricultural use (U.S. Geological Survey National Land Cover Database 2018) (Table 1).

Table 1. Land Cover Types in the Fleming Solar Project Area

Land Cover Type	Acres	Percent of Project Area
Pasture/Hay	412.9	49.6
Cultivated Crops	371.6	44.8
Deciduous Forest	22.1	2.6
Developed, Open Space	11.7	1.5
Mixed Forest	10.1	1.3
Developed, Low Intensity	1.0	0.1
Open Water	0.7	0.1
Developed, Medium Intensity	0.1	0.0
Total	830.2	100

Source: USGS National Land Cover Database (Yang et al. 2018)

The Project Area is located in the northern portion of unincorporated Fleming County less than a mile northwest of the town of Flemingsburg, Kentucky. The Project Area is bounded to the south by Old Convict Road (also known as Convict Pike or Kentucky Route (KY) 559), to the northeast by Maysville Road (also known as KY 11), and Helena Road (also known as KY 1200) bisects the central portion of the Site, oriented southeast to northwest. The Project Area is relatively flat with gently rolling hills, and there are several surface-water ponds and drainage features. Land use is primarily pasture and agricultural. Forested areas, including scrub-shrub vegetation, are primarily located along surface water features as well as property boundaries and fence lines. Adjacent properties similarly consist of cultivated cropland, pastureland, and rural residences.

A map showing the distance of the proposed site from residential neighborhoods, nearest residential structures, schools, and public and private parks that are located within a two-mile radius of the proposed facility is provided in **Exhibit A**.

Because there will be variations to the layout over time as the Project enters later stages of development, Fleming Solar has identified a Potential Project Footprint within the Project Boundary. The Project Boundary is defined as the outer parcel boundaries for any parcel that is the subject to a lease, purchase, or easement through an existing option agreement, which allows for construction activities or the operation of Project components on that parcel. The Potential Project Footprint represents the furthest extent that generating equipment will be located in the Project's final design within the Project Boundary. This area will be enclosed with a security fence. Fleming Solar established the Potential Project Footprint

using a setback of 300 feet from the Project Boundary if there is a nearby residence and 50 feet from the Project Boundary if there is no nearby residence. For the purpose of establishing the Potential Project Footprint, residences are considered "nearby" if they are located within 300 feet of the Project Boundary. The Project Boundary and Potential Project Footprint is identified in Exhibit A.

The Project will consist of the following components: solar panels that range in height from six (6) to ten (10) feet as they track the sun throughout the day; inverters; racking system; associated wiring and balance of system; substation; and operations and maintenance (O&M) building. The Project racking system, which affixes the solar panels to the ground, has a relatively small footprint and does not require concrete. The power generated by the Project will be interconnected to the electric transmission grid via the existing Flemingsburg-Spurlock 138-kilovolt (kV) line that crosses the Project area.

Fleming Solar would secure the Project perimeter using six (6) to ten (10)-foot-high chain-link fencing topped by barbed or razor wire and meeting national electrical code requirements. The security fence will not have an impermeable sight barrier. Project entrance gates are anticipated to be approximately eight (8) feet high and twelve (12) feet wide to allow for emergency and maintenance access. All fencing would be placed at or above grade to ensure drainage flows are unobstructed.

2.2 Proposed Step-Up Substation

Fleming Solar will build a Project Substation near the O&M building and the utility substation East Kentucky Power Cooperative (EKPC) plans to build for the Project's interconnect. The Project Substation will be located in the area shown on the Preliminary Site Layout drawing on the south side of the site adjacent to the Main Plant Entrance. Equipment to be located in the Project Substation includes protective circuit breakers and the generator step-up transformer, or GSU, that will raise the voltage of the power to match the 138kV utility line voltage.

3.0 PUBLIC NOTICE EVIDENCE

KRS 278.706(2)(c)

Evidence of public notice that shall include the location of the proposed site and a general description of the project, state that the proposed construction is subject to approval by the board, and provide the telephone number and address of the Public Service Commission. Public notice shall be given within thirty (30) day immediately preceding the application filing to:

1. *Landowners whose property borders the proposed site; and*
2. *The general public in a newspaper of general circulation in the county or municipality in which the facility is proposed to be located.*

Fleming Solar sent letters providing notice that it intended to file this application to 42 landowners whose property border the proposed site on May 13, 2021. On May 19, 2021, Fleming Solar published notice of the project application in the Flemingsburg Gazette, a newspaper of general circulation in Fleming County, Kentucky.

A sample of the letter sent to adjoining landowners, a map and table of participating and adjoining parcels, a copy of the newspaper advertisement and affidavit of publication are provided in **Exhibit B**.

4.0 COMPLIANCE WITH LOCAL ORDINANCES AND REGULATIONS

KRS 278.706(2)(d) *A statement certifying that the proposed plant will be in compliance with all local ordinances and regulations concerning noise control and any local planning and zoning ordinances. The statement shall also disclose setback requirements established by the planning and zoning commission as provided under KRS 278.704(3).*

The Project is located in an unincorporated portion of Fleming County. The County has not enacted any planning, zoning, or permitting requirements for the Project location. There are no setback requirements established by a planning and zoning commission for the Project location and no noise control ordinance applicable to the Project. A letter from the Fleming County Judge Executive confirming that the only permitting requirements in the unincorporated areas of Fleming County are flood plain permits and septic system permits (if a building with a restroom was constructed) is provided in **Exhibit C**.

Fleming Solar, LLC certifies that the Project will follow all local ordinances and regulations concerning noise control, and with any applicable local planning and zoning ordinances. A statement certifying these facts is submitted as **Exhibit D**.

5.0 SETBACK REQUIREMENTS

KRS 278.706(2)(e)*;* *If the facility is not proposed to be located on a site of a former coal processing plant and the facility will use on-site waste coal as a fuel source or in an area where a planning and zoning commission has established a setback requirement pursuant to KRS 278.704(3), a statement that the exhaust stack of the proposed facility and any wind turbine is at least one thousand (1,000) feet from the property boundary of any adjoining property owner and all proposed structures or facilities used for generation of electricity are two thousand (2,000) feet from any residential neighborhood, school, hospital, or nursing home facility, unless facilities capable of generating ten megawatts (10MW) or more currently exist on the site. If the facility is proposed to be located on a site of a former coal processing plant and the facility will use on-site waste coal as a fuel source, a statement that the proposed site is compatible with the setback requirements provided under KRS 278.704(5). If the facility is proposed to be located in a jurisdiction that has established setback requirements pursuant to KRS 278.704(3), a statement that the proposed site is in compliance with those established setback requirements:*

The Project is not proposed to be located on the site of a former coal processing plant, nor will it use any waste coal as a fuel source. No existing electricity generating facilities are on-site at the Project location. Fleming County has no established setback requirements for this location, nor has a planning unit enacted any setback requirements for this location, per the information provided in Section 4.0. The Project will not include any exhaust stacks or wind turbines as part of the facility; therefore, there are no established setback requirements from the property boundary of any adjoining property owner to the energy generating facilities.

Residential neighborhoods (as defined by KRS 278.700[6]) are within 2,000 feet of the Project's facilities. Pursuant to KRS 278.704(4), Fleming Solar is seeking a deviation from this setback requirement. See **Exhibit A** for a map showing the residential neighborhoods in relation to the Project. There are no hospitals, nursing homes, public parks, or schools located within 2,000 feet of the Project's facilities.

6.0 PUBLIC INVOLVEMENT ACTIVITIES

KRS 278.706(2)(f)

A complete report of applicant's public involvement program activities undertaken prior to the filing of the application, including:

1. *The scheduling and conduction of a public meeting in the county or counties in which the proposed facility will be constructed at least ninety (90) days prior to the filing of an application, for the purpose of informing the public of the project being considered and receiving comment on it;*

2. *Evidence that notice of time, subject, and location of the meeting was published in the newspaper of general circulation in the county, and that individual notice was mailed to all owners of property adjoining the proposed project at least two (2) week prior to the meeting; and*

3. *Any use of media coverage, direct mailing, fliers, newsletters, additional public meetings, establishment of a community advisory group, and any other efforts to obtain local involvement in the siting process.*

Fleming Solar has been active in the Project Area since September 2019. During that time Fleming Solar has met with landowners, community members, and local government officials about the Project.

A public meeting was held at 6:00 p.m. on December 11, 2020, to inform the public about the Project and receive comments from the public. Due to the ongoing global pandemic and consistent with the Board's November 19, 2020 order in this case, this meeting was conducted in compliance with guidance from the U.S. Centers for Disease Control and guidelines from the Office of the Governor intended to reduce the potential spread of COVID-19. Attendance at this meeting was limited to no more than 25 people and pre-registration was required. Per the executive order of the Governor, all in-person attendees were required to correctly wear masks that would potentially prevent the spread of illness. Attendees were asked to practice social distancing for the duration of the meeting. Hand sanitizer and masks were available on-site for attendees. Fleming Solar provided a large-scale (24 × 36 inches) layout map of the proposed solar facility, which otherwise would have been made available to the public for inspection at a public meeting, by displaying the map in the entrance to the Fleming County Fiscal Court the day of the public meeting. Due to the extraordinary circumstances of this time, the meeting was also made available for public participation through a digital "virtual" meeting. The digital meeting was available through Cisco WebEx, which could be accessed through a web browser, and was also accessible through a call-in number.

A notice announcing the public meeting was printed in the Flemingsburg Gazette on November 25, 2020. Fleming Solar also mailed letters to all adjoining landowners notifying them of the public meeting. A scan of this notice and a copy of the information packet mailed to neighboring landowners is included in **Exhibit E**.

The in-person meeting was held at the Fleming County Fiscal Court Meeting Room, which is located at 100 Court Square in Flemingsburg, close to the Project site. An estimated ten people participated in the public meeting virtually and an estimated six participated in person. Dominic Salinas led the public

meeting through a presentation, provided in **Exhibit E**, which included a summary of the developer's experience (Core Solar), the stages of project development, the Project location and development status, components of solar projects, preliminary mitigation plans, and benefits to the community. Following the presentation, a Question-and-Answer session was held with meeting attendees. The attendee's dialogue was inquisitive in nature and no concerns were raised. The questions ranged from commercial aspects (e.g. "Do you have your power sold?"; "Will the power from the Project be sent elsewhere?"; and, "Is there a limit to how many projects the area can handle?"), to environmental impacts (e.g. "What happens to the panels after the life of the Project?"; "Is there nuclear waste being disposed of in Fleming County?"; and, "Will the land be reclaimed to its previous state?"), to community impacts (e.g. "What are the setbacks?"; "Will property values be impacted?"; and, "How will property taxes be handled?").

With the advancement of a larger solar project in the area through the Siting Board application process (AEUG Fleming Solar, LLC), Fleming Solar became aware of some concerns within the broader community related to solar project development generally. Concerns were expressed through public comments to the Public Service Commission, directly to the County Judge Executive, and social media. Fleming Solar diligently tracks community questions, concerns, and general feedback on both Projects. Fleming Solar observes that a majority of the concerns were common misconceptions about the impacts of solar development and could be resolved with increased public education and direct outreach. In response, the Project website was updated to include a list of Frequently Asked Questions and additional Project resources (e.g. preliminary site layout, photo simulations, and the public meeting presentation). The link to the webpage is https://coresolarllc.com/flemingsolar. Screenshots of the current Project webpage and a word document of the Frequently Asked Questions are provided in **Exhibit E**. All information was provided to the County Judge Executive. A feedback form was also added to the webpage for community members to directly submit questions or concerns. The Project webpage has been continually updated as the Project progresses, the layout becomes more refined, and as more questions are received.

Fleming Solar expanded the Project Area to include a portion of one additional parcel in early 2021, creating two new adjoining property owners to the Project. A primary reason for expanding the Project Area was to allow for increased setbacks from nearby residences and roads. As a result, Fleming Solar held a repeat of the public meeting on December 11, 2021 in order to provide these new neighboring property owners an opportunity to participate. Consistent with the Board's March 5, 2021 order in this case, the second public meeting was held at 6:00 p.m. on March 25, 2021 at the Fleming County Fiscal Court Meeting Room. A notice announcing the second public meeting was printed in the Flemingsburg Gazette on March 10, 2021. Fleming Solar also mailed letters to the new adjoining landowners notifying them of the public meeting. A scan of this notice and a copy of the information packet sent to neighboring landowners is included in **Exhibit E**. Fifteen people participated in the meeting virtually and seventeen participated in person. There were several attendees who were residents of a nearby county. The presentation provided at the meeting was updated based on the present status of the Project and was augmented with responses to the Frequently Asked Questions and some initial findings of the studies that were conducted for the Site Assessment Report. The discussion that followed the presentation was more diverse in opinions of solar projects. Some of the most critical comments were based on misinformation (e.g. "solar panels contain toxic materials"; "solar projects use a lot of water and will affect drinking water supply") or general skepticism of third-party reporting and the body of knowledge it represents.

Following the second public meeting, Fleming Solar reached out to all meeting attendees who provided contact information via phone and/or email to see if they had any additional questions and offered to set

up an individual meeting with the lead project developer. Two people requested a follow up meeting with the developer, and one person expressed their opposition to the Project and did not wish to meet with the developer. To the best of its ability, Fleming Solar identified whether any of the individuals who provided negative comments relating to the Project (including those who submitted comments to Board) were from adjoining landowners and discovered that five (5) were. The concerns of these community members were primarily related to viewshed and impacts to property values. Each of these five (5) residences are located in excess of 400 feet of the Potential Project Footprint. As described in the Property Value Impact Report in Exhibit I, Appendix A of the application, "matched pair data shows no impact on home values as close as 105 feet when reasonable visual buffers are provided." Fleming Solar plans sufficient vegetative screens where there is not existing vegetation or viewsheds are not protected by topography (see Visual Assessment in Exhibit I, Appendix D of this application). An additional photo simulation was commissioned specifically for one of these concerned neighbors (Viewshed 04 in Visual Assessment, Exhibit I, Appendix D of this application).

Due to the ongoing global pandemic, Fleming Solar has been required to focus on community engagement through smaller information sessions with community members. In addition to the public meeting, Fleming Solar initiated and established relationships with various community stakeholders over the course of the Project development period. This includes Fleming County Schools Superintendent, Flemingsburg Police Department Chief of Police, and New Creation Praise and Worship Center Flemingsburg Pastor. The New Creation Praise and Worship Center adjoins the Project Boundary, and Fleming Solar received feedback that the noise and visual mitigation measures proposed were sufficient and appreciated. Fleming Solar continues to engage with the community beyond the application filing date and is currently planning a Community Picnic in June 2021 with mailed invites to be delivered to those who live within 2,400 feet of the Project.

7.0 EFFORT TO LOCATED NEAR EXISTING GENERATING FACILITIES

KRS 278.706(2)(g)

A summary of the efforts made by the applicant to locate the proposed facility on a site where existing electric generating facilities are located.

Prior to selecting this location for solar development, Core Solar evaluated locations near existing generating facilities and confirmed transmission capability to be inadequate for new generation. Furthermore, it is difficult to find an existing generation site with enough land available to install a large utility-scale solar facility. Therefore, with the support of the local landowners, Fleming Solar sited the Project along the existing Flemingsburg-Spurlock 138-kV line owned by EKPC. Fleming Solar would be responsible for building a new interconnection to this line as described in the System Impact Study provided in **Exhibit F** to this Application.

8.0 PROOF OF SERVICE

KRS 278.706(2)(h)

Proof of service of a copy of the application upon the chief executive officer of each county and municipal corporation in which the proposed facility is to be located, and upon the chief officer of each public agency charged with the duty of planning land use in the jurisdiction in which the facility is proposed to be located;

As indicated in the Certificate of Service, a copy of the Siting Board application for Fleming Solar, LLC, was electronically transmitted to the Judge Executive of Fleming County, Larry Foxworthy, on the date of electronic filing of this application. Upon inquiry by Fleming Solar, Judge Foxworthy stated that he would accept a link to the materials filed with the Board as service. There is no public agency charged with the duty of planning land use in Fleming County.

9.0 EFFECT ON KENTUCKY'S ELECTRIC TRANSMISSION SYSTEM

KRS 278.706(2)(i)

An analysis of the proposed facility's projected effect on the electricity transmission system in Kentucky.

The Project is located within the Pennsylvania, New Jersey, Maryland Power Pool (PJM) territory. PJM is the Regional Transmission Organization for several states including portions of Kentucky. PJM therefore is managing Project interconnection in coordination with EKPC, who owns the Flemingsburg-Spurlock 138-kV line to which the Project would interconnect.

PJM's interconnection study process is composed of three parts: 1) Feasibility Study, 2) System Impact Study, and 3) Facilities Study. The Feasibility Study has been completed for the Project. The final Feasibility Study report is dated January 2020 and is provided herein as **Exhibit F**. The System Impact Study also has been completed for the Project. The final study report is dated August 2020 and is provided herein as **Exhibit G**. A revised System Impact Study is underway to update assumptions and is expected August 2021. The Facilities Study currently is in progress, and a final report is anticipated to be issued in August 2021.

10.0 LOCAL ECONOMIC IMPACT

KRS 278.706(2)(j)

An analysis of the proposed facility's economic impact on the affected region and the state.

An Economic Impact Analysis was prepared for the Fleming Solar Project by Strategic Economic Research, LLC. A copy of the Economic Impact is provided as **Exhibit H**.
The Economic Impact Analysis summarizes the following economic impacts of the Project.

Jobs—all jobs' numbers are full-time equivalents

- 80 new local jobs during construction for Fleming County
- 142 new local jobs during construction for the Commonwealth of Kentucky
- Over 10.9 new local long-term jobs for Fleming County
- Over 13.7 new local long-term jobs for the Commonwealth of Kentucky

Earnings

- Over $7 million in new local earnings during construction for Fleming County
- Over $12.4 million in new local earnings during construction for the Commonwealth of Kentucky
- Over $460 thousand in new local long-term earnings for Fleming County annually
- Over $1 million in new local long-term earnings for the Commonwealth of Kentucky annually

Output

- Over $8.8 million in new local output during construction for Fleming County
- Over $17 million in new local output during construction for the Commonwealth of Kentucky
- Over $1 million in new local long-term output for Fleming County annually
- Over $1.8 million in new local long-term output for the Commonwealth of Kentucky annually

Property Taxes

- Over $2 million in additional local property taxes from increased land value due to commercial leases over the life of the Project
- Between $835 thousand and $1.67 million in contractual payments to Fleming County over the life of the Project
- Over $883 thousand in taxes to the Commonwealth of Kentucky over the life of the Project

11.0 ENVIRONMENTAL VIOLATION RECORD

KRS 278.706(2)(k)

A detailed listing of all violations by it, or any person with an ownership interest, of federal or state environmental laws, rules, or administrative regulations, whether judicial or administrative, where violations have resulted in criminal convictions or civil or administrative fines exceeding five thousand dollars ($5,000). The status of any pending action, whether judicial or administrative, shall also be submitted.

Neither Fleming Solar, LLC, which is the Applicant and sole owner of the Project, nor Core Solar LLC, which is the parent and sole owner of Fleming Solar, LLC, has violated any state or federal environmental laws or regulations. Likewise, there are no such pending actions against Fleming Solar, LLC, or Core Solar LLC.

12.0 SITE ASSESSMENT REPORT

KRS 278706(2)(l)

A site assessment report as specified in KRS 278.708. The applicant may submit, and the board may accept documentation of compliance with the National Environmental Policy Act (NEPA) rather than a site assessment report.

The Site Assessment Report is provided as **Exhibit I**.

13.0 ENVIRONMENTAL PERMIT LIST

KRS 278.704(1)

The certificate shall be conditioned upon the applicant obtaining necessary air, water and waste permits.

All necessary air, water, and waste permits and authorizations will be obtained before construction and operation of the Project. The following is a list of potential permit authorizations anticipated to be received during Project development. However, the final Project design and EPC selection can affect what will ultimately be required and determine that not all of the listed permits will be necessary.

Table 2. Environmental Permitting Matrix

Permit	Regulatory Authority	Activity	Regulatory Citation
Spill Protection and Control, and Countermeasure (SPCC) Plan	U.S. Environmental Protection Agency (EPA)	SPCC required for total capacity of (Aboveground Storage Tanks) ASTs and oil filled equipment greater than 1,320 gal and with a reasonable likelihood of impacting water bodies. Likely not needed until construction.	40 CFR 112
Kentucky Pollutant Discharge Elimination System (KPDES) Construction Storm Water General Permit	Kentucky Department of Environmental Protection (KDEP)	Construction sites that will disturb one acre or more of land must prepare a Storm Water Pollution Prevention Plan (SWPPP) and submit a Notice of Intent to the KDEP Division of Water (DOW).	401 Kentucky Administrative Regulation (KAR) 5:055
USACE Permit (Section 10 and/or Nationwide or Individual)	U.S. Army Corps of Engineers (USACE)	Structures in Navigable Waters/Work Affecting the Course, Location, Condition, or Physical Capacities of Navigable Waters requires Section 10 Permit. Impacts to jurisdictional waters will require a Clean Water Act (CWA) Section 404 permit, which could include a Nationwide Permit (NWP) or Individual Permit (IP).	33 U.S. Code (U.S.C.) §403 33 U.S.C. §§404 (404 permit)
401 Water Quality Certification (WQC)	KDEP	KDEP must certify all Nationwide and Individual Permits. If jurisdictional features are to be impacted by Project, 401 WQC will be required.	33 U.S.C. §§401

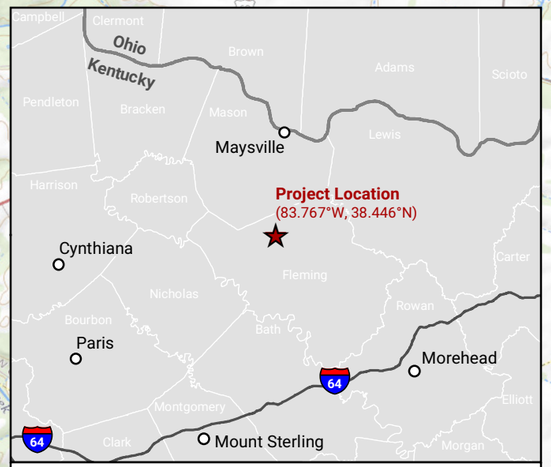
Permit	Regulatory Authority	Activity	Regulatory Citation
Safe Drinking Water Act (SDWA)	EPA	Compliance with the SDWA is required for facilities where drinking water is obtained through an onsite well, or where it is obtained from a municipal source but is further treated before being provided to workers. Compliance consists of monitoring, recordkeeping, reporting, and certain equipment and maintenance requirements.	42 U.S.C. §§ 300, 40 CFR Parts 142-143 (SDWA)

Exhibit A

Surrounding Residential Neighborhoods

And

Potential Project Footprint



1221 South MoPac Expressway, Suite 225
Austin, Texas 78746 | 512-222-1125
www.energyrenewalpartners.com
ENERGY RENEWAL PARTNERS, LLC

LEGEND

- Project Area
- Project Area Buffer (2,000 feet)
- Project Area Buffer (2 miles)
- Residential Structure
- Residential Neighborhood
- Hospital
- Nursing Home
- Park
- School

Fleming Solar, LLC

Fleming Solar Project

Surrounding
Residential Neighborhoods

Project Location: Fleming County, Kentucky

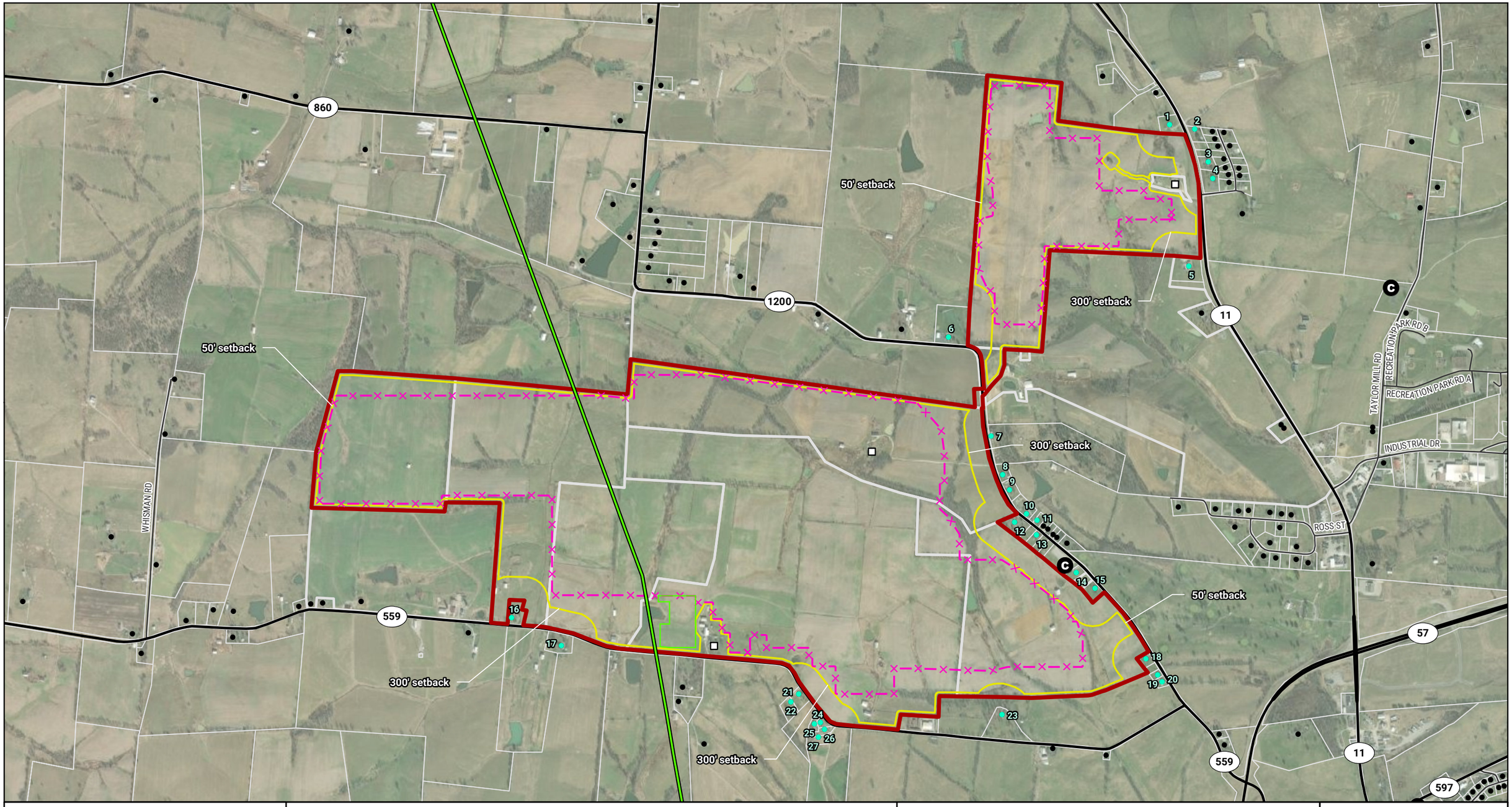
N

0 2,000 4,000 Feet

FIGURE 1

Prepared by: J. Hobbs

Date: 2021-03-19



LEGEND

- Project Boundary (encloses ~830 acres)
- Security Fence (from Prelim. Site Layout dated 5/3/2021)
- Utility Substation Security Fence
- Potential Project Footprint (~725 acres, total)
- Nearest Residential Sturcture (within 300 ft of Project Boundary)
- Residential Structure
- Residential Structure (participating)
- Electric Transmission
- Church
- Land Parcel
- Land Parcel (participating)

Fleming Solar, LLC

Fleming Solar Project

Potential Project Footprint and Nearest Residences

Project Location: Fleming County, Kentucky

N

0 600 1,200 Feet

Date: 2021-05-12

Exhibit B

Public Notice Evidence

Wayne Grannis and Kimberly Grannis, for and in

Andrew Jay Fannin and Ramona Lynn Fannin,

nominal property

NOTICE OF APPLICATION

Fleming Solar, LLC, is proposing to construct and operate an 80-megawatt solar energy project (Project) in Fleming County, Kentucky. The proposed project is to be located in unincorporated Fleming County, KY, northwest of the City of Flemingsburg, KY along Old Convict, Helena, and Maysville Roads. The Project will consist of approximately 830 acres and will include solar photovoltaic panels, inverters, a substation transformer, interconnection equipment, and associated wiring and balance of system.

Fleming Solar, LLC is required to file an application for construction and operation of the proposed facility. This application is subject to the approval of the Kentucky State Siting Board on Electric Generation and Transmission Siting, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

A person who wishes to become a party to a proceeding before the board may, by written motion filed no later than thirty (30) days after the application has been submitted, request leave to intervene.

A party may, upon written motion filed no later than thirty (30) days after an application has been filed, request the board to schedule an evidentiary hearing at the offices of the Public Service Commission, 211 Sower Boulevard, Frankfort, Kentucky. A request for a local public hearing or local public information meeting shall be made by at least three (3) interested persons who reside in the county or municipal corporation in which the pipeline, plant, or transmission line is proposed to be located. The request shall be made in writing and shall be filed within thirty (30) days following the filing of a completed application.

Any questions related to the application or its process may be directed to the Kentucky State Siting Board, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

Published in the Flemingsburg Gazette 05.19.21

NOTICE OF APPLICATION

Fleming Solar, LLC, is proposing to construct and operate an 80-megawatt solar energy project (Project) in Fleming County, Kentucky. The proposed project is to be located in unincorporated Fleming County, KY, northwest of the City of Flemingsburg, KY along Old Convict, Helena, and Maysville Roads. The Project will consist of approximately 830 acres and will include solar photovoltaic panels, inverters, a substation transformer, interconnection equipment, and associated wiring and balance of system.

Fleming Solar, LLC is required to file an application for construction and operation of the proposed facility. This application is subject to the approval of the Kentucky State Siting Board on Electric Generation and Transmission Siting, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

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Any questions related to the application or its process may be directed to the Kentucky State Siting Board, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

Affidavit of Publication

I, Petrea Allison, hereby certify that I am Graphic Designer of the Flemingsburg Gazette. I certify that the attached clipping of the advertisement is a true copy of said advertisement in the said Newspaper on May 19 2021.

In Testimony whereof, witness my signature this 19 day of May 2021.

The Newspaper Office

BY Petrea Allison

Subscribed and sworn to before me this 19 day of May 2021

My Commission expires: May 2, 2023

Melissa Mathews

Notary Public

May 14, 2021

NAME
Address

Re: Fleming Solar Project Notice of Application

Dear NAME,

As you know, Fleming Solar, LLC, is proposing to construct and operate an 80-megawatt solar energy project (Project) in Fleming County, Kentucky. The proposed project is to be located in unincorporated Fleming County, KY, northwest of the City of Flemingsburg, KY along Old Convict, Helena, and Maysville Roads. The Project will consist of approximately 830 acres and will include solar photovoltaic panels, inverters, a substation transformer, interconnection equipment, and associated wiring and balance of system.

Fleming Solar, LLC is required to file an application for construction and operation of the proposed facility. This application is subject to the approval of the Kentucky State Siting Board on Electric Generation and Transmission Siting, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

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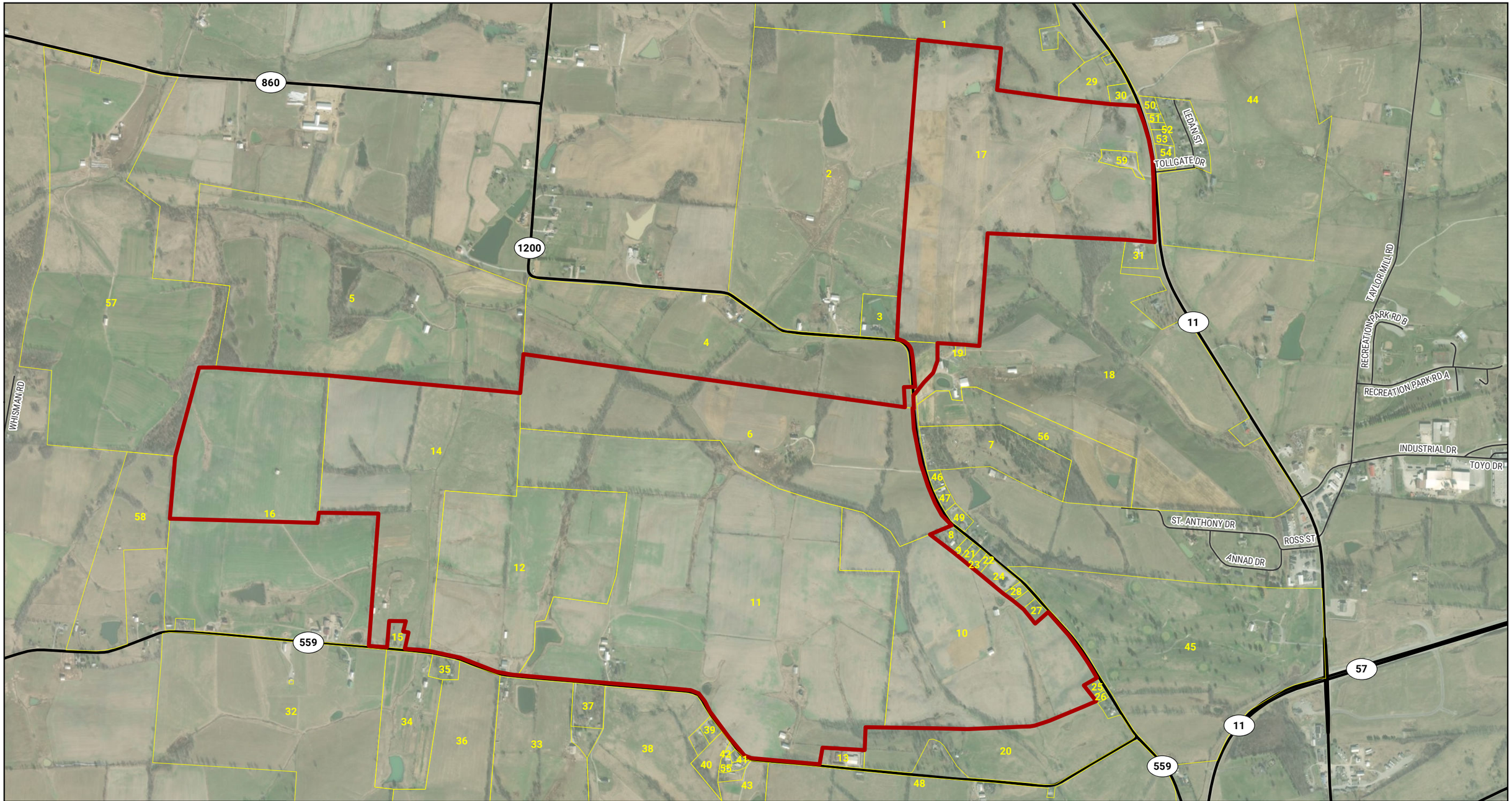
Any questions related to the application or its process may be directed to the Kentucky State Siting Board, which can be reached at P.O. Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602-0615, or via phone at (502) 564-3940.

Sincerely,

Dominic Salinas
Senior Project Developer
Dominic@coresolar.energy
(713) 501-8515



1221 South MoPac Expressway, Suite 225
Austin, Texas 78746 | 512-222-1125
www.energyrenewalpartners.com
ENERGY RENEWAL PARTNERS, LLC

LEGEND

Project Area (~830 acres)

Parcel (Source: Real Estate Portal USA, LLC and Fleming County P.V.A.)

Fleming Solar, LLC

Fleming Solar Project

Parcel Map

Project Location: Fleming County, Kentucky

N

0 550 1,100 Feet

FIGURE 1

Prepared by: L. Kauffman

Date: 2021-04-23

Owner	Parcel IDs	Map Labels	Full Address	City	State	Zip	Project Relationship
ALEXANDER, VAN D & DEBRA J	030-00-00-015.02	9	274 WESTWIND DR	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
ARNETT, KENNETH & EFFIE JANE	030-00-00-009.00	2	2196 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
BARBER & MCINTYRE FARMS INC	038-00-00-001.00	44	4899 FAUL KIRK LANE	LEXINGTON	KY	40515	Non-participating parcel owner adjoining project
BOLING, JACKIE P & TAMMI D	030-00-00-039.00	38	1275 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
BRANNON, STEPHANIE D	038-20-00-052.00	28	1395 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
BROWN, DOROTHY	030-00-00-042.01	55	117 GLASCOCK DRIVE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
BRYANT, DEBRA K	030-00-00-041.00	41	905 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
BURKE, ELLEN L	038-40-00-007.00	54	31 TOLLGATE DRIVE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
CARPENTER, CHARLES A & JANE	038-40-00-023.00	31	2401 MAYSVILLE ROAD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
CRAIN, EUGENE W	038-00-00-023.02 038-00-00-023.03	20 48	120 FAIRWOOD LANE	LEXINGTON	KY	40502	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
CROPPER, TIMOTHY W	030-00-00-029.00	32	PO BOX 305	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
DOYLE, DAVID R & NANCY	038-40-00-002.00	50	155 LEDAN ST	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
EARLYWINE, RONNIE W	038-20-00-029.00	49	1576 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
EDMOND, MICHAEL & STEPHANIE	038-40-00-001.02	30	2751 MAYSVILLE RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
FLEMING CO WATER ASSOCIATION	038-00-00-003.01	19	PO BOX 327	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
FLEMING FARMS LLC	030-00-00-017.00 030-00-00-017.01 030-00-00-019.00	11 12 14	1213 OLD JERSEY RIDGE ROAD	MAYSVILLE	KY	41056	Participating parcel owner within project boundary Participating parcel owner adjoining project Participating parcel owner within project boundary
GILVIN, LARRY	030-00-00-018.00	13	11950 PURDY RD	SARDINIA	OH	45171	Non-participating parcel owner adjoining project
GRAHAM HOLDINGS LLC	038-00-00-003.02	56	2981 TOWN BRANCH ROAD	LEXINGTON	KY	40511	Non-participating parcel owner adjoining project
GRAY, GERALD T & LYNDA	038-20-00-044.00	21	1529 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
GRAY, KATHRYN THOMAS	038-20-00-045.01	23	242 JOHNSON FLAT RD	HILLSBORO	KY	41049	Non-participating parcel owner adjoining project
GRAY, RONNIE H & RONDALL C JR	030-00-00-014.00	7	PO BOX 6	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
GRAY, SAMMY D	038-00-00-021.00	46	1696 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
HARMON, MELISSA	038-00-00-022.00	47	1654 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
HARRIS, SAMUEL J & CIBINA R	030-00-00-032.00 030-00-00-035.00	33 36	1485 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
HORD, JEFFREY L & ANNA F	030-00-00-010.00	3	2078 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
HORD, WILLIAM DALE	030-00-00-013.00	6	2247 HELENA RD	FLEMINGSBURG	KY	41041	Participating parcel owner within project boundary
JOAN ELAINE BAILEY ESTATE	038-40-00-004.00	51	1296 BURTONVILLE RD	TOLLESBORO	KY	41189	Non-participating parcel owner adjoining project
JOHNSON, COLLEEN	030-00-00-015.01	8	1591 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
LITTON, JAMES RICHARD JR	038-20-00-051.00	27	1335 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
MASTERS, ROBERT J & MARTHA	030-00-00-033.00 030-00-00-034.00	34 35	1615 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
MITCHELL, ROBERT B & AMANDA A*	038-00-00-002.01	59	2613 MAYSVILLE RD	FLEMINGSBURG	KY	41041	Participating parcel owner within project boundary
NEW CREATION PRAISE	038-20-00-045.00 038-20-00-046.00	22 24	2246 MOCKINGBIRD HILL	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
PORTER, MATILDA R	038-40-00-006.00	53	2634 MAYSVILLE RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
PUENTE, LAURA	030-00-00-039.01	39	991 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
RAYBURN, KATHY	030-00-00-038.00	37	1313 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
RING, ELIZABETH & AMANDA RITCHIE	030-00-00-042.00	43	869 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
SAYRE, JOHN W & TONIA	030-00-00-016.00 038-00-00-002.00 038-00-00-003.00	10 17 18	2301 MAYSVILLE ROAD	FLEMINGSBURG	KY	41041	Participating parcel owner within project boundary Participating parcel owner within project boundary Participating parcel owner within project boundary
SGANTAS, DOMINIC & ANGELA	030-00-00-020.00	15	1742 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project
SHANK, JOHN R & MARJORIE R	030-00-00-021.00	16	6737 BEAVER CREEK RD	BRIDGEWATER	VA	22812	Participating parcel owner within project boundary
SIMS, CHRISTOPHER O & CARLA	029-00-00-020.00 038-40-00-001.00	1 29	2226 WESTMINSTER TERRACE	OVIEDO	FL	32765	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
STAMPER, JACK D**	038-40-00-005.00	52	PO BOX 151	CRESCENT CITY	FL	42112	Non-participating parcel owner adjoining project
SUNRISE DAIRY LLC	030-00-00-011.00 030-00-00-012.00	4 5	2409 HELENA RD	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
TOLLER, ANTHONY L &	030-00-00-040.00 030-00-00-041.01	40 42	12125 KY 344	WALLINGFORD	KY	41093	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
WAGONER, PHILLIP C & LISA K	030-00-00-002.00	57	4001 HELENA RD	MAYSLICK	KY	41055	Non-participating parcel owner adjoining project
WAGONER, SUSAN R & KELLEY &	038-20-00-047.00 038-20-00-048.00	25 26	3352 HELENA RD	MAYSLICK	KY	41055	Non-participating parcel owner adjoining project Non-participating parcel owner adjoining project
WALTON, JOHN M JR & SARELLA***	038-00-00-019.00	45	721 HILLCREST RD	MAYSVILLE	KY	41056	Non-participating parcel owner adjoining project
WHISMAN, TOMMY W & WILHEMINA P***	030-00-00-022.04	58	2416 CONVICT PIKE	FLEMINGSBURG	KY	41041	Non-participating parcel owner adjoining project

* New parcel owner. Received Notice of Application.

** City, state, and zip information unavailable in database at time of original public meeting in December 2020. Received Notice of Application.

*** New adjoining property owners as a result of expanded project area. Received notice of repeat public meeting in March and Notice of Application.

