Generation Interconnection Facilities Study Report

For

PJM Generation Interconnection Request Queue Position – AE2-254

Garrard County – Tommy Gooch 69 kV Solar Project – 50 MW

January 2021

General

Turkey Creek Solar, LLC, the Interconnection Customer, has proposed a solar generating facility located in Garrard County, Kentucky. This solar facility will have a total capability of 50 MW with 30 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is Dec 31, 2022. **This study does not imply an East Kentucky Power Cooperative commitment to this in-service date.**

Point of Interconnection

AE2-254 will interconnect with the East Kentucky Power Cooperative ("EKPC") transmission system at the new proposed South Lancaster 69 kV Substation, located along the EKPC Garrard County - Tommy Gooch 69 kV line near Lancaster, KY.

Cost Summary

The AE2-254 project shall be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,135,360
Direct Connection Network Upgrades	$3,410,000
Non Direct Connection Network Upgrades	$620,000
Allocation for System Upgrades	$0
Contributions for Previously-Identified Upgrades	$0
Total Costs	**$5,165,360**

A. Transmission Owner Facilities Study Summary

1. General Description of Project

TURKEY CREEK SOLAR, LLC ("TURKEY CREEK SOLAR, LLC"), the Interconnection Customer ("IC"), has proposed a 50 MW solar generating facility located near Lancaster, in Garrard County, Kentucky. PJM studied AE2-254 as a 50 MW injection into the EKPC transmission system at a newly constructed 69 kV switching station ("South Lancaster Switching"), and evaluated it for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). The proposed in-service date is Dec 31, 2022.

The intent of this study is to develop detailed engineering cost estimates and construction schedules for necessary EKPC transmission facilities and system reinforcements, and protection requirements to accommodate this Generator Interconnection Request.

2. Amendments to the System Impact Study Data or System Impact Study Results

The project costs and construction schedule have been refined in this report for increased accuracy and thereby differ from that which was presented in the Feasibility and System Impact Study reports. All estimates have been created based on meeting the earliest in-service date possible at the request of the IC. EKPC estimates a twenty-one (21) month implementation duration after a project kickoff meeting is held. Therefore, the requested in-service date of Dec 31, 2022 (and associated backfeed date of Sept 1, 2022) may be possible if an Interconnection Construction Service Agreement ("ICSA") is executed in an expedient manner. Any delay in the execution of this ICSA could result in a delay in the projected in-service date for EKPC's required facilities.

3. Interconnection Customer's Milestone Schedule

The IC's requested Commercial Operation Date ("COD") for the Turkey Creek Solar generation facility is **Dec 31, 2022**. The requested backfeed date for the project is Sept 1, 2022. Milestone details have not been provided for the IC's schedule.

4. Scope of Interconnection Customer's Work

The Point of Interconnection ("POI") will be the IC side of a 69 kV disconnect switch to be installed by EKPC at the interface between the IC-owned substation facilities and EKPC's substation facilities at the new South Lancaster Switching 69 kV substation. This switch will be located on a steel structure immediately outside of the new South Lancaster Switching substation. EKPC will install, own, operate, and maintain the switch structure/switch. The IC substation will be constructed in the vicinity of the new EKPC South Lancaster Switching 69 kV substation. The IC will install necessary 69 kV equipment (conductors, jumpers, etc.) from this 69 kV disconnect switch to its substation equipment. The IC will be responsible for acquiring all rights-of-way, easements, and environmental approvals and permits for its facilities. The IC will be responsible for constructing, owning, operating, and maintaining its facilities, and EKPC will have no responsibility for any of these activities.

The IC will acquire sufficient property that is suitable for EKPC's new South Lancaster 69 kV switching substation and will grant ownership of this property to EKPC at no cost. Prior to taking ownership, EKPC will perform all necessary engineering and environmental reviews to ensure that the site is suitable. EKPC will have the right to request modifications to the site or to reject the site if it is not suitable for EKPC's needs.

5. Description of Facilities Included in Facilities Study

This report describes the EKPC transmission system additions and upgrades necessary to support the IC's project.

EKPC will construct a 69 kV switching station and a new 69 kV loop-in tap from the EKPC Tommy Gooch-Garrard County 69 kV line section to accommodate the direct connection of the IC's substation facilities to the EKPC transmission system. EKPC will also construct a 69 kV disconnect switch structure which will be the POI interface. A proposed one-line diagram and draft geographical footprint of the EKPC substation are included as Attachments 1 and 2 of this report.

EKPC will also complete the required non-direct connection network upgrades at existing EKPC substations, which are system protection changes necessary at the Liberty Junction and Garrard County switching stations to accommodate the addition of this new facility, as well as addition of overhead fiber-optic ground wire ("OPGW") to the existing South Lancaster-Garrard County 69 kV line.