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1742 CONVICT PIKE
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To: ANTHONY L TOLLER
12125 KY 344
WALLINGFORD KY 41093-8032

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To: ROBERT J MASTERS
1615 CONVICT PIKE
FLEMINGSBURG KY 41041-8035

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: KATHY RAYBURN
1313 CONVICT PIKE
FLEMINGSBURG KY 41041-8037

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JAMES RICHARD LITTON JR
1335 HELENA RD
FLEMINGSBURG KY 41041-8180

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: NEW CREATION PRAISE
2246 MOCKINGBIRD HL
FLEMINGSBURG KY 41041-8642

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
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To: SUNRISE DAIRY LLC
2409 HELENA RD
FLEMINGSBURG KY 41041-8187

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: SUSAN R WAGONER
3352 HELENA RD
MAYSLICK KY 41055-8743

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To: KATHRYN THOMAS GRAY
242 JOHNSON FLAT RD
HILLSBORO KY 41049-7598

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: COLLEEN JOHNSON
1591 HELENA RD
FLEMINGSBURG KY 41041-8182

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From: MELINDA VASEK
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1221 S MO PAC EXPY STE 225
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To: FLEMING CO WATER ASSOCIATION
2772 MOREHEAD RD
FLEMINGSBURG KY 41041-7805

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
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To: VAN D ALEXANDER
274 WESTWIND DR
FLEMINGSBURG KY 41041-8059

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: LARRY GILVIN
11950 PURDY RD
SARDINIA OH 45171-9728

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: KENNETH ARNETT
2196 HELENA RD
FLEMINGSBURG KY 41041-8186

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From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: STEPHANIE D BRANNON
1395 HELENA RD
FLEMINGSBURG KY 41041-8180

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Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: CHARLES CARPENTER
2401 MAYSVILLE RD
FLEMINGSBURG KY 41041-7987

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0383 9158 91

Trans. #: 533454194
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: EUGENE W CRAIN
120 FAIRWOOD LN
LEXINGTON KY 40502-1645

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0383 9159 14

Trans. #: 533454194
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: MICHAEL EDMOND
2751 MAYSVILLE RD
FLEMINGSBURG KY 41041-8135

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0383 9159 38

Trans. #: 533454194
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: CHRISTOPHER 0 SIMS
2226 WESTMINSTER TER
OVIEDO FL 32765-7501

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0383 9159 45

Trans. #: 533454194
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: GERALD GRAY
1529 HELENA RD
FLEMINGSBURG KY 41041-8182

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0383 9159 69

Trans. #: 533454194
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JEFFREY L HORD
2078 HELENA RD
FLEMINGSBURG KY 41041-8185

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0788 85

Trans. #: 533467379
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: GRAHAM HOLDINGS LLC
2981 TOWN BRANCH RD
LEXINGTON KY 40511-8834

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0788 78

Trans. #: 533467379
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: TOMMY W WHISMAN
2416 CONVICT PIKE
FLEMINGSBURG KY 41041-8029

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0788 61

Trans. #: 533467379
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: PHILLIP C WAGONER
4001 HELENA RD
MAYSLICK KY 41055-8739

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0788 47

Trans. #: 533467379
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DOROTHY BROWN
117 GLASCOCK DR
FLEMINGSBURG KY 41041-1209

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 72

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: MATILDA R PORTER
2634 MAYSVILLE RD
FLEMINGSBURG KY 41041-8122

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 96

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JOAN ELAINE ESTATE
1296 BURTONVILLE RD
TOLLESBORO KY 41189-8745

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 02

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: ELIZABETH RING
869 CONVICT PIKE
FLEMINGSBURG KY 41041-8040

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 19

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JOHN M WALTON JR
721 HILLCREST DR
MAYSVILLE KY 41056-9172

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 26

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JACKIE P BOLING
1275 CONVICT PIKE
FLEMINGSBURG KY 41041-8038

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 33

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DEBRA K BRYANT
905 CONVICT PIKE
FLEMINGSBURG KY 41041-8039

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 40

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: ELLEN L BURKE
31 TOLLGATE DR
FLEMINGSBURG KY 41041-8156

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 64

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: TIMOTHY W CROPPER
PO BOX 305
FLEMINGSBURG KY 41041-0305

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 71

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: RONNIE W EARLYWINE
1576 HELENA RD
FLEMINGSBURG KY 41041-8182

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0204 88

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: SAMUEL J HARRIS
1485 CONVICT PIKE
FLEMINGSBURG KY 41041-7931

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0205 01

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: LAURA PUENTE
991 CONVICT PIKE
FLEMINGSBURG KY 41041-8039

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0205 18

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JACK D STAMPER
PO BOX 151
FLEMINGSBURG KY 41041-0151

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 65

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: MELISSA HARMON
1654 HELENA RD
FLEMINGSBURG KY 41041-8183

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 58

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: SAMMY D GRAY
1696 HELENA RD
FLEMINGSBURG KY 41041-8183

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 41

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: BARBER & MCINTYRE FARMS INC
4899 FAULKIRK LN
LEXINGTON KY 40515-1175

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0384 0203 27

Trans. #: 533462376
Print Date: 05/13/2021
Ship Date: 05/13/2021
Expected Delivery Date: 05/17/2021

Priority Mail® Postage: **$7.95**
Total: **$7.95**

From: MELINDA VASEK
CORE SOLAR
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DAVID DOYLE
155 LEDAN ST
FLEMINGSBURG KY 41041-7986

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Exhibit C

Unincorporated County Permit Requirements

Fleming County Fiscal Court
Larry H. Foxworthy, Judge/Executive
100 Court Square, Flemingsburg, Kentucky 41041

August 11, 2020

Re: Permitting Requirements for Solar Farms in Unincorporated Areas of Fleming County, Commonwealth of Kentucky

Dear Mr. Salinas,

Please be advised that the only permitting requirements in the unincorporated areas of Fleming County are flood plain permits and septic system permits (if a building with a restroom was constructed at the site).

Compliance is expected with all existing permits and procedures required by all other state and federal entities. If you need any further information or assistance, please do not hesitate to contact me.

Best Regards,

Larry H. Foxworthy
Judge/Executive of Fleming County

Kentucky
UNBRIDLED SPIRIT

Exhibit D

Certificate of Compliance with Local Regulations

KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING
FLEMING SOLAR, LLC
CASE NO. 2020 – 00370
STATEMENT REGARDING CERTIFICATIONS REQUIRED BY KRS 278.706(2)(d)

Comes the undersigned and states as follows:

1. That my name is Dominic Salinas and I am Senior Project Development Manager of Fleming Solar, LLC, the Applicant herein;
2. That I am over 18 years of age and am a resident of the State of Texas;
3. That I have conducted an inquiry into the facts contained in this Statement and believe them to be true to the best of my knowledge;
4. That the proposed facility as planned will be in compliance with any and all local ordinances and regulations concerning noise control and will also be in compliance with any and all applicable local planning and zoning ordinances as provided in KRS 278.704(3).
5. There are no setback requirements established by Fleming County, including Fleming's project area.

Signed this 21st day of May 2021.

Dominic Salinas
Senior Project Development Manager
Fleming Solar, LLC

Exhibit E

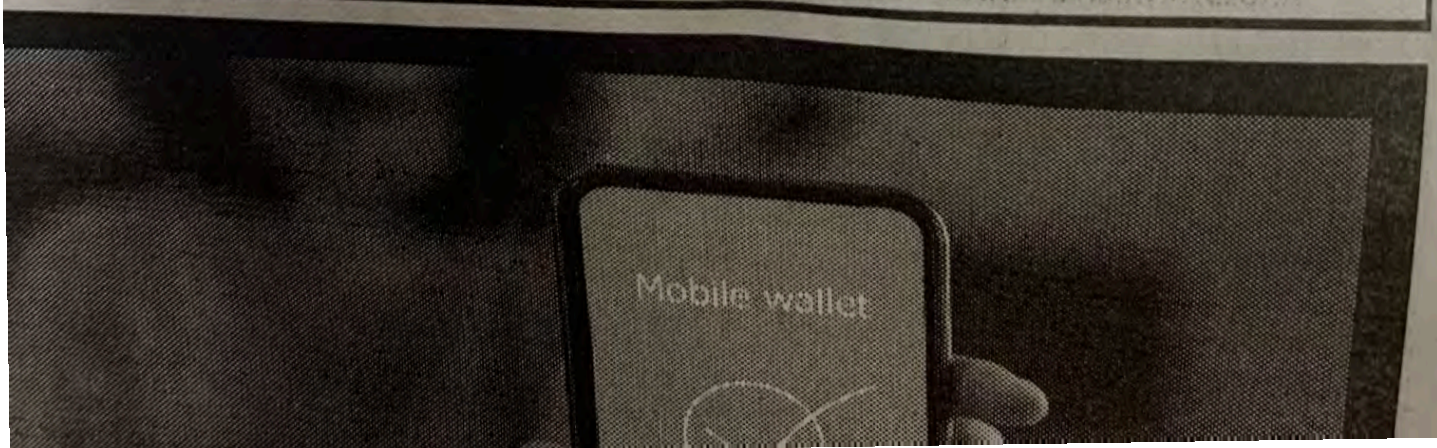
Public Involvement Documents

with many Native American warriors including us in Kentucky so many years ago.

NOTICE OF PUBLIC MEETING

FLEMING SOLAR, LLC, is proposing to construct and operate a solar energy project in Fleming County, Kentucky. The proposed FLEMING SOLAR, LLC (Fleming Solar) project will be located within a project area of approximately 770 acres along Old Convict and Helena Roads. A public meeting to inform the community about the project and answer questions will take place on Friday, December 11, 2020 between 6 p.m. and 7 p.m. in the Fleming County Fiscal Court Meeting Room. Due to the ongoing global pandemic, this meeting will be conducted in compliance with guidance from U.S. Centers for Disease Control and guidelines from the Office of the Governor intended to reduce the potential spread of COVID-19. Attendance at this meeting will be limited to no more than 25 people and pre-registration will be required. Per the Executive Order of the Governor, all in-person attendees will be required to correctly wear masks that will potentially prevent the spread of illness. Attendees will be asked to practice social distancing for the duration of the meeting. Hand sanitizer and masks will be available on-site for attendees. Fleming Solar will make a large-scale (24 inches by 36 inches) layout map of the proposed solar facility, which otherwise would have been made available to the public for inspection at a public meeting, available to the public by displaying the map in the entrance to the Fleming County Fiscal Court the day of the public meeting. Due to the extraordinary circumstances of this time, the meeting also will be made available for public participation through a digital "virtual" meeting. The digital meeting will be available through Cisco WebEx, which can be accessed through a web browser, and will also be accessible through a call-in number. Given the on-going public health situation and limited attendance cap intended to limit the potential spread of COVID-19, Fleming Solar strongly encourages participation in this meeting virtually and via the call-in option. Pre-registration will also be required for participation in the virtual meeting and the call-in meeting. Registration is free of charge. To Register visit https://coresolarllc.com/flemingsolarmeeting or call Dominic Salinas at (713) 501-8515. Anyone with questions about the December 11, 2020 public meeting or Fleming Solar may request information by emailing Dominic Salinas at dominic@coresolar.energy or calling him at (713) 501-8515.

Published in the Flemingsburg Gazette 11.25.20



NOTICE OF PUBLIC MEETING

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November 23, 2020

[NAME]
[STREET ADDRESS]
[CITY, STATE, ZIP]

Dear [NAME],

Re: Fleming Solar Project Public Meeting Notice

We are writing to invite you to a public meeting at 6:00pm on Friday, December 11th, to discuss the Fleming Solar Project planned along Old Convict and Helena Roads, outside of Flemingsburg, KY. During the meeting, we will share information on Core Solar's qualifications and solar development experience, as well as provide an overview of Fleming Solar and its associated benefits to the community.

The meeting will be held virtually and in-person at the Fleming County Fiscal Court Meeting Room. The event will last about an hour and there will be time for questions. This meeting will be conducted in compliance with guidance from U.S. Centers for Disease Control and guidelines from the Office of the Governor intended to reduce the potential spread of COVID-19. Attendance at this meeting will be limited to no more than 25 people and pre-registration is requested. Per the Executive Order of the Governor, all in-person attendees will be required to wear masks that will potentially prevent the spread of illness. Attendees will be asked to practice social distancing for the duration of the meeting. Hand sanitizer and masks will be available on-site for attendees.

To register for this event, visit https://coresolarllc.com/flemingsolarmeeting and indicate whether you plan to attend in-person or virtually. Given the on-going public health situation and limited attendance, we encourage participation in this event virtually. Access information will be provided upon registration.

We will make a large-scale map of the planned solar facility available to the public by displaying the map at the entrance to the Fleming County Fiscal Court the day of the public meeting. You may also visit https://coresolarllc.com/flemingsolar for information on this project.

We look forward to seeing you!

Sincerely,

Dominic Salinas
Senior Project Developer

Dominic@coresolar.energy
(713) 501-8515

Audrey Bohorquez
Project Manager

Audrey@coresolar.energy
(512) 696-3355

CORE SOLAR

FACT SHEET

REV. NOV 2020

FACTS & FIGURES

4,050
MW CONTRACTED

46,975
ACRES UNDER SITE CONTROL

49
PROJECTS UNDER DEVELOPMENT

10+
DECADES OF COLLECTIVE ENERGY EXPERIENCE

16
STATES WITH ACTIVE PROJECTS

ABOUT CORE SOLAR

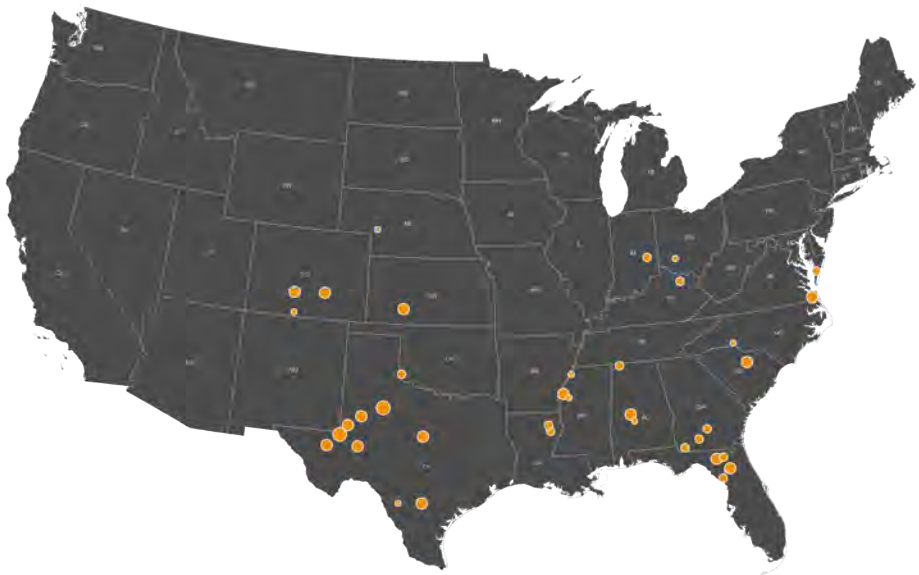
Core Solar is a leader in developing and delivering high quality, utility-scale solar projects to the market. The company's technical expertise, energy experience and industry relationships create a unique platform that delivers exceptional results and that sets us apart from our competitors.

OUR TEAM

The Core Solar team is comprised of energy industry professionals with broad skills and competencies that cover the full project life-cycle from development, through construction to commercial operations. Core Solar has offices in Austin, Texas and Charlotte, North Carolina.

PROJECT DEVELOPMENT

During project development, Core Solar leads all aspects of project origination including site evaluation, real estate procurement, permitting, environmental analysis, engineering, tax agreements, and grid interconnection to ensure the project's success.



1221 S MOPAC EXPY SUITE 225, AUSTIN, TX 78746 • 512-222-1125 • CORESOLARLLC.COM

SOLAR PROJECT BASICS

CORE SOLAR

COMPONENTS

- **Panels** - Mounted on piles (typically I-beams) driven into the ground to variable depths based on soil conditions. The solar panels are installed in rows with space between them to perform maintenance (such as mowing) and allow sunlight to reach all the panels. Some are in a fixed position and tilt towards the sun; some are mounted on trackers which rotate slowly from east to west, tracking the sun.
- **Inverters** - Coverts the electricity generated by the solar panels from Direct Current (DC) to Alternating Current (AC).
- **Substation** - Holds the switchgear and is the electrical exit of the site.
- **Transformers** - Increases the voltage of the electricity to match the voltage of the electric grid.
- **O&M Building** - Small building to house the onsite staff, the equipment, and spare parts necessary for the ongoing operations and maintenance of the project.
- **Fencing** - A chain link fence surrounds the project site and has a variable height (6-10ft).
- **Screening** - Sometimes the project will use foliage to screen the solar project from view.
- **Access** - A locked gate to the solar project only accessible for construction and maintenance personnel.

FAQS

Q: What is it like to live near a solar project?

Unlike other power plants, solar projects make excellent neighbors. Solar farms are entirely self-contained—they use no fuel and create no air or water pollution. Solar projects have few moving parts, make virtually no sound, and omit no odor. Solar projects also have a low profile, about the same as corn fields just prior to harvest.

Q: How will the solar project look from the outside?

Solar panels are low profile by nature of their design and, therefore, are much less visible than other energy producers such as a wind project. Core Solar makes every effort to obscure the visibility of our solar projects through careful site selection and with border vegetation when possible.

Q: Are solar projects noisy?

While solar projects do make some noise, the noise is negligible and typically becomes inaudible from between 50–100 feet of the project's boundary. Also, the noise that a solar facility produces only occurs when the equipment is in use. In other words, at night, when the panels and inverters are not used, there's no noise.

Q: How do you maintain the vegetation in the solar project?

Overgrown vegetation is not desired because it can cause safety hazards and impedes sunlight on the panels. Low growth native seed mixes are often used to maintain the vegetation on the land, along with mechanical mowing when necessary. Sometimes, sheep grazing is used to naturally maintain the land and spot-spray only as needed to control weeds.

Q: How does a solar project impact adjacent property values?

Solar projects do not negatively impact property values. One study conducted in North Carolina concluded, "There is no impact on the sale price for residential, agricultural or vacant residential land that adjoins existing or proposed solar farms." Appraisers in Illinois, Kentucky, and Oregon have conducted similar studies and have reached the same conclusion.

Q: Does a solar project produce glare?

Solar panels are designed to absorb light from the visible spectrum, not to reflect it. They are coated with an anti-reflective coating to minimize the little reflectivity there is. Numerous airports around the world have solar installations located on their premises, which is a testament to the lack of hazard associated with glare.

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To: ANTHONY L TOLLER
12125 KY 344
WALLINGFORD KY 41093-8032

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2226 WESTMINSTER TER
OVIEDO FL 32765-7501

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To: FLEMING FARMS LLC
1213 OLD JERSEY RIDGE RD
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TOLLESBORO KY 41189-8745

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MAYSVILLE KY 41056-9172

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To: SUSAN R WAGONER
3352 HELENA RD
MAYSLICK KY 41055-8743

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From: TRISHA ELIZONDO
ENERGY RENEWAL PARTNERS
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2981 TOWN BRANCH RD
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From: TRISHA ELIZONDO
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To: BARBER & MCINTYRE FARMS INC
4899 FAULKIRK LN
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To: COLLEEN JOHNSON
1591 HELENA RD
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From: MICHELLE ROBINSON
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To: GERALD GRAY
1529 HELENA RD
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From: MICHELLE ROBINSON
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To: KATHRYN THOMAS GRAY
242 JOHNSON FLAT RD
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To: RONNIE H GRAY
PO BOX 6
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To: ROBERT J MASTERS
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From: MICHELLE ROBINSON
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2247 HELENA RD
FLEMINGSBURG KY 41041-7921

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To: JEFFREY L HORD
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FLEMINGSBURG KY 41041-8185

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FLEMINGSBURG KY 41041-8037

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1221 S MO PAC EXPY STE 225
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To: MICHAEL EDMOND
2751 MAYSVILLE RD
FLEMINGSBURG KY 41041-8135

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SARDINIA OH 45171-9728

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6737 BEAVER CREEK RD
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From: MICHELLE ROBINSON
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To: SAMUEL J HARRIS
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FLEMINGSBURG KY 41041-7931

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To: JOHN W SAYRE
2301 MAYSVILLE RD
FLEMINGSBURG KY 41041-8136

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ENERGY RENEWAL PARTNERS
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To: ELIZABETH RING & RITCHIE
869 CONVICT PIKE
FLEMINGSBURG KY 41041-8040

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From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DOMINIC SGANTAS
1742 CONVICT PIKE
FLEMINGSBURG KY 41041-8034

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Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DOROTHY BROWN
117 GLASCOCK DR
FLEMINGSBURG KY 41041-1209

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Trans. #: 514730141
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Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: EUGENE W CRAIN
120 FAIRWOOD LN
LEXINGTON KY 40502-1645

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Trans. #: 514730141
Print Date: 11/23/2020
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Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DAVID DOYLE
155 LEDAN ST
FLEMINGSBURG KY 41041-7986

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Trans. #: 514730141
Print Date: 11/23/2020
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Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: TIMOTHY W CROPPER
PO BOX 305
FLEMINGSBURG KY 41041-0305

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From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: RONNIE W EARLYWINE
1576 HELENA RD
FLEMINGSBURG KY 41041-8182

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Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: ELLEN L BURKE
31 TOLLGATE DR
FLEMINGSBURG KY 41041-8156

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Click-N-Ship® Label Record

USPS TRACKING # :
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Trans. #: 514730141
Print Date: 11/23/2020
Ship Date: 11/23/2020
Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: KENNETH ARNETT
2196 HELENA RD
FLEMINGSBURG KY 41041-8186

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0137 7542 64

Trans. #: 514730141
Print Date: 11/23/2020
Ship Date: 11/23/2020
Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: DEBRA K BRYANT
905 CONVICT PIKE
FLEMINGSBURG KY 41041-8039

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USPS TRACKING # :
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Trans. #: 514730141
Print Date: 11/23/2020
Ship Date: 11/23/2020
Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: VAN D ALEXANDER
274 WESTWIND DR
FLEMINGSBURG KY 41041-8059

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0137 7543 18

Trans. #: 514730141
Print Date: 11/23/2020
Ship Date: 11/23/2020
Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: STEPHANIE D BRANNON
1395 HELENA RD
FLEMINGSBURG KY 41041-8180

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0137 7543 25

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Print Date: 11/23/2020
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Expected Delivery Date: 11/28/2020

Priority Mail® Postage: $7.75
Total: $7.75

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: CHARLES CARPENTER
2401 MAYSVILLE RD
FLEMINGSBURG KY 41041-7987

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Click-N-Ship® Label Record

USPS TRACKING # :

9405 5036 9930 0137 7543 49

Trans. #:	514730141
Print Date:	11/23/2020
Ship Date:	11/23/2020
Expected Delivery Date:	11/28/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: MICHELLE ROBINSON
ENERGY RENEWAL PARTNERS
1221 S MO PAC EXPY STE 225
AUSTIN TX 78746-7677

To: JACKIE P BOLING
1275 CONVICT PIKE
FLEMINGSBURG KY 41041-8038

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CORE SOLAR

Fleming Solar

Fleming County, Kentucky

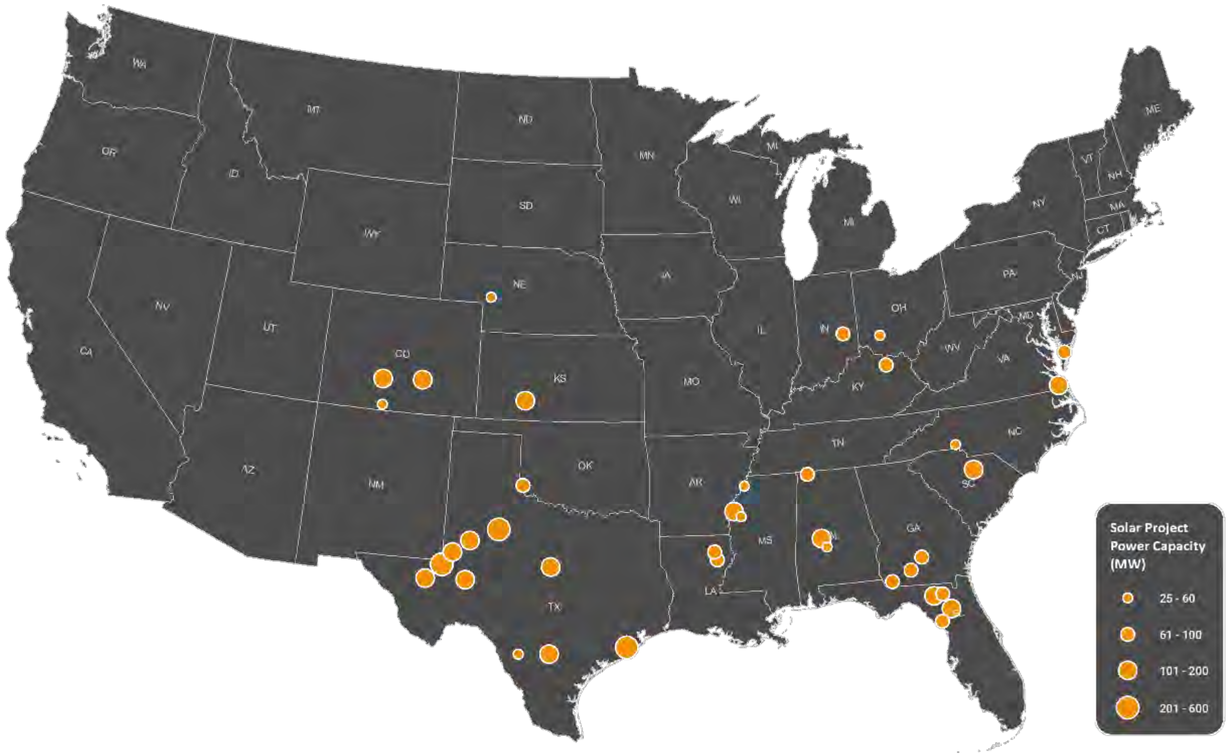
December 2020

Core Solar

Fleming Solar Project Developer

About Core Solar

Core Solar is a leader in developing and delivering high quality, utility-scale solar projects to the market. The company's technical expertise, energy experience and industry relationships create a unique platform that delivers exceptional results and that sets us apart from our competitors. The Core Solar team has broad skills and competencies that cover the full project life-cycle from development, through construction to commercial operations



KEY FACTS

- Core Solar has developed over **4 GW** nationwide
- Principals directly responsible for the development of over **30 GW** of renewable energy projects
- Actively developing projects in **16 states**
- **75 MW** in operations and **475 MW** in construction or planned to start construction in 2021
- Offices in Austin, TX and Charlotte, NC

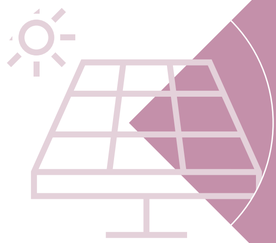
Competitive Advantages

Speed to Market

We enter markets early based on industry intelligence and customer needs. We leverage in-house experts to efficiently navigate key project concerns to eliminate future cost and time disruptions for clients

Investment Grade Projects

Projects are highly vetted by engineers, siting specialists, and landmen early in the project lifecycle before becoming an addition to our project portfolio. We only showcase extremely competitive projects to our customers that will be accretive to their objectives.

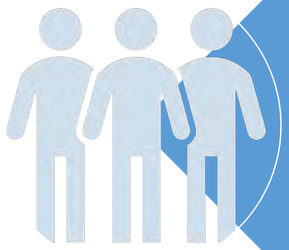


Proven Track Record

Core Solar staff has brought to market over 30,000 MW of renewable energy projects. Since its inception in 2015, Core Solar has transacted over 4 GW of utility-scale solar projects currently under development or approaching construction.

Capital Structure

Core Solar's success and disciplined investment approach has allowed it to operate without any external equity or other constraining capital commitments. This model greatly enhances decision making and portfolio execution.



Flexible Scale

Core Solar maintains a lean development team and has the flexibility to rapidly scale to fit its platform objectives. The scalability is achieved by leveraging its affiliated company ERP to complement capability across all project development disciplines.

Full Development Cycle Capabilities

Greenfield Siting

Our team uses best technology and tools in the market for screening and identifying the highest quality sites for solar development

Environmental Studies and Permitting

Through a strategic relationship with a premier environmental consultancy, ERP, high quality services are delivered on an expedited timeline

GIS and Mapping

State-of-the-art mapping and spatial analyses support communications and decision-making

Module Supply and EPC

Experienced with selecting and negotiating contracts with Tier 1 equipment suppliers

Real Estate, Title, and Minerals

Expert at securing financeable site control and mineral agreements to obtain title insurance

Transmission and Interconnection

Able to drive the interconnection process to allow projects to interconnect to the grid in a cost effective and timely manner

Tax Agreement Negotiation

Successful in negotiating state, county, ISD and hospital tax agreements across multiple markets

Origination and PPA Execution

Active power marketers and experienced delivering financeable Power Purchase Agreements to utility and commercial offtakers

CORE SOLAR

Utility-Scale Solar Basics

Why Solar, Why Now?

Aging Generation Fleet

A significant portion of the US electric generation fleet is retiring – due to end of useful life and/or inability to comply with clean air standards. The retired generation capacity will be replaced, in large part, by clean, renewable energy resources – solar.

Technology Cost Decline

Energy produced from solar technology is on par (or cheaper) than energy produced from fossil generation resources

Consumer Demand

Consumers are demanding more responsibly sourced electricity – renewable energy. Corporations are making sustainability and environmental responsibility hallmarks of their corporate profiles.

Regulatory Mandates

While regulatory forces were the catalyst for renewable adoption several years ago, they are no longer the primary driver for the increased production of renewable energy. Yet, regulators continue to direct utilities to provide environmentally responsible forms of energy production.

Project Stages

Dec 2020

PROJECT DEVELOPMENT

Years 1 – 4

- Landowners continue the current use of the property
- Developer conducts environmental studies, completes the interconnection process, obtains regulatory approvals, and negotiates a power purchase agreement (PPA), among other development activities

CONSTRUCTION

Year 5 (12 – 15 months)

- Fencing, site clearing and grading
- Access and internal roads
- Steel piles driven and panel system installed
- Electrical equipment installed
- Project substation constructed
- Vegetative buffers installed

OPERATIONS AND MAINTENANCE

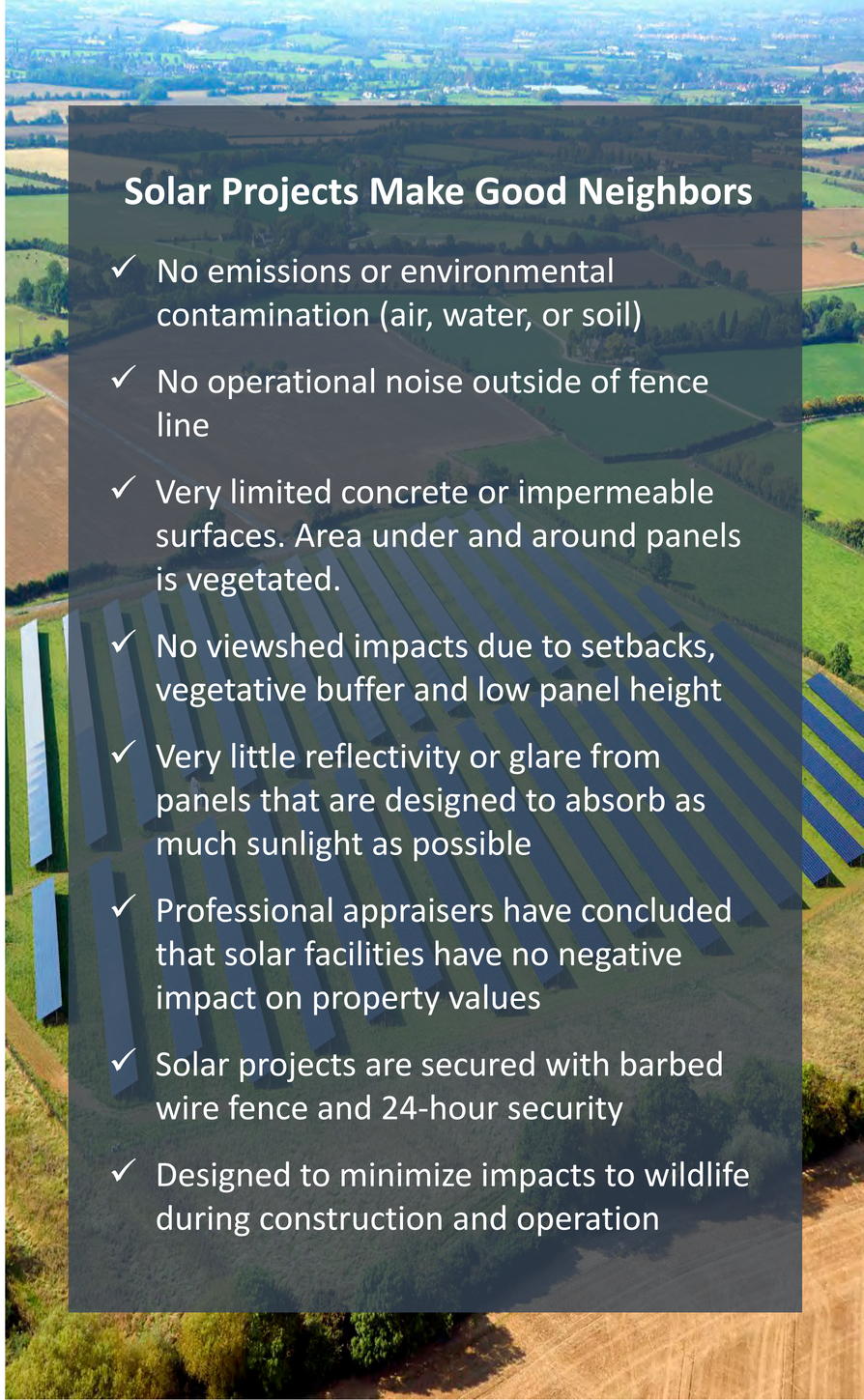
Years 6 – 41 (max)

- Plant operations and maintenance
- Grounds maintenance and security
- Vegetation management

DECOMMISSIONING

Year 42 – 44 (12 – 24 months)

- Bond issued toward end of initial Lease term for removal of equipment
- Decommissioning plan sets procedures and best management practices for ensuring the Project site is clean, safe and able to return to previous land use
- Recycle reusable components (glass, metals, etc.)
- Equipment removed and area is restored to pre-construction condition



Solar Projects Make Good Neighbors

- ✓ No emissions or environmental contamination (air, water, or soil)
- ✓ No operational noise outside of fence line
- ✓ Very limited concrete or impermeable surfaces. Area under and around panels is vegetated.
- ✓ No viewshed impacts due to setbacks, vegetative buffer and low panel height
- ✓ Very little reflectivity or glare from panels that are designed to absorb as much sunlight as possible
- ✓ Professional appraisers have concluded that solar facilities have no negative impact on property values
- ✓ Solar projects are secured with barbed wire fence and 24-hour security
- ✓ Designed to minimize impacts to wildlife during construction and operation

CORE SOLAR

Fleming Solar
Project Overview

Fleming Solar Project

Fleming Solar is an 80 MW ground-mount utility-scale solar project that is under development in Fleming County, KY just northwest of the town of Flemingsburg. The Project is located on approx. 770 acres of privately owned agricultural land.

The Project is scheduled to begin construction in mid 2022. Once operational in mid 2023, the project would generate the equivalent electricity to power approximately 13,000 average Kentucky households

Project Development Status

Fleming Solar is in mid-stages of development:

- ☑ All land is secured via long-term real estate agreements
- ☑ Preliminary environmental and cultural resources studies confirmed no significant sensitivities
- ☑ Field-based environmental studies are underway (e.g. wetland survey, habitat assessment)
- ☑ The interconnection study process is in advanced stages with East Kentucky Power Cooperative and PJM
- ☑ Kentucky Electric Generation and Transmission State Siting Process underway

Near-term development activities include:

- ☐ Complete a site assessment report containing a thorough analysis of potential impacts (visual, traffic, property values, noise, etc.)
- ☐ Submit Application for Construction Certification from the State Siting Board
- ☐ Complete remaining real estate work (e.g. title insurance, land surveys, etc.)
- ☐ Coordinate with federal and state regulators: US Army Corps of Engineers, US Fish and Wildlife Service, and Kentucky Public Service Commission
- ☐ Finalize interconnection study process and secure an interconnection agreement

Fleming Solar Project Area

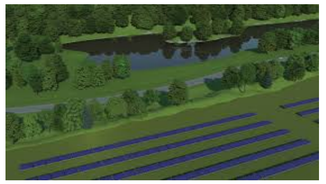
Solar Project Components

- **Panels** – Mounted on piles driven into the ground. Installed in rows with space between them to perform maintenance and allow sunlight to reach all panels
- **Inverters** – Converts the electricity generated by the solar panels from Direct Current (DC) to Alternating Current (AC)
- **Substation** – Holds the switchgear and is the electrical exit of the site
- **Transformers** – Increases the voltage of the electricity to match the voltage of the electric grid
- **O&M Building** – Small building to house the onsite staff, equipment, and spare parts necessary for the ongoing operations and maintenance of the project
- **Setbacks** – All Project equipment will be setback from roads, electric lines, wetlands, and adjacent property lines (width varies, approx. 50 ft)
- **Fencing** – A chain link fence surrounds the project site (height varies, approx. 6-10 ft)
- **Vegetative Buffer** – A vegetative buffer (approx. 15 ft) will screen the project from the view of neighboring homeowners

Example of Panels

Example of an Inverter

Example of Security Fence



Example of Vegetative Buffer

Benefits to the Community

- An estimated 100-300 jobs will be created during the 12 – 15 month construction period
- Permanent employees will be hired and trained for operations, landscaping, maintenance, and security
- Where possible, job positions will be filled by local employees
- New tax revenues based on $80-100 million investment
- Increased business for local restaurants, supply stores, gas stations, lodging and various service providers

Local Workforce Development & Training

Tax Revenues

Increased Business

CORE SOLAR

Thank You

1221 S MoPac Expressway
Austin, TX 78746
512-222-1125
coresolarllc.com

Dominic Salinas

Senior Project Developer
(713) 501-8515
dominic@coresolar.energy

Audrey Bohorquez

Project Manager
(512) 696-3355
audrey@coresolar.energy

Adopted this 17th day of February, 2021.

Robert F. Money, Mayor

Attest: Joetta mMrshall, City Clerk

Date of First Reading: 02/08/21
Date of Second Reading & Adoption: 02/17/21

This advertisement was paid for by the City of Flemingsburg using tax dollars in the amount of $64.

Published in the Flemingsburg Gazette 03.10.21

NOTICE OF PUBLIC MEETING

Fleming Solar, LLC, is proposing to construct and operate an 80 mega-watt solar energy project in Fleming County, Kentucky along Old Convict, Helena, and Maysville Roads. A public meeting to inform the public about the project will be held on Thursday March 25, 2021 at 6:00 PM. Please note, this meeting is a repeat of the public meeting held on December 11, 2020 for the same project and includes one additional parcel that has been added to the Project.

Due to the ongoing global pandemic, this meeting will be held as follows:

- Representatives from Fleming Solar, LLC will make the presentation virtually.
- The virtual meeting will be available through Cisco WebEx, which can be accessed through a web browser, and will also be accessible through a call-in number. Pre-registration is required for participation in the virtual meeting and the call-in meeting. Registration is free of charge. To register or submit a request for an in-person meeting, visit https://coresolarllc.com/flemingsolarmeeting or call Dominic Salinas at (713) 501-8515. The meeting will be held virtually unless an in-person meeting is specifically requested at least 48 hours in advance of the meeting time.
- Members of the public are strongly encouraged to participate via the online meeting. There is no scheduled in-person screening of the meeting, however, a local screening of the meeting will be set up if it is requested by at least one community member. The physical meeting, if held, will be projected for viewing at a site in Flemingsburg at which a representative of Fleming Solar, LLC will be present, and a mechanism will be provided for any in-person attendees to ask questions. In-person attendance at the public meeting will be consistent with guidelines and directives from the CDC and the Office of the Governor in effect at the time of the meeting, including, but not limited to, social distancing and the requirement that masks be properly worn at all times. In order to allow for social distancing, the number of attendees at the in-person meeting will be limited.
- Basic information on the project, including a depiction of the project boundary, can be viewed at https://coresolarllc.com/flemingsolar.

Anyone with questions about the March 25, 2021 public meeting or Fleming Solar may request information by emailing Dominic Salinas at dominic@coresolar.energy or calling him at (713) 501-8515.

Published in the Flemingsburg Gazette of 03.10.21

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March 8, 2021

NAME
Address

Re: Fleming Solar Project Public Meeting Notice

Dear NAME,

We are writing to invite you to a public meeting at 6:00pm on Thursday, March 25, 2021, to discuss the Fleming Solar Project planned along Old Convict, Helena, and Maysville Roads, outside of Flemingsburg, KY. Please note, this meeting is a repeat of the public meeting held on December 11, 2020 for the same project and includes one additional parcel that has been added to the Project. Due to the ongoing global pandemic, this meeting will be held as follows:

- Representatives from Fleming Solar, LLC will make the presentation virtually.
- The virtual meeting will be available through Cisco WebEx, which can be accessed through a web browser, and will also be accessible through a call-in number. Pre-registration is required for participation in the virtual meeting and the call-in meeting. Registration is free of charge. To register or submit a request for an in-person meeting, visit https://coresolarllc.com/flemingsolarmeeting or call Dominic Salinas at (713) 501-8515. The meeting will be held virtually unless an in-person meeting is specifically requested at least 48 hours in advance of the meeting time.
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- Basic information on the project, including a depiction of the project boundary, can be viewed at https://coresolarllc.com/flemingsolar.

Sincerely,

Dominic Salinas
Senior Project Developer
Dominic@coresolar.energy
(713) 501-8515

Audrey Bohorquez
Asset Development Director
Audrey@coresolar.energy
(512) 696-3355

CORE SOLAR

FACT SHEET

REV. NOV 2020

FACTS & FIGURES

4,050
MW CONTRACTED

46,975
ACRES UNDER SITE CONTROL

49
PROJECTS UNDER DEVELOPMENT

10+
DECADES OF COLLECTIVE ENERGY EXPERIENCE

16
STATES WITH ACTIVE PROJECTS

ABOUT CORE SOLAR

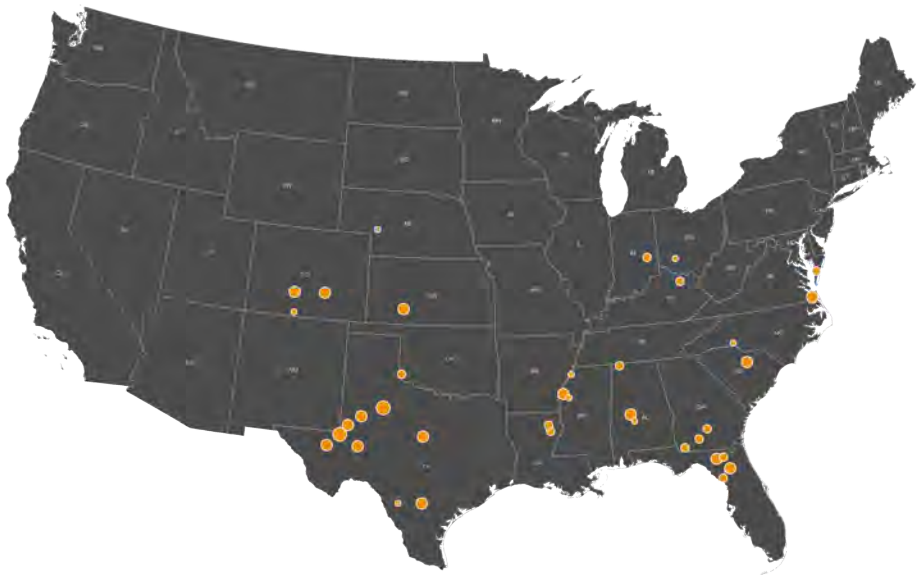
Core Solar is a leader in developing and delivering high quality, utility-scale solar projects to the market. The company's technical expertise, energy experience and industry relationships create a unique platform that delivers exceptional results and that sets us apart from our competitors.

OUR TEAM

The Core Solar team is comprised of energy industry professionals with broad skills and competencies that cover the full project life-cycle from development, through construction to commercial operations. Core Solar has offices in Austin, Texas and Charlotte, North Carolina.

PROJECT DEVELOPMENT

During project development, Core Solar leads all aspects of project origination including site evaluation, real estate procurement, permitting, environmental analysis, engineering, tax agreements, and grid interconnection to ensure the project's success.



1221 S MOPAC EXPY SUITE 225, AUSTIN, TX 78746 • 512-222-1125 • CORESOLARLLC.COM

SOLAR PROJECT BASICS

CORE SOLAR

COMPONENTS

- **Panels** - Mounted on piles (typically I-beams) driven into the ground to variable depths based on soil conditions. The solar panels are installed in rows with space between them to perform maintenance (such as mowing) and allow sunlight to reach all the panels. Some are in a fixed position and tilt towards the sun; some are mounted on trackers which rotate slowly from east to west, tracking the sun.
- **Inverters** - Coverts the electricity generated by the solar panels from Direct Current (DC) to Alternating Current (AC).
- **Substation** - Holds the switchgear and is the electrical exit of the site.
- **Transformers** - Increases the voltage of the electricity to match the voltage of the electric grid.
- **O&M Building** - Small building to house the onsite staff, the equipment, and spare parts necessary for the ongoing operations and maintenance of the project.
- **Fencing** - A chain link fence surrounds the project site and has a variable height (6-10ft).
- **Screening** - Sometimes the project will use foliage to screen the solar project from view.
- **Access** - A locked gate to the solar project only accessible for construction and maintenance personnel.

FAQS

Q: What is it like to live near a solar project?

Unlike other power plants, solar projects make excellent neighbors. Solar farms are entirely self-contained—they use no fuel and create no air or water pollution. Solar projects have few moving parts, make virtually no sound, and omit no odor. Solar projects also have a low profile, about the same as corn fields just prior to harvest.

Q: How will the solar project look from the outside?

Solar panels are low profile by nature of their design and, therefore, are much less visible than other energy producers such as a wind project. Core Solar makes every effort to obscure the visibility of our solar projects through careful site selection and with border vegetation when possible.

Q: Are solar projects noisy?

While solar projects do make some noise, the noise is negligible and typically becomes inaudible from between 50–100 feet of the project's boundary. Also, the noise that a solar facility produces only occurs when the equipment is in use. In other words, at night, when the panels and inverters are not used, there's no noise.

Q: How do you maintain the vegetation in the solar project?

Overgrown vegetation is not desired because it can cause safety hazards and impedes sunlight on the panels. Low growth native seed mixes are often used to maintain the vegetation on the land, along with mechanical mowing when necessary. Sometimes, sheep grazing is used to naturally maintain the land and spot-spray only as needed to control weeds.

Q: How does a solar project impact adjacent property values?

Solar projects do not negatively impact property values. One study conducted in North Carolina concluded, "There is no impact on the sale price for residential, agricultural or vacant residential land that adjoins existing or proposed solar farms." Appraisers in Illinois, Kentucky, and Oregon have conducted similar studies and have reached the same conclusion.

Q: Does a solar project produce glare?

Solar panels are designed to absorb light from the visible spectrum, not to reflect it. They are coated with an anti-reflective coating to minimize the little reflectivity there is. Numerous airports around the world have solar installations located on their premises, which is a testament to the lack of hazard associated with glare.

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Your item was delivered in or at the mailbox at 2:17 pm on March 11, 2021 in MAYSLICK, KY 41055.

USPS Tracking Plus™ Available ⌄

Delivered

March 11, 2021 at 2:17 pm
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MAYSLICK, KY 41055

Feedback

USPS Tracking®

FAQs >

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Tracking Number: 9405503699300302969042

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Your item was delivered in or at the mailbox at 1:08 pm on March 11, 2021 in FLEMINGSBURG, KY 41041.

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FLEMINGSBURG, KY 41041

Feedback

Fleming Solar Second Public Meeting

Fleming County, Kentucky

March 25, 2021

Presentation Overview

01. Introductions

02. About Core Solar and Development Standards

03. Utility Scale Solar Basics and FAQs

04. Fleming Solar Project Overview, Recent Developments, and Community Questions

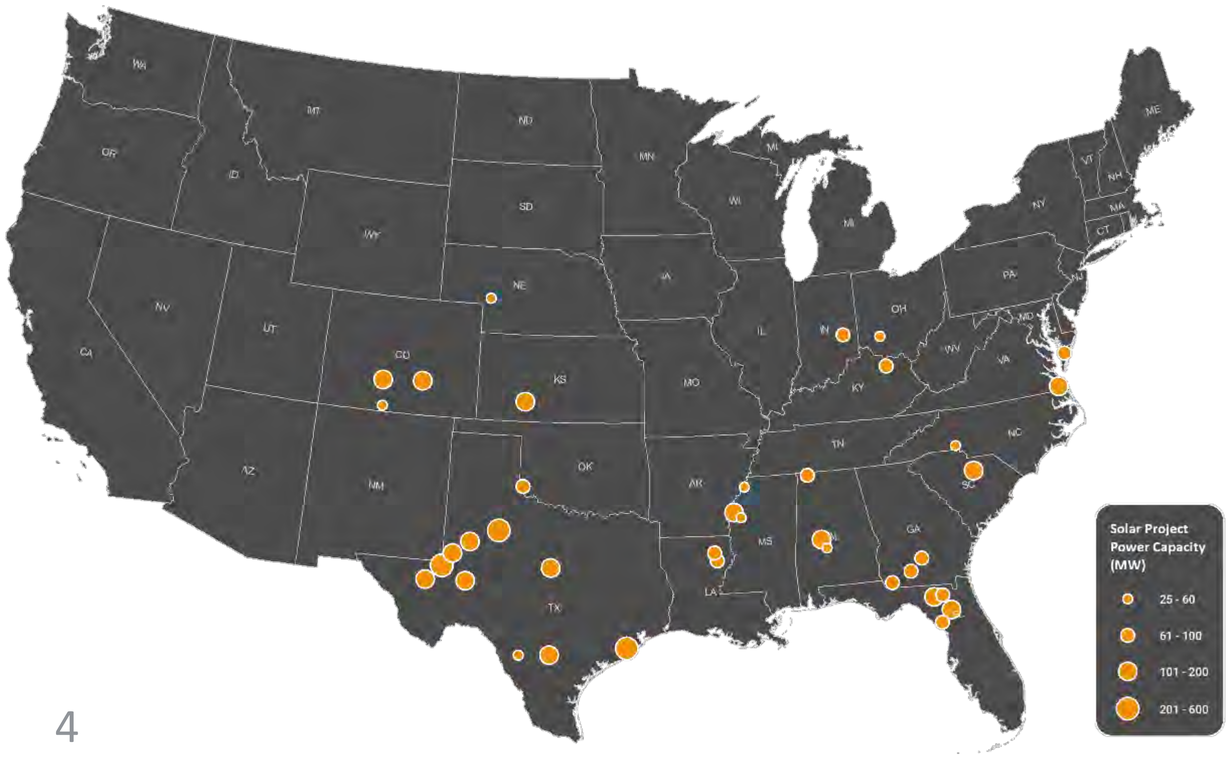
05. Questions & Answers

Core Solar

Fleming Solar Project Developer

About Core Solar

Core Solar is a leader in developing and delivering high quality, utility-scale solar projects to the market. The company's technical expertise, energy experience and industry relationships create a unique platform that delivers exceptional results and that sets us apart from our competitors. The Core Solar team has broad skills and competencies that cover the full project life-cycle from development, through construction to commercial operations.



KEY FACTS

- Core Solar has developed over **4 GW** nationwide
- Principals directly responsible for the development of over **30 GW** of renewable energy projects
- Actively developing projects in **16 states**
- **100 MW** in operations and **450 MW** in construction or planned to start construction this year
- US based company with offices in Austin, TX and Charlotte, NC

Core Solar Team

Core Solar is dedicated to community engagement as we develop high quality solar projects. Here are the key team members for the Fleming Solar Project.

Dominic Salinas
Fleming Solar Project Manager
Austin, Texas

Kyle Corcoran
Marketing & Offtake Lead
Charlotte, North Carolina

Randy Jenks
Engineering Lead
Austin, Texas

Greg Nelson
Core Solar CEO
Austin, Texas

Audrey Bohorquez
Permitting Lead
Austin, Texas

Julius Horvath
Interconnection Lead
Austin, Texas

Our Commitments

Minimal Ecological Impact

- Projects designed to utilize the latest solar technology to increase generation efficiency and decrease land area needed
- Projects developed on privately owned property where minimal grading or tree clearing required

Environmental Responsibility & Regulatory Compliance

- Engaging top tier consulting specialists to ensure responsible development
- Assess unique permitting needs and perform environmental and technical services
- Well-positioned to exceed regulatory requirements and minimize any harmful effects to the environment

Community Involvement

- Hosting public meetings, educating the public, and providing project information
- Maintaining a positive reputation in the communities where projects have been constructed

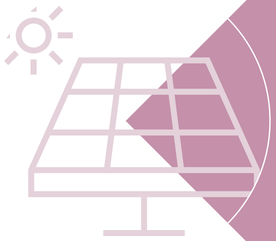
Competitive Advantages

Speed to Market

We enter markets early based on industry intelligence and customer needs. We leverage in-house experts to efficiently navigate key project concerns to eliminate future cost and time disruptions for clients

Investment Grade Projects

Projects are highly vetted by engineers, siting specialists, and landmen early in the project lifecycle before becoming an addition to our project portfolio. We only showcase extremely competitive projects to our customers that will be accretive to their objectives.

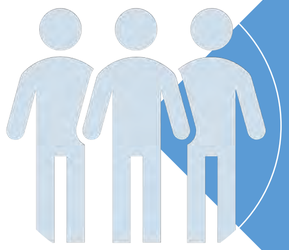


Proven Track Record

Core Solar staff has brought to market over 30,000 MW of renewable energy projects. Since its inception in 2015, Core Solar has transacted over 4 GW of utility-scale solar projects currently under development or approaching construction.

Capital Structure

Core Solar's success and disciplined investment approach has allowed it to operate without any external equity or other constraining capital commitments. This model greatly enhances decision making and portfolio execution.



Flexible Scale

Core Solar maintains a lean development team and has the flexibility to rapidly scale to fit its platform objectives. The scalability is achieved by leveraging its affiliated company ERP to complement capability across all project development disciplines.

Full Development Cycle Capabilities

Greenfield Siting

Our team uses best technology and tools in the market for screening and identifying the highest quality sites for solar development

Environmental Studies and Permitting

Through a strategic relationship with a premier environmental consultancy, ERP, high quality services are delivered on an expedited timeline

GIS and Mapping

State-of-the-art mapping and spatial analyses support communications and decision-making

Module Supply and EPC

Experienced with selecting and negotiating contracts with Tier 1 equipment suppliers

Real Estate, Title, and Minerals

Expert at securing financeable site control and mineral agreements to obtain title insurance

Transmission and Interconnection

Able to drive the interconnection process to allow projects to interconnect to the grid in a cost effective and timely manner

Tax Agreement Negotiation

Successful in negotiating state, county, ISD and hospital tax agreements across multiple markets

Origination and PPA Execution

Active power marketers and experienced delivering financeable Power Purchase Agreements to utility and commercial offtakers

CORE SOLAR

Utility-Scale Solar Basics

Why Solar, Why Now?

Aging Generation Fleet

A significant portion of the US electric generation fleet is retiring – due to end of useful life and/or inability to comply with clean air standards. The retired generation capacity will be replaced, in large part, by clean, renewable energy resources – solar.

Technology Cost Decline

Energy produced from solar technology is on par (or cheaper) than energy produced from fossil generation resources

Consumer Demand

Consumers are demanding more responsibly sourced electricity – renewable energy. Corporations are making sustainability and environmental responsibility hallmarks of their corporate profiles.

Regulatory Mandates

While regulatory forces were the catalyst for renewable adoption several years ago, they are no longer the primary driver for the increased production of renewable energy. Yet, regulators continue to direct utilities to provide environmentally responsible forms of energy production.

Project Stages

March 2021

PROJECT DEVELOPMENT
Years 1 – 4
- Landowners continue the current use of the property
- Developer conducts environmental studies, completes the interconnection process, obtains regulatory approvals, and negotiates a power purchase agreement (PPA), among other development activities

CONSTRUCTION
Year 5 (12 – 15 months)
- Fencing, site clearing and grading
- Access and internal roads
- Steel piles driven and panel system installed
- Electrical equipment installed
- Project substation constructed
- Vegetative buffers installed

OPERATIONS AND MAINTENANCE
Years 6 – 41 (max)
- Plant operations and maintenance
- Grounds maintenance and security
- Vegetation management

DECOMMISSIONING
Year 42 – 44 (12 – 24 months)
- Bond issued toward end of initial Lease term for removal of equipment
- Decommissioning plan sets procedures and best management practices for ensuring the Project site is clean, safe and able to return to previous land use
- Recycle reusable components (glass, metals, etc.)
- Equipment removed and area is restored to pre-construction condition

Solar Projects Make Good Neighbors

- ✓ No emissions or environmental contamination (air, water, or soil)
- ✓ No operational noise outside of fence line
- ✓ Very limited concrete or impermeable surfaces. Area under and around panels is vegetated.
- ✓ No viewshed impacts due to setbacks, vegetative buffer and low panel height
- ✓ Very little reflectivity or glare from panels that are designed to absorb as much sunlight as possible
- ✓ Professional appraisers have concluded that solar facilities have no negative impact on property values
- ✓ Solar projects are secured with chain-link fence and 24-hour security
- ✓ Designed to minimize impacts to wildlife during construction and operation

General Utility Scale Questions

How will the solar project look from the outside?

- Low profile and less visible than other energy producers (wind, coal, gas, nuclear)
- Sites are carefully selected to obscure project visibility (i.e. avoiding dense residential areas or other sensitive areas)
- Vegetative screenings are planted when needed

Are solar projects noisy?

- Inverters produce sound of ~85 dBA, comparable to an electric blender
- At ~150 feet, the volume is equivalent to a quiet suburb or conversation at home (~50 dBA)

Do solar projects produce glare?

- Solar panels are:
  - Designed to **absorb** light, not to reflect it
  - Coated with an **anti-reflective coating**
  - Generally, less reflective than windows
  - Approved by the FAA for installation on and around airports

What are solar panels made of?

- Silicon (sand), glass, silver wire, aluminum, copper and other common materials
- Panel materials are sealed between two pieces of glass
- **No toxic materials** will leach into the environment
- Incredibly durable and required to meet all local, state and federal regulations

General Utility Scale Questions

Do solar projects impact adjacent property values?

- Based on numerous professional appraisals across the country, solar projects do not negatively impact property values
- Solar projects do not contribute significant noise, odor, or traffic impacts

What are the impacts on air, soil, and water quality?

- Operating projects do not produce air or water pollution or greenhouse gases
- Solar produces no waste, and no contamination from hazardous materials occurs
- Panels are cleaned with water, when its needed
- Most of the project area is in perennial ground cover and eliminates annual tillage, irrigation, and fertilizer, allowing the soil to absorb water and rejuvenate

What happens after the useful life of the solar project?

- The system will be decommissioned, and the land will be restored
- Project owner is required to remove all infrastructure (per the lease agreement)
- A bond or letter of credit will be posted to pay for the cost of removal and to restore land to its pre-construction condition before the lease ends
- Equipment will be recycled, resold, and salvaged as appropriate

CORE SOLAR

Fleming Solar
Project Overview

Fleming Solar Project

Fleming Solar is an 80 MW ground-mount utility-scale solar project that is under development in Fleming County, KY just northwest of the town of Flemingsburg. The Project is located on approx. 830 acres of privately owned land.

The Project is scheduled to begin construction in mid 2022. Once operational in mid 2023, the Project would generate the equivalent electricity to power approximately 13,000 average Kentucky households.

Project Development Status

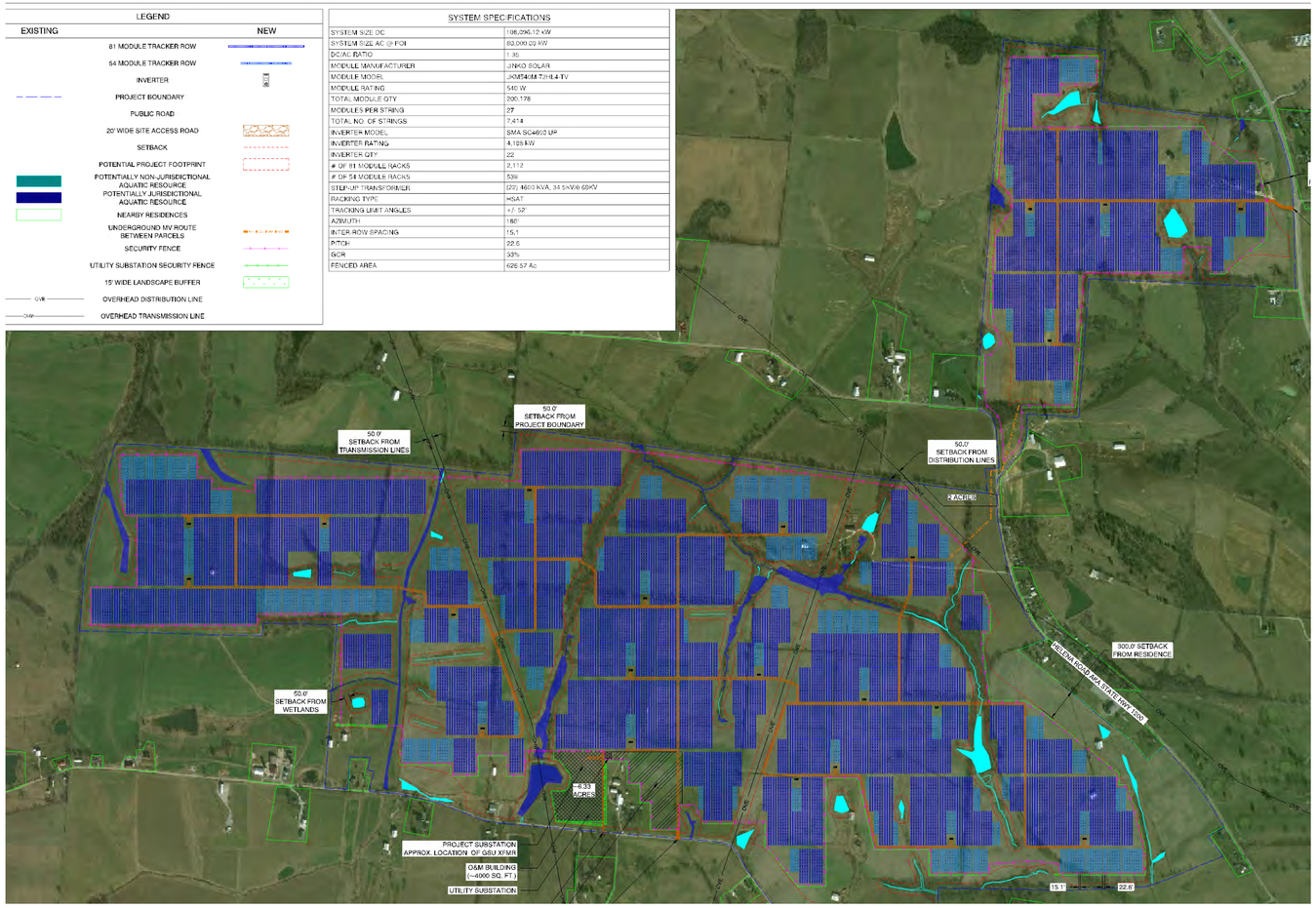
Fleming Solar is in mid-stages of development:

- ☑ All land is secured via long-term real estate agreements
- ☑ Field-based environmental studies are complete (e.g. wetland survey, habitat assessment, Phase I)
- ☑ The interconnection study process is in advanced stages with East Kentucky Power Cooperative and PJM
- ☑ Kentucky Electric Generation and Transmission State Siting Process underway
- ☑ Property Value Impact Study complete; Other impact studies (visual, traffic, and noise) drafted

Near-term development activities include:

- ☐ Submit Application for Construction Certification from the State Siting Board
- ☐ Complete remaining real estate work (e.g. title insurance, land surveys, etc.)
- ☐ Coordinate with federal and state regulators: US Army Corps of Engineers, US Fish and Wildlife Service, and Kentucky Public Service Commission
- ☐ Finalize interconnection study process and secure an interconnection agreement

Fleming Solar Project Area



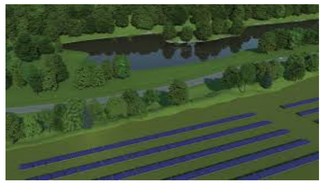
Solar Project Components

- **Panels** – Mounted on piles driven into the ground. Installed in rows with space between them to perform maintenance and allow sunlight to reach all panels
- **Inverters** – Converts the electricity generated by the solar panels from Direct Current (DC) to Alternating Current (AC)
- **Substation** – Holds the switchgear and transformer; the electrical exit of the site
- **Transformers** – Increases the voltage of the electricity to match the voltage of the electric grid (located in substation)
- **O&M Building** – Small building to house the onsite staff, equipment, and spare parts necessary for the ongoing operations and maintenance of the project
- **Setbacks** – All Project equipment will be setback from roads, electric lines, wetlands, and adjacent property lines (width varies, approx. 50-300 ft)
- **Fencing** – A chain link fence surrounds the project site (height varies, approx. 6-10 ft)
- **Vegetative Buffer** – A vegetative buffer (approx. 15 ft) will screen the project from the view of neighboring homeowners

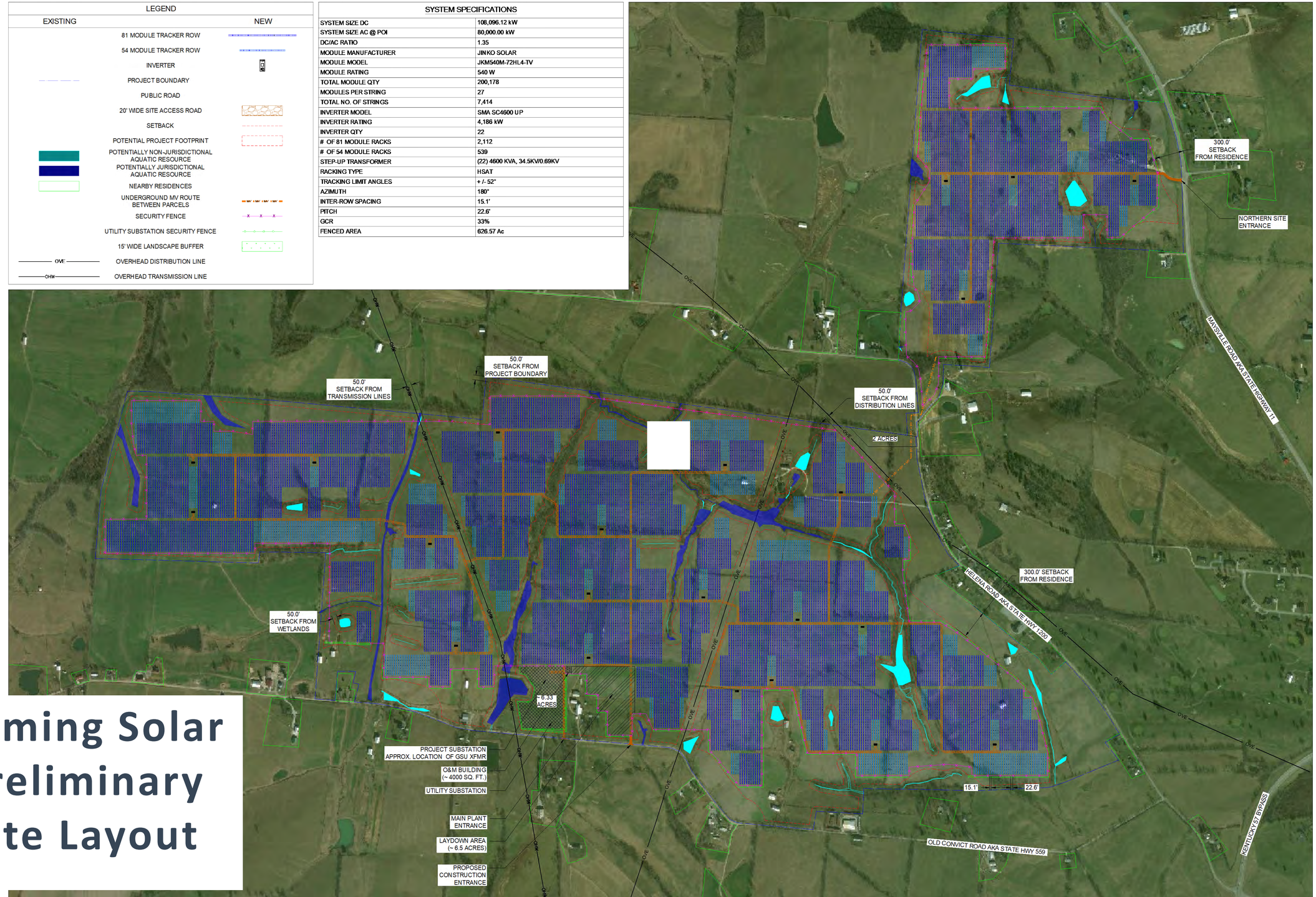

Example of Panels


Example of an Inverter


Example of Security Fence


Example of Vegetative Buffer

Fleming Solar Preliminary Site Layout



CORE SOLAR

Soleil Solutions Pte Ltd

NOT FOR CONSTRUCTION

PROJECT OWNER:
FLEMING SOLAR, LLC
1221 S. MOPAC EXPY
AUSTIN, TX 78746

PROJECT:
FLEMING SOLAR

PROJECT LOCATION:
1258 OLD CONVICT RD,
FLEMINGSBURG, KY 41041

LAT: 38.443844°
LON: -83.764725°

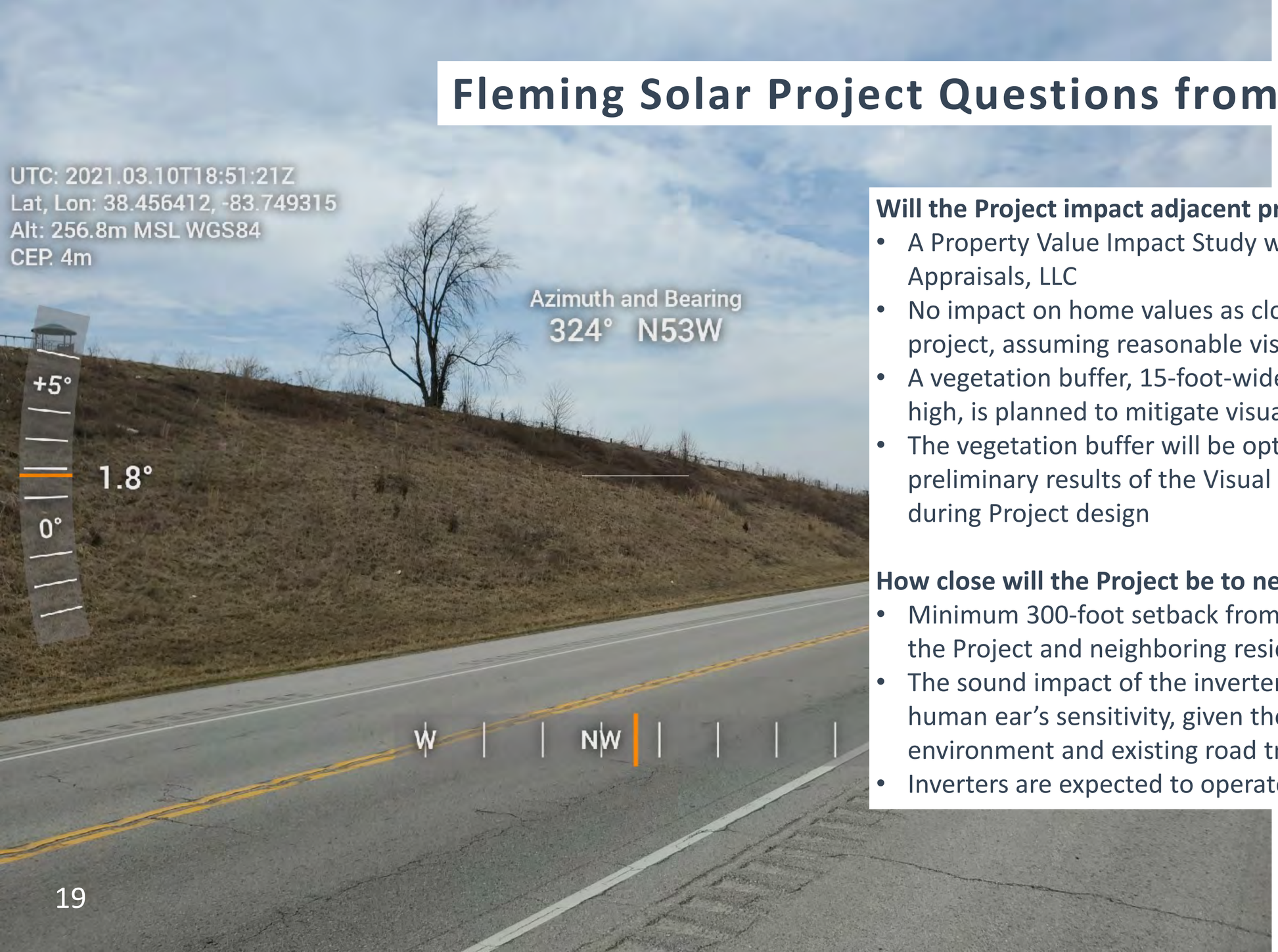
REV. NO	DESCRIPTION	DATE
0	PRELIMINARY LAYOUT	03/24/21

SHEET TITLE:
PRELIMINARY SITE LAYOUT

DRAWING NO.:
PV-100

DRAWN BY:
LR

Fleming Solar Project Questions from the Community



Will the Project impact adjacent property values?

- A Property Value Impact Study was completed by Kirkland Appraisals, LLC
- No impact on home values as close as 105 feet to a solar project, assuming reasonable visual buffers are provided
- A vegetation buffer, 15-foot-wide and growing ~15 to 20 feet high, is planned to mitigate visual impacts
- The vegetation buffer will be optimized based on the preliminary results of the Visual Impact Assessments performed during Project design

How close will the Project be to nearby residences?

- Minimum 300-foot setback from the security fence surrounding the Project and neighboring residences
- The sound impact of the inverters at 300 feet below the average human ear's sensitivity, given the ambient sound level environment and existing road traffic
- Inverters are expected to operate only during daylight hours

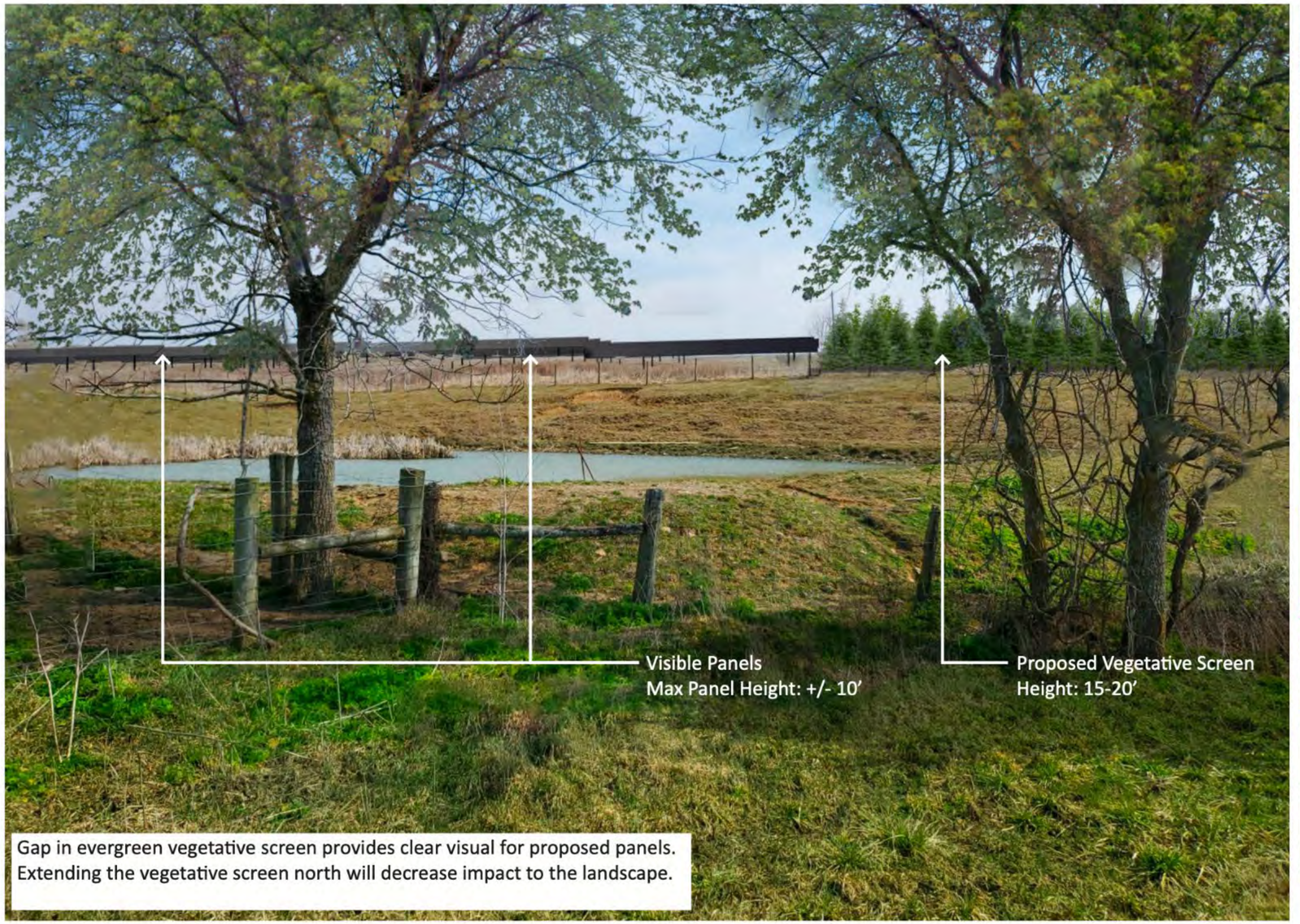


Photo Simulation - Summer Foliage

Photo Location Old Convict Road
Photo Taken 2021-03-10

Existing View from Old Convict Road Looking E

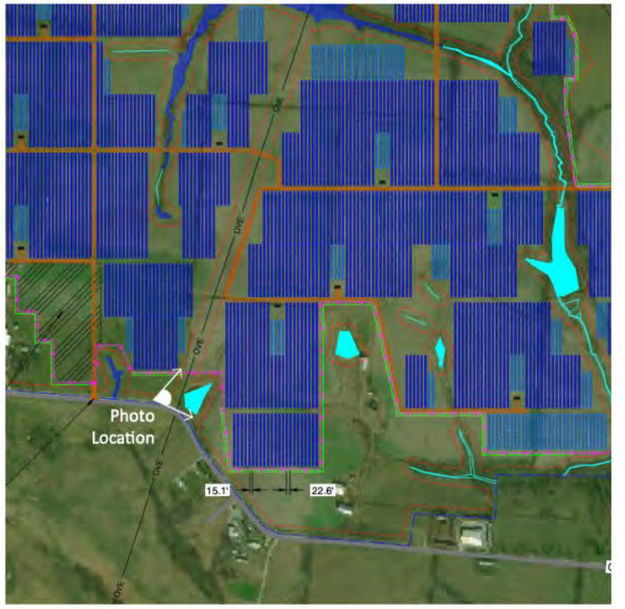


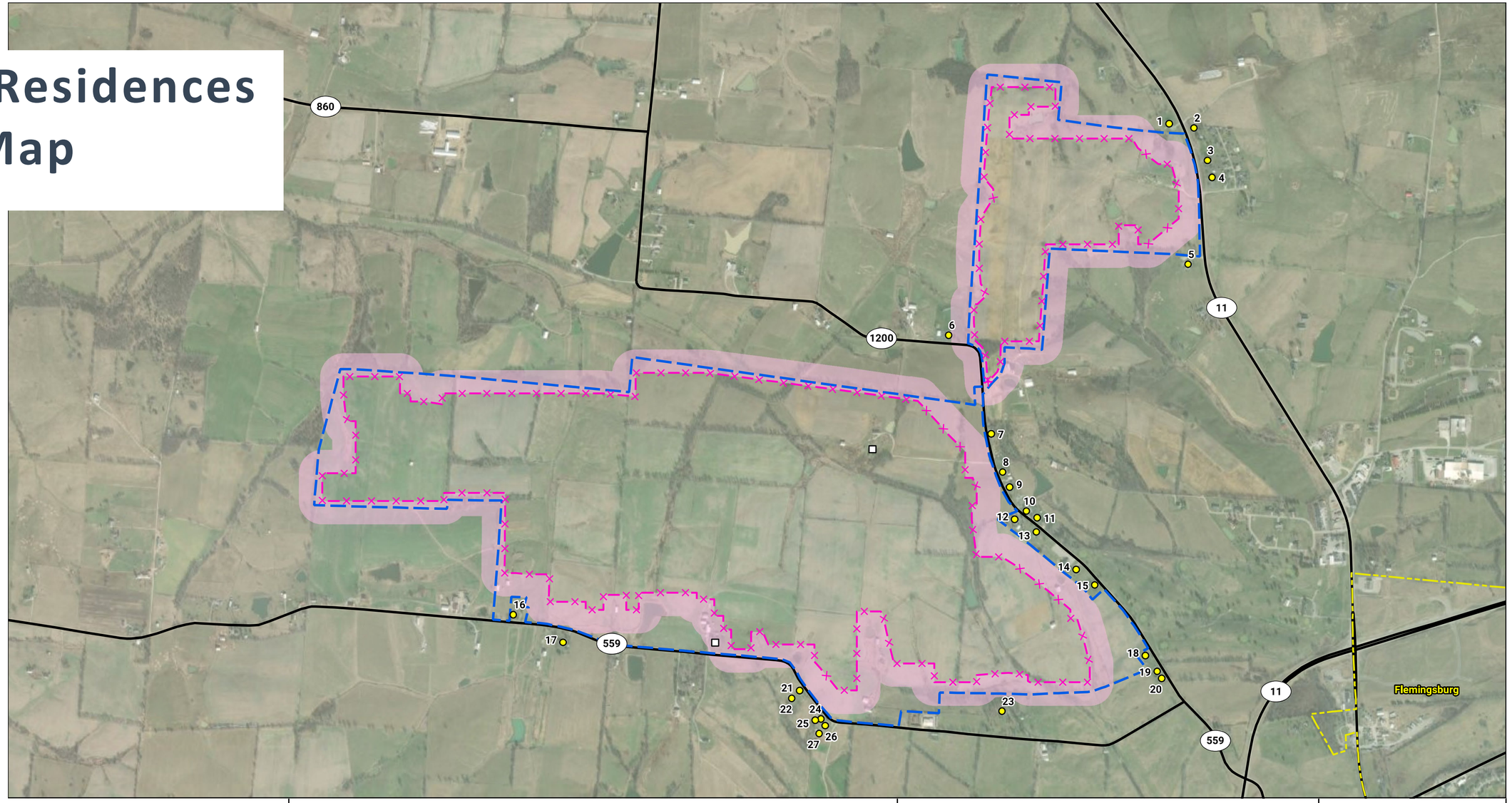
Photo Location Map - Not to Scale

gai consultants

CORE SOLAR

Fleming Solar Project **Flemingsburg, KY**

Nearest Residences Map



3-24

21

Fleming Solar Project Questions from the Community

What can we expect during construction?

- Expected to take 12-15 months during the hours of 7 AM to dusk
- Once approved for construction, the site contractor will work with property owners to determine off-site parking location
- Pile driving equipment is expected to be the loudest source from construction
  - At 300 feet away the sound would be approximately equivalent to the sound level produced by a hairdryer (~ 85 dBA)
  - The pile driver does not remain in a specific area of the Project for extended periods of time

Benefits to the Community

- An estimated 100-250 jobs will be created during the 12 – 15 month construction period
- Permanent employees will be hired and trained for operations, landscaping, maintenance, and security
- Where possible, job positions will be filled by local employees
- New tax revenues based on $80-100 million investment*
- Increased business for local restaurants, supply stores, gas stations, lodging and various service providers

*Taxable income based on to-be-determined actual cost of the Project and completion of construction

Local Workforce Development & Training

Tax Revenues

Increased Business

CORE SOLAR

Thank You

1221 S MoPac Expressway
Austin, TX 78746
coresolarllc.com

Stay connected at coresolarllc.com/flemingsolar

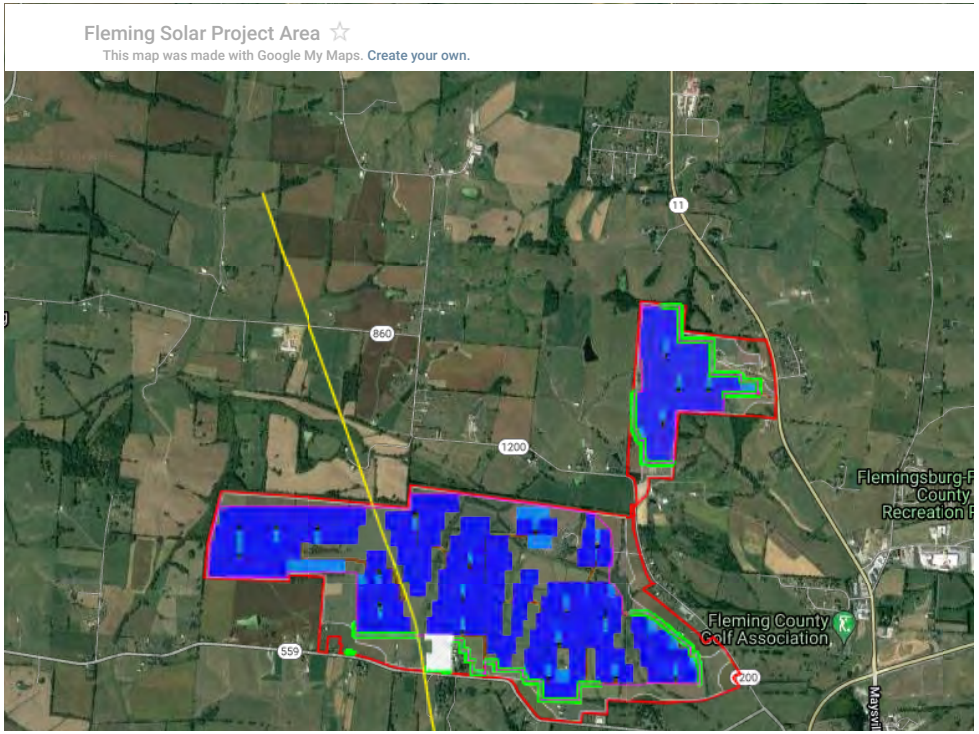
We’re always taking additional questions and updating our FAQ page!

Dominic Salinas

Senior Project Developer
(713) 501-8515
dominic@coresolar.energy

Fleming Solar Project

Core Solar is developing an 80 MW solar energy project in Fleming County. The project would be constructed within approximately 830 acres of privately-owned land and is expected to begin operations in 2023. The solar energy facilities we develop provide many benefits to the local community including generating increased tax revenue that support funds for improvements to roads, local schools, emergency services, and more. They also create local jobs and drive economic development opportunities that positively impact local businesses and supply chains.



Development Status

- All land is secured via long-term agreements
- Preliminary environmental and cultural resources studies confirmed no significant sensitivities
- Field-based environmental studies are completed (e.g. wetland survey, habitat assessment)
- The interconnection study process is in advanced stages with East Kentucky Power Cooperative and PJM
- Kentucky Electric Generation and Transmission Siting Process underway

Benefits to the Community

- During peak construction months, 140+ jobs will be created
- Permanent employees will be hired and trained for operations, landscaping, maintenance and security
- Where possible, job positions will be filled by local employees
- $2 million in tax revenue to Fleming County
- Increased business for local restaurants, supply stores, gas stations, lodging and various service providers

Frequently Asked Questions

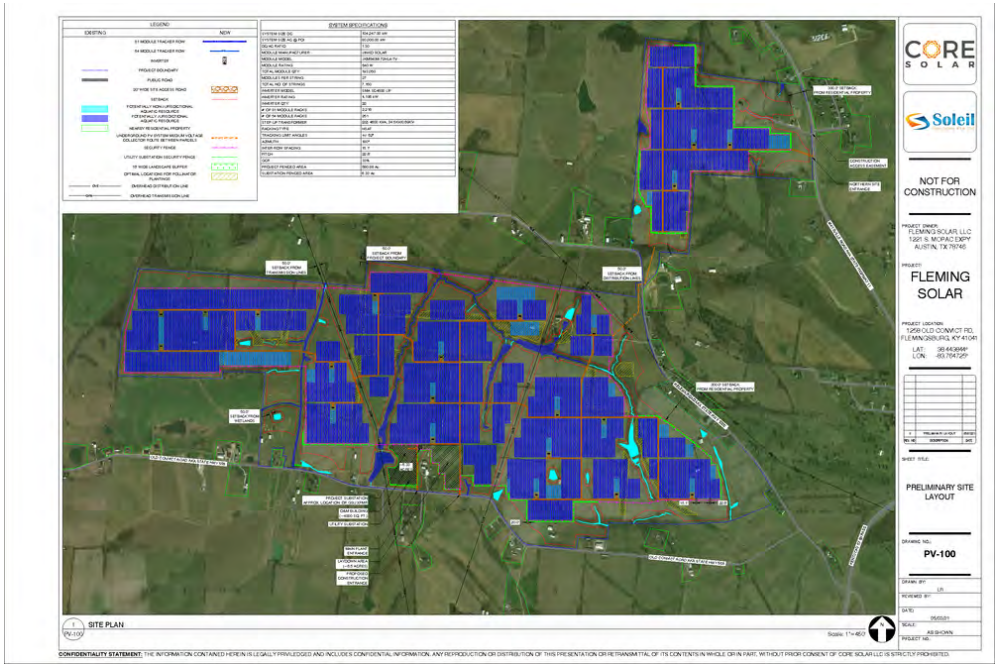
Utility-Scale Solar in General

- What is it like to live near a solar project? ...
- Do solar projects impact adjacent property values? ...
- How will the solar project look from the outside? ...
- Do solar projects produce glare? ...
- Are solar projects noisy? ...
- What are the impacts on air, soil, and water quality? ...
- What are the impacts on wildlife? ...
- How is vegetation maintained in the solar project? ...
- Are there long-term stormwater concerns with utility-scale solar? ...
- What happens after the useful life of the solar project? ...
- What are solar panels made of? ...

Specific to Fleming Solar

- How does a solar project impact adjacent property values? ...
- How close will the Project be to nearby residences? ...
- What can we expect during construction? ...
- How many entrances are proposed for the project? ...
- Will there be road degradation from construction? ...
- How has Fleming Solar engaged the community to date? ...

Resources



Preliminary Site Layout

May 2021

While subject to revision over time, the Project design will maintain the following minimum setback distances: (1) 300 feet from neighboring residences to security fences; (2) 150 feet from non-participating parcel boundaries to inverters and Project substation; and, (3) 50 feet from roads and non-participating parcel boundaries to all other equipment.

Download

Potential Project Footprint

May 2021

All neighboring residences are over 300 feet from the Potential Project Footprint, which encompasses the Project's equipment. The sound impact of the inverters (the primary noise-producing component of the Project) at this distance is well below the average human ear's sensitivity to sound level changes, given the ambient sound level environment and existing road traffic in this area.

Download

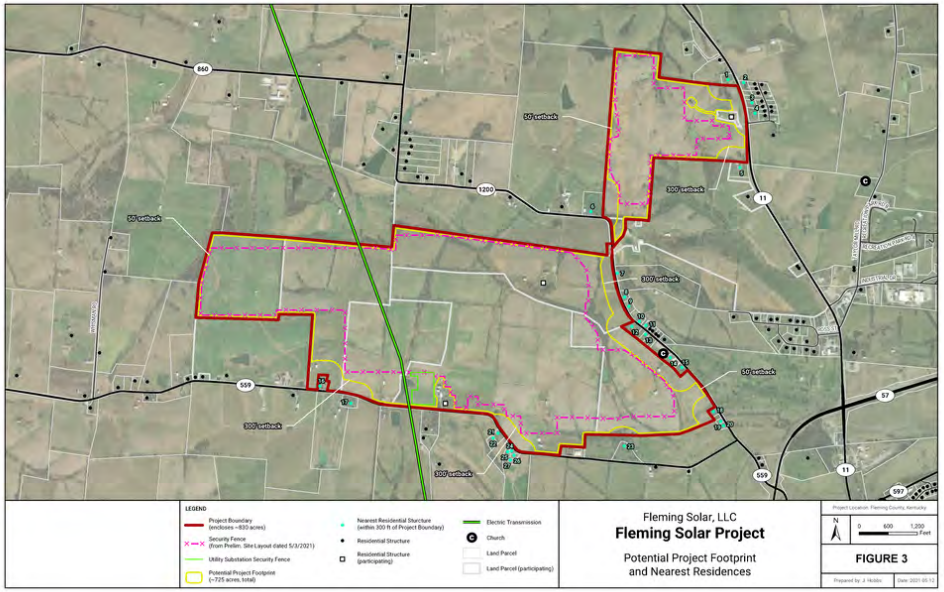


Photo Simulations

May 2021

The Project has been designed to take advantage of existing vegetation and topography that provides screening for neighboring residences and other key vantage points. Where needed, vegetation buffers will be installed. The location of the vegetation buffer is currently being optimized by GAI Consultants. Check back soon for additional photo simulations.

Download

Public Meeting Presentation

March 25, 2021

Download

Feedback Form

Still have questions or comments? We'd love to hear from you. Please submit the form below and we will respond as soon as possible.

Name *

First Name

Last Name

Email *

Relationship to Project (if any)

Subject *

Message *

SUBMIT

Contact
1221 S. MoPac Expy, Ste 225
Austin, TX 78746
Phone: (512) 684-1995
Fax: (512) 222-1132

What We Do

We deliver exceptional quality, de-risked, utility scale solar projects on an accelerated timeline.

Core Solar has comprehensive project development capabilities including Transmission, Real Estate, Legal, Tax Incentives, Environmental, Permitting and Title.

May 28, 2021

Utility-Scale Solar in General

What is it like to live near a solar project?

Unlike power plants, solar projects make excellent neighbors. Solar farms are entirely self-contained—they use no fossil fuels and create no air or water pollution. Solar projects have very few moving parts, make little sound, and do not omit odors. Solar projects also have a low profile, about the same as corn fields just prior to harvest. Solar projects require minimal maintenance, which means there is no significant increase in local traffic during operations.

Do solar projects impact adjacent property values?

An examination of property values across the United States demonstrates that large-scale solar projects do not negatively impact property values. Noise, odor, and traffic typically correlate with negative impacts on property values, none of which occur in operating solar projects. Solar farms are compatible use for rural/residential transition areas that function in a harmonious manner with this area.

How will the solar project look from the outside?

Solar panels are low profile by nature of their design and are much less visible than other energy producers such as a wind project. Core Solar strives to obscure the visibility of its solar projects through careful site selection (i.e. avoiding dense residential areas or other sensitive areas), setting back from residential areas, and planting vegetative screening when needed.

Do solar projects produce glare?

Solar panels are designed to absorb light from the visible spectrum, not to reflect it. They are also coated with an anti-reflective coating to minimize the little reflectivity there is. Solar panels are generally less reflective than windows and have been approved by the Federal Aviation Administration for installation on and around airports across the country.

Are solar projects noisy?

Solar panels do not produce noise. The system's inverters that change the current of electricity from DC to AC do produce sound of approximately 85 dBA, which is comparable to an electric blender. At about 150 feet, the volume is equivalent to a quiet suburb or conversation at home (approximately 50 dBA). The inverters are located well within the project's boundary, resulting in the sound becoming inaudible to neighbors. Another noise producer of solar projects is the substation, but to a lesser extent than inverters. Because the noise that a solar facility produces only occurs when the equipment is in use, there is no noise at night.

What are the impacts on air, soil, and water quality?

Solar is a renewable energy resource that does not have the same long term environmental impacts associated with outdated energy sources.

Operating solar projects do not produce air or water pollution or greenhouse gases. Solar power generation produces no waste, and no contamination from hazardous materials occurs. Solar panels are made primarily from silicon (sand) and are sandwiched between two glass panels.

Solar panels are mounted on steel piles driven into the ground and installed in rows with spacing to allow for maintenance and to allow sunlight to reach all panels. As a result, there is very little impermeable surfaces within the project. Once operational, the use of perennial ground cover and elimination of annual tillage, irrigation, and fertilizer (in the case of farmland) allows the soil to absorb water and rejuvenate during the life of the project.

What are the impacts on wildlife?

Wildlife studies are an important part of the development process — trained experts study habitat, wetlands, and hydrology on proposed sites to ensure minimal impacts to wildlife. Core Solar avoids developing in areas with critical habitat or where significant tree clearing is required. Core Solar coordinates with federal and state wildlife agencies to confirm best management practices and impact mitigation strategies. When solar projects are developed on farmland, they can have indirect benefits to the local ecosystem due to lack of fertilizer and pesticide use as well as revegetation of grasslands.

How is vegetation maintained in the solar project?

Overgrown vegetation is not desired because it can cause safety hazards and impedes sunlight on the panels. Low growth seed mixes with native species are often used to maintain the vegetation on the land, along with mechanical mowing when necessary. Sometimes, sheep grazing is used to naturally maintain the land and spot-spray only as needed to control weeds.

Are there long-term stormwater concerns with utility-scale solar?

Utility-scale solar projects are designed to improve soil and water quality. Stormwater management plans are required as part of the solar development process. These plans are prepared by professional engineers to ensure that projects do not contribute to erosion or flooding. Once operational, the use of perennial ground cover and elimination of annual tillage, irrigation, and fertilizer (in the case of farmland) allows the soil to absorb water and rejuvenate during the life of the project.

What happens after the useful life of the solar project?

When the solar facility is no longer efficient, typically after 35-40 years, the system will be decommissioned, and the land will be restored and available for its prior use. This process is part of the lease agreement; the project owner is required to remove all infrastructure associated with the solar project. A bond or letter of credit will be posted to pay for the cost of removal and to restore land to its pre-construction condition prior to the expiration of the land lease. Once the equipment is removed, components that have resale value will be sold and those with no resale value will be salvaged and sold as scrap for recycling or otherwise disposed at an approved location offsite. Panels will be removed for reuse or sent to a dedicated panel recycling facility.

What are solar panels made of?

Panels are primarily made of silicon, glass, silver wire, aluminum, copper and other common materials. There are no toxic materials that will leach into the environment, as all panel materials are sealed between two pieces of glass. The solar panels are incredibly durable and are required to meet all local, state and federal regulations.

Specific to Fleming Solar

How close will the Project be to nearby residences?

The Fleming Solar Project is designed to be a good neighbor. The Project will maintain a minimum 300-foot distance from the security fence that surrounds Project infrastructure to the property boundary of neighboring residences. According to the Noise Evaluation Report that was completed for the Project by a third-party consultant, the sound impact of the inverters at 300 feet is well below the average human ear's sensitivity to sound level changes, given the ambient sound level environment and existing road traffic. Furthermore, solar inverters are expected to operate only during daylight hours, further limiting the impact.

What can we expect during construction?

The construction of the Fleming Solar facility is expected to take 12-15 months. Construction activities will be transient in nature and of a limited duration, taking place daily during the hours of 7:30 AM to 7:00 PM, and 12:00 PM to 7:30 PM on Sundays. Once the facility has been approved for construction, the site contractor will work with local property owners to establish offsite parking location(s).

The loudest source from construction is expected to be pile driving equipment used in the construction of the solar panel racking system. Sound level impacts at 300 feet from active pile driving operations would be approximately equivalent to the sound level produced by the use of a household hairdryer. Any pile driving activities will be restricted to 9:00 AM to 5:00 PM if within 1,000 feet of non-participating residences. The pile driving phase of the work requires the associated equipment to move around the site. Once each pile is installed, the pile driver moves to the next and does not remain in each area of the Project site for long periods of time. This results in short term impacts associated with construction to the surrounding area at each temporary location.

Where are the Project entrances located?

There are four proposed entrances during construction: (1) Main Plant Entrance (located along Old Convict Rd, providing access to the substation and Operations Building); (2) Construction Site Entrance (just east of the Main Plant Entrance, allowing for access to the construction laydown area); (3) Northern Site Entrance (along Maysville Road); and, (4) Construction Access Easement (along Maysville Road at existing driveway). As currently planned, only the Main Plant Entrance and Northern Site Entrance will remain after construction is complete to provide access to the Project during operation.

Will there be road degradation from construction?

The construction contractor will document roadway conditions in accordance with all applicable transportation permits obtained from State and local road authorities before construction commences and will be required to restore impacted roadways to pre-construction conditions. Consideration will be given to delivery schedules to minimize the need for trucks to pass each other on Old Convict (State Hwy 559), Maysville (State Hwy 11), and Helena Roads (State Hwy 1200) No improvements are anticipated to be required to existing roadways for facility construction.

Due to the low volume of construction and operation trips (anticipated at fewer than 10 construction vehicles per 10-hour workday along low-volume roads, an off-site shuttle for employee trips), and with the appropriate safety of providing work zone signage and flaggers will be implemented, traffic impacts during construction will be minor. During facility operation, there will be approximately two workers per shift, three shifts per day. Decommissioning will consist of six employees for 12 months. Therefore, additional traffic mitigation will not be required. The contractor will obtain an encroachment permit for work on this site and minimize disturbance from fugitive dust.

How has Fleming Solar engaged the community to date?

Core Solar began evaluating this area for solar development in late 2019. Over the course of many months, Core Solar finalized lease or purchase option agreements.

A public meeting was held on December 11, 2020 at the Fleming County Fiscal Court Meeting Room. Notice of the public meeting was published in the local newspaper, The Flemingsburg Gazette, and mailed to all participating and adjoining landowners. Fleming Solar held a second public information meeting on March 25, 2021, posted notice in The Flemingsburg Gazette, and delivered letters to newly adjacent landowners.

In addition to the public meeting, Fleming Solar initiated and established relationships with various community stakeholders over the course of the Project development period. This includes Fleming County Schools Superintendent, Flemingsburg Police Department Chief of Police, and New Creation Praise and Worship Center Flemingsburg Pastor.

Core Solar is currently planning a Community Picnic to be held on June 5, 2021 at the New Creation Praise & Worship Center. Mailed invites will be delivered to those who live within 2,400 feet of the Project, along with a corresponding ad posted in the local Fleming Shopper.

Exhibit F

PJM Interconnection - Feasibility Study Report

Generation Interconnection

Feasibility Study Report

for

Queue Project AF1-256

FLEMINGSBURG-SPURLOCK 138 KV

48 MW Capacity / 80 MW Energy

January, 2020

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1 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification and, where applicable, for compliance with low voltage ride through requirements. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment B of Manual 14G. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a $10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 4.3 for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment B-1 of Manual 14G) in order to document the request for the study.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

2 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Fleming County, KY. The installed facilities will have a total capability of 80 MW with 48 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is 6/1/2023. This study does not imply a TO commitment to this in-service date.

Queue Number	**AF1-256**
Project Name	FLEMINGSBURG-SPURLOCK 138 KV
State	Kentucky
County	Fleming
Transmission Owner	EKPC
MFO	80
MWE	80
MWC	48
Fuel	Solar
Basecase Study Year	2023

2.1 Point of Interconnection

AF1-256 will interconnect with the EKPC transmission system tapping the Flemingsburg to Spurlock 138 kV line.

2.2 Cost Summary

The AF1-256 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$565,000
Direct Connection Network Upgrade	$5,020,000
Non Direct Connection Network Upgrades	$2,175,000
Total Costs	$7,760,000

In addition, the AF1-256 project may be responsible for a contribution to the following costs

Description	Total Cost
System Upgrades	$85,873,701

Cost allocations for these upgrades will be provided in the System Impact Study Report.

3 Transmission Owner Scope of Work

4 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

	Total Cost
Install necessary equipment (a 138 kV isolation switch structure and associated switch, plus interconnection metering, fiber-optic connection and telecommunications equipment, circuit breaker and associated switches, and relay panel) at the new North Fleming switching station, to accept the IC generator lead line/bus (Estimated time to implement is 24 months)	$565,000
Total Attachment Facility Costs	$565,000

5 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	**Total Cost**
Construct a new 138 kV switching station ("North Fleming Switching") to facilitate connection of the IC solar generation project to the existing Spurlock-Flemingsburg 138 kV line (Estimated time to implement is 24 months)	$5,020,000
Total Direct Connection Facility Costs	$5,020,000

6 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Construct facilities to loop the existing Spurlock-Flemingsburg 138 kV line into the new North Fleming switching station (Estimated time to implement is 24 months)	$520,000
Modify relays and/or settings at Spurlock substation for the existing line to the new North Fleming switching station (Estimated time to implement is 9 months)	$65,000
Modify relays and/or settings at Goddard substation for the existing line to the new North Fleming switching station (Estimated time to implement is 9 months)	$65,000
Install OPGW on the North Fleming-Goddard 138 kV line (11.2 miles) (Estimated time to implement is 18 months)	$1,525,000
Total Non-Direct Connection Facility Costs	$2,175,000

7 Incremental Capacity Transfer Rights (ICTRs)

Will be determined at a later study phase

8 Interconnection Customer Requirements

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

9 Revenue Metering and SCADA Requirements

9.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

9.2 EKPC Requirements

The Interconnection Customer will be required to comply with all EKPC Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "EKPC Facility Connection Requirements" document located at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards/ekpc.aspx

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

10.2 EKPC Requirements

[Please enter any TO revenue metering and SCADA Requirements]

11 Network Impacts

The Queue Project AF1-256 was evaluated as a 80.0 MW (Capacity 48.0 MW) injection tapping the Flemingsburg to Spurlock 138 kV line in the EKPC area. Project AF1-256 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-256 was studied with a commercial probability of 0.53. Potential network impacts were as follows:

Summer Peak Load Flow

12 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

13 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665396	342571	4CRANSTON	138.0	EKPC	342649	4ROWANCO	138.0	EKPC	1	EKPC_P4-6_SPURN39-92T	breaker	255.0	87.05	105.58	DC	47.24
41665395	342589	4GODDARD	138.0	EKPC	342571	4CRANSTON	138.0	EKPC	1	EKPC_P4-6_SPURN39-92T	breaker	255.0	87.13	105.65	DC	47.24
41665310	342649	4ROWANCO	138.0	EKPC	324302	4RODBURN	138.0	LGEE	1	EKPC_P4-6_SPURN39-92T	breaker	191.0	90.48	112.65	DC	42.33
41665273	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	EKPC_P4-2_GODDARD E5-824	breaker	255.0	84.55	115.92	DC	80.0
41665274	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	EKPC_P4-2_GODDARD E5-834	breaker	255.0	84.55	115.92	DC	80.0
41876127	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	EKPC_P2-3_GODDARD E5-834	bus	255.0	84.55	115.92	DC	80.0
41876128	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	EKPC_P2-2_GODDARD 138	bus	255.0	84.55	115.92	DC	80.0

14 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958234	246800		138.0	AEP	247034	05EMERSS	138.0	AEP	1	DAY_P734541 34553	tower	185.0	111.06	112.84	DC	7.32
43957450	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY_P4_L34553-1	breaker	185.0	120.49	121.64	DC	4.71
43958138	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY_P734541 34553	tower	185.0	163.8	165.58	DC	7.32
43958235	247034	05EMERSS	138.0	AEP	246946	05WLDCAT	138.0	AEP	1	DAY_P734541 34553	tower	185.0	109.82	111.6	DC	7.32
41050424	250054	08LONGBR	138.0	DEO&K	250077	08MTZION	138.0	DEO&K	1	DAY_P734541 34553	tower	284.0	116.41	119.55	DC	8.86
41050475	250077	08MTZION	138.0	DEO&K	249991	08BUFTN1	138.0	DEO&K	1	DAY_P734541 34553	tower	298.0	106.62	109.6	DC	8.86
43573455	324267	4KENTON	138.0	LGEE	246800		138.0	AEP	1	DAY_P734541 34553	tower	185.0	114.09	115.87	DC	7.32
41050495	342091	2PLUMVILLE	69.0	EKPC	341923	2MURPHYSVIL	69.0	EKPC	1	DAY_P734541 34553	tower	63.0	104.2	107.43	DC	4.52

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC| DC	MW IMPACT
41664888	342091	2PLUMVILLE	69.0	EKPC	341923	2MURPHYSVIL	69.0	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	63.0	135.86	165.52	DC	18.69
41050400	342559	4BOONECO	138.0	EKPC	250054	08LONGBR	138.0	DEO&K	1	DAY_P734541 34553	tower	284.0	123.74	126.87	DC	8.86
41050476	342661	4SPUR-KENT-R	138.0	EKPC	324267	4KENTON	138.0	LGEE	1	DAY_P734541 34553	tower	281.0	108.4	109.62	DC	7.48
41050514	342664	4SPURLOCK	138.0	EKPC	342661	4SPUR-KENT-R	138.0	EKPC	1	DAY_P734541 34553	tower	291.0	104.78	105.95	DC	7.48
41050367	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER	tower	1532.0	130.05	132.26	DC	33.69
41351751	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	single	1532.0	120.52	121.84	DC	20.21
41665067	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 816_SILVERGROVE	breaker	1532.0	130.21	132.42	DC	33.71
41665068	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 1493_RED BANK	breaker	1532.0	130.11	132.31	DC	33.69
41876010	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-2_C1 SILVER GROVE 345 BUS	bus	1532.0	130.04	132.25	DC	33.69

15 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43957905	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY-P1-STU SPUR	operation	185.0	120.03	121.18	DC	4.72
41351789	342583	4FLEMINGSBRG	138.0	EKPC	342589	4GODDARD	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-B	operation	217.0	99.35	136.22	DC	80.0
41351791	342583	4FLEMINGSBRG	138.0	EKPC	342589	4GODDARD	138.0	EKPC	1	Base Case	operation	197.0	84.81	102.86	DC	35.57
41351748	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	Base Case	operation	1240.0	134.77	137.3	DC	31.2
41351749	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	operation	1532.0	130.0	132.21	DC	33.69

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41352053	939140	AE1-144 TAP	138.0	EKPC	342634	4PLUMVILLE	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-B	operation	186.0	95.2	116.44	DC	39.5

16 System Reinforcements

ID	Index	Facility	Upgrade Description	Cost
41665310	3	4ROWAN CO 138.0 kV - 4RODBURN 138.0 kV Ckt 1	r0045 (1555) : Replace the 800A wave trap at Rodburn substation with 1200A equipment. Project Type : FAC Cost : $90,000 Time Estimate : 9.0 Months r0046 (1556) : LGEE violation (non PJM area). EKPC emergency rating at 255 MVA The external (i.e. Non-PJM) Transmission Owner, LGEE, will not evaluate this violation until the impact study phase. Project Type : FAC Cost : $0 Time Estimate : 9.0 Months	$90,000
41050400	12	4BOONE CO 138.0 kV - 08LONGBR 138.0 kV Ckt 1	r0010 (1519) : Upgrade bus and jumpers associated with Boone 138 kV bus using 2-500 MCM 37 CU conductor or equivalent Project Type : FAC Cost : $170,000 Time Estimate : 6.0 Months r0052 (1562) : Replace the 954 MCM ACSR line conductor in the Boone County-Longbranch 138 kV line with 954 MCM ACSS conductor (2.3 miles) Project Type : FAC Cost : $2,590,000 Time Estimate : 14.0 Months	$2,760,000
41050476	13	4SPUR-KENT-R 138.0 kV - 4KENTON 138.0 kV Ckt 1	n6041 (1512) : Replace the 5% 1200A reactor at Spurlock with a 7.5% 1600A reactor Project Type : FAC Cost : $600,000 Time Estimate : 9.0 Months	$600,000
41665396	1	4CRANSTON 138.0 kV - 4ROWAN CO 138.0 kV Ckt 1	r0059 (1569) : Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Goddard-Cranston 138 kV line section to 275 degrees F (7.5 miles) Project Type : FAC Cost : $680,000 Time Estimate : 9.0 Months	$680,000

ID	Index	Facility	Upgrade Description	Cost
43958138,43957450	6	05WLDCAT 138.0 kV - 05HILLSB 138.0 kV Ckt 1	N5472 (1780) : A Sag Study will be required on the 10 miles ofACSR ~ 477 ~ 26/7 ~ HAWK- Conductor to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between $40,000 (no remediations required, just sag study) and $15 million (complete line reconductor/rebuild). New rating after sag study: S/N: 185 S/E: 257. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : $186,000 Time Estimate : 6-12 Months N5857 (1781) : Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK- Conductor Section 1. Estimated cost: $15 million. Project Type : FAC Cost : $15,040,000 Time Estimate : 24-36 Months	$15,226,000
41050475	9	08MTZION 138.0 kV - 08BUFTN1 138.0 kV Ckt 1	n6785 (1691) : Rebuild the line and Substation Bus Conductor on the Buffington terminal at Mt. Zion, Replace equipment at Buffington Project Type : FAC Cost : $4,973,025 Time Estimate : 30.0 Months	$4,973,025
43958235	7	05EMERSS 138.0 kV - 05WLDCAT 138.0 kV Ckt 1	AEPO0006a (1756) : Perform sag study on AEP's portion of Wildcat-Kenton 138kV circuit, , 1.3 miles of 477 ACSR 26/7 Hawk. Project Type : FAC Cost : $20,000 Time Estimate : 6-12 Months	$20,000
41665395	2	4GODDARD 138.0 kV - 4CRANSTON 138.0 kV Ckt 1	r0057 (1567) : Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Goddard-Cranston 138 kV line section to 275 degrees F (12.7 miles) Project Type : FAC Cost : $1,150,000 Time Estimate : 12.0 Months	$1,150,000

ID	Index	Facility	Upgrade Description	Cost
41664888,41050495	11	2PLUMVILLE 69.0 kV - 2MURPHYSVIL 69.0 kV Ckt 1	r0060 (1570) : Rebuild the Plumville-Murphysville 69 kV line section using 795 MCM ACSR conductor at 212 degrees F (9.9 miles) Project Type : FAC Cost : $8,140,000 Time Estimate : 20.0 Months r0061 (1571) : Replace the 4/0 copper bus and jumpers at the Murphysville substation using 750 MCM copper or equivalent Project Type : FAC Cost : $120,000 Time Estimate : 6.0 Months r0062 (1572) : Replace the 4/0 copper bus and jumpers at the Plumville substation using 750 MCM copper or equivalent Project Type : FAC Cost : $120,000 Time Estimate : 6.0 Months r0063 (1573) : Replace the 600A disconnect switches N34-613 and N34-615 at the Plumville substation with 1200A equipment Project Type : FAC Cost : $100,000 Time Estimate : 9.0 Months r0064 (1574) : Change the Zone 3 relay setting at Murphysville associated with the line protection to at least 108 MVA LTE rating. Project Type : FAC Cost : $0 Time Estimate : 6.0 Months	$8,480,000
43958234	5	138.0 kV - 05EMERSS 138.0 kV Ckt 1	AEPO0039a (1935) : A Sag Study will be required on the 4.5 miles ofACSR ~ 477 ~ 26/7 ~ HAWK- Conductor to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between $18,000 (no remediations required, just sag study) and $6.75 million (complete line reconductor/rebuild). New rating after sag study: S/N: 185 S/E: 257. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : $18,000 Time Estimate : Sag Study : 6 - 12 months Months	$18,000
41050424	8	08LONGBR 138.0 kV - 08MTZION 138.0 kV Ckt 1	n30581 (1690) : Rebuild the line and Substation Bus Conductor on the Longbranch terminal at Mt. Zion Project Type : FAC Cost : $2,660,676 Time Estimate : 30.0 Months	$2,660,676

ID	Index	Facility	Upgrade Description	Cost
41665273,41876128, 41876127,41665274	4	AF1-256 TAP 138.0 kV - 4SPURLOCK 138.0 kV Ckt 1	r0034 (1544) : Increase the maximum operating temperature of the 795 and 954 MCM ACSR conductor in the Spurlock-AF!-256 Tap 138 kV line section to 275 degrees F (19.5 miles) Project Type : FAC Cost : $1,770,000 Time Estimate : 15.0 Months	$1,770,000
41876010,41050367, 41351751,41665068, 41665067	15	7SPURLOCK 345.0 kV - 09STUART 345.0 kV Ckt 1	EKPC: r0040 (1550) : Replace the 1500A interconnection metering CTs with 2000A equipment. Project Type : FAC Cost : $150,000 Time Estimate : 9.0 Months r0041 (1551) : Replace the 3000A wave trap with 3600A equipment. Project Type : FAC Cost : $170,000 Time Estimate : 9.0 Months r0042 (1552) : Construct a new 345 kV circuit (Id 2) between the EKPC Spurlock and DP&L Stuart substations (circuit length approximately 8.5 miles) Project Type : CON Cost : $30,000,000 Time Estimate : 48.0 Months Dayton: DAYr190039 (1627) : Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor Project Type : FAC Cost : $17,000,000 Time Estimate : 18.0 Months DAYr190040 (1628) : Replace Stuart substation riser conductor with 2500AAC (parallel) Project Type : FAC Cost : $100,000 Time Estimate : 12.0 Months DAYr190041 (1629) : Reconductor Stuart substation conductor with twin bundle 1033 Curlew ACCR conductor Project Type : FAC Cost : $250,000 Time Estimate : 12.0 Months	$47,350,000
41050514	14	4SPURLOCK 138.0 kV - 4SPUR-KENT-R 138.0 kV Ckt 1	n6041 (1512) : Replace the 5% 1200A reactor at Spurlock with a 7.5% 1600A reactor Project Type : FAC Cost : $600,000 Time Estimate : 9.0 Months	$600,000

ID	Index	Facility	Upgrade Description	Cost
43573455	10	4KENTON 138.0 kV - 138.0 kV Ckt 1	AEPO0040a (1936) : A Sag Study will be required on the 24 miles ofACSR ~ 477 ~ 26/7 ~ HAWK- Conductor section 1 to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between $96,000 (no remediations required, just sag study) and $36 million (complete line reconductor/rebuild). New rating after sag study: S/N: 185 S/E: 257. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : $96,000 Time Estimate : Sag Study : 6 - 12 months Months	$96,000
			TOTAL COST	$85,873,701

17 Flow Gate Details

The following indices contain additional information about each flowgate presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact.It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

17.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665396	342571	4CRANSTON	EKPC	342649	4ROWAN CO	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	255.0	87.05	105.58	DC	47.24

Bus #	Bus	MW Impact
936381	AD2-048 C	2.2900
936382	AD2-048 E	1.1426
939141	AE1-144 C O1	42.5966
939142	AE1-144 E O1	21.1390
940531	AE2-038 C O1	28.4155
940532	AE2-038 E O1	14.0749
945681	AF1-233 C O1	88.9263
945682	AF1-233 E O1	43.9317
945911	AF1-256 C	28.3430
945912	AF1-256 E	18.8954
LGEE	LGEE	0.0776
WEC	WEC	0.0135
CBM-W2	CBM-W2	0.3522
NY	NY	0.0083
CBM-W1	CBM-W1	0.4754
TVA	TVA	0.0378
O-066	O-066	0.1075
CBM-S1	CBM-S1	0.4004
G-007	G-007	0.0166
MEC	MEC	0.0667
CATAWBA	CATAWBA	0.0053

17.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665395	342589	4GODDARD	EKPC	342571	4CRANSTON	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	255.0	87.13	105.65	DC	47.24

Bus #	Bus	MW Impact
936381	AD2-048 C	2.2900
936382	AD2-048 E	1.1426
939141	AE1-144 C O1	42.5966
939142	AE1-144 E O1	21.1390
940531	AE2-038 C O1	28.4155
940532	AE2-038 E O1	14.0749
945681	AF1-233 C O1	88.9263
945682	AF1-233 E O1	43.9317
945911	AF1-256 C	28.3430
945912	AF1-256 E	18.8954
LGEE	LGEE	0.0776
WEC	WEC	0.0135
CBM-W2	CBM-W2	0.3522
NY	NY	0.0083
CBM-W1	CBM-W1	0.4754
TVA	TVA	0.0378
O-066	O-066	0.1075
CBM-S1	CBM-S1	0.4004
G-007	G-007	0.0166
MEC	MEC	0.0667
CATAWBA	CATAWBA	0.0053

17.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665310	342649	4ROWAN CO	EKPC	324302	4RODBURN	LGEE	1	EKPC_P4-6_SPUR N39-92T	breaker	191.0	90.48	112.65	DC	42.33

Bus #	Bus	MW Impact
939141	AE1-144 C O1	38.4006
939142	AE1-144 E O1	19.0566
940531	AE2-038 C O1	25.6163
940532	AE2-038 E O1	12.6885
945681	AF1-233 C O1	79.6930
945682	AF1-233 E O1	39.3702
945911	AF1-256 C	25.4002
945912	AF1-256 E	16.9334
DUCKCREEK	DUCKCREEK	0.1071
NEWTON	NEWTON	0.1160
CPLE	CPLE	0.0509
FARMERCITY	FARMERCITY	0.0042
G-007A	G-007A	0.0863
VFT	VFT	0.2322
PRAIRIE	PRAIRIE	0.2170
COFFEEN	COFFEEN	0.0529
CBM-S2	CBM-S2	0.4335
EDWARDS	EDWARDS	0.0329
TILTON	TILTON	0.0750
MADISON	MADISON	0.3468
GIBSON	GIBSON	0.0923
BLUEG	BLUEG	0.4184
TRIMBLE	TRIMBLE	0.1336

17.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41876128	945910	AF1-256 TAP	EKPC	342664	4SPURLOCK	EKPC	1	EKPC_P2-2_GODDARD 138	bus	255.0	84.55	115.92	DC	80.0

Bus #	Bus	MW Impact
945681	AF1-233 C O1	150.6000
945682	AF1-233 E O1	74.4000
945911	AF1-256 C	48.0000
945912	AF1-256 E	32.0000

17.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958234	246800		AEP	247034	05EMERSS	AEP	1	DAY_P734541 34553	tower	185.0	111.06	112.84	DC	7.32

Bus #	Bus	MW Impact
251831	Z1-080 BAT	0.5186
918802	AA1-099 E	-0.2939
918803	AA1-099 BAT	0.3457
925981	AC1-074 C O1	2.6670
925982	AC1-074 E O1	1.1430
932551	AC2-075 C	0.6334
932552	AC2-075 E	0.3191
936381	AD2-048 C	3.0966
936382	AD2-048 E	1.5450
939141	AE1-144 C O1	6.3793
939142	AE1-144 E O1	3.1658
940531	AE2-038 C O1	4.2556
940532	AE2-038 E O1	2.1079
941411	AE2-138 C	8.9377
941412	AE2-138 E	3.3057
941981	AE2-210 C O1	3.0797
941982	AE2-210 E O1	1.1584
943111	AE2-339 C	1.1504
943112	AE2-339 E	0.5666
944621	AF1-127 C O1	1.3160
944622	AF1-127 E O1	0.6482
945681	AF1-233 C O1	6.2207
945682	AF1-233 E O1	3.0732
945861	AF1-251 C	3.2688
945862	AF1-251 E	2.1792
945911	AF1-256 C	1.9773
945912	AF1-256 E	1.3182
LGEE	LGEE	0.9231
CPLE	CPLE	0.1376
WEC	WEC	0.0617
CBM-W2	CBM-W2	4.4472
NY	NY	0.0824
CBM-W1	CBM-W1	1.7264
TVA	TVA	1.0108
O-066	O-066	0.9341
CBM-S2	CBM-S2	1.7860
CBM-S1	CBM-S1	7.5743
G-007	G-007	0.1435
MADISON	MADISON	1.9212
MEC	MEC	0.5244

17.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958138	246946	05WLDCAT	AEP	243019	05HILLSB	AEP	1	DAY_P734541 34553	tower	185.0	163.8	165.58	DC	7.32

Bus #	Bus	MW Impact
251831	Z1-080 BAT	0.5186
918802	AA1-099 E	-0.2939
918803	AA1-099 BAT	0.3457
925981	AC1-074 C O1	2.6670
925982	AC1-074 E O1	1.1430
926101	AC1-089 C O1	40.2705
926102	AC1-089 E O1	65.7045
932551	AC2-075 C	0.6334
932552	AC2-075 E	0.3191
936381	AD2-048 C	3.0966
936382	AD2-048 E	1.5450
939141	AE1-144 C O1	6.3793
939142	AE1-144 E O1	3.1658
940531	AE2-038 C O1	4.2556
940532	AE2-038 E O1	2.1079
941411	AE2-138 C	8.9377
941412	AE2-138 E	3.3057
941981	AE2-210 C O1	3.0797
941982	AE2-210 E O1	1.1584
943111	AE2-339 C	1.1504
943112	AE2-339 E	0.5666
944621	AF1-127 C O1	1.3160
944622	AF1-127 E O1	0.6482
945681	AF1-233 C O1	6.2207
945682	AF1-233 E O1	3.0732
945861	AF1-251 C	3.2688
945862	AF1-251 E	2.1792
945911	AF1-256 C	1.9773
945912	AF1-256 E	1.3182
LGEE	LGEE	0.9231
CPLE	CPLE	0.1376
WEC	WEC	0.0617
CBM-W2	CBM-W2	4.4472
NY	NY	0.0824
CBM-W1	CBM-W1	1.7264
TVA	TVA	1.0108
O-066	O-066	0.9341
CBM-S2	CBM-S2	1.7860
CBM-S1	CBM-S1	7.5743
G-007	G-007	0.1435
MADISON	MADISON	1.9212
MEC	MEC	0.5244

17.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958235	247034	05EMERSS	AEP	246946	05WLDCAT	AEP	1	DAY_P734541 34553	tower	185.0	109.82	111.6	DC	7.32

Bus #	Bus	MW Impact
251831	Z1-080 BAT	0.5186
918802	AA1-099 E	-0.2939
918803	AA1-099 BAT	0.3457
925981	AC1-074 C O1	2.6670
925982	AC1-074 E O1	1.1430
932551	AC2-075 C	0.6334
932552	AC2-075 E	0.3191
936381	AD2-048 C	3.0966
936382	AD2-048 E	1.5450
939141	AE1-144 C O1	6.3793
939142	AE1-144 E O1	3.1658
940531	AE2-038 C O1	4.2556
940532	AE2-038 E O1	2.1079
941411	AE2-138 C	8.9377
941412	AE2-138 E	3.3057
941981	AE2-210 C O1	3.0797
941982	AE2-210 E O1	1.1584
943111	AE2-339 C	1.1504
943112	AE2-339 E	0.5666
944621	AF1-127 C O1	1.3160
944622	AF1-127 E O1	0.6482
945681	AF1-233 C O1	6.2207
945682	AF1-233 E O1	3.0732
945861	AF1-251 C	3.2688
945862	AF1-251 E	2.1792
945911	AF1-256 C	1.9773
945912	AF1-256 E	1.3182
LGEE	LGEE	0.9231
CPLE	CPLE	0.1376
WEC	WEC	0.0617
CBM-W2	CBM-W2	4.4472
NY	NY	0.0824
CBM-W1	CBM-W1	1.7264
TVA	TVA	1.0108
O-066	O-066	0.9341
CBM-S2	CBM-S2	1.7860
CBM-S1	CBM-S1	7.5743
G-007	G-007	0.1435
MADISON	MADISON	1.9212
MEC	MEC	0.5244

17.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050424	250054	08LONGBR	DEO&K	250077	08MTZION	DEO&K	1	DAY_P734541 34553	tower	284.0	116.41	119.55	DC	8.86

Bus #	Bus	MW Impact
342957	1SPURLK1G	5.1535
342960	1SPURLK2G	8.0926
342963	1SPURLK3G	4.2526
342966	1SPURLK4G	4.2526
925981	AC1-074 C O1	9.2562
925982	AC1-074 E O1	3.9670
932551	AC2-075 C	2.1984
932552	AC2-075 E	1.1074
936381	AD2-048 C	6.0729
936382	AD2-048 E	3.0299
936571	AD2-072 C O1	2.9465
936572	AD2-072 E O1	1.4447
939141	AE1-144 C O1	8.7899
939142	AE1-144 E O1	4.3621
940531	AE2-038 C O1	5.8636
940532	AE2-038 E O1	2.9044
941411	AE2-138 C	14.2325
941412	AE2-138 E	5.2641
941981	AE2-210 C O1	4.9041
941982	AE2-210 E O1	1.8447
942411	AE2-254 C O1	1.4096
942412	AE2-254 E O1	0.9398
942591	AE2-275 C O1	4.0264
942592	AE2-275 E O1	1.5145
942891	AE2-308 C O1	6.9274
942892	AE2-308 E O1	2.5191
943111	AE2-339 C	2.0999
943112	AE2-339 E	1.0343
944211	AF1-089 C O1	1.5157
944212	AF1-089 E O1	0.4638
944621	AF1-127 C O1	2.1479
944622	AF1-127 E O1	1.0579
945541	AF1-219 C O1	0.6926
945542	AF1-219 E O1	0.2248
945681	AF1-233 C O1	16.4726
945682	AF1-233 E O1	8.1379
945861	AF1-251 C	5.2663
945862	AF1-251 E	3.5109
945911	AF1-256 C	5.3174
945912	AF1-256 E	3.5450
946021	AF1-267 C O1	1.1808
946022	AF1-267 E O1	0.5425

Bus #	Bus	MW Impact
LGEE	LGEE	1.7069
CPLE	CPLE	0.2792
WEC	WEC	0.0350
CBM-W2	CBM-W2	6.2080
NY	NY	0.0735
CBM-W1	CBM-W1	0.6755
TVA	TVA	1.6156
O-066	O-066	0.7325
CBM-S2	CBM-S2	3.3062
CBM-S1	CBM-S1	12.7459
G-007	G-007	0.1123
MADISON	MADISON	3.7740
MEC	MEC	0.5673

17.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050475	250077	08MTZION	DEO&K	249991	08BUFTN1	DEO&K	1	DAY_P734541 34553	tower	298.0	106.62	109.6	DC	8.86

Bus #	Bus	MW Impact
342957	1SPURLK1G	5.1535
342960	1SPURLK2G	8.0926
342963	1SPURLK3G	4.2526
342966	1SPURLK4G	4.2526
925981	AC1-074 C O1	9.2562
925982	AC1-074 E O1	3.9670
932551	AC2-075 C	2.1984
932552	AC2-075 E	1.1074
936381	AD2-048 C	6.0729
936382	AD2-048 E	3.0299
936571	AD2-072 C O1	2.9465
936572	AD2-072 E O1	1.4447
939141	AE1-144 C O1	8.7899
939142	AE1-144 E O1	4.3621
940531	AE2-038 C O1	5.8636
940532	AE2-038 E O1	2.9044
941411	AE2-138 C	14.2325
941412	AE2-138 E	5.2641
941981	AE2-210 C O1	4.9041
941982	AE2-210 E O1	1.8447
942411	AE2-254 C O1	1.4096
942412	AE2-254 E O1	0.9398
942591	AE2-275 C O1	4.0264
942592	AE2-275 E O1	1.5145
942891	AE2-308 C O1	6.9274
942892	AE2-308 E O1	2.5191
943111	AE2-339 C	2.0999
943112	AE2-339 E	1.0343
944211	AF1-089 C O1	1.5157
944212	AF1-089 E O1	0.4638
944621	AF1-127 C O1	2.1479
944622	AF1-127 E O1	1.0579
945541	AF1-219 C O1	0.6926
945542	AF1-219 E O1	0.2248
945681	AF1-233 C O1	16.4726
945682	AF1-233 E O1	8.1379
945861	AF1-251 C	5.2663
945862	AF1-251 E	3.5109
945911	AF1-256 C	5.3174
945912	AF1-256 E	3.5450
946021	AF1-267 C O1	1.1808
946022	AF1-267 E O1	0.5425

Bus #	Bus	MW Impact
LGEE	LGEE	1.7069
CPLE	CPLE	0.2792
WEC	WEC	0.0350
CBM-W2	CBM-W2	6.2080
NY	NY	0.0735
CBM-W1	CBM-W1	0.6755
TVA	TVA	1.6156
O-066	O-066	0.7325
CBM-S2	CBM-S2	3.3062
CBM-S1	CBM-S1	12.7459
G-007	G-007	0.1123
MADISON	MADISON	3.7740
MEC	MEC	0.5673

17.10 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43573455	324267	4KENTON	LGEE	246800		AEP	1	DAY_P734541 34553	tower	185.0	114.09	115.87	DC	7.32

Bus #	Bus	MW Impact
251831	Z1-080 BAT	0.5186
918802	AA1-099 E	-0.2939
918803	AA1-099 BAT	0.3457
925981	AC1-074 C O1	2.6670
925982	AC1-074 E O1	1.1430
932551	AC2-075 C	0.6334
932552	AC2-075 E	0.3191
936381	AD2-048 C	3.0966
936382	AD2-048 E	1.5450
939141	AE1-144 C O1	6.3793
939142	AE1-144 E O1	3.1658
940531	AE2-038 C O1	4.2556
940532	AE2-038 E O1	2.1079
941411	AE2-138 C	8.9377
941412	AE2-138 E	3.3057
941981	AE2-210 C O1	3.0797
941982	AE2-210 E O1	1.1584
943111	AE2-339 C	1.1504
943112	AE2-339 E	0.5666
944621	AF1-127 C O1	1.3160
944622	AF1-127 E O1	0.6482
945681	AF1-233 C O1	6.2207
945682	AF1-233 E O1	3.0732
945861	AF1-251 C	3.2688
945862	AF1-251 E	2.1792
945911	AF1-256 C	1.9773
945912	AF1-256 E	1.3182
LGEE	LGEE	0.9231
CPLE	CPLE	0.1376
WEC	WEC	0.0617
CBM-W2	CBM-W2	4.4472
NY	NY	0.0824
CBM-W1	CBM-W1	1.7264
TVA	TVA	1.0108
O-066	O-066	0.9341
CBM-S2	CBM-S2	1.7860
CBM-S1	CBM-S1	7.5743
G-007	G-007	0.1435
MADISON	MADISON	1.9212
MEC	MEC	0.5244

17.11 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41664888	342091	2PLUMVILLE	EKPC	341923	2MURPHYSVIL	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	63.0	135.86	165.52	DC	18.69

Bus #	Bus	MW Impact
939141	AE1-144 C O1	23.9269
939142	AE1-144 E O1	11.8739
940531	AE2-038 C O1	15.9612
940532	AE2-038 E O1	7.9060
945681	AF1-233 C O1	35.1771
945682	AF1-233 E O1	17.3784
945911	AF1-256 C	11.2118
945912	AF1-256 E	7.4746
DUCKCREEK	DUCKCREEK	0.0507
NEWTON	NEWTON	0.0505
CPLE	CPLE	0.0351
FARMERCITY	FARMERCITY	0.0014
G-007A	G-007A	0.0408
VFT	VFT	0.1096
TVA	TVA	0.0560
PRAIRIE	PRAIRIE	0.0672
COFFEEN	COFFEEN	0.0227
CBM-S2	CBM-S2	0.3295
EDWARDS	EDWARDS	0.0161
CBM-S1	CBM-S1	0.0767
TILTON	TILTON	0.0378
MADISON	MADISON	0.2782
GIBSON	GIBSON	0.0399
BLUEG	BLUEG	0.1910
TRIMBLE	TRIMBLE	0.0646

17.12 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050400	342559	4BOONE CO	EKPC	250054	08LONGBR	DEO&K	1	DAY_P734541 34553	tower	284.0	123.74	126.87	DC	8.86

Bus #	Bus	MW Impact
342957	1SPURLK1G	5.1535
342960	1SPURLK2G	8.0926
342963	1SPURLK3G	4.2526
342966	1SPURLK4G	4.2526
925981	AC1-074 C O1	9.2562
925982	AC1-074 E O1	3.9670
932551	AC2-075 C	2.1984
932552	AC2-075 E	1.1074
936381	AD2-048 C	6.0729
936382	AD2-048 E	3.0299
936571	AD2-072 C O1	2.9465
936572	AD2-072 E O1	1.4447
939141	AE1-144 C O1	8.7899
939142	AE1-144 E O1	4.3621
940531	AE2-038 C O1	5.8636
940532	AE2-038 E O1	2.9044
941411	AE2-138 C	14.2325
941412	AE2-138 E	5.2641
941981	AE2-210 C O1	4.9041
941982	AE2-210 E O1	1.8447
942411	AE2-254 C O1	1.4096
942412	AE2-254 E O1	0.9398
942591	AE2-275 C O1	4.0264
942592	AE2-275 E O1	1.5145
942891	AE2-308 C O1	6.9274
942892	AE2-308 E O1	2.5191
943111	AE2-339 C	2.0999
943112	AE2-339 E	1.0343
944211	AF1-089 C O1	1.5157
944212	AF1-089 E O1	0.4638
944621	AF1-127 C O1	2.1479
944622	AF1-127 E O1	1.0579
945541	AF1-219 C O1	0.6926
945542	AF1-219 E O1	0.2248
945681	AF1-233 C O1	16.4726
945682	AF1-233 E O1	8.1379
945861	AF1-251 C	5.2663
945862	AF1-251 E	3.5109
945911	AF1-256 C	5.3174
945912	AF1-256 E	3.5450
946021	AF1-267 C O1	1.1808
946022	AF1-267 E O1	0.5425

Bus #	Bus	MW Impact
LGEE	LGEE	1.7069
CPLE	CPLE	0.2792
WEC	WEC	0.0350
CBM-W2	CBM-W2	6.2080
NY	NY	0.0735
CBM-W1	CBM-W1	0.6755
TVA	TVA	1.6156
O-066	O-066	0.7325
CBM-S2	CBM-S2	3.3062
CBM-S1	CBM-S1	12.7459
G-007	G-007	0.1123
MADISON	MADISON	3.7740
MEC	MEC	0.5673

17.13 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050476	342661	4SPUR-KENT-R	EKPC	324267	4KENTON	LGEE	1	DAY_P734541 34553	tower	281.0	108.4	109.62	DC	7.48

Bus #	Bus	MW Impact
342957	1SPURLK1G	6.4835
342960	1SPURLK2G	9.4323
342963	1SPURLK3G	4.9566
342966	1SPURLK4G	4.9566
925981	AC1-074 C O1	2.4428
925982	AC1-074 E O1	1.0469
932551	AC2-075 C	0.5802
932552	AC2-075 E	0.2923
939141	AE1-144 C O1	5.2600
939142	AE1-144 E O1	2.6103
940531	AE2-038 C O1	3.5089
940532	AE2-038 E O1	1.7380
941411	AE2-138 C	11.1398
941412	AE2-138 E	4.1202
941981	AE2-210 C O1	3.8385
941982	AE2-210 E O1	1.4438
944621	AF1-127 C O1	1.5826
944622	AF1-127 E O1	0.7795
945681	AF1-233 C O1	5.8686
945682	AF1-233 E O1	2.8992
945861	AF1-251 C	4.0068
945862	AF1-251 E	2.6712
945911	AF1-256 C	2.0212
945912	AF1-256 E	1.3475
LGEE	LGEE	0.3206
CPLE	CPLE	0.0582
WEC	WEC	0.0038
CBM-W2	CBM-W2	2.0721
NY	NY	0.0841
TVA	TVA	0.6020
O-066	O-066	0.9744
CBM-S2	CBM-S2	0.9132
CBM-S1	CBM-S1	3.8766
G-007	G-007	0.1498
MADISON	MADISON	1.0786
MEC	MEC	0.1700

17.14 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050514	342664	4SPURLOCK	EKPC	342661	4SPUR-KENT-R	EKPC	1	DAY_P734541 34553	tower	291.0	104.78	105.95	DC	7.48

Bus #	Bus	MW Impact
342957	1SPURLK1G	6.4835
342960	1SPURLK2G	9.4323
342963	1SPURLK3G	4.9566
342966	1SPURLK4G	4.9566
925981	AC1-074 C O1	2.4428
925982	AC1-074 E O1	1.0469
932551	AC2-075 C	0.5802
932552	AC2-075 E	0.2923
939141	AE1-144 C O1	5.2600
939142	AE1-144 E O1	2.6103
940531	AE2-038 C O1	3.5089
940532	AE2-038 E O1	1.7380
941411	AE2-138 C	11.1398
941412	AE2-138 E	4.1202
941981	AE2-210 C O1	3.8385
941982	AE2-210 E O1	1.4438
944621	AF1-127 C O1	1.5826
944622	AF1-127 E O1	0.7795
945681	AF1-233 C O1	5.8686
945682	AF1-233 E O1	2.8992
945861	AF1-251 C	4.0068
945862	AF1-251 E	2.6712
945911	AF1-256 C	2.0212
945912	AF1-256 E	1.3475
LGEE	LGEE	0.3206
CPLE	CPLE	0.0582
WEC	WEC	0.0038
CBM-W2	CBM-W2	2.0721
NY	NY	0.0841
TVA	TVA	0.6020
O-066	O-066	0.9744
CBM-S2	CBM-S2	0.9132
CBM-S1	CBM-S1	3.8766
G-007	G-007	0.1498
MADISON	MADISON	1.0786
MEC	MEC	0.1700

17.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41876010	342838	7SPURLOCK	EKPC	253077	09STUART	DAY	1	DEOK_P2-2_C1 SILVER GROVE 345 BUS	bus	1532.0	130.04	132.25	DC	33.69

Bus #	Bus	MW Impact
251968	08ZIMRHP	39.2669
251969	08ZIMRLP	21.5033
251970	08MELDL1	1.9892
251971	08MELDL2	1.9892
251972	08MELDL3	1.9946
342957	1SPURLK1G	20.1913
342960	1SPURLK2G	38.4191
342963	1SPURLK3G	20.1889
342966	1SPURLK4G	20.1889
925921	AC1-068 C	-3.5400
925922	AC1-068 E	-1.6555
925931	AC1-069 C	-3.5400
925932	AC1-069 E	-1.6555
925981	AC1-074 C O1	15.7063
925982	AC1-074 E O1	6.7313
926101	AC1-089 C O1	4.0790
926102	AC1-089 E O1	6.6552
926791	AC1-165 C	-3.4983
926792	AC1-165 E	-1.6971
926801	AC1-166 C	-3.4983
926802	AC1-166 E	-1.6971
926951	AC1-182	6.6980
932461	AC2-066 C	-3.1887
932462	AC2-066 E	-5.2027
932551	AC2-075 C	3.7303
932552	AC2-075 E	1.8791
936381	AD2-048 C	10.7895
936382	AD2-048 E	5.3832
936571	AD2-072 C O1	8.5203
936572	AD2-072 E O1	4.1776
936821	AD2-105 C O1	3.6360
936822	AD2-105 E O1	5.3196
936831	AD2-106 C O1	2.5615
936832	AD2-106 E O1	3.5374
936841	AD2-107 C O1	2.0318
936842	AD2-107 E O1	2.8059
939131	AE1-143 C	6.3754
939132	AE1-143 E	3.1579
939141	AE1-144 C O1	32.8515
939142	AE1-144 E O1	16.3029

Bus #	Bus	MW Impact
940531	AE2-038 C O1	21.9147
940532	AE2-038 E O1	10.8549
941411	AE2-138 C	63.0876
941412	AE2-138 E	23.3338
941961	AE2-208	2.1989
941981	AE2-210 C O1	21.7383
941982	AE2-210 E O1	8.1768
942411	AE2-254 C O1	4.2815
942412	AE2-254 E O1	2.8543
942591	AE2-275 C O1	13.4850
942592	AE2-275 E O1	5.0723
942891	AE2-308 C O1	22.6036
942892	AE2-308 E O1	8.2195
943111	AE2-339 C	7.4394
943112	AE2-339 E	3.6642
943701	AF1-038 C	1.6966
943702	AF1-038 E	1.1310
943772	AF1-045 BAT	4.6964
943821	AF1-050 C	1.5068
943822	AF1-050 E	1.0045
944151	AF1-083 C O1	1.5843
944152	AF1-083 E O1	1.0562
944211	AF1-089 C O1	2.4799
944212	AF1-089 E O1	0.7588
944511	AF1-116 C	3.7895
944512	AF1-116 E	2.5263
944621	AF1-127 C O1	17.2758
944622	AF1-127 E O1	8.5090
945541	AF1-219 C O1	2.0568
945542	AF1-219 E O1	0.6674
945681	AF1-233 C O1	62.3740
945682	AF1-233 E O1	30.8142
945861	AF1-251 C	43.2419
945862	AF1-251 E	28.8279
945911	AF1-256 C	20.2128
945912	AF1-256 E	13.4752
946021	AF1-267 C O1	3.9648
946022	AF1-267 E O1	1.8217
LGEE	LGEE	4.6422
CPLE	CPLE	0.4545
WEC	WEC	0.3597
LGE-0012019	LGE-0012019	6.2986
CBM-W2	CBM-W2	24.2260
NY	NY	0.7897
CBM-W1	CBM-W1	9.0572
TVA	TVA	5.1954
O-066	O-066	9.2400
CBM-S2	CBM-S2	7.3522
CBM-S1	CBM-S1	38.6212
G-007	G-007	1.4248
MADISON	MADISON	3.2780
MEC	MEC	2.9190

Affected Systems

18 Affected Systems

18.1 LG&E

LG&E Impacts to be determined during later study phases (as applicable).

18.2 MISO

MISO Impacts to be determined during later study phases (as applicable).

18.3 TVA

TVA Impacts to be determined during later study phases (as applicable).

18.4 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

18.5 NYISO

NYISO Impacts to be determined during later study phases (as applicable).

19 Contingency Descriptions

Contingency Name	Contingency Definition
DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER	CONTINGENCY 'DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER' OPEN BRANCH FROM BUS 249989 TO BUS 250080 CKT 1 / 249989 08BKJ246 138 250080 08NWTWN2 138 1 OPEN BRANCH FROM BUS 250079 TO BUS 250080 CKT Z1 / 250079 08NWTWN1 138 250080 08NWTWN2 138 Z1 OPEN BRANCH FROM BUS 250079 TO BUS 250092 CKT 1 / 250079 08NWTWN1 138 250092 08REDBK1 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END
EKPC_P4-6_SPUR N39-92T	CONTINGENCY 'EKPC_P4-6_SPUR N39-92T' /* SPURLOCK OPEN BRANCH FROM BUS 342622 TO BUS 342664 CKT 1 /* 342622 4MAYSVIL I T138.00 342664 4SPURLOCK 138.00 OPEN BRANCH FROM BUS 342622 TO BUS 342625 CKT 1 /* 342622 4MAYSVIL I T138.00 342625 4MAYSVIL IND138.00 OPEN BRANCH FROM BUS 342622 TO BUS 342634 CKT 1 /* 342622 4MAYSVIL I T138.00 342634 4PLUMVILLE 138.00 OPEN BRANCH FROM BUS 945910 TO BUS 342664 CKT 1 /* 945910 AF1-256 TAP 138.00 342664 4SPURLOCK 138.00 END
DEOK_P2-3_C2 816_SILVERGROVE	CONTINGENCY 'DEOK_P2-3_C2 816_SILVERGROVE' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249988 TO BUS 250097 CKT 1 / 249988 08BKJ135 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250042 TO BUS 250097 CKT 1 / 250042 08HANDS1 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250052 TO BUS 250097 CKT 1 / 250052 08KYUNIV 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250053 TO BUS 250097 CKT 1 / 250053 08LAFARG 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
DAY-P1-STU SPUR	CONTINGENCY 'DAY-P1-STU SPUR' DISCONNECT BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* STU SPUR END

Contingency Name	Contingency Definition
DEOK_P2-3_C2 1493_RED BANK	CONTINGENCY 'DEOK_P2-3_C2 1493_RED BANK' OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249571 TO BUS 250092 CKT 1 / 249571 08REDBK1 345 250092 08REDBK1 138 1 END
EKPC_P2-3_GODDARD E5-834	CONTINGENCY 'EKPC_P2-3_GODDARD E5-834' /* OPEN BUS 342589 /* 4GODDARD OPEN BRANCH FROM BUS 342571 TO BUS 342649 CKT 1 /* 342571 4CRANSTON 138.00 342649 4ROWAN CO 138.00 END
DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	CONTINGENCY 'DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
EKPC_P2-2_GODDARD 138	CONTINGENCY 'EKPC_P2-2_GODDARD 138' /* GODDARD 138 BUS OPEN BUS 342589 /* 4GODDARD END
EKPC_P4-2_GODDARD E5-824	CONTINGENCY 'EKPC_P4-2_GODDARD E5-824' /* OPEN BUS 342589 /* 4GODDARD DROPS BUS END
DAY_P734541 34553	CONTINGENCY 'DAY_P734541 34553' OPEN BRANCH FROM BUS 249581 TO BUS 342838 CKT 1 /* 249581 08MELDAL 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* 253077 09STUART 345.00 342838 7SPURLOCK 345.00 END
EKPC_P1-2_SPUR-GODD 138-B	CONTINGENCY 'EKPC_P1-2_SPUR-GODD 138-B' /* SPURLOCK - GODDARD OPEN BRANCH FROM BUS 945910 TO BUS 342664 CKT 1 /* 945910 AF1-256 TAP 138.00 342664 4SPURLOCK 138.00 END
DAY_P4_L34553-1	CONTINGENCY 'DAY_P4_L34553-1' OPEN LINE FROM BUS 253077 TO BUS 342838 CKT 1 /* 09STUART 345 - 7SPURLK 345 OPEN LINE FROM BUS 253077 TO BUS 253076 CKT 1 /* 09STUART 345 - 09STUART 138 END
Base Case	

Contingency Name	Contingency Definition
EKPC_P4-2_GODDARD E5-834	CONTINGENCY 'EKPC_P4-2_GODDARD E5-834' /* OPEN BUS 342589 /* 4GODDARD OPEN BRANCH FROM BUS 342571 TO BUS 342649 CKT 1 /* 342571 4CRANSTON 138.00 342649 4ROWAN CO 138.00 END
DEOK_P2-2_C1 SILVER GROVE 345 BUS	CONTINGENCY 'DEOK_P2-2_C1 SILVER GROVE 345 BUS' OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END

Short Circuit

20 Short Circuit

The following Breakers are overduty

Bus Number	Bus Name	BREAKER	Type	Capacity (Amps)	Duty Percentage Post Queue	Duty Percentage Pre Queue

21 Single Line Diagram

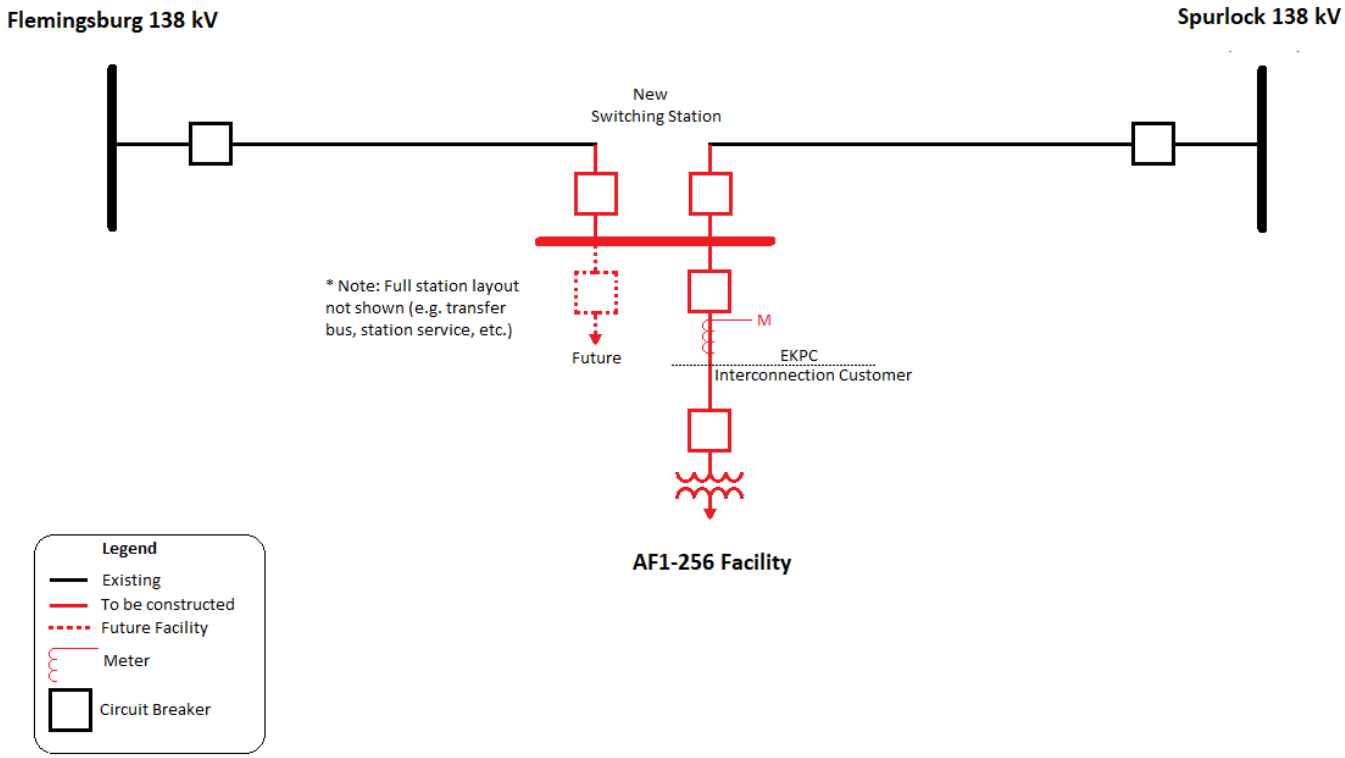

Exhibit G

PJM Interconnection - System Impact Study Report

Generation Interconnection

System Impact Study Report

for

Queue Project AF1-256

FLEMINGSBURG-SPURLOCK 138 KV

48 MW Capacity / 80 MW Energy

August, 2020

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1 Introduction

This System Impact Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 205, as well as the System Impact Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is EKPC.

2 Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Fleming County, Kentucky. The installed facilities will have a total capability of 80 MW with 48 MW of this output being recognized by PJM as Capacity.

The proposed in-service date for this project is June 01, 2023. This study does not imply a TO commitment to this in-service date.

The objective of this System Impact Study is to determine budgetary cost estimates and approximate construction timelines for identified transmission facilities required to connect the proposed generating facilities to the ITO transmission system. These reinforcements include the Attachment Facilities, Local Upgrades, and Network Upgrades required for maintaining the reliability of the ITO transmission system.

Queue Number	**AF1-256**
Project Name	FLEMINGSBURG-SPURLOCK 138 KV
State	Kentucky
County	Fleming
Transmission Owner	EKPC
MFO	80
MWE	80
MWC	48
Fuel	Solar
Basecase Study Year	2023

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AF1-256 will interconnect with the EKPC transmission system tapping the Flemingsburg to Spurlock 138 kV line.

5 Cost Summary

The AF1-256 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$565,000
Direct Connection Network Upgrade	$5,020,000
Non Direct Connection Network Upgrades	$2,175,000
Allocation for New System Upgrades*	$1,920,000
Contribution to Previously Identified Upgrades*	$37,897,733
Total Costs	**$45,577,733**

*As your project progresses through the study process and other projects modify their request or withdraw, then your cost allocation could change.

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 88-129. If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Note 1: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. The allocation of costs for a network upgrade will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

6 Transmission Owner Scope of Work

6.1 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Install necessary equipment (a 138 kV isolation switch structure and associated switch, plus interconnection metering, fiber-optic connection and telecommunications equipment, circuit breaker and associated switches, and relay panel) at the new North Fleming switching station, to accept the IC generator lead line/bus (Estimated time to implement is 24 months)	$565,000
Total Attachment Facility Costs	**$565,000**

6.2 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Construct a new 138 kV switching station ("North Fleming Switching") to facilitate connection of the IC solar generation project to the existing Spurlock-Flemingsburg 138 kV line (Estimated time to implement is 24 months)	$5,020,000
Total Direct Connection Facility Costs	**$5,020,000**

6.3 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Construct facilities to loop the existing Spurlock-Flemingsburg 138 kV line into the new North Fleming switching station (Estimated time to implement is 24 months)	$520,000
Modify relays and/or settings at Spurlock substation for the existing line to the new North Fleming switching station (Estimated time to implement is 9 months)	$65,000
Modify relays and/or settings at Goddard substation for the existing line to the new North Fleming switching station (Estimated time to implement is 9 months)	$65,000

Description	Total Cost
Install OPGW on the North Fleming-Goddard 138 kV line (11.2 miles) (Estimated time to implement is 18 months)	$1,525,000
Total Non-Direct Connection Facility Costs	**$2,175,000**

7 Incremental Capacity Transfer Rights (ICTRs)

None.

8 Interconnection Customer Requirements

It is understood that the Interconnection Customer is responsible for all costs associated with this interconnection. The costs above are reimbursable to the Interconnected Transmission Owner. The cost of the Interconnection Customer's generating plant and the costs for the line connecting the generating plant to the Interconnected Transmission Owner's Transmission circuit are not included in this report; these are assumed to be the Interconnection Customer's responsibility.

The Generation Interconnection Agreement does not in or by itself establish a requirement for the Interconnected Transmission Owner to provide power for consumption at the developer's facilities. A separate agreement may be reached with the local utility that provides service in the area to ensure that infrastructure is in place to meet this demand and proper metering equipment is installed. It is the responsibility of the developer to contact the local service provider to determine if a local service agreement is required.

Requirement from the PJM Open Access Transmission Tariff:

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.
2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

9 Revenue Metering and SCADA Requirements

9.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

9.2 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

http://www.pjm.com/planning/design-engineering/to-tech-standards/

10 Summer Peak Analysis

The Queue Project AF1-256 was evaluated as a 80.0 MW (Capacity 48.0 MW) injection tapping the Flemingsburg to Spurlock 138 kV line (specifically the AF1-233 Tap – Spurlock 138 kV line section) in the EKPC area. Project AF1-256 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF1-256 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

10.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

10.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665396	342571	4CRANSTON	138.0	EKPC	342649	4ROWANCO	138.0	EKPC	1	EKPC_P4-6_SPURN39-92T	breaker	255.0	87.59	105.95	AC	47.24
41665395	342589	4GODDARD	138.0	EKPC	342571	4CRANSTON	138.0	EKPC	1	EKPC_P4-6_SPURN39-92T	breaker	255.0	87.6	105.97	AC	47.24
41665310	342649	4ROWANCO	138.0	EKPC	324302	4RODBURN	138.0	LGEE	1	EKPC_P4-6_SPURN39-92T	breaker	191.0	90.32	112.31	AC	42.33

10.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

ID	FROM BUS #	FROM BUS	kV	FROM BUS AREA	TO BUS #	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958234	246800	05SARDINIA	138.0	AEP	247034	05EMERSS	138.0	AEP	1	DAY_P734541 34553	tower	185.0	114.87	118.24	AC	7.32
43957450	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY_P4_L34553-1	breaker	185.0	120.57	122.74	AC	4.71
43958138	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY_P734541 34553	tower	185.0	166.85	170.21	AC	7.32
43958235	247034	05EMERSS	138.0	AEP	246946	05WLDCAT	138.0	AEP	1	DAY_P734541 34553	tower	185.0	113.73	117.09	AC	7.32
43573455	324267	4KENTON	138.0	LGEE	246800	05SARDINIA	138.0	AEP	1	DAY_P734541 34553	tower	185.0	117.6	120.97	AC	7.32
41050495	342091	2PLUMVILLE	69.0	EKPC	341923	2MURPHYSVIL	69.0	EKPC	1	DAY_P734541 34553	tower	63.0	104.34	110.44	AC	4.52
41664888	342091	2PLUMVILLE	69.0	EKPC	341923	2MURPHYSVIL	69.0	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	63.0	132.1	160.71	AC	18.69
41050400	342559	4BOONECO	138.0	EKPC	250054	08LONGBR	138.0	DEO&K	1	DAY_P734541 34553	tower	284.0	124.52	127.57	AC	8.87
41050476	342661	4SPUR-KENT-R	138.0	EKPC	324267	4KENTON	138.0	LGEE	1	DAY_P734541 34553	tower	281.0	112.43	114.86	AC	7.48

ID	FROM BUS #	FROM BUS	kV	FROM BUS AREA	TO BUS #	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050514	342664	4SPURLOCK	138.0	EKPC	342661	4SPUR-KENT-R	138.0	EKPC	1	DAY_P734541 34553	tower	291.0	108.56	110.91	AC	7.48
41050367	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER	tower	1532.0	125.14	127.39	AC	33.72
41351750	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	Base Case	single	1240.0	120.95	122.49	AC	18.74
41351751	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	single	1532.0	115.96	117.32	AC	20.23
41665067	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 816_SILVERGROVE	breaker	1532.0	125.38	127.63	AC	33.74
41665068	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-3_C2 1493_RED BANK	breaker	1532.0	125.33	127.57	AC	33.72
41876010	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P2-2_C1 SILVER GROVE 345 BUS	bus	1532.0	125.21	127.45	AC	33.72

10.4 Steady-State Voltage Requirements

None

10.5 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43957905	246946	05WLDCAT	138.0	AEP	243019	05HILLSB	138.0	AEP	1	DAY-P1-STU SPUR	operation	185.0	120.14	122.31	AC	4.72
41351789	342583	4FLEMINGSBRG	138.0	EKPC	342589	4GODDARD	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-B	operation	217.0	98.78	135.44	AC	80.0
41351748	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	Base Case	operation	1240.0	127.26	129.79	AC	31.23
41351749	342838	7SPURLOCK	345.0	EKPC	253077	09STUART	345.0	DAY	1	DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	operation	1532.0	125.21	127.45	AC	33.72
41352053	939140	AE1-144 TAP	138.0	EKPC	342634	4PLUMVILLE	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-B	operation	186.0	98.94	119.65	AC	39.5
59606777	945680	AF1-233 TAP	138.0	EKPC	342583	4FLEMINGSBRG	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-B	operation	255.0	87.5	118.64	AC	80.0
59606772	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	EKPC_P1-2_SPUR-GODD 138-A	operation	255.0	87.66	119.16	AC	80.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
88628318	945910	AF1-256 TAP	138.0	EKPC	342664	4SPURLOCK	138.0	EKPC	1	3425834FLEMINGSBRG 138 945680 AF1-233 TAP 1381	operation	255.0	87.65	119.15	AC	80.0

10.6 System Reinforcements

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-256	Upgrade Number
41050400	9	**4BOONE CO 138.0 kV - 08LONGBR 138.0 kV Ckt 1**	Line is 100% owned by EKPC. No DEOK upgrade required. EKPC: Increase MOT of Boone-Longbranch 138kV line section 954 MCM conductor to 275F (~2.25 miles). Time estimate 6 months. New SE rating to be 296 MVA. Cost 200K. PJM Network Upgrade N6463.1 Upgrade bus and jumpers associated with Boone 138 kV bus using 2-500 MCM 37 CU conductor or equivalent. Time estimate 6 months. New SE rating to be 354 MVA. Cost 20K. PJM Network Upgrade N6463.2 N6463.1 and N6463.2 are driven in a prior queue cycle. Replace the 954 MCM ACSR line conductor on the Boone County-Longbranch 138 kV line with 954 MCM ACSS conductor (2.3 miles). Time estimate 14 months. New SE rating to be 361 MVA. Cost $2.59 M. PJM Network Upgrade N6463.3 Replace he 1200A disconnect switches N15-813 and N15-815 at the Boone County substation with 1600A equipment and replace the 750 MCM copper substation jumpers at the Boone County substation with bundled 500 MCM copper or equivalent equipment. Time estimate 9 months. New SE rating to be 364 MVA. Cost $215 K. PJM Network Upgrade N6463.4	$200 K + $20 K + $2.59 M + $215 K	$0 + $0 + $2.59 M + $215 K	N6463.1 N6463.2 N6463.3 N6463.4
41050476	10	**4SPUR-KENT-R 138.0 kV - 4KENTON 138.0 kV Ckt 1**	EKPC: 2021 Baseline Upgrade B2827: Upgrade Spurlock-KU Kenton 138kv series reactor from 1200A at 5% impedance to 1600A at 6.5% impedance. PJM Network Upgrade N6041 will increase the reactor to 7.5% impedance. $0 cost estimate. N6041 is needed for a prior queue cycle. LG&E: The LG&E-end SE rating on the 4SPUR-KENT-R-4KENTON 138 kV line is 306 MVA. LG&E will need to evaluate their end of th eline with an affected system study.	$0	$0	B2827 N6041

<table>
<tr><th>ID</th><th>Idx</th><th>Facility</th><th>Upgrade Description</th><th>Cost</th><th>Cost Allocated to AF1-256</th><th>Upgrade Number</th></tr>
<tr><td>41665396</td><td>1</td><td>4CRANSTON 138.0 kV - 4ROWAN CO 138.0 kV Ckt 1</td><td>Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Cranston-Rowan County 138 kV line section to 275 degrees F (7.5 miles). Cost estmate: $680 K. Time Estimate: 9 months. New expected SE rating is 296 MVA.</td><td>$680 K</td><td>$680 K</td><td>N6829</td></tr>
<tr><td>43958138,43957450</td><td>5</td><td>05WLDCAT 138.0 kV - 05HILLSB 138.0 kV Ckt 1</td><td>(N5472) A sag check will be required for the ACSR ~ 477 ~ 26/7 ~ HAWK - Conductor Section 1 to determine if the line section can be operated above its emergency rating of 185 MVA. The sag study results show that a distribution circuit crossing underneath structures 37-58 and 37-59 will need to be relocated to allow the line to be operated at its MOT. An approximate time for the sag study is 6 to 12 months after signing an interconnection agreement. The new expected SE rating following the sag study will be 256 MVA SE.

This constraint, and N5472, is driven by a prior queue cycle.

(N5857) Rebuild / reconductor 10 miles of ACSR ~ 477 ~ 26/7 ~ HAWK- Conductor Section 1.
$15,040,000.
Time Estimate: 24-36 Months.
New Ratings: Rate A: 383 MVA Rate B: 449 MVA

The cost allocation is as follows:
<table>
<tr><th>Queue</th><th>MW contribution</th><th>Percentage of Cost</th><th>$ cost ($15.04 M)</th></tr>
<tr><td>AD2-048</td><td>5.9</td><td>7.399</td><td>1.113</td></tr>
<tr><td>AE1-144</td><td>11.6</td><td>14.597</td><td>2.195</td></tr>
<tr><td>AE2-038</td><td>7.8</td><td>9.732</td><td>1.464</td></tr>
<tr><td>AE2-138</td><td>14.4</td><td>18.084</td><td>2.720</td></tr>
<tr><td>AF1-233</td><td>20.6</td><td>25.834</td><td>3.885</td></tr>
<tr><td>AF1-251</td><td>12.1</td><td>15.174</td><td>2.282</td></tr>
<tr><td>AF1-256</td><td>7.3</td><td>9.180</td><td>1.381</td></tr>
</table></td><td>$186 K + $15.04 M</td><td>$0 + $1.381 M</td><td>N5472 N5857</td></tr>
<tr><td>41665395</td><td>2</td><td>4GODDARD 138.0 kV - 4CRANSTON 138.0 kV Ckt 1</td><td>Increase the maximum operating temperature of the 795 MCM ACSR conductor in the Goddard-Cranston 138 kV line section to 275 degrees F (12.7 miles). Cost estmate: $1.15 M. Time Estimate: 12 months. New expected SE rating is 296 MVA.</td><td>$1.15 M</td><td>$1.15 M</td><td>N6828</td></tr>
</table>

<table>
<tr>
<td>41664888,41050495</td>
<td>8</td>
<td>2PLUMVILLE 69.0 kV - 2MURPHYSVIL 69.0 kV Ckt 1</td>
<td>Increase the maximum operating temperature of the 266 MCM ACSR conductor in the Murphysville-Plumville 69 kV line section to 266 degrees F (9.9 miles). Time estimate: 9 months. Cost estimate $650 K. New SN/SE rating 53/66 MVA. PJM Network Upgrade N6480.

Rebuild the Plumville-Murphysville 69 kV line section using 795 MCM ACSR conductor at 212 degrees F (9.9 miles). Cost estimate $8.14 M. Time estimate 20 months. New SN/SE rating 53/66 MVA. PJM Network Upgrade N6480.1.

Replace the 4/0 copper bus and jumpers at the Murphysville substation using 750 MCM copper or equivalent. Cost estimate $120 K. Time estimate 6 months. New SN/SE rating 53/66 MVA. PJM Network Upgrade N6480.2.

The cost allocation is as follows for N6480, N6480.1, N6480.2:

<table>
<tr><th>Queue</th><th>MW contribution</th><th>Percentage of Cost</th><th>$ cost ($8.91 M)</th></tr>
<tr><td>AE2-038</td><td>3.2</td><td>4.30%</td><td>0.383</td></tr>
<tr><td>AF1-233</td><td>52.6</td><td>70.60%</td><td>6.291</td></tr>
<tr><td>AF1-256</td><td>18.7</td><td>25.10%</td><td>2.236</td></tr>
</table>

Replace the 4/0 copper bus and jumpers at the Plumville substation using 750 MCM copper or equivalent. Cost estimate $120 K. Time estimate 6 months. New SN/SE rating 77/90 MVA. PJM Network Upgrade N6480.3.

The cost allocation is as follows:

<table>
<tr><th>Queue</th><th>MW contribution</th><th>Percentage of Cost</th><th>$ cost ($170 K)</th></tr>
<tr><td>AF1-233</td><td>52.6</td><td>73.77%</td><td>125.415</td></tr>
<tr><td>AF1-256</td><td>18.7</td><td>26.23%</td><td>44.585</td></tr>
</table>

Replace the 600A disconnect switches N34-613 and N34-615 at the Plumville substation with 1200A equipment. Cost estimate $100 K. Time estimate 9 months. New SN/SE rating 89/91 MVA. PJM Network Upgrade N6480.4.

Change the Zone 3 relay setting at Murphysville associated with the line protection to at least 108 MVA</td>
<td>$650 K + $8.14 M + $120 K + $120 K + $100 K + $0 + $0</td>
<td>$2.236 M + $44.585 K + $100K</td>
<td>N6480
N6480.1
N6480.2
N6480.3
N6480.4
N6480.5
N6480.6</td>
</tr>
</table>

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-256	Upgrade Number
			LTE rating. Cost estimate $0. Time estimate 6 months. New SN/SE rating 103/108 MVA. PJM Network Upgrade N6480.5. Change the current transformer setting at Murphysville substation associated with circuit breaker N4-604 from 600A to 800A. Cost estimate $0. Time estimate 6 months. New SN/SE rating 103/108 MVA. PJM Network Upgrade N6480.6.			
41665310	3	**4ROWAN CO 138.0 kV - 4RODBURN 138.0 kV Ckt 1**	EKPC end: Replace the 800A wave trap at Rodburn substation with 1200A equipment. Cost estmate: $90 K. Time Estimate: 9 months. New expected SE rating is 255 MVA. LG&E end: Impacts to be determined in Facilities Study. An LG&E affected system study wil be required.	$90 K	$90 K	N6827

<table>
<tr>
<td>41876010,41351750,41050367,41351751,41665068,41665067</td>
<td>12</td>
<td>7SPURLOCK 345.0 kV - 09STUART 345.0 kV Ckt 1</td>
<td>
DAYTON (N5780): Reconductor Stuart-Spurlock line with twin bundle 1033 Curlew ACCR conductor.
Cost : $ 17,100,000
Time Estimate : 18 Months
New Expected Ratings: Rate A: 1339 MVA Rate B: 1556 MVA

The cost allocation table is below:

<table>
<tr><th>Queue</th><th>MW contribution</th><th>Percentage of Cost</th><th>Cost ($17.1M)</th></tr>
<tr><td>AE1-144</td><td>48.19</td><td>10.10%</td><td>$1,727,638</td></tr>
<tr><td>AE2-038</td><td>32.12</td><td>6.73%</td><td>$1,151,520</td></tr>
<tr><td>AE2-138</td><td>84.73</td><td>17.76%</td><td>$3,037,618</td></tr>
<tr><td>AE2-210</td><td>29.33</td><td>6.15%</td><td>$1,051,497</td></tr>
<tr><td>AE2-275</td><td>21.24</td><td>4.45%</td><td>$761,466</td></tr>
<tr><td>AE2-308</td><td>35.33</td><td>7.41%</td><td>$1,266,600</td></tr>
<tr><td>AF1-127</td><td>25.84</td><td>5.42%</td><td>$926,378</td></tr>
<tr><td>AF1-233</td><td>94.25</td><td>19.76%</td><td>$3,378,915</td></tr>
<tr><td>AF1-251</td><td>72.21</td><td>15.14%</td><td>$2,588,769</td></tr>
<tr><td>AF1-256</td><td>33.74</td><td>7.07%</td><td>$1,209,598</td></tr>
</table>

DAYTON (N5780.1): Replace Stuart substation riser conductor with 2500AAC (parallel).
Cost : $ 100,000
Time Estimate : 12 Months
New Expected Ratings: Rate A: 1561 MVA Rate B: 1800 MVA

A prior queue cycle is driving the need for N5780.1.

DAYTON (N5780.2) Reconductor Stuart substation conductor with twin bundle 1033 Curlew ACCR conductor. Cost estimate is $0.250 M. Estimated time to complete is 12 months. New ratings 1852/2062 MVA.

The cost allocation is as follows:

<table>
<tr><th>Queue</th><th>MW contribution</th><th>Percentage of Cost</th><th>Cost($0.25 M)</th></tr>
<tr><td>AF1-233</td><td>94.25</td><td>47.08 %</td><td>$117,695</td></tr>
</table>
</td>
<td>$17.1 M + $100 K + $250 K + $150 K + $170 K + $30 M</td>
<td>$1.209598 M + $0 + $42,133 + $25,280 + $54,137 + $30 M</td>
<td>N5780
N5780.1
N5780.2
N5780.3
N5780.4
N5780.5</td>
</tr>
</table>

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-256	Upgrade Number

AF1-251	72.21	36.07 %	$90,172
AF1-256	33.74	16.85 %	$42,133

EKPC:
EKPC end ratings are 1792/1792 MVA SN/SE.

EKPC (N5780.3) Replace the 1500A interconnection metering CTs with 2000A equipment. Cost estimate is $150 K. Time estimate is 9 months. New expected ratings to be 1821/1877 MVA SN/SE.

The cost allocation is as follows:

Queue	MW contribution	Percentage of Cost	Cost($0.15 M)
AF1-233	94.25	47.08 %	$70,617
AF1-251	72.21	36.07 %	$54,103
AF1-256	33.74	16.85 %	$25,280

EKPC (N5780.4) Replace the 3000A wave trap with 3600A equipment. Cost estimate is $170 K. Time estimate is 9 months. New expected ratings to be 1868/1951 MVA SN/SE.

The cost allocation is as follows:

Queue	MW contribution	Percentage of Cost	Cost($0.17 M)
AF1-251	72.21	68.15 %	$115,863
AF1-256	33.74	31.85 %	$54,137

EKPC (N5780.5) Construct a new 345 kV circuit between the EKPC Spurlock and DP&L Stuart substations (circuit length approximately 8.5 miles). Cost estimate is $30 M. Time estimate is 48 months.

AF1-256 is 100% responsible for this upgrade.

ID	Idx	Facility	Upgrade Description	Cost	Cost Allocated to AF1-256	Upgrade Number
41050514	11	**4SPURLOCK 138.0 kV - 4SPUR-KENT-R 138.0 kV Ckt 1**	EKPC: 2021 Baseline Upgrade B2827: Upgrade Spurlock-KU Kenton 138kv series reactor from 1200A at 5% impedance to 1600A at 6.5% impedance. PJM Network Upgrade N6041 will increase the reactor to 7.5% impedance. $0 cost estimate. N6041 is needed for a prior queue cycle.	$0	$0	B2827 N6041
43573455	7	**4KENTON 138.0 kV - 05SARDINIA 138.0 kV Ckt 1**	AEP: Perform sag study on AEP's portion of Wildcat-Kenton 138kV circuit, 23.5 miles 477 ACSR 26/7 Hawk conductor. Cost estimate is $94K. 12 month time estimate. Total rebuild, if needed, cost estimate is $35.25 M. New AEP-end ratings are 185/257 SN/SE. PJM Network Upgrade N6461. This overload and N6461 is driven by a prior queue cycle. LG&E: Impacts to be determined in Facilities Study.	$94 K	$0	N6461
43958234	4	**05SARDINIA 138.0 kV - 05EMERSS 138.0 kV Ckt 1**	Same as upgrade listed above for: **4KENTON 138.0 kV - 05SARDINIA 138.0 kV Ckt 1**	N/A	$0	N6461
43958235	6	**05EMERSS 138.0 kV - 05WLDCAT 138.0 kV Ckt 1**	Same as upgrade listed above for: **4KENTON 138.0 kV - 05SARDINIA 138.0 kV Ckt 1**	N/A	$0	N6461
			Total Cost	**$77,165,000**	**$39,817,733**	

Note : For customers with System Reinforcements listed: If your present cost allocation to a System Reinforcement indicates $0, then please be aware that as changes to the interconnection process occur, such as prior queued projects withdrawing from the queue, reducing in size, etc, the cost responsibilities can change and a cost allocation may be assigned to your project. In addition, although your present cost allocation to a System Reinforcement is presently $0, your project may need this system reinforcement completed to be deliverable to the PJM system. If your project comes into service prior to completion of the system reinforcement, an interim deliverability study for your project will be required.

10.7 Flow Gate Details

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

10.7.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665396	342571	4CRANSTON	EKPC	342649	4ROWAN CO	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	255.0	87.59	105.95	AC	47.24

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936381	AD2-048 C	2.2900	Adder	2.69
936382	AD2-048 E	1.1426	Adder	1.34
939141	AE1-144 C O1	42.5958	50/50	42.5958
939142	AE1-144 E O1	21.1386	50/50	21.1386
940531	AE2-038 C O1	28.4149	50/50	28.4149
940532	AE2-038 E O1	14.0747	50/50	14.0747
945681	AF1-233 C	88.9248	50/50	88.9248
945682	AF1-233 E	43.9310	50/50	43.9310
945911	AF1-256 C	28.3426	50/50	28.3426
945912	AF1-256 E	18.8950	50/50	18.8950
WEC	WEC	0.0132	Confirmed LTF	0.0132
LGEE	LGEE	0.0770	Confirmed LTF	0.0770
CBM-W2	CBM-W2	0.3440	Confirmed LTF	0.3440
NY	NY	0.0083	Confirmed LTF	0.0083
TVA	TVA	0.0364	Confirmed LTF	0.0364
O-066	O-066	0.1142	Confirmed LTF	0.1142
CBM-S1	CBM-S1	0.3919	Confirmed LTF	0.3919
G-007	G-007	0.0177	Confirmed LTF	0.0177
MEC	MEC	0.0651	Confirmed LTF	0.0651
CATAWBA	CATAWBA	0.0056	Confirmed LTF	0.0056
CBM-W1	CBM-W1	0.4629	Confirmed LTF	0.4629

10.7.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665395	342589	4GODDARD	EKPC	342571	4CRANSTON	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	255.0	87.6	105.97	AC	47.24

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936381	AD2-048 C	2.2900	Adder	2.69
936382	AD2-048 E	1.1426	Adder	1.34
939141	AE1-144 C O1	42.5958	50/50	42.5958
939142	AE1-144 E O1	21.1386	50/50	21.1386
940531	AE2-038 C O1	28.4149	50/50	28.4149
940532	AE2-038 E O1	14.0747	50/50	14.0747
945681	AF1-233 C	88.9248	50/50	88.9248
945682	AF1-233 E	43.9310	50/50	43.9310
945911	AF1-256 C	28.3426	50/50	28.3426
945912	AF1-256 E	18.8950	50/50	18.8950
WEC	WEC	0.0132	Confirmed LTF	0.0132
LGEE	LGEE	0.0770	Confirmed LTF	0.0770
CBM-W2	CBM-W2	0.3440	Confirmed LTF	0.3440
NY	NY	0.0083	Confirmed LTF	0.0083
TVA	TVA	0.0364	Confirmed LTF	0.0364
O-066	O-066	0.1142	Confirmed LTF	0.1142
CBM-S1	CBM-S1	0.3919	Confirmed LTF	0.3919
G-007	G-007	0.0177	Confirmed LTF	0.0177
MEC	MEC	0.0651	Confirmed LTF	0.0651
CATAWBA	CATAWBA	0.0056	Confirmed LTF	0.0056
CBM-W1	CBM-W1	0.4629	Confirmed LTF	0.4629

10.7.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41665310	342649	4ROWAN CO	EKPC	324302	4RODBURN	LGEE	1	EKPC_P4-6_SPUR N39-92T	breaker	191.0	90.32	112.31	AC	42.33

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939141	AE1-144 C O1	38.4006	50/50	38.4006
939142	AE1-144 E O1	19.0566	50/50	19.0566
940531	AE2-038 C O1	25.6163	50/50	25.6163
940532	AE2-038 E O1	12.6885	50/50	12.6885
945681	AF1-233 C	79.6915	50/50	79.6915
945682	AF1-233 E	39.3695	50/50	39.3695
945911	AF1-256 C	25.3997	50/50	25.3997
945912	AF1-256 E	16.9331	50/50	16.9331
NEWTON	NEWTON	0.1160	Confirmed LTF	0.1160
CPLE	CPLE	0.0509	Confirmed LTF	0.0509
FARMERCITY	FARMERCITY	0.0042	Confirmed LTF	0.0042
G-007A	G-007A	0.0911	Confirmed LTF	0.0911
VFT	VFT	0.2386	Confirmed LTF	0.2386
PRAIRIE	PRAIRIE	0.2170	Confirmed LTF	0.2170
COFFEEN	COFFEEN	0.0200	Confirmed LTF	0.0200
EDWARDS	EDWARDS	0.0329	Confirmed LTF	0.0329
CBM-S2	CBM-S2	0.4335	Confirmed LTF	0.4335
TILTON	TILTON	0.0750	Confirmed LTF	0.0750
MADISON	MADISON	0.3468	Confirmed LTF	0.3468
GIBSON	GIBSON	0.0923	Confirmed LTF	0.0923
BLUEG	BLUEG	0.4184	Confirmed LTF	0.4184
TRIMBLE	TRIMBLE	0.1336	Confirmed LTF	0.1336

10.7.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958234	246800	05SARDINIA	AEP	247034	05EMERSS	AEP	1	DAY_P734541 34553	tower	185.0	114.87	118.24	AC	7.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1513	Adder	1.35
943112	AE2-339 E	0.5671	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7232	Adder	13.79
945682	AF1-233 E	5.7915	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7324	Adder	4.39
945912	AF1-256 E	2.4883	Adder	2.93
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.9248	Confirmed LTF	0.9248
CPLE	CPLE	0.1409	Confirmed LTF	0.1409
CBM-W2	CBM-W2	4.5127	Confirmed LTF	4.5127
NY	NY	0.0774	Confirmed LTF	0.0774
TVA	TVA	1.0164	Confirmed LTF	1.0164
O-066	O-066	0.8736	Confirmed LTF	0.8736
CBM-S2	CBM-S2	1.8149	Confirmed LTF	1.8149
CBM-S1	CBM-S1	7.6084	Confirmed LTF	7.6084
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5307	Confirmed LTF	0.5307
CBM-W1	CBM-W1	1.7889	Confirmed LTF	1.7889

10.7.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958138	246946	05WLDCAT	AEP	243019	05HILLSB	AEP	1	DAY_P734541 34553	tower	185.0	166.85	170.21	AC	7.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
926101	**AC1-089 C O1 (Suspended)**	**40.2722**	**50/50**	**40.2722**
926102	**AC1-089 E O1 (Suspended)**	**65.7073**	**50/50**	**65.7073**
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1513	Adder	1.35
943112	AE2-339 E	0.5671	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7232	Adder	13.79
945682	AF1-233 E	5.7915	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7324	Adder	4.39
945912	AF1-256 E	2.4883	Adder	2.93
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.9248	Confirmed LTF	0.9248
CPLE	CPLE	0.1409	Confirmed LTF	0.1409
CBM-W2	CBM-W2	4.5127	Confirmed LTF	4.5127
NY	NY	0.0774	Confirmed LTF	0.0774
TVA	TVA	1.0164	Confirmed LTF	1.0164
O-066	O-066	0.8736	Confirmed LTF	0.8736
CBM-S2	CBM-S2	1.8149	Confirmed LTF	1.8149
CBM-S1	CBM-S1	7.6084	Confirmed LTF	7.6084
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5307	Confirmed LTF	0.5307

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-W1	CBM-W1	1.7889	Confirmed LTF	1.7889

10.7.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43958235	247034	05EMERSS	AEP	246946	05WLDCAT	AEP	1	DAY_P73454134553	tower	185.0	113.73	117.09	AC	7.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1513	Adder	1.35
943112	AE2-339 E	0.5671	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7232	Adder	13.79
945682	AF1-233 E	5.7915	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7324	Adder	4.39
945912	AF1-256 E	2.4883	Adder	2.93
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.9248	Confirmed LTF	0.9248
CPLE	CPLE	0.1409	Confirmed LTF	0.1409
CBM-W2	CBM-W2	4.5127	Confirmed LTF	4.5127
NY	NY	0.0774	Confirmed LTF	0.0774
TVA	TVA	1.0164	Confirmed LTF	1.0164
O-066	O-066	0.8736	Confirmed LTF	0.8736
CBM-S2	CBM-S2	1.8149	Confirmed LTF	1.8149
CBM-S1	CBM-S1	7.6084	Confirmed LTF	7.6084
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5307	Confirmed LTF	0.5307
CBM-W1	CBM-W1	1.7889	Confirmed LTF	1.7889

10.7.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
43573455	324267	4KENTON	LGEE	246800	05SARDINIA	AEP	1	DAY_P734541 34553	tower	185.0	117.6	120.97	AC	7.32

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251831	Z1-080 BAT	0.5184	Merchant Transmission	0.5184
918803	AA1-099 BAT	0.3456	Merchant Transmission	0.3456
925981	AC1-074 C O1	2.6689	Adder	3.14
925982	AC1-074 E O1	1.1438	Adder	1.35
932551	AC2-075 C	0.6339	Adder	0.75
932552	AC2-075 E	0.3193	Adder	0.38
936381	AD2-048 C	3.0978	Adder	3.64
936382	AD2-048 E	1.5456	Adder	1.82
939141	AE1-144 C O1	6.3821	Adder	7.51
939142	AE1-144 E O1	3.1672	Adder	3.73
940531	AE2-038 C O1	4.2574	Adder	5.01
940532	AE2-038 E O1	2.1088	Adder	2.48
941411	AE2-138 C	8.9441	Adder	10.52
941412	AE2-138 E	3.3081	Adder	3.89
941981	AE2-210 C O1	3.0819	Adder	3.63
941982	AE2-210 E O1	1.1593	Adder	1.36
943111	AE2-339 C	1.1513	Adder	1.35
943112	AE2-339 E	0.5671	Adder	0.67
944621	AF1-127 C O1	2.4848	Adder	2.92
944622	AF1-127 E O1	1.2239	Adder	1.44
945681	AF1-233 C	11.7232	Adder	13.79
945682	AF1-233 E	5.7915	Adder	6.81
945861	AF1-251 C	6.1721	Adder	7.26
945862	AF1-251 E	4.1147	Adder	4.84
945911	AF1-256 C	3.7324	Adder	4.39
945912	AF1-256 E	2.4883	Adder	2.93
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.9248	Confirmed LTF	0.9248
CPLE	CPLE	0.1409	Confirmed LTF	0.1409
CBM-W2	CBM-W2	4.5127	Confirmed LTF	4.5127
NY	NY	0.0774	Confirmed LTF	0.0774
TVA	TVA	1.0164	Confirmed LTF	1.0164
O-066	O-066	0.8736	Confirmed LTF	0.8736
CBM-S2	CBM-S2	1.8149	Confirmed LTF	1.8149
CBM-S1	CBM-S1	7.6084	Confirmed LTF	7.6084
G-007	G-007	0.1342	Confirmed LTF	0.1342
MADISON	MADISON	1.9233	Confirmed LTF	1.9233
MEC	MEC	0.5307	Confirmed LTF	0.5307
CBM-W1	CBM-W1	1.7889	Confirmed LTF	1.7889

10.7.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41664888	342091	2PLUMVILLE	EKPC	341923	2MURPHYSVIL	EKPC	1	EKPC_P4-6_SPUR N39-92T	breaker	63.0	132.1	160.71	AC	18.69

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939141	AE1-144 C O1	23.9269	50/50	23.9269
939142	AE1-144 E O1	11.8739	50/50	11.8739
940531	AE2-038 C O1	15.9612	50/50	15.9612
940532	AE2-038 E O1	7.9060	50/50	7.9060
945681	AF1-233 C	35.1787	50/50	35.1787
945682	AF1-233 E	17.3791	50/50	17.3791
945911	AF1-256 C	11.2123	50/50	11.2123
945912	AF1-256 E	7.4749	50/50	7.4749
NEWTON	NEWTON	0.0505	Confirmed LTF	0.0505
CPLE	CPLE	0.0351	Confirmed LTF	0.0351
FARMERCITY	FARMERCITY	0.0014	Confirmed LTF	0.0014
G-007A	G-007A	0.0432	Confirmed LTF	0.0432
VFT	VFT	0.1161	Confirmed LTF	0.1161
PRAIRIE	PRAIRIE	0.0672	Confirmed LTF	0.0672
TVA	TVA	0.0560	Confirmed LTF	0.0560
COFFEEN	COFFEEN	0.0086	Confirmed LTF	0.0086
EDWARDS	EDWARDS	0.0161	Confirmed LTF	0.0161
CBM-S2	CBM-S2	0.3295	Confirmed LTF	0.3295
CBM-S1	CBM-S1	0.0767	Confirmed LTF	0.0767
TILTON	TILTON	0.0378	Confirmed LTF	0.0378
MADISON	MADISON	0.2782	Confirmed LTF	0.2782
GIBSON	GIBSON	0.0399	Confirmed LTF	0.0399
BLUEG	BLUEG	0.1910	Confirmed LTF	0.1910
TRIMBLE	TRIMBLE	0.0646	Confirmed LTF	0.0646

10.7.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050400	342559	4BOONE CO	EKPC	250054	08LONGBR	DEO&K	1	DAY_P734541 34553	tower	284.0	124.52	127.57	AC	8.87

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	6.5424	50/50	6.5424
342960	1SPURLK2G	10.2739	50/50	10.2739
342963	1SPURLK3G	5.3988	50/50	5.3988
342966	1SPURLK4G	5.3988	50/50	5.3988
925981	AC1-074 C O1	9.2590	50/50	9.2590
925982	AC1-074 E O1	3.9682	50/50	3.9682
932551	AC2-075 C	2.1990	50/50	2.1990
932552	AC2-075 E	1.1078	50/50	1.1078
936381	AD2-048 C	6.0757	50/50	6.0757
936382	AD2-048 E	3.0313	50/50	3.0313
936571	AD2-072 C O1	2.9492	Adder	3.47
936572	AD2-072 E O1	1.4460	Adder	1.7
939141	AE1-144 C O1	8.7939	50/50	8.7939
939142	AE1-144 E O1	4.3641	50/50	4.3641
940531	AE2-038 C O1	5.8663	50/50	5.8663
940532	AE2-038 E O1	2.9057	50/50	2.9057
941411	AE2-138 C	14.2422	Adder	16.76
941412	AE2-138 E	5.2677	Adder	6.2
941981	AE2-210 C O1	4.9075	Adder	5.77
941982	AE2-210 E O1	1.8459	Adder	2.17
942411	AE2-254 C O1	1.4107	Adder	1.66
942412	AE2-254 E O1	0.9404	Adder	1.11
942591	AE2-275 C O1	4.0281	Adder	4.74
942592	AE2-275 E O1	1.5151	Adder	1.78
942891	AE2-308 C O1	6.9302	Adder	8.15
942892	AE2-308 E O1	2.5201	Adder	2.96
943111	AE2-339 C	2.1012	Adder	2.47
943112	AE2-339 E	1.0349	Adder	1.22
944621	AF1-127 C O1	4.0553	Adder	4.77
944622	AF1-127 E O1	1.9974	Adder	2.35
945541	AF1-219 C O1	0.9336	Adder	1.1
945542	AF1-219 E O1	0.4393	Adder	0.52
945681	AF1-233 C	16.6052	50/50	16.6052
945682	AF1-233 E	8.2033	50/50	8.2033
945861	AF1-251 C	9.9432	Adder	11.7
945862	AF1-251 E	6.6288	Adder	7.8
945911	AF1-256 C	5.3198	50/50	5.3198
945912	AF1-256 E	3.5466	50/50	3.5466
946021	AF1-267 C	2.2204	Adder	2.61
946022	AF1-267 E	1.0202	Adder	1.2
WEC	WEC	0.0362	Confirmed LTF	0.0362
LGEE	LGEE	1.7092	Confirmed LTF	1.7092

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CPLE	CPLE	0.2831	Confirmed LTF	0.2831
CBM-W2	CBM-W2	6.3063	Confirmed LTF	6.3063
NY	NY	0.0664	Confirmed LTF	0.0664
TVA	TVA	1.6226	Confirmed LTF	1.6226
O-066	O-066	0.6451	Confirmed LTF	0.6451
CBM-S2	CBM-S2	3.3408	Confirmed LTF	3.3408
CBM-S1	CBM-S1	12.7885	Confirmed LTF	12.7885
G-007	G-007	0.0978	Confirmed LTF	0.0978
MADISON	MADISON	3.7780	Confirmed LTF	3.7780
MEC	MEC	0.5752	Confirmed LTF	0.5752
CBM-W1	CBM-W1	0.7506	Confirmed LTF	0.7506

10.7.10 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050476	342661	4SPUR-KENT-R	EKPC	324267	4KENTON	LGEE	1	DAY_P734541 34553	tower	281.0	112.43	114.86	AC	7.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	8.2304	50/50	8.2304
342960	1SPURLK2G	11.9747	50/50	11.9747
342963	1SPURLK3G	6.2926	50/50	6.2926
342966	1SPURLK4G	6.2926	50/50	6.2926
925981	AC1-074 C O1	2.4462	Adder	2.88
925982	AC1-074 E O1	1.0484	Adder	1.23
932551	AC2-075 C	0.5810	Adder	0.68
932552	AC2-075 E	0.2927	Adder	0.34
939141	AE1-144 C O1	5.2641	Adder	6.19
939142	AE1-144 E O1	2.6124	Adder	3.07
940531	AE2-038 C O1	3.5116	Adder	4.13
940532	AE2-038 E O1	1.7394	Adder	2.05
941411	AE2-138 C	11.1511	Adder	13.12
941412	AE2-138 E	4.1244	Adder	4.85
941981	AE2-210 C O1	3.8424	Adder	4.52
941982	AE2-210 E O1	1.4453	Adder	1.7
943111	AE2-339 C	1.1399	Adder	1.34
943112	AE2-339 E	0.5614	Adder	0.66
944621	AF1-127 C O1	2.9892	Adder	3.52
944622	AF1-127 E O1	1.4723	Adder	1.73
945681	AF1-233 C	11.6079	Adder	13.66
945682	AF1-233 E	5.7346	Adder	6.75
945861	AF1-251 C	7.5679	Adder	8.9
945862	AF1-251 E	5.0453	Adder	5.94
945911	AF1-256 C	3.8160	Adder	4.49
945912	AF1-256 E	2.5440	Adder	2.99
WEC	WEC	0.0057	Confirmed LTF	0.0057
LGEE	LGEE	0.3240	Confirmed LTF	0.3240
CPLE	CPLE	0.0622	Confirmed LTF	0.0622
CBM-W2	CBM-W2	2.1458	Confirmed LTF	2.1458
NY	NY	0.0796	Confirmed LTF	0.0796
TVA	TVA	0.6104	Confirmed LTF	0.6104
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.9479	Confirmed LTF	0.9479
CBM-S1	CBM-S1	3.9192	Confirmed LTF	3.9192
G-007	G-007	0.1404	Confirmed LTF	0.1404
MADISON	MADISON	1.0806	Confirmed LTF	1.0806
MEC	MEC	0.1796	Confirmed LTF	0.1796

10.7.11 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41050514	342664	4SPURLOCK	EKPC	342661	4SPUR-KENT-R	EKPC	1	DAY_P734541 34553	tower	291.0	108.56	110.91	AC	7.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
342957	1SPURLK1G	8.2304	50/50	8.2304
342960	1SPURLK2G	11.9747	50/50	11.9747
342963	1SPURLK3G	6.2926	50/50	6.2926
342966	1SPURLK4G	6.2926	50/50	6.2926
925981	AC1-074 C O1	2.4462	Adder	2.88
925982	AC1-074 E O1	1.0484	Adder	1.23
932551	AC2-075 C	0.5810	Adder	0.68
932552	AC2-075 E	0.2927	Adder	0.34
939141	AE1-144 C O1	5.2641	Adder	6.19
939142	AE1-144 E O1	2.6124	Adder	3.07
940531	AE2-038 C O1	3.5116	Adder	4.13
940532	AE2-038 E O1	1.7394	Adder	2.05
941411	AE2-138 C	11.1511	Adder	13.12
941412	AE2-138 E	4.1244	Adder	4.85
941981	AE2-210 C O1	3.8424	Adder	4.52
941982	AE2-210 E O1	1.4453	Adder	1.7
943111	AE2-339 C	1.1399	Adder	1.34
943112	AE2-339 E	0.5614	Adder	0.66
944621	AF1-127 C O1	2.9892	Adder	3.52
944622	AF1-127 E O1	1.4723	Adder	1.73
945681	AF1-233 C	11.6079	Adder	13.66
945682	AF1-233 E	5.7346	Adder	6.75
945861	AF1-251 C	7.5679	Adder	8.9
945862	AF1-251 E	5.0453	Adder	5.94
945911	AF1-256 C	3.8160	Adder	4.49
945912	AF1-256 E	2.5440	Adder	2.99
WEC	WEC	0.0057	Confirmed LTF	0.0057
LGEE	LGEE	0.3240	Confirmed LTF	0.3240
CPLE	CPLE	0.0622	Confirmed LTF	0.0622
CBM-W2	CBM-W2	2.1458	Confirmed LTF	2.1458
NY	NY	0.0796	Confirmed LTF	0.0796
TVA	TVA	0.6104	Confirmed LTF	0.6104
O-066	O-066	0.9072	Confirmed LTF	0.9072
CBM-S2	CBM-S2	0.9479	Confirmed LTF	0.9479
CBM-S1	CBM-S1	3.9192	Confirmed LTF	3.9192
G-007	G-007	0.1404	Confirmed LTF	0.1404
MADISON	MADISON	1.0806	Confirmed LTF	1.0806
MEC	MEC	0.1796	Confirmed LTF	0.1796

10.7.12 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
41876010	342838	7SPURLOCK	EKPC	253077	09STUART	DAY	1	DEOK_P2-2_C1 SILVER GROVE 345 BUS	bus	1532.0	125.21	127.45	AC	33.72

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
251968	08ZIMRHP	49.8782	50/50	49.8782
251969	08ZIMRLP	27.3143	50/50	27.3143
251970	08MELDL1	2.5265	50/50	2.5265
251971	08MELDL2	2.5265	50/50	2.5265
251972	08MELDL3	2.5332	50/50	2.5332
342942	1JKCT 10G	3.7167	50/50	3.7167
342957	1SPURLK1G	25.6387	50/50	25.6387
342960	1SPURLK2G	48.7814	50/50	48.7814
342963	1SPURLK3G	25.6341	50/50	25.6341
342966	1SPURLK4G	25.6341	50/50	25.6341
925921	AC1-068 C	-3.5298	Adder	-4.15
925931	AC1-069 C	-3.5298	Adder	-4.15
925981	AC1-074 C O1	15.7259	50/50	15.7259
925982	AC1-074 E O1	6.7397	50/50	6.7397
926061	AC1-085 C	-25.3852	Adder	-29.86
926101	**AC1-089 C O1 (Suspended)**	**4.0960**	**Adder**	**4.82**
926102	**AC1-089 E O1 (Suspended)**	**6.6829**	**Adder**	**7.86**
926791	AC1-165 C	-3.4883	Adder	-4.1
926801	AC1-166 C	-3.4883	Adder	-4.1
926951	AC1-182	1.1876	50/50	1.1876
932551	AC2-075 C	3.7349	50/50	3.7349
932552	AC2-075 E	1.8815	50/50	1.8815
932661	AC2-088 C O1	-5.5638	Adder	-6.55
935031	AD1-136 C	-0.7824	Adder	-0.92
936381	AD2-048 C	10.8038	Adder	12.71
936382	AD2-048 E	5.3903	Adder	6.34
936571	AD2-072 C O1	8.5377	Adder	10.04
936572	AD2-072 E O1	4.1861	Adder	4.92
939131	AE1-143 C	6.3940	Adder	7.52
939132	AE1-143 E	3.1671	Adder	3.73
939141	AE1-144 C O1	32.8796	50/50	32.8796
939142	AE1-144 E O1	16.3168	50/50	16.3168
940531	AE2-038 C O1	21.9334	50/50	21.9334
940532	AE2-038 E O1	10.8642	50/50	10.8642
941411	AE2-138 C	63.1635	50/50	63.1635
941412	AE2-138 E	23.3619	50/50	23.3619
941981	AE2-210 C O1	21.7645	50/50	21.7645
941982	AE2-210 E O1	8.1866	50/50	8.1866

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942411	AE2-254 C O1	4.2894	Adder	5.05
942412	AE2-254 E O1	2.8596	Adder	3.36
942591	AE2-275 C O1	13.4989	Adder	15.88
942592	AE2-275 E O1	5.0776	Adder	5.97
942891	AE2-308 C O1	22.6242	Adder	26.62
942892	AE2-308 E O1	8.2270	Adder	9.68
943111	AE2-339 C	7.4488	50/50	7.4488
943112	AE2-339 E	3.6688	50/50	3.6688
943701	AF1-038 C	3.2112	Adder	3.78
943702	AF1-038 E	2.1408	Adder	2.52
943772	AF1-045 BAT	4.6782	Merchant Transmission	4.6782
943821	AF1-050 C	2.8538	Adder	3.36
943822	AF1-050 E	1.9025	Adder	2.24
944151	AF1-083 C O1	2.9988	Adder	3.53
944152	AF1-083 E O1	1.9992	Adder	2.35
944511	AF1-116 C	7.1708	Adder	8.44
944512	AF1-116 E	4.7805	Adder	5.62
944621	AF1-127 C O1	17.2967	50/50	17.2967
944622	AF1-127 E O1	8.5193	50/50	8.5193
945541	AF1-219 C O1	2.7723	Adder	3.26
945542	AF1-219 E O1	1.3046	Adder	1.53
945681	AF1-233 C	63.0427	50/50	63.0427
945682	AF1-233 E	31.1446	50/50	31.1446
945861	AF1-251 C	43.2947	50/50	43.2947
945862	AF1-251 E	28.8631	50/50	28.8631
945911	AF1-256 C	20.2296	50/50	20.2296
945912	AF1-256 E	13.4864	50/50	13.4864
946021	AF1-267 C	7.4395	Adder	8.75
946022	AF1-267 E	3.4181	Adder	4.02
WEC	WEC	0.3701	Confirmed LTF	0.3701
LGEE	LGEE	4.6621	Confirmed LTF	4.6621
CPLE	CPLE	0.4809	Confirmed LTF	0.4809
LGE-0012019	LGE-0012019	6.2964	LTF	6.2964
CBM-W2	CBM-W2	24.6765	Confirmed LTF	24.6765
NY	NY	0.7532	Confirmed LTF	0.7532
TVA	TVA	5.2444	Confirmed LTF	5.2444
O-066	O-066	8.7696	Confirmed LTF	8.7696
CBM-S2	CBM-S2	7.5776	Confirmed LTF	7.5776
CBM-S1	CBM-S1	38.9279	Confirmed LTF	38.9279
G-007	G-007	1.3520	Confirmed LTF	1.3520
MADISON	MADISON	3.2800	Confirmed LTF	3.2800
MEC	MEC	2.9746	Confirmed LTF	2.9746
CBM-W1	CBM-W1	9.5451	Confirmed LTF	9.5451

10.8 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA1-099	Clinton Co. 34.5kV	In Service
AC1-068	Atlanta 69kV I	Engineering and Procurement
AC1-069	Atlanta 69kV II	Engineering and Procurement
AC1-074	Jacksonville-Renaker 138kV I	Active
AC1-085	Stuart-Clinton 345kV	Engineering and Procurement
AC1-089	Hillsboro-Wildcat 138kV	Suspended
AC1-165	Atlanta 69kV III	Engineering and Procurement
AC1-166	Atlanta 69kV IV	Engineering and Procurement
AC1-182	W.H. Zimmer Station 345kV	In Service
AC2-075	Great Blue Heron Solar	Active
AC2-088	S. Bethel-Brown 69kV	Engineering and Procurement
AD1-136	South Bethel-Brown 69 kV	Engineering and Procurement
AD2-048	Cynthia-Headquarters 69 kV	Active
AD2-072	Van Arsdell-Mercer Industrial 69kV	Active
AE1-143	Marion County 161 kV	Active
AE1-144	Goddard-Plumville 138 kV	Active
AE2-038	Goddard-Plumsville 138 kV II	Active
AE2-138	Avon-North Clark 345 kV	Active
AE2-210	Avon-North Clark 345 kV	Active
AE2-254	Garrard County-Tommy-Gooch 69 kV	Active
AE2-275	JK Smith-Fawkes 138 kV	Active
AE2-308	Three Forks-Dale 138 kV	Active
AE2-339	Avon 138 kV	Active
AF1-038	Sewellton Jct-Webbs Crossroads 69 kV	Active
AF1-045	Cedarville-Ford 138 kV	Active
AF1-050	Summer Shade - Green County 161 kV	Active
AF1-083	Green County-Saloma 161 kV	Active
AF1-116	Marion County 161 kV	Active
AF1-127	Avon 345 kV	Active
AF1-219	Hunt Farm 69 kV	Active
AF1-233	Flemingsburg 138 kV	Active
AF1-251	Avon-North Clark 345 kV	Active
AF1-256	Flemingsburg-Spurlock 138 kV	Active
AF1-267	Union City Tap 138 kV	Active
Z1-080	Clinton County 34.5kV	In Service

10.9 Contingency Descriptions

Contingency Name	Contingency Definition
DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER	CONTINGENCY 'DEOK_P7-1_C5 CIRCUIT1883&4545REDBANKSILGRVZIMMER' OPEN BRANCH FROM BUS 249989 TO BUS 250080 CKT 1 / 249989 08BKJ246 138 250080 08NWTWN2 138 1 OPEN BRANCH FROM BUS 250079 TO BUS 250080 CKT Z1 / 250079 08NWTWN1 138 250080 08NWTWN2 138 Z1 OPEN BRANCH FROM BUS 250079 TO BUS 250092 CKT 1 / 250079 08NWTWN1 138 250092 08REDBK1 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END
EKPC_P4-6_SPUR N39-92T	CONTINGENCY 'EKPC_P4-6_SPUR N39-92T' /* SPURLOCK OPEN BRANCH FROM BUS 342622 TO BUS 342664 CKT 1 /* 342622 4MAYSVIL I T138.00 342664 4SPURLOCK 138.00 OPEN BRANCH FROM BUS 342622 TO BUS 342625 CKT 1 /* 342622 4MAYSVIL I T138.00 342625 4MAYSVIL IND138.00 OPEN BRANCH FROM BUS 342622 TO BUS 342634 CKT 1 /* 342622 4MAYSVIL I T138.00 342634 4PLUMVILLE 138.00 OPEN BRANCH FROM BUS 945910 TO BUS 342664 CKT 1 /* 945910 AF1-256 TAP 138.00 342664 4SPURLOCK 138.00 END
DEOK_P2-3_C2 816_SILVERGROVE	CONTINGENCY 'DEOK_P2-3_C2 816_SILVERGROVE' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249988 TO BUS 250097 CKT 1 / 249988 08BKJ135 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250042 TO BUS 250097 CKT 1 / 250042 08HANDS1 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250052 TO BUS 250097 CKT 1 / 250052 08KYUNIV 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 250053 TO BUS 250097 CKT 1 / 250053 08LAFARG 138 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
DAY-P1-STU SPUR	CONTINGENCY 'DAY-P1-STU SPUR' DISCONNECT BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* STU SPUR END

Contingency Name	Contingency Definition
DEOK_P2-3_C2 1493_RED BANK	CONTINGENCY 'DEOK_P2-3_C2 1493_RED BANK' OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249571 TO BUS 250092 CKT 1 / 249571 08REDBK1 345 250092 08REDBK1 138 1 END
EKPC_P1-2_SPUR-GODD 138-A	CONTINGENCY 'EKPC_P1-2_SPUR-GODD 138-A' /* SPURLOCK - GODDARD OPEN BRANCH FROM BUS 342583 TO BUS 945680 CKT 1 /* 342583 4FLEMINGSBRG138.00 945680 AF1-233 TAP 138.00 OPEN BRANCH FROM BUS 342583 TO BUS 342589 CKT 1 /* 342583 4FLEMINGSBRG138.00 342589 4GODDARD 138.00 END
DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*	CONTINGENCY 'DEOK_P1-3_B3 SILVER GROVE 345/138 TB23*' OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 END
342583 4FLEMINGSBRG 138 945680 AF1-233 TAP 138 1	CONTINGENCY '342583 4FLEMINGSBRG 138 945680 AF1-233 TAP 138 1' OPEN BRANCH FROM BUS 342583 TO BUS 945680 CKT 1 END
DAY_P734541 34553	CONTINGENCY 'DAY_P734541 34553' OPEN BRANCH FROM BUS 249581 TO BUS 342838 CKT 1 /* 249581 08MELDAL 345.00 342838 7SPURLOCK 345.00 OPEN BRANCH FROM BUS 253077 TO BUS 342838 CKT 1 /* 253077 09STUART 345.00 342838 7SPURLOCK 345.00 END
EKPC_P1-2_SPUR-GODD 138-B	CONTINGENCY 'EKPC_P1-2_SPUR-GODD 138-B' /* SPURLOCK - GODDARD OPEN BRANCH FROM BUS 945910 TO BUS 342664 CKT 1 /* 945910 AF1-256 TAP 138.00 342664 4SPURLOCK 138.00 END
DAY_P4_L34553-1	CONTINGENCY 'DAY_P4_L34553-1' OPEN LINE FROM BUS 253077 TO BUS 342838 CKT 1 /* 09STUART 345 - 7SPURLK 345 OPEN LINE FROM BUS 253077 TO BUS 253076 CKT 1 /* 09STUART 345 - 09STUART 138 END

Contingency Name	Contingency Definition
Base Case	
DEOK_P2-2_C1 SILVER GROVE 345 BUS	CONTINGENCY 'DEOK_P2-2_C1 SILVER GROVE 345 BUS' OPEN BRANCH FROM BUS 249573 TO BUS 249577 CKT 1 / 249573 08SGROVE 345 249577 08ZIMER 345 1 OPEN BRANCH FROM BUS 249573 TO BUS 250097 CKT 1 / 249573 08SGROVE 345 250097 08SGROVE 138 1 OPEN BRANCH FROM BUS 249571 TO BUS 249573 CKT 1 / 249571 08REDBK1 345 249573 08SGROVE 345 1 END

11 Light Load Analysis

Not Required.

12 Short Circuit Analysis

The following Breakers are overdutied

Not Required.

13 Stability and Reactive Power

To be determined in the Facilities Study Phase.

14 Affected Systems

14.1 TVA

TVA Impacts to be determined during later study phases (as applicable).

14.2 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

14.3 MISO

MISO Impacts to be determined during later study phases (as applicable).

14.4 LG&E

An LG&E Affected System Study will be required. PJM has identified EKPC-LG&E tie line constraints. LG&E will need to determine if LG&E upgrades are required.

15 Attachment 1: One-Line Diagram

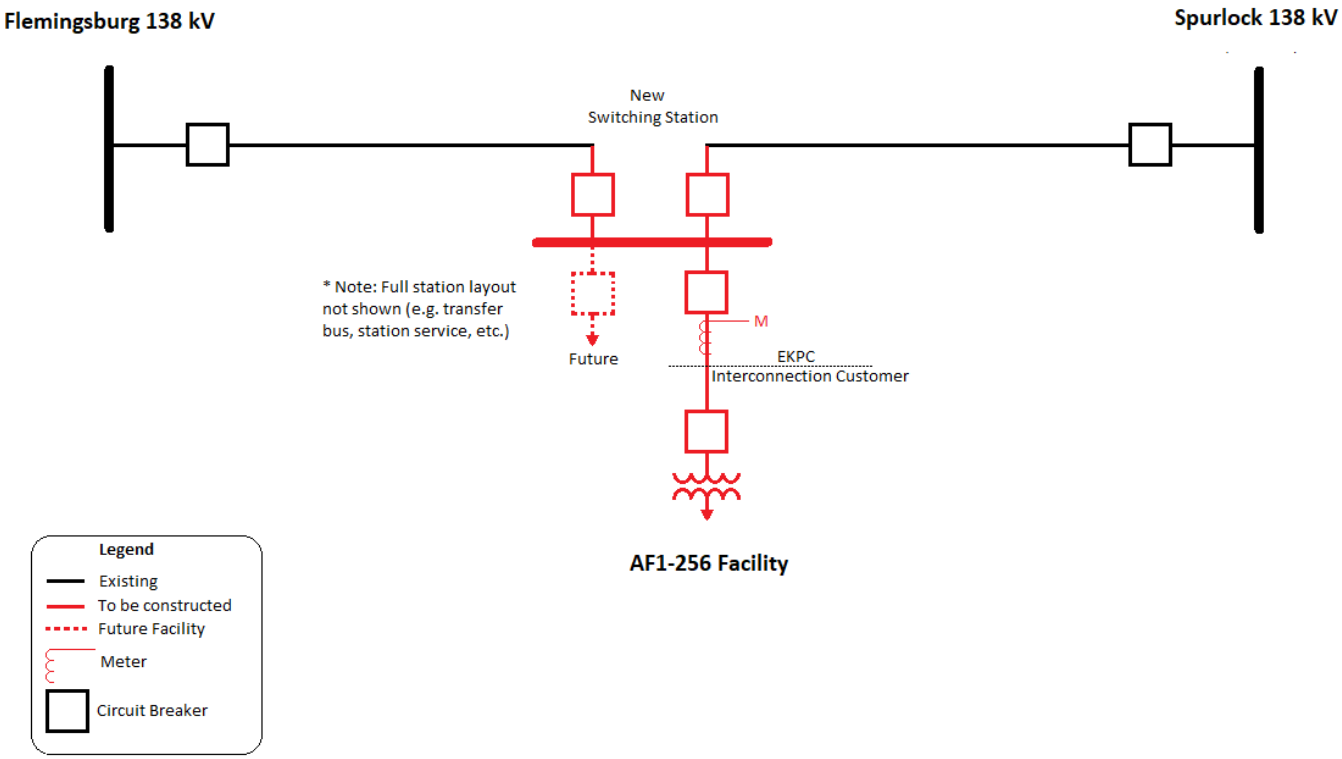
Flemingsburg 138 kV
Spurlock 138 kV
New
Switching Station
* Note: Full station layout not shown (e.g. transfer bus, station service, etc.)
Future
M
EKPC
Interconnection Customer
AF1-256 Facility
Legend
Existing
To be constructed
Future Facility
Meter
Circuit Breaker

Exhibit H

Economic Impact Study Report

Fleming Solar Economic Impact Analysis

May 2021

by David G. Loomis
Strategic Economic Research, LLC
strategiceconomic.com
815-905-2750

SER Strategic Economic Research, LLC

About the Author

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Dr. David G. Loomis is Professor of Economics at Illinois State University and Co-Founder of the Center for Renewable Energy. He has over 10 years of experience in the renewable energy field and has performed economic analyses at the county, region, state and national levels for utility-scale wind and solar generation. He has served as a consultant for Apex Clean Energy, Clean Line Energy Partners, EDF Renewables, E.ON Climate and Renewables, Geronimo Energy, Invenergy, J-Power, the National Renewable Energy Laboratories, Ranger Power, State of Illinois, Tradewind, and others. He has testified on the economic impacts of energy projects before the Illinois Commerce Commission, Missouri Public Service Commission, Illinois Senate Energy and Environment Committee, the Wisconsin Public Service Commission, and numerous county boards. Dr. Loomis is a widely recognized expert and has been quoted in the Wall Street Journal, Forbes Magazine, Associated Press, and Chicago Tribune as well as appearing on CNN.

Dr. Loomis has published over 25 peer-reviewed articles in leading energy policy and economics journals. He has raised and managed over $7 million in grants and contracts from government, corporate and foundation sources. Dr. Loomis received his Ph.D. in economics from Temple University in 1995.

About Strategic Economic Research, LLC

Strategic Economic Research, LLC (SER) has produced over 120 economic impact reports in 22 states for renewable energy projects across the US. SER specializes in economic analysis at the county, regional, state or national levels to analyze the jobs, income, taxes and economic output that will flow from a particular industry.

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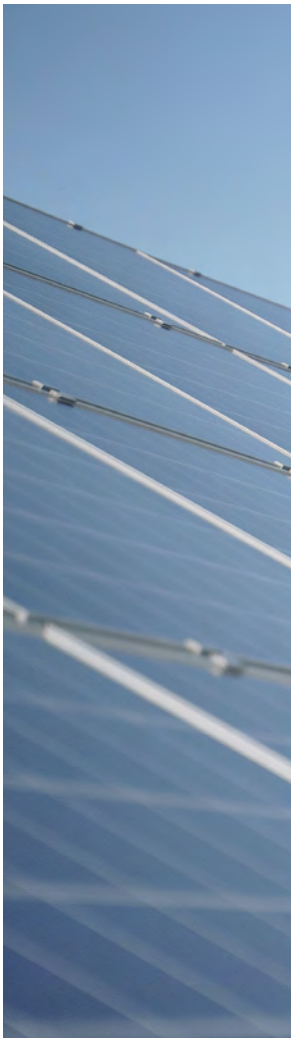

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I. Executive Summary of Findings

Core Solar LLC (Core Solar), through its subsidiary, Fleming Solar, LLC (Fleming Solar), is developing the Fleming Solar Project (Project) in Fleming County, Kentucky. Core Solar has commissioned this report on behalf of Fleming Solar for the purpose of aiding the Kentucky State Board on Electric Generation and Transmission Siting Board in evaluating the Project's economic impact on Fleming County and the Commonwealth of Kentucky. The basis of this analysis is to study the direct, indirect, and induced impacts on job creation, wages, and total economic output.

The Project is an 80 MWac solar project using single-axis tracking panels. The Project represents an investment of approximately $80 million. The anticipated economic impact of the Project is summarized below:

Jobs – all jobs numbers are full-time equivalents

- 80 new local jobs during construction for Fleming County
- 142 new local jobs during construction for the Commonwealth of Kentucky
- Over 10.9 new local long-term jobs for Fleming County
- Over 13.7 new local long-term jobs for the Commonwealth of Kentucky

Earnings

- Over $7 million in new local earnings during construction for Fleming County
- Over $12.4 million in new local earnings during construction for the Commonwealth of Kentucky
- Over $460 thousand in new local long-term earnings for Fleming County annually
- Over $1 million in new local long-term earnings for the Commonwealth of Kentucky annually

Output

- Over $8.8 million in new local output during construction for Fleming County
- Over $17 million in new local output during construction for the Commonwealth of Kentucky
- Over $1 million in new local long-term output for Fleming County annually
- Over $1.8 million in new local long-term output for the Commonwealth of Kentucky annually

Property Taxes

- Over $2 million in local property taxes from increased land value due to commercial leases over the life of the Project
- Between $835 thousand and $1.67 million in contractual payments to Fleming County over the life of the Project
- Over $883 thousand in taxes to the Commonwealth of Kentucky over the life of the Project

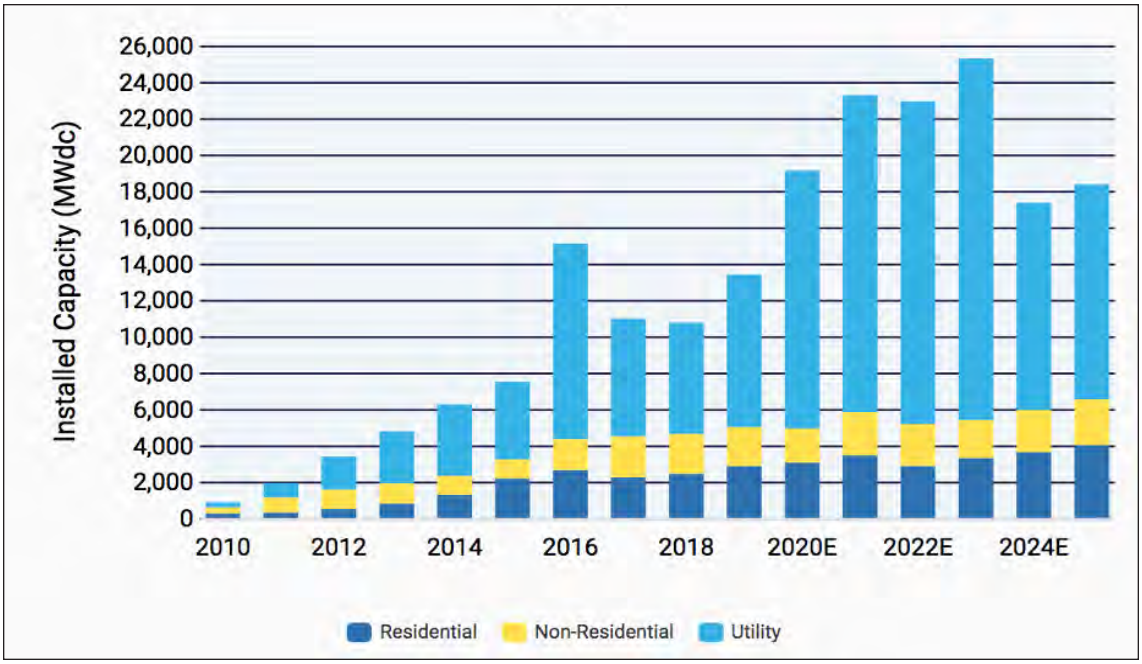
II. U.S. Solar PV Industry Growth and Economic Development

a. U.S. Solar PV Industry Growth

The U.S. solar industry is growing at a rapid but uneven pace, with systems installed for onsite use, including residential, commercial and industrial properties and with utility-scale solar powered-electric generation facilities intended for wholesale distribution, such as the Project. From 2013 to 2018, the amount of electricity generated from solar had more than quadrupled, increasing 444%. (EIA, 2020). The industry continued to add increasing numbers of PV systems to the grid. In 2020, the U.S. installed over 18,000 MW direct current (MWdc) of solar PV driven mostly by utility-scale PV which exceeded the previous annual record established in 2016.[1] As Figure 1 clearly shows, the capacity additions in 2017-2019 still outpaced any year before 2016. The primary driver of this overall sharp pace of growth is large price declines in solar equipment. Since 2010, the price of solar PV has declined from about $5.79/watt in 2010 to $1.33/watt in 2020 according to Figure 2. Solar PV also benefits from the Federal Investment Tax Credit (ITC) which provides a 26 percent tax credit for residential and commercial properties.

Utility-scale PV leads the installation growth in the U.S. A total of 8,402 MWdc of utility PV projects were completed in 2019 and accounted for 63% of the total installed capacity in 2019. An additional 9,988 MWdc are under construction and are expected to come on-line in 2020. According to Figure 3, there are 69,000 MWdc of contracted utility-scale installations that have not been built yet.

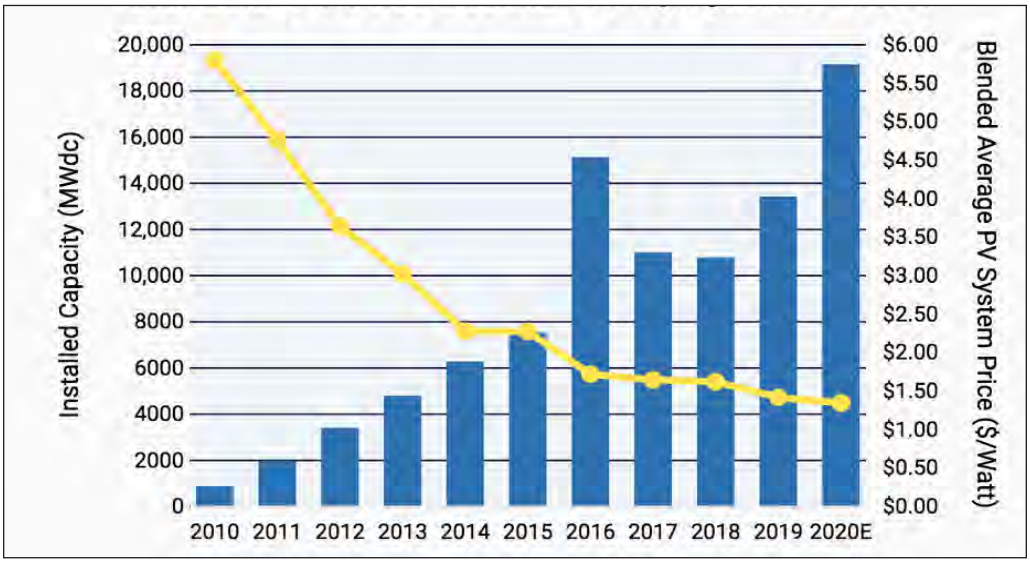
Figure 1 – Annual U.S. Solar PV Installations, 2010-2025



Source: Solar Energy Industries Association, Solar Market Insight Report 2020 Year in review

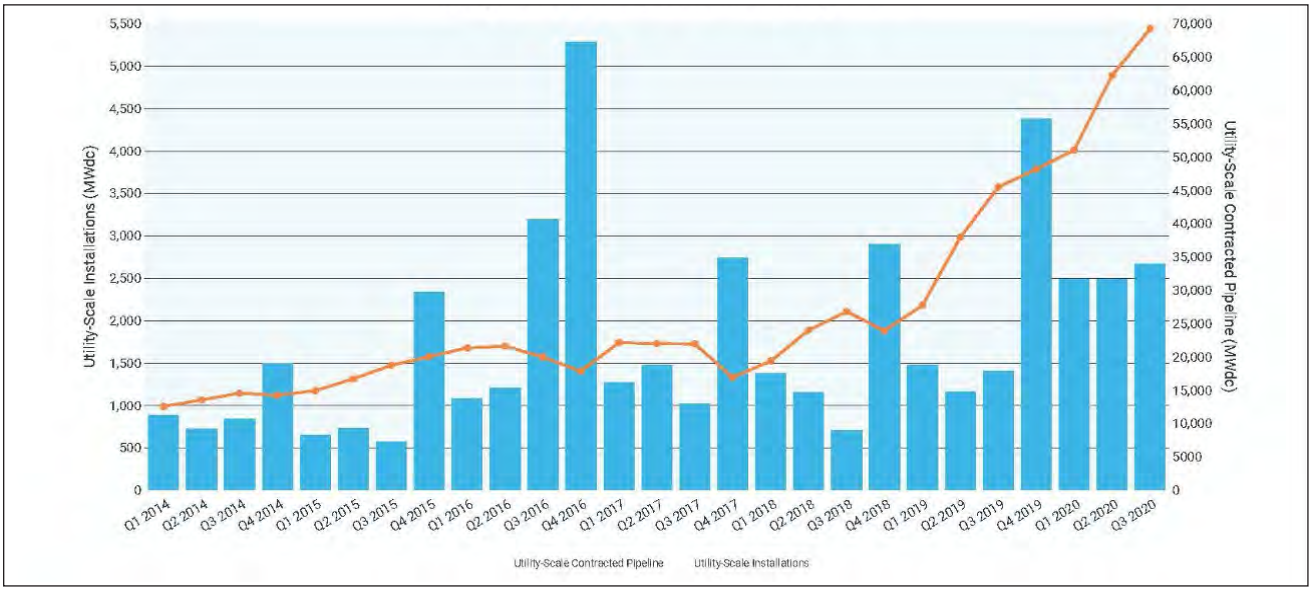
[1] There was a dramatic increase in 2016 because the industry was expecting the expiration of the federal investment tax credit and rushed to complete as many projects as possible before the expected expiration. This rush effectively pulled projects that were originally slated for 2017 and 2018 forward into 2016 resulting in the high amount installed in 2016 but a lower amount installed in 2017 and 2018.

Figure 2 – U.S. Annual Solar PV Installed Price Trends Over Time



Source: Solar Energy Industries Association, Solar Market Insight Report 2020 Q4

Figure 3 – U.S. Utility PV Installations vs. Contracted Pipeline



Source: Solar Energy Industries Association, Solar Market Insight Report 2020 Q4

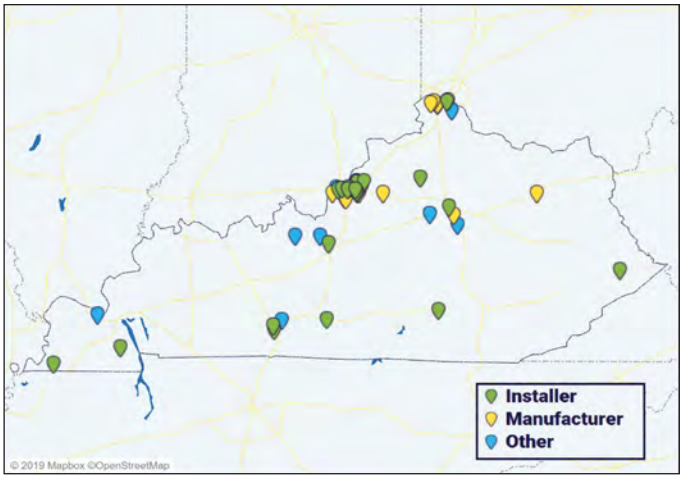
b. Kentucky Solar PV Industry

According to SEIA, Kentucky ranks 48th in the U.S. in cumulative installations of solar PV. California, Texas, and North Carolina are the top 3 states for solar PV which may not be surprising because of the high solar irradiation that they receive. However, other states with solar irradiation similar to Kentucky rank highly, including New Jersey (7th), Massachusetts (8th), New York (10th), and Maryland (17th). In 2020, Kentucky installed 5.8 MW of solar electric capacity bringing its cumulative capacity to 59.5 MW.

Kentucky has great potential to expand its solar installations. Kentucky has several small solar farms in operation: Cooperative Solar Farm One is an 8.5 MW installation in Clark County, KY; Shelby Energy Cooperative has 8.5 MW solar installation in Shelby County; Duke operates the 4 MW Walton 1 and 2 in Kenton County; Louisville Gas and Electric and Kentucky Utilities Company has completed two sections totalling 1 MW of a planned 4 MW community solar farm; General Motors has a 0.85 MW installation in Bowling Green, KY; and the Crittenden Solar Power Plant is a 2 MW installation in Grant County, KY. The 80 MW Project will be one of the largest installations in Kentucky to date.

There are more than 41 solar companies in Kentucky including 11 manufacturers, 16 installers/developers, and 14 others.[2] Figure 4 shows the locations of solar companies in Kentucky as of the time of this report. Currently, there are 1,362 solar jobs in the Commonwealth of Kentucky according to SEIA.

Figure 4 – Solar Company Locations in Kentucky



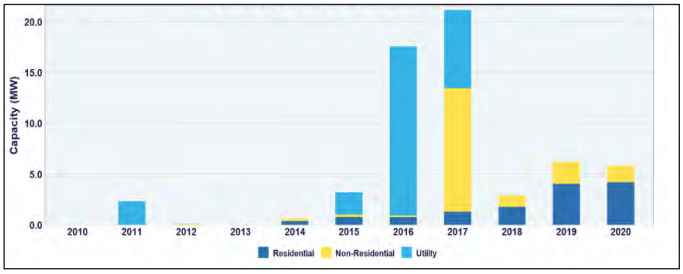
Source: Solar Energy Industries Association, Solar Spotlight: Kentucky

[2] "Other" includes Sales and Distribution, Project Management, and Engineering.

Figure 5 shows the Kentucky historical installed capacity by year according to the SEIA. Huge growth in solar is forecasted in the next 5 years, a projection of over 848 MW.

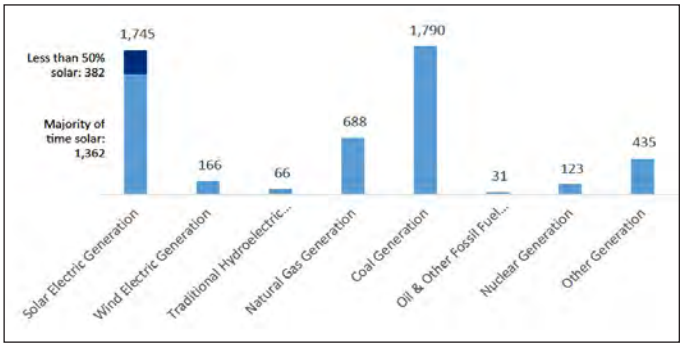
The U.S. Department of Energy sponsors the U.S. Energy and Employment Report each year. Electric Power Generation covers all utility and non-utility employment across electric generating technologies, including fossil fuels, nuclear, and renewable technologies. It also includes employees engaged in facility construction, turbine and other generation equipment manufacturing, operations and maintenance, and wholesale parts distribution for all electric generation technologies. According to Figure 6, employment in Kentucky in the solar energy industry (1,745) trails slightly behind coal generation (1,790) but is larger than natural gas generation (688) and wind energy generation (166).

Figure 5 – Kentucky Annual Solar Installations



Source: Solar Energy Industries Association, Solar Spotlight: Kentucky

Figure 6 – Electric Generation Employment by Technology



Source: US Energy and Employment Report 2020: Kentucky

c. Economic Benefits of Utility-Scale Solar PV Energy

Utility-scale solar energy projects provide numerous economic benefits. Solar installations create job opportunities in the local area during both the short-term construction phase and the long-term operational phase. In addition to the workers directly involved in the construction and maintenance of the solar energy project, numerous other jobs are supported through indirect supply chain purchases and the higher spending that is induced by these workers. Solar projects strengthen the local tax base and help improve county services, and local infrastructure, such as public roads.

Numerous studies have quantified the economic benefits of solar PV projects across the United States and been published in peer-reviewed academic journals using the same methodology as this report. Some of these studies examine smaller-scale solar systems, and some examine utility-scale solar energy. Croucher (2012) uses National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impacts ("JEDI") modeling methodology to find which state will receive the greatest economic impact from installing one hundred 2.5 kW residential systems. He shows that Pennsylvania ranked first supporting 28.98 jobs during installation and 0.20 jobs during operations. Illinois ranked second supporting 27.65 jobs during construction and 0.18 jobs during operations.

Jo et al. (2016) analyzes the financing options and economic impact of solar PV systems in Normal, IL and uses the JEDI model (an input-output model) to determine the county and state economic impact. The study examines the effect of 100 residential retrofit fixed-mount crystalline-silicone systems having a nameplate capacity of 5kW. Eight JEDI models estimated the economic impacts using different input assumptions. They found that county employment impacts varied from 377 to 1,059 job-years during construction and 18.8 to 40.5 job-years during the operating years. Each job-year is a full-time equivalent job of 2,080 hours for a year.

Loomis et al. (2016) estimates the economic impact for the State of Illinois if the state were to reach its maximum potential for solar PV. The study estimates the economic impact of three different scenarios for Illinois – building new solar installations of either 2,292 MW, 2,714 MW or 11,265 MW. The study assumes that 60% of the capacity is utility-scale solar, 30% of the capacity is commercial, and 10% of the capacity is residential. It was found that employment impacts vary from 26,753 to 131,779 job years during construction and from 1,223 to 6,010 job years during operating years.

Several other reports quantify the economic impact of solar energy. Bezdek (2006) estimates the economic impact for the State of Ohio and finds the potential for PV market in Ohio to be $25 million with 200 direct jobs and 460 total jobs. The Center for Competitive Florida (2009) estimates the impact if the state were to install 1,500 MW of solar and finds that 45,000 direct jobs and 50,000 indirect jobs could be created. The Solar Foundation (2013) uses the JEDI modeling methodology to show that Colorado's solar PV installation to date created 10,790 job-years. They also analyze what would happen if the state were to install 2,750 MW of solar PV from 2013 to 2030 and find that it would result in nearly 32,500 job years. Berkman et al. (2011) estimates the economic and fiscal impacts of the 550 MWAC Desert Sunlight Solar Farm. The project creates approximately 440 construction jobs over a 26-month period, $15 million in new sales tax revenues, $12 million in new property revenues for Riverside County, CA, and $336 million in indirect benefits to local businesses in the county.

More recently, Jenniches (2018) performed a review of the literature assessing the regional economic impacts of renewable energy sources. After reviewing all the different techniques for analyzing economic impacts, he concludes "for assessment of current renewable energy developments, beyond employment in larger regions, IO [Input-Output] tables are the most suitable approach." (Jenniches, 2018, 48). Input-Output analysis is the basis for the methodology used in the economic impact analysis of this report.

III. Project Description and Location

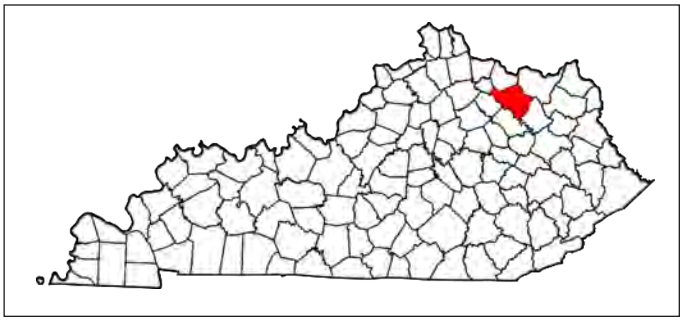
a. Project Description

The Project is a planned 80 MWac solar photovoltaic electric generation plant located in an unincorporated area of Fleming County, Kentucky less than a mile northwest of Flemingsburg and 50 miles northeast of Lexington, Kentucky. The Project will consist of approximately 830 acres and associated racking, approximately 22 inverters, and a project substation transformer which will connect to East Kentucky Power Cooperative's Flemingsburg – Spurlock 138 kV transmission line. The project site consists primarily of farmland used for row crops and cattle farming and rural single-family residential homes, and the surrounding area is similar in land use.

b. Fleming County, Kentucky

Fleming County is located in the Northeastern part of Kentucky (see Figure 7). It has a total area of 351 square miles and the U.S. Census estimates that the 2010 population was 14,348 with 6,120 housing units. The county has a population density of 42 (persons per square mile) compared to 110 for the Commonwealth of Kentucky. Median household income in the county was $33,141.

Figure 7 – Location of Fleming County, Kentucky



i. Economic and Demographic Statistics

As shown in Table 1, the largest industry in Fleming County is "Agriculture, Forestry, Fishing and Hunting" followed by "Administrative Government," "Retail Trade" and "Health Care and Social Assistance." These data for Table 1 come from IMPLAN covering the year 2019 (the latest year available).

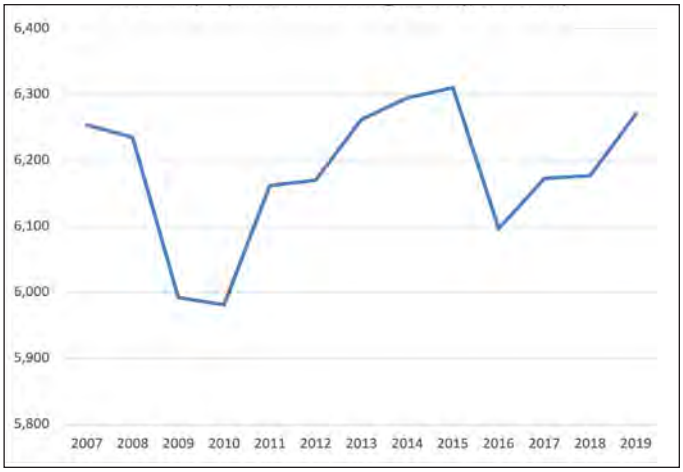
Table 1 – Employment by Industry in Fleming County

Industry	Number	Percent
Agriculture, Forestry, Fishing and Hunting	922	15.9%
Administrative Government	673	11.6%
Retail Trade	603	10.4%
Health Care and Social Assistance	590	10.2%
Construction	588	10.1%
Manufacturing	516	8.9%
Other Services (except Public Administration)	340	5.8%
Accommodation and Food Services	269	4.6%
Real Estate and Rental and Leasing	250	4.3%
Finance and Insurance	219	3.8%
Wholesale Trade	155	2.7%
Professional, Scientific, and Technical Services	132	2.3%
Transportation and Warehousing	130	2.2%
Administrative and Support and Waste Management and Remediation Services	121	2.1%
Utilities	87	1.5%
Mining, Quarrying, and Oil and Gas Extraction	71	1.2%
Educational Services	49	0.8%
Government Enterprises	39	0.7%
Arts, Entertainment, and Recreation	31	0.5%
Information	28	0.5%
Management of Companies and Enterprises	0	0.0%

Source: Impact Analysis for Planning (IMPLAN), County Employment by Industry

Table 1 provides the most recent snapshot of total employment but does not examine the historical trends within the county. Figure 8 shows employment from 2007 to 2019. Total employment in Fleming County was at its lowest at 5,981 in 2010 and its highest at 6,310 in 2015.

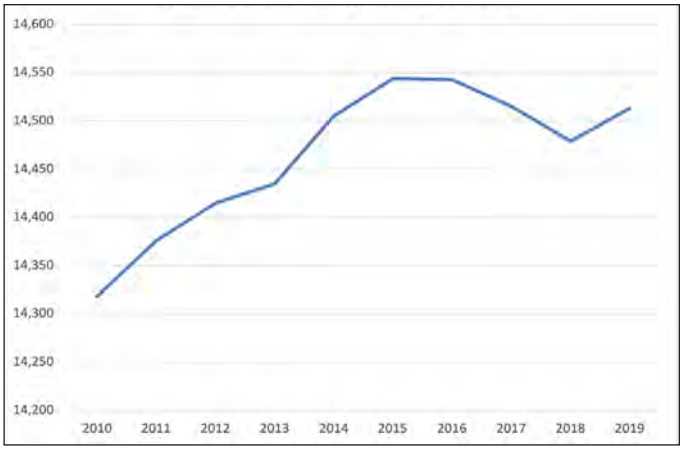
Figure 8 – Total Employment in Fleming County from 2007 to 2019



Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income

Similar to the trend of employment, the overall population in the county has fluctuated over the years as shown in Figure 9. Fleming County population was 14,318 in 2010 and 14,513 in 2019, a gain of 195. The average annual population increase over this time period was 21.

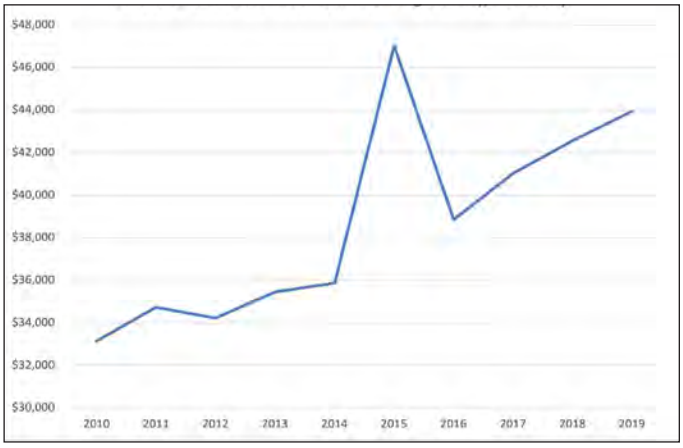
Figure 9 – Population in Fleming County 2010-2019



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Population

Household income has been fluctuating in Fleming County. Figure 10 shows the median household income in Fleming County from 2010 to 2019. Household income was at its lowest at $33,141 in 2010 and its highest at $47,030 in 2015.

Figure 10 – Median Household Income in Fleming County from 2010 to 2019

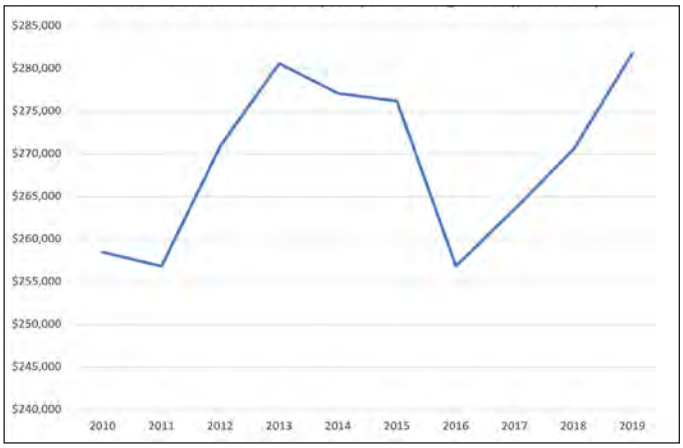


Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Fleming County has fluctuated since 2010, as shown in Figure 11.

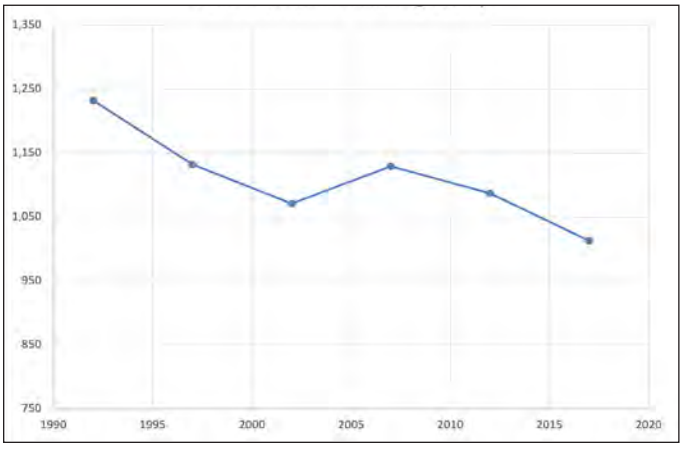
The farming industry has decreased in Fleming County, which mirrors state and national trends. As shown in Figure 12, the number of farms has decreased from 1,232 in 1992 to 1,013 in 2017. The amount of land in farms has decreased as well. The county farmland hit a low of 171,481 acres in 2017, according to Figure 13.

Figure 11 – Real Gross Domestic Product (GDP) in Fleming County from 2010-2019



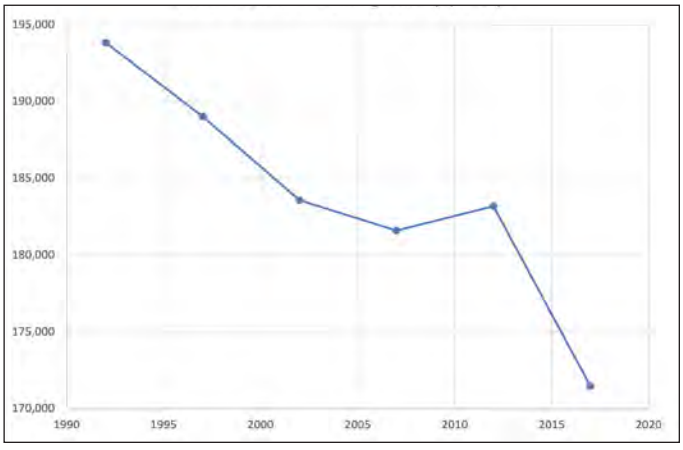
Source: Bureau of Economic Analysis, Regional Data, GDP and Personal Income

Figure 12 – Number of Farms in Fleming County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

Figure 13 – Land in Farms in Fleming County from 1992 to 2017



Source: Census of Agriculture, 1992-2017

ii. Agricultural Statistics

Kentucky ranks twenty-sixth among U. S. states in total value of agricultural products sold (Census, 2017). It ranks twenty-third in the value of livestock, and twenty-third in the value of crops (Census, 2017). In 2019, Kentucky had 74,800 farms and 12.9 million acres in operation with the average farm being 172 acres (State Agricultural Overview, 2019). Kentucky had 50,000 cattle and produced 941 million pounds of milk (State Agricultural Overview, 2019). In 2019, Kentucky yields averaged 169 bushels per acre for grain corn with a total market value of $1.0 billion (State Agricultural Overview, 2019). Soybean yields averaged 46 bushels per acre with a total market value of $707 million (State Agricultural Overview, 2019). The average net cash farm income per farm is $20,784 (Census, 2017).

In 2017, Fleming County had 1,013 farms covering 171,481 acres for an average farm size of 169 acres (Census, 2017). The total market value of products sold was $48.7 million, with 62 percent coming from livestock sales and 38 percent coming from crop sales (Census, 2017). The average net cash farm income of operations was $6,862 (Census, 2017).

IV. Economic Impact Methodology

The economic analysis of solar PV project presented uses NREL's latest Jobs and Economic Development Impacts (JEDI) PV Model (PV12.23.16). The JEDI PV Model is an input-output model that measures the spending patterns and location-specific economic structures that reflect expenditures supporting varying levels of employment, income, and output. That is, the JEDI Model takes into account that the output of one industry can be used as an input for another. For example, when a PV system is installed, there are both soft costs consisting of permitting, installation and customer acquisition costs, and hardware costs, of which the PV module is the largest component. The purchase of a module not only increases demand for manufactured components and raw materials, but also supports labor to build and install a module. When a module is purchased from a manufacturing facility, the manufacturer uses some of that money to pay employees. The employees use a portion of their compensation to purchase goods and services within their community. Likewise, when a developer pays workers to install the systems, those workers spend money in the local economy that boosts economic activity and employment in other sectors. The goal of economic impact analysis is to quantify all of those reverberations throughout the local and state economy.

The first JEDI Model was developed in 2002 to demonstrate the economic benefits associated with developing wind farms in the United States. Since then, JEDI models have been developed for biofuels, natural gas, coal, transmission lines and many other forms of energy. These models were created by Marshall Goldberg of MRG & Associates, under contract with the National Renewable Energy Laboratory. The JEDI model utilizes state-specific industry multipliers obtained from IMPLAN (IMpact analysis for PLANning). IMPLAN software and data are managed and updated by the Minnesota IMPLAN Group, Inc., using data collected at federal, state, and local levels.

The total economic impact can be broken down into three distinct types: direct impacts, indirect impacts, and induced impacts. **Direct impacts** during the construction period refer to the changes that occur in the onsite construction industries in which the direct final demand (i.e., spending on construction labor and services) change is made. Onsite construction-related services include installation labor, engineering, design, and other professional services. Direct impacts during operating years refer to the final demand changes that occur in the onsite spending for the solar operations and maintenance workers.

The initial spending on the construction and operation of the PV installation will create a second layer of impacts, referred to as "supply chain impacts" or "indirect impacts." **Indirect impacts** during the construction period consist of changes in inter-industry purchases resulting from the direct final demand changes and include construction spending on materials and PV equipment, as well as other purchases of goods and offsite services. Utility-scale solar PV indirect impacts include PV modules, invertors, tracking systems, cabling, and foundations.

Induced impacts during construction refer to the changes that occur in household spending as household income increases or decreases as a result of the direct and indirect effects of final demand changes. Local spending by employees working directly or indirectly on the Project that receive their paychecks and then spend money in the community is included. The model includes additional local jobs and economic activity that are supported by the purchases of these goods and services.

V. Economic Impact Results

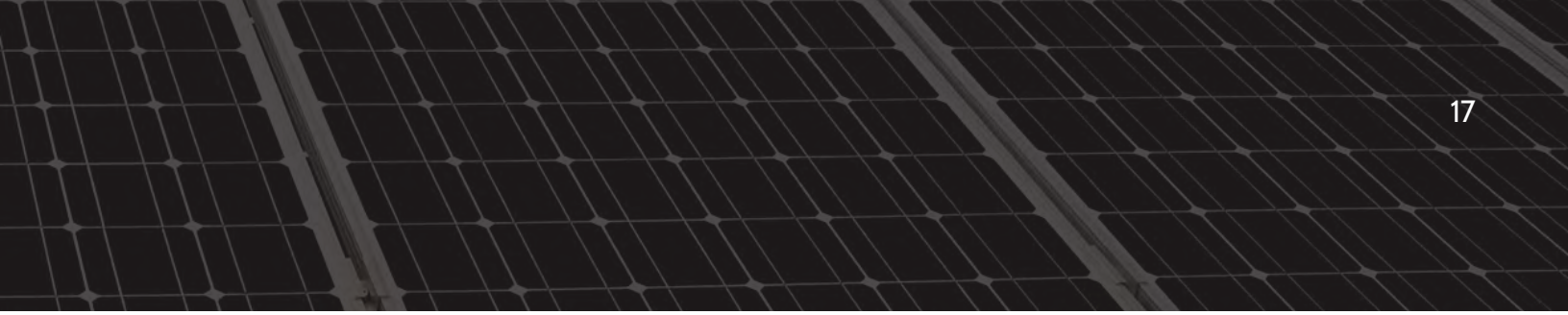
The economic impact results were derived from detailed project cost estimates supplied by Core Solar. Cost estimates for panels were sourced from panel manufacturers, and EPC contractors were contacted to provide competitive cost estimates for the remainder of the work. In addition, Core Solar also estimated the percentages of project materials and labor that will be acquired within Fleming County and the Commonwealth of Kentucky.

Two separate JEDI models were produced to demonstrate the economic impact of the Project. The first JEDI model used the 2019 Fleming County multipliers from IMPLAN. The second JEDI model used the 2019 Commonwealth of Kentucky multipliers from IMPLAN and the same project costs.

Tables 2-4 detail the output from these models. Table 2 lists the total employment impact from the Project for Fleming County and the Commonwealth of Kentucky. Table 3 details the impact on total earnings and Table 4 contains the impact on total output.

Table 2 – Total Employment Impact from the Project

	Fleming County Jobs	Commonwealth of Kentucky (inclusive of Fleming County) Jobs
Construction		
Project Development and Onsite Labor Impacts (direct)	62	99
Module and Supply Chain Impacts (indirect)	13	24
Induced Impacts	5	19
New Local Jobs during Construction	80	142
Operations (Annual)		
Onsite Labor Impacts (direct)	6.6	6.6
Local Revenue and Supply Chain Impacts (indirect)	3.4	4.2
Induced Impacts	0.9	2.9
New Local Long-Term Jobs	10.9	13.7



The results from the JEDI model show significant employment impacts from the Project. Employment impacts can be broken down into several different components. Direct jobs created during the construction phase typically last anywhere from 12 to 15 months depending on the size of the project; however, the direct job numbers presented in Table 2 from the JEDI model are based on a full time equivalent (FTE) basis for a year. In other words, 1 job = 1 FTE = 2,080 hours worked in a year. A part time or temporary job would constitute only a fraction of a job according to the JEDI model. For example, the JEDI model results show 62 new direct jobs during construction in Fleming County, though the construction of the solar project could involve closer to 124 workers working half-time for a year. Thus, due to the short-term nature of construction projects, the JEDI model often significantly understates the number of people actually hired to work on the project. It is important to keep this fact in mind when analyzing the numbers or when reporting the numbers.

As shown in Table 2, new local jobs created or retained during construction total 80 for Fleming County, and 142 for the Commonwealth of Kentucky. New local long-term jobs created from the Project total 10.9 for Fleming County and 13.7 for the Commonwealth of Kentucky.

Direct jobs created during the operational phase last the life of the solar energy project, typically 25-35 years. Direct construction jobs and operations and maintenance jobs both require highly-skilled workers in the fields of construction, management, and engineering. These well-paid professionals boost economic development in rural communities where new employment opportunities often are welcome due to economic downturns. Accordingly, it is important to consider not just at the number of jobs but also the earnings that they produce. Table 3 details the earnings impacts from the Project, which are categorized by construction impacts and operations impacts. The new local earnings during construction total over $7 million for Fleming County and over $12.4 million for the Commonwealth of Kentucky. The new local long-term earnings total over $460 thousand for Fleming County and over $1 million for the Commonwealth of Kentucky.

Table 3 – Total Earnings Impact from the Project

	Fleming County	Commonwealth of Kentucky
Construction		
Project Development and Onsite Earnings Impacts	$6,489,865	$10,406,193
Module and Supply Chain Impacts	$409,556	$1,150,665
Induced Impacts	$156,108	$917,279
New Local Earnings during Construction	$7,055,529	$12,474,137
Operations (Annual)		
Onsite Labor Impacts	$326,581	$651,658
Local Revenue and Supply Chain Impacts	$104,570	$213,906
Induced Impacts	$29,629	$136,861
New Local Long-Term Earnings	$460,780	$1,002,425

Output refers to economic activity or the value of production in the state or local economy. It is an equivalent measure to the Gross Domestic Product, which measures output on a national basis. According to Table 4, the new local output during construction totals over $8.8 million for Fleming County and over $17 million for the Commonwealth of Kentucky. The new local long-term output totals over $1 million for Fleming County and over $1.8 million for the Commonwealth of Kentucky.

Table 4 – Total Output Impact from the Project

	Fleming County	Commonwealth of Kentucky
Construction		
Project Development and Onsite Jobs Impacts on Output	$6,586,761	$10,496,318
Module and Supply Chain Impacts	$1,654,585	$3,683,573
Induced Impacts	$630,884	$2,845,546
New Local Output during Construction	$8,872,230	$17,025,437
Operations (Annual)		
Onsite Labor Impacts	$326,581	$651,658
Local Revenue and Supply Chain Impacts	$558,454	$782,285
Induced Impacts	$118,916	$423,750
New Local Long-Term Output	$1,003,951	$1,857,693

VI. Property Tax Revenue

Solar energy projects increase the property tax base of a county, creating a new revenue source for education and other local government services, such as fire protection, park districts, and road maintenance. Core Solar intends to request that Fleming County issue an Industrial Revenue Bond (IRB) to finance the Project that would exempt project assets (other than leased land) from property taxes and the Project execute an agreement to make contractual payments to the county during the bond term.

There are several important assumptions built into our analysis of the property tax implications of the Project.

- First, the analysis assumes that Fleming County issues an IRB, the Project signs an agreement to make annual contractual payments and there is no state participation in the IRB. Because the agreement has not been finalized, a range for the contractual payments is estimated with the estimated abated school district taxes at the high end of the range and 50% of those amounts at the low end. Although the IRB would have a maximum 40-year term, we have estimated only the first 35 years of property tax revenues for this analysis based on the site control agreements.
- Second, the Project will be contractually obligated to pay the increased real property taxes on the leased land due to the increased valuation of the improved land at its fair cash value (as opposed to agricultural value).
- Third, all tax rates are assumed to stay constant at their 2019 rates. For example, the combined state and local real property rate is 0.01033130.
- Fourth, as the IRB ages, the taxable value of the leasehold interest in the IRB-financed assets increases at a rate of 2.5% per year. This will increase the taxable leasehold value subject to state-only tax during the bond terms.
- Fifth, the analysis assumes the cost approach is used to value of Project assets.
- Sixth, no comprehensive tax payment was calculated, and these calculations are to be used only to illustrate the potential economic impact of the Project.

A conservative estimate of the increased state and local real property taxes from the increased taxable value of the leased land is $57,498 annually for a total of over $2.0 million over 35 years. The negotiated contractual payments are expected to be between $48 thousand and $96 thousand in the first year. Over 35 years, the total contractual payments are expected to be between $835 thousand and $1.67 million. Initially, state taxes increase as the IRB ages and increases the value of the leasehold interest in the Project subject to state taxes. At the same time, the Project itself depreciates in value which lowers the value of the Project in which the leasehold interest is held. From year to year, the leasehold taxes and negotiated contractual payments may be slightly more or slightly less depending on whether the annual reduction for depreciation in the Project has a greater impact on the leasehold value than the 2.5% annual increase in the leasehold interest. The estimated total leasehold taxes to the Commonwealth of Kentucky is $883 thousand over 35 years.

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VIII. Curriculum Vita - David G. Loomis

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Education

Doctor of Philosophy, Economics, Temple University, Philadelphia, Pennsylvania, May 1995.

Bachelor of Arts, Mathematics and Honors Economics, Temple University, Magna Cum Laude, May 1985.

Experience

1996-present Illinois State University, Normal, IL
Full Professor – Department of Economics (2010-present)
Associate Professor - Department of Economics (2002-2009)
Assistant Professor - Department of Economics (1996-2002)

- Taught Regulatory Economics, Telecommunications Economics and Public Policy, Industrial Organization and Pricing, Individual and Social Choice, Economics of Energy and Public Policy and a Graduate Seminar Course in Electricity, Natural Gas and Telecommunications Issues.
- Supervised as many as 5 graduate students in research projects each semester.
- Served on numerous departmental committees.

1997-present Institute for Regulatory Policy Studies, Normal, IL
Executive Director (2005-present)
Co-Director (1997-2005)

- Grew contributing membership from 5 companies to 16 organizations.
- Doubled the number of workshop/training events annually.
- Supervised 2 Directors, Administrative Staff and internship program.
- Developed and implemented state-level workshops concerning regulatory issues related to the electric, natural gas, and telecommunications industries.

2006-2018 Illinois Wind Working Group, Normal, IL
Director

- Founded the organization and grew the organizing committee to over 200 key wind stakeholders
- Organized annual wind energy conference with over 400 attendees
- Organized strategic conferences to address critical wind energy issues
- Initiated monthly conference calls to stakeholders
- Devised organizational structure and bylaws

2007-2018 Center for Renewable Energy, Normal, IL
Director

- Created founding document approved by the Illinois State University Board of Trustees and Illinois Board of Higher Education.
- Secured over $150,000 in funding from private companies.
- Hired and supervised 4 professional staff members and supervised 3 faculty members as Associate Directors.
- Reviewed renewable energy manufacturing grant applications for Illinois Department of Commerce and Economic Opportunity for a $30 million program.
- Created technical "Due Diligence" documents for the Illinois Finance Authority loan program for wind farm projects in Illinois.

2011-present Strategic Economic Research, LLC
President

- Performed economic impact analyses on policy initiatives and energy projects such as wind energy, solar energy, natural gas plants and transmission lines at the county and state level.
- Provided expert testimony before state legislative bodies, state public utility commissions, and county boards.
- Wrote telecommunications policy impact report comparing Illinois to other Midwestern states.

1997-2002 International Communications Forecasting Conference
Chair

- Expanded Planning Committee with representatives from over 18 different international companies and delivered high quality conference attracting over 500 people over 4 years.

1985-1996 Bell Atlantic, Philadelphia, Pa.
Economist - Business Research

- Wrote and taught Applied Business Forecasting multimedia course.
- Developed and documented 25 econometric demand models that were used in regulatory filings.
- Provided statistical and analytic support to regulatory costing studies.
- Served as subject matter expert in switched and special access.
- Administered $4 million budget including $1.8 million consulting budget.

Professional Awards and Memberships

2016 Outstanding Cross-Disciplinary Team Research Award with Jin Jo and Matt Aldeman – recognizes exemplary collaborative research conducted by multiple investigators from different disciplines.

2011 Midwestern Regional Wind Advocacy Award from the U. S. Department of Energy's Wind Powering America presented at WindPower 2011

2009 Economics Department Scott M. Elliott Faculty Excellence Award – awarded to faculty who demonstrate excellence in teaching, research and service.

2009 Illinois State University Million Dollar Club – awarded to faculty who have over $1 million in grants through the university.

2008 Outstanding State Wind Working Group Award from the U. S. Department of Energy's Wind Power America presented at WindPower 2008.

1999 Illinois State University Teaching Initiative Award

Member of the American Economic Association, National Association of Business Economists, International Association for Energy Economics, Institute for Business Forecasters; Institute for International Forecasters, International Telecommunications Society.

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Expert Testimony

23. McLean County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, LLC, Direct Oral Testimony, January 4, 2018.

22. New Mexico Public Regulation Commission, Case No. 17-00275-UT, Application of Sagamore Wind Energy LLC, on behalf of Invenergy, LLC, Direct Written Testimony filed November 6, 2017.

21. Ohio Power Siting Board, Case No. 17-773-EL-BGN, In the Matter of Hardin Solar Energy LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Hardin County, Ohio, on behalf of Invenergy, LLC, Exhibit with Report filed July 5, 2017.

20. Macon County (Illinois) Environmental, Education, Health and Welfare Committee, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of E.ON Energy, Direct Oral Testimony, August 20, 2015.

19. Illinois Commerce Commission, Case No. 15-0277, Oral Cross-examination Testimony on behalf of Grain Belt Express Clean Line LLC appeared before the Commission on August 19, 2015.

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17. Illinois Commerce Commission, Case No. 15-0277, Written Rebuttal Testimony on behalf of Grain Belt Express Clean Line LLC filed August 7, 2015.

16. Kankakee County (Illinois) Planning, Zoning, and Agriculture Committee, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of EDF Renewables, Direct Oral Testimony, July 22, 2015.

15. Kankakee County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of EDF Renewables, Direct Oral Testimony, July 13, 2015.

14. Bureau County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Berkshire Hathaway Energy/Geronimo Energy, Direct Oral Testimony, June 16, 2015.

13. Illinois Commerce Commission, Case No. 15-0277, Written Direct Testimony on behalf of Grain Belt Express Clean Line LLC filed April 10, 2015.

12. Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, Oral Cross-Examination, December 8-9, 2014.

11. Missouri Public Service Commission, Case No. EA-2014-0207, Oral Cross-examination Testimony on behalf of Grain Belt Express Clean Line LLC appeared before the Commission on November 21, 2014.

Expert Testimony (continued)

10. Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of Invenergy, Direct Oral Testimony, November 17-19, 2014.

9. Missouri Public Service Commission, Case No. EA-2014-0207, Written Surrebuttal Testimony on behalf of Grain Belt Express Clean Line LLC, filed October 14, 2014.

8. Missouri Public Service Commission, Case No. EA-2014-0207, Written Direct Testimony on behalf of Grain Belt Express Clean Line LLC, filed March 26, 2014.

7. Illinois Commerce Commission, Case No. 12-0560, Oral Cross-examination Testimony on behalf of Rock Island Clean Line LLC appeared before the Commission on December 11, 2013.

6. Illinois Commerce Commission, Case No. 12-0560, Written Rebuttal Testimony on behalf of Rock Island Clean Line LLC filed August 20, 2013.

5. Boone County (Illinois) Board, Examination of Wind Energy Conversion System Ordinance, Direct Testimony and Cross-Examination, April 23, 2013.

4. Illinois Commerce Commission, Case No. 12-0560, Written Direct Testimony on behalf of Rock Island Clean Line LLC filed October 10, 2012.

3. Whiteside County (Illinois) Board and Whiteside County Planning and Zoning Committee, Examination of Wind Energy Conversion System Ordinance, Direct Testimony and Cross-Examination, on behalf of the Center for Renewable Energy, April 12, 2012.

2. State of Illinois Senate Energy and Environment Committee, Direct Testimony and Cross-Examination, on behalf of the Center for Renewable Energy, October 28, 2010.

1. Livingston County (Illinois) Zoning Board of Appeals, Application for Special Use Permit for a Wind Energy Conversion System, on behalf of the Center for Renewable Energy, Direct Testimony and Cross-Examination, July 28, 2010.

Selected Presentations

"Smart Cities and Micro Grids: Cost Recovery Issues," presented September 12,2017 at the National Association of Regulatory Utility Commissioners Staff Subcommittee on Accounting and Finance Meeting, Springfield, IL.

"Cloud Computing: Regulatory Principles and ICC NOI," presented September 11,2017 at the National Association of Regulatory Utility Commissioners Staff Subcommittee on Accounting and Finance Meeting, Springfield, IL.
"Illinois Wind, Illinois Solar and the Illinois Future Energy Jobs Act," presented July 25, 2017 at the Illinois County Assessors Meeting, Normal, IL.

"Illinois Wind, Illinois Solar and the Illinois Future Energy Jobs Act," presented April 21, 2017 at the Illinois Association of County Zoning Officers Meeting, Bloomington, IL.

"Energy Storage Economics and RTOs," presented October 30, 2016 at the Energy Storage Conference at Argonne National Laboratory.

"Wind Energy in Illinois," on October 6, 2016 at the B/N Daybreak Rotary Club, Bloomington, IL.

"Smart Grid for Schools," presented August 17, 2016 to the Ameren External Affairs Meeting, Decatur, IL.

"Solar Energy in Illinois," presented July 28, 2016 at the 3rd Annual K-12 Teachers Clean Energy Workshop, Richland Community College, Decatur, IL

"Wind Energy in Illinois," presented July 28, 2016 at the 3rd Annual K-12 Teachers Clean Energy Workshop, Richland Community College, Decatur, IL

"Smart Grid for Schools," presented June 21, 2016 at the ISEIF Grantee and Ameren Meeting, Decatur, IL.

"Costs and Benefits of Renewable Energy," presented November 4, 2015 at the Osher Lifelong Learning Institute at Bradley, University, Peoria, IL.

"Energy Sector Workforce Issues," presented September 17, 2015 at the Illinois Workforce Investment Board, Springfield, IL.

"The Past, Present and Future of Wind Energy in Illinois," presented March 13, 2015 at the Peoria Rotary Club, Peoria, IL.

"Where Are All the Green Jobs?" presented January 28, 2015 at the 2015 Illinois Green Economy Network Sustainability Conference, Normal, IL.

"Teaching Next Generation Energy Concepts with Next Generation Science Standards: Addressing the Critical Need for a More Energy-Literate Workforce," presented September 30, 2014 at the Mathematics and Science Partnerships Program 2014 Conference in Washington, DC.

"National Utility Rate Database," presented October 23, 2013 at Solar Power International, Chicago, IL.

Selected Presentations (continued)

"Potential Economic Impact of Offshore Wind Energy in the Great Lakes," presented May 6, 2013 at WindPower 2013, Chicago, IL.

"Why Illinois? Windy City, Prairie Power," presented May 5, 2013 at WindPower 2013, Chicago, IL.

"National Utility Rate Database," presented January 29, 2013 at the EUEC Conference, Phoenix, AZ.

"Energy Learning Exchange and Green Jobs," presented December 13, 2012 at the TRICON Meeting of Peoria and Tazewell County Counselors, Peoria, IL.

"Potential Economic Impact of Offshore Wind Energy in the Great Lakes," presented November 12, 2012 at the Offshore Wind Jobs and Economic Development Impacts Webinar.

"Energy Learning Exchange," presented October 31, 2012 at the Utility Workforce Development Meeting, Chicago, IL.

"Wind Energy in McLean County," presented June 26, 2012 at BN By the Numbers, Normal, IL.

"Wind Energy," presented June 14, 2012 at the Wind for Schools Statewide Teacher Workshop, Normal, IL.

"Economic Impact of Wind Energy in Illinois," presented June 6, 2012 at AWEA's WINDPOWER 2012, Atlanta, GA.

"Trends in Illinois Wind Energy," presented March 6, 2012 at the AWEA Regional Wind Energy Summit – Midwest in Chicago, IL.

"Challenges and New Growth Strategies in the Wind Energy Business," invited plenary session speaker at the Green Revolution Leaders Forum, November 18, 2011 in Seoul, South Korea.

"Overview of the Center for Renewable Energy," presented July 20, 2011 at the University-Industry Consortium Meeting at Illinois Institute of Technology, Chicago, IL.

"Building the Wind Turbine Supply Chain," presented May 11, 2011 at the Supply Chain Growth Conference, Chicago, IL

"Building a Regional Energy Policy for Economic Development," presented April 4, 2011 at the Midwestern Legislative Conference's Economic Development Committee Webinar.

"Wind Energy 101," presented February 7, 2011 at the Wind Power in Central Illinois - A Public Forum, CCNET Renewable Energy Group, Champaign, IL.

"Alternative Energy Strategies," presented with Matt Aldeman November 19, 2010 at the Innovation Talent STEM Education Forum, Chicago, IL.

"Siting and Zoning in Illinois," presented November 17, 2010 at the Wind Powering America Webinar.

"What Governor Quinn Should Do about Energy?" presented November 15, 2010 at the Illinois Chamber of Commerce Energy Forum Conference, Chicago, IL.

"Is Wind Energy Development Right for Illinois," presented with Matt Aldeman October 28, 2010 at the Illinois Association of Illinois County Zoning Officials Annual Seminar in Utica, IL.

"Economic Impact of Wind Energy in Illinois," presented July 22, 2010 at the AgriEnergy Conference in Champaign, IL.

"Renewable Energy Major at ISU," presented July 21, 2010 at Green Universities and Colleges Subcommittee Webinar.

"Economics of Wind Energy," presented May 19, 2010 at the U.S. Green Building Council meeting in Chicago, IL.

"Forecasting: A Primer for the Small Business Entrepreneur," presented with James E. Cox, Jr. April 14, 2010 at the Allied Academies' Spring International Conference in New Orleans, LA.

"Are Renewable Portfolio Standards a Policy Cure-All? A Case Study of Illinois' Experience," presented January 30, 2010 at the 2010 William and Mary Environmental Law and Policy Review Symposium in Williamsburg, VA.

"Creating Partnerships between Universities and Industry," presented November 19, 2009, at New Ideas in Educating a Workforce in Renewable Energy and Energy Efficiency in Albany, NY.

"Educating Illinois in Renewable Energy, presented November 14, 2009 at the Illinois Science Teachers Association in Peoria, IL.

"Green Collar Jobs," invited presentation October 14, 2009 at the 2009 Workforce Forum in Peoria, IL.

"The Role of Wind Power in Illinois," presented March 4, 2009 at the Association of Illinois Electric Cooperatives Engineering Seminar in Springfield, IL.

"The Economic Benefits of Wind Farms," presented January 30, 2009 at the East Central Illinois Economic Development District Meeting in Champaign, IL.

"Green Collar Jobs in Illinois," presented January 6, 2009 at the Illinois Workforce Investment Board Meeting in Macomb, Illinois.

"Green Collar Jobs: What Lies Ahead for Illinois?" presented August 1, 2008 at the Illinois Employment and Training Association Conference.

"Mapping Broadband Access in Illinois," presented October 16, 2007 at the Rural Telecon '07 conference.

"A Managerial Approach to Using Error Measures to Evaluate Forecasting Methods," presented October 15, 2007 at the International Academy of Business and Economics.

"Dollars and Sense: The Pros and Cons of Renewable Fuel," presented October 18, 2006 at Illinois State University Faculty Lecture Series.

"Broadband Access in Illinois," presented July 28, 2006 at the Illinois Association of Regional Councils Annual Meeting.

"Broadband Access in Illinois," presented November 17, 2005 at the University of Illinois' Connecting the e to Rural Illinois.

Selected Presentations (continued)

"Improving Forecasting Through Textbooks – A 25 Year Review," with James E. Cox, Jr., presented June 14, 2005 at the 25th International Symposium on Forecasting.

"Telecommunications Demand Forecasting with Intermodal Competition, with Christopher Swann, presented April 2, 2004 at the Telecommunications Systems Management Conference 2004.

"Intermodal Competition," with Christopher Swann, presented April 3, 2003 at the Telecommunications Systems Management Conference 2003.

"Intermodal Competition in Local Exchange Markets," with Christopher Swann, presented June 26, 2002 at the 20th Annual International Communications Forecasting Conference.

"Assessing Retail Competition," presented May 23, 2002 at the Institute for Regulatory Policy Studies' Illinois Energy Policy for the 21st Century workshop.

"The Devil in the Details: An Analysis of Default Service and Switching," with Eric Malm presented May 24, 2001 at the 20th Annual Advanced Workshop on Regulation and Competition.

"Forecasting Challenges for U.S. Telecommunications with Local Competition," presented June 28, 1999 at the 19th International Symposium on Forecasting.

"Acceptance of Forecasting Principles in Forecasting Textbooks," presented June 28, 1999 at the 19th International Symposium on Forecasting.

"Forecasting Challenges for Telecommunications With Local Competition," presented June 17, 1999 at the 17th Annual International Communications Forecasting Conference.

"Measures of Market Competitiveness in Deregulating Industries," with Eric Malm, presented May 28, 1999 at the 18th Annual Advanced Workshop on Regulation and Competition.

"Trends in Telecommunications Forecasting and the Impact of Deregulation," Proceedings of EPRI's 11th Forecasting Symposium, 1998.

"Forecasting in a Competitive Age: Utilizing Macroeconomic Forecasts to Accurately Predict the Demand for Services," invited speaker, Institute for International Research Conference, September 29, 1997.

"Regulatory Fairness and Local Competition Pricing," presented May 30, 1996 at the 15th Annual Advanced Workshop in Regulation and Public Utility Economics.

"Optimal Pricing For a Regulated Monopolist Facing New Competition: The Case of Bell Atlantic Special Access Demand," presented May 28, 1992 at the Rutgers Advanced Workshop in Regulation and Public Utility Economics.

Grants

"SmartGrid for Schools 2018 and Energy Challenge," with William Hunter, Illinois Science and Energy Innovation Foundation, RSP Award # A15-0092-002 - extended, January 2017, $300,000.

"Energy Learning Exchange - Implementing Nationally Recognized Energy Curriculum and Credentials in Illinois," Northern Illinois University, RSP Award # A17-0098, February, 2017, $13,000.

"SmartGrid for Schools 2017 and Energy Challenge," with William Hunter, Illinois Science and Energy Innovation Foundation, RSP Award # A15-0092-002 - extended, January 2017, $350,000.

"Illinois Jobs Project," University of California Berkeley, RSP Award # A16-0148, August, 2016, $10,000.

"Energy Workforce Ready Through Building Performance Analysis," Illinois Department of Commerce and Economic Opportunity through the Department of Labor, RSP # A16-0139, June, 2016, $328,000 (grant was de-obligated before completion).

"SmartGrid for Schools 2016 and Smart Appliance Challenge," with William Hunter, Brad Christenson and Jeritt Williams, Illinois Science and Energy Innovation Foundation, RSP Award # A15-0092-002, January 2016, $450,000.
"SmartGrid for Schools 2015," with William Hunter and Matt Aldeman, Illinois Science and Energy Innovation Foundation, RSP Award # A15-0092-001, February 2015, $400,000.

"Economic Impact of Nuclear Plant Closings: A Response to HR 1146," Illinois Department of Economic Opportunity, RSP Award # 14-025001 amended, January, 2015, $22,000.

"Partnership with Midwest Renewable Energy Association for Solar Market Pathways" with Missy Nergard and Jin Jo, U.S. Department of Energy Award Number DE-EE0006910, October, 2014, $109,469 (ISU Award amount).

"Renewable Energy for Schools," with Matt Aldeman and Jin Jo, Illinois Department of Commerce and Economic Opportunity, Award Number 14-025001, June, 2014, $130,001.

"SmartGrid for Schools 2014," with William Hunter and Matt Aldeman, Illinois Science and Energy Innovation Foundation, RSP # 14B116, March 2014, $451,701.

"WINDPOWER 2014 Conference Exhibit," Illinois Department of Commerce and Economic Opportunity, RSP #14C167, March, 2014, $95,000.

"Lake Michigan Offshore Wind Energy Buoy," with Matt Aldeman, Illinois Clean Energy Community Foundation, Request ID 6435, November, 2013, $90,000.

"Teaching Next Generation Energy Concepts with Next Generation Science Standards," with William Hunter, Matt Aldeman and Amy Bloom, Illinois State Board of Education, RSP # 13B170A, October, 2013, second year, $159,954; amended to $223,914.

Grants (continued)

"Solar for Schools," with Matt Aldeman, Illinois Green Economy Network, RSP # 13C280, August, 2013, $66,072.

"Energy Learning Exchange Implementation Grant," with William Hunter and Matt Aldeman, Illinois Department of Commerce and Economic Opportunity, Award Number 13-052003, June, 2013, $350,000.

"Teaching Next Generation Energy Concepts with Next Generation Science Standards," with William Hunter, Matt Aldeman and Amy Bloom, Illinois State Board of Education, RSP # 13B170, April, 2013, $159,901.

"Illinois Sustainability Education SEP," Illinois Department of Commerce and Economic Opportunity, Award Number 08-431006, March, 2013, $225,000.

"Illinois Pathways Energy Learning Exchange Planning Grant," with William Hunter and Matt Aldeman, Illinois State Board of Education (Source: U.S. Department of Education), RSP # 13A007, December, 2012, $50,000.

"Illinois Sustainability Education SEP," Illinois Department of Commerce and Economic Opportunity, Award Number 08-431005, June 2011, amended March, 2012, $98,911.

"Wind for Schools Education and Outreach," with Matt Aldeman, Illinois Department of Commerce and Economic Opportunity, Award Number 11-025001, amended February, 2012, $111,752.

"A Proposal to Support Solar Energy Potential and Job Creation for the State of Illinois Focused on Large Scale Photovoltaic System," with Jin Jo (lead PI), Illinois Department of Commerce and Economic Opportunity, Award Number 12-025001, January 2012, $135,000.

"National Database of Utility Rates and Rate Structure," U.S. Department of Energy, Award Number DE-EE0005350TDD, 2011-2014, $850,000.

"Illinois Sustainability Education SEP," Illinois Department of Commerce and Economic Opportunity, Award Number 08-431005, June 2011, $75,000.

"Illinois Pathways Energy Learning Exchange Planning Grant," with William Hunter and Matt Aldeman, Illinois State Board of Education (Source: U.S. Department of Education), RSP # 13A007, December, 2012, $50,000.

"Illinois Sustainability Education SEP," Illinois Department of Commerce and Economic Opportunity, Award Number 08-431005, June 2011, amended March, 2012, $98,911.

"Wind for Schools Education and Outreach," with Matt Aldeman, Illinois Department of Commerce and Economic Opportunity, Award Number 11-025001, amended February, 2012, $111,752.

"A Proposal to Support Solar Energy Potential and Job Creation for the State of Illinois Focused on Large Scale Photovoltaic System," with Jin Jo (lead PI), Illinois Department of Commerce and Economic Opportunity, Award Number 12-025001, January 2012, $135,000.

"National Database of Utility Rates and Rate Structure," U.S. Department of Energy, Award Number DE-EE0005350TDD, 2011-2014, $850,000.

"Illinois Sustainability Education SEP," Illinois Department of Commerce and Economic Opportunity, Award Number 08-431005, June 2011, $75,000.

"Wind for Schools Education and Outreach," with Matt Aldeman, Illinois Department of Commerce and Economic Opportunity, Award Number 11-025001, March 2011, $190,818.

"Using Informal Science Education to Increase Public Knowledge of Wind Energy in Illinois," with Amy Bloom and Matt Aldeman, Scott Elliott Cross-Disciplinary Grant Program, February 2011, $13,713.

"Wind Turbine Market Research," with Matt Aldeman, Illinois Manufacturers Extension Center, May, 2010, $4,000.

"Petco Resource Assessment," with Matt Aldeman, Petco Petroleum Co., April, 2010 amended August 2010 $34,000; original amount $18,000.

"Wind for Schools Education and Outreach," with Anthony Lornbach and Matt Aldeman, Scott Elliott Cross-Disciplinary Grant Program, February, 2010, $13,635.

"IGA IFA/ISU Wind Due Diligence," Illinois Finance Authority, November, 2009, $8,580 amended December 2009; original amount $2,860.

"Green Industry Business Development Program, with the Shaw Group and Illinois Manufacturers Extension Center, Illinois Department of Commerce and Economic Opportunity, Award Number 09-021007, August 2009, $245,000.

"Wind Turbine Workshop Support," Illinois Department of Commerce and Economic Opportunity, June 2009, $14,900.

"Illinois Wind Workers Group," with Randy Winter, U.S. Department of Energy, Award Number DE-EE0000507, 2009-2011, $107,941.

"Wind Turbine Supply Chain Study," with J. Lon Carlson and James E. Payne, Illinois Department of Commerce and Economic Opportunity, Award Number 09-021003, April 2009, $125,000.

"Renewable Energy Team Travel to American Wind Energy Association WindPower 2009 Conference, Center for Mathematics, Science and Technology, February 2009, $3,005.

"Renewable Energy Educational Lab Equipment," with Randy Winter and David Kennell, Illinois Clean Energy Community Foundation (peer-reviewed), February, 2008, $232,600.

"Proposal for New Certificate Program in Electricity, Natural Gas and Telecommunications Economics," with James E. Payne, Extended Learning Program Grant, April, 2007, $29,600.

Grants (continued)

"Illinois Broadband Mapping Study," with J. Lon Carlson and Rajeev Goel, Illinois Department of Commerce and Economic Opportunity, Award Number 06-205008, 2006-2007, $75,000.

"Illinois Wind Energy Education and Outreach Project," with David Kennell and Randy Winter, U.S. Department of Energy, Award Number DE-FG36-06GO86091, 2006-2010, $990,000.

"Wind Turbine Installation at Illinois State University Farm," with Doug Kingman and David Kennell, Illinois Clean Energy Community Foundation (peer-reviewed), May, 2004, $500,000.

"Illinois State University Wind Measurement Project," Doug Kingman and David Kennell, Illinois Clean Energy Community Foundation (peer-reviewed), with August, 2003, $40,000.

"Illinois State University Wind Measurement Project," with Doug Kingman and David Kennell, NEG Micon matching contribution, August, 2003, $65,000.

"Distance Learning Technology Program," Illinois State University Faculty Technology Support Services, Summer 2002, $3,000.

"Providing an Understanding of Telecommunications Technology By Incorporating Multimedia into Economics 235," Instructional Technology Development Grant (peer-reviewed), January 15, 2001, $1,400.

"Using Real Presenter to create a virtual tour of GTE's Central Office," with Jack Chizmar, Instructional Technology Literacy Mentoring Project Grant (peer-reviewed), January 15, 2001, $1,000.

"An Empirical Study of Telecommunications Industry Forecasting Practices," with James E. Cox, College of Business University Research Grant (peer-reviewed), Summer, 1999, $6,000.

"Ownership Form and the Efficiency of Electric Utilities: A Meta-Analytic Review" with L. Dean Hiebert, Institute for Regulatory Policy Studies research grant (peer-reviewed), August 1998, $6,000.

Total Grants: $7,740,953

External Funding

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Aqua Illinois ($7,500); Commonwealth Edison ($7,500); Exelon ($7,500); Illinois American Water ($7,500); Midcontinent ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2017, $67,500 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2017, $18,342.

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Aqua Illinois ($7,500); Commonwealth Edison ($7,500); Exelon ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midcontinent ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2017, $75,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2016, $19,667.

Corporate Funding for Energy Learning Exchange, Calendar Year 2016, $53,000.

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Aqua Illinois ($7,500); Commonwealth Edison ($7,500); Exelon/ Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midcontinent ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Utilities, Inc. ($7,500) Fiscal Year 2016, $82,500 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2015, $15,897.

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Alliance Pipeline ($7,500); Aqua Illinois ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Exelon/ Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midcontinent ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2015, $90,000 total.

Corporate Funding for Energy Learning Exchange, Calendar Year 2014, $55,000.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2014, $12,381.

External Funding (continued)

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Alliance Pipeline ($7,500); Aqua Illinois ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midwest Energy Efficiency Alliance ($4,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2014, $102,000 total.

Corporate Funding for Energy Learning Exchange, Calendar Year 2013, $53,000.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2013, $17,097.

Corporate Funding for Institute for Regulatory Policy Studies, Ameren ($7,500), Alliance Pipeline ($7,500); Aqua Illinois ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2013, $97,500 total.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2012, $29,325.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2012, $16,060.

Corporate Funding for Institute for Regulatory Policy Studies, Alliance Pipeline ($7,500); Aqua Illinois ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2012, $90,000 total.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2011, $57,005.

Workshop Surplus for Institute for Regulatory Policy Studies, with Adrienne Ohler, Fiscal Year 2011, $13,562.

Corporate Funding for Institute for Regulatory Policy Studies, Alliance Pipeline ($7,500); Aqua Illinois ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); Illinois American Water ($7,500) ITC Holdings ($7,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2011, $90,000 total.

Corporate Funding for Center for Renewable Energy, Calendar Year 2010, $50,000.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2010, $49,000.

Workshop Surplus for Institute for Regulatory Policy Studies, with Lon Carlson, Fiscal Year 2010, $17,759.

Corporate Funding for Institute for Regulatory Policy Studies, Alliance Pipeline ($7,500); Ameren ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); ITC Holdings ($7,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2010, $82,500 total.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2009, $57,140.

Workshop Surplus for Institute for Regulatory Policy Studies, with Lon Carlson, Fiscal Year 2009, $21,988.

Corporate Funding for Institute for Regulatory Policy Studies, Alliance Pipeline ($7,500); Ameren ($7,500); AT&T ($7,500);Commonwealth Edison ($7,500); Constellation NewEnergy ($7,500); MidAmerican Energy ($7,500); Midwest Generation ($7,500); MidWest ISO ($7,500); NICOR Energy ($7,500); People Gas Light and Coke ($7,500); PJM Interconnect ($7,500); Fiscal Year 2009, $82,500 total.

Corporate Funding for Center for Renewable Energy, Calendar Year 2008, $157,500.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2008, $38,500.

Workshop Surplus for Institute for Regulatory Policy Studies, with Lon Carlson, Fiscal Year 2008, $28,489.

Corporate Funding for Institute for Regulatory Policy Studies, Alliance Pipeline ($5,000); Ameren ($5,000); AT&T ($5,000);Commonwealth Edison ($5,000); Constellation NewEnergy ($5,000); MidAmerican Energy ($5,000); Midwest Generation ($5,000); MidWest ISO ($5,000); NICOR Energy ($5,000); Peabody Energy ($5,000), People Gas Light and Coke ($5,000); PJM Interconnect ($5,000); Fiscal Year 2008, $60,000 total.

Corporate Funding for Illinois Wind Working Group, Calendar Year 2007, $16,250.

Workshop Surplus for Institute for Regulatory Policy Studies, with Lon Carlson, Fiscal Year 2007, $19,403.

Corporate Funding for Institute for Regulatory Policy Studies, AARP ($3,000), Alliance Pipeline ($5,000), Ameren ($5,000); Citizens Utility Board ($5,000); Commonwealth Edison ($5,000); Constellation NewEnergy ($5,000); MidAmerican Energy ($5,000); Midwest Generation ($5,000); MidWest ISO ($5,000); NICOR Energy ($5,000); Peabody Energy ($5,000), People Gas Light and Coke ($5,000); PJM Interconnect ($5,000); SBC ($5,000); Verizon ($5,000); Fiscal Year 2007, $73,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with Lon Carlson, Fiscal Year 2006, $13,360.

External Funding (continued)

Corporate Funding for Institute for Regulatory Policy Studies, AARP ($1,500), Alliance Pipeline ($2,500), Ameren ($5,000); Citizens Utility Board ($5,000); Commonwealth Edison ($5,000); Constellation NewEnergy ($5,000); DTE Energy ($5,000); MidAmerican Energy ($5,000); Midwest Generation ($5,000); MidWest ISO ($5,000); NICOR Energy ($5,000); Peabody Energy ($2,500), People Gas Light and Coke ($5,000); PJM Interconnect ($5,000); SBC ($5,000); Verizon ($5,000); Fiscal Year 2006, $71,500 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Fiscal Year 2005, $12,916.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); Citizens Utility Board ($5,000); Commonwealth Edison ($5,000); Constellation NewEnergy ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); Midwest Generation ($5,000); MidWest ISO ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); PJM Interconnect ($5,000); SBC ($2,500); Verizon ($2,500); Fiscal Year 2005, $60,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Fiscal Year 2004, $17,515.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); Commonwealth Edison ($5,000); Constellation NewEnergy ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); Midwest Generation ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); PJM Interconnect ($5,000); Fiscal Year 2004, $45,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Fiscal Year 2003, $8,300.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); AT&T ($2,500); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); Fiscal Year 2003, $32,500 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 2002, $15,700.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($2,500); AT&T ($5,000); Commonwealth Edison ($2,500); Illinois Power ($2,500); MidAmerican Energy ($2,500); NICOR Energy ($2,500); People Gas Light and Coke ($2,500); Calendar Year 2002, $17,500 total.

Corporate Funding for International Communications Forecasting Conference, National Economic Research Associates ($10,000); Taylor Nelson Sofres Telecoms ($10,000); Calendar Year 2002, $20,000 total

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); AT&T ($5,000); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); Calendar Year 2001, $35,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 2001, $19,400.

Corporate Funding for International Communications Forecasting Conference, National Economic Research Associates ($10,000); Taylor Nelson Sofres Telecoms ($10,000); SAS Institute ($10,000); Calendar Year 2001, $30,000 total.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); AT&T ($5,000); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); Calendar Year 2000, $35,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 2000, $20,270.

Corporate Funding for International Communications Forecasting Conference, National Economic Research Associates ($10,000); Taylor Nelson Sofres Telecoms ($10,000); Calendar Year 2000, $20,000 total.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); AT&T ($5,000); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); NICOR Energy ($5,000); People Gas Light and Coke ($5,000); Calendar Year 1999, $35,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 1999, $10,520.

Corporate Funding for International Communications Forecasting Conference, National Economic Research Associates ($10,000); PNR Associates ($10,000); Calendar Year 1999, $20,000 total.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); CILCO ($5,000); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); People Gas Light and Coke ($5,000); Calendar Year 1998, $30,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 1998, $44,334.

Corporate Funding for International Communications Forecasting Conference, National Economic Research Associates ($10,000); PNR Associates ($10,000); Calendar Year 1998, $20,000 total.

Corporate Funding for Institute for Regulatory Policy Studies, with L. Dean Hiebert, AmerenCIPS ($5,000); CILCO ($5,000); Commonwealth Edison ($5,000); Illinois Power ($5,000); MidAmerican Energy ($5,000); People Gas Light and Coke ($5,000); Calendar Year 1997, $30,000 total.

Workshop Surplus for Institute for Regulatory Policy Studies, with L. Dean Hiebert, Calendar Year 1997, $19,717.

Total External Funding: $2,492,397

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