6. Total Costs of Transmission Owner Facilities included in Facilities Study

The costs estimated below are in 2020 dollars and do not include a Contribution in Aid of Construction ("CIAC") Federal Income Tax Gross Up charge. This tax may or may not be charged based on IRS requirements.

Description	Total Cost
Attachment Facilities	$1,135,360
Direct Connection Network Upgrades	$3,410,000
Non Direct Connection Network Upgrades	$620,000
EKPC Network Upgrades	$0
Total Costs	**$5,165,360**

7. Summary of Milestone Schedules for Completion of Work Included in Facilities Study:

A twenty-one (21) month construction schedule is estimated from the date of a fully executed ICSA to complete construction of necessary EKPC facilities. This schedule is dependent on several factors, including convening a construction kickoff meeting immediately after execution of the ICSA. A more detailed construction schedule will be developed for the ICSA. EKPC's

construction shall not begin until all applicable permits, easements and land rights have been obtained.

This proposed schedule assumes the following:

1. Required transmission line outages can be scheduled as planned. Transmission line outages are:
   a. typically not taken in the summer (June-August) or winter (December-February) periods,
   b. cancelled during extreme weather conditions, and
   c. in some cases, required to be scheduled twelve (12) months or more in advance.
2. No delays due to equipment delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
3. No significant sub-surface rock is encountered during construction, and soil conditions are suitable for EKPC standard ground grid and foundation installations.
4. Required easements for line installation and access to facilities can be acquired by EKPC in a timely manner.
5. Suitable and adequate substation property is provided to EKPC by the IC in a timely manner.
6. Necessary permits can be acquired and environmental reviews can be completed in a timely manner.
7. Material delays may occur based on the current COVID-19 situation that may have an impact on project schedule.

If any of these assumptions are not correct, the schedule is likely to be negatively impacted. EKPC's preliminary milestone schedule beginning from the project kickoff meeting month is shown below.

Description	Start Month	Completion Month
Project Kickoff Meeting	Month 0	Month 0
Transmission Line Design	Month 1	Month 3
Substation Design (Including Site Grading Design)	Month 1	Month 6
Procure Materials and Equipment	Month 2	Month 16

Description	Start Month	Completion Month
Site Preparation	Month 10	Month 15
Garrard County – South Lancaster Switching 69 kV Transmission Line OPGW Installation into the new South Lancaster Switching Station	Month 15	Month 17
South Lancaster Switching Substation Construction	Month 16	Month 20
Tommy Gooch-Garrard County 69 kV Transmission Line Loop-In Construction into the new South Lancaster Switching Station	Month 17	Month 17
Commissioning and Testing	Month 20	Month 21

8. Technical Considerations/Requirements:

The proposed Turkey Creek Solar facility will be located along the existing Garrard County-Tommy Gooch 69 kV transmission line, approximately 1.9 miles from EKPC's existing Garrard County substation.

The proposed facility must meet EKPC's published facility connection requirements. The latest version of these requirements can be accessed via the following link:

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

The following discussion of requirements regarding connection of inverter-based generating facilities to the EKPC system is excerpted from this document (section 5.9).

A Generating Facility comprising static inverters shall utilize inverters that have been tested and certified to UL 1741 with Advanced Inverter functionality (UL 1741 SA or subsequent UL equivalent), by a NRTL certified by OSHA to perform the UL 1741 SA test standard. The programming/set points to be determined per EKPC recommendations and proof such shall be provided by the IC (i.e. certified test report, inverter settings print-out, and/or EKPC inspection/validation). Unity power factor shall be the default mode unless otherwise determined by mutual consent between EKPC and the IC. At a

minimum, the following grid support features are required unless otherwise specified by EKPC:

a) *Anti-Islanding – Support anti-islanding to trip off under extended anomalous conditions*
b) *Volt/Var Mode – Voltage/Var control through dynamic reactive power injection through autonomous responses to local voltage measurement*
c) *Volt/Watt Mode – Voltage/Watt control through dynamic reactive power injection through autonomous responses to local voltage measurement*
d) *Fixed Power Factor Mode – Reactive Power by fixed power factor*
e) *Constant Reactive Power Mode – Reactive power by a fixed percentage of kVA rating of the inverter nameplate*
f) *Frequency/Watt Mode – Frequency/Watt control to counteract frequency excursions beyond normal limits by decreasing or increasing real power*
g) *Low/High Voltage Ride-Through (LHVRT) – Ride-through of low/high voltage excursions beyond normal limits*
h) *Low/High Frequency Ride-Through (LHFRT) - Ride-through of low/high frequency excursions beyond normal limits*
i) *Ramping – Capability to define active and reactive power ramp rates*
j) *Soft-Start Reconnection – Reconnect after grid power is restored*
k) *Cease to Energize – Capability to remotely turn off active power delivery*
l) *Power Curtailment – Capability to remotely curtail the active power production within the range of 0% to 100%*

A redundant over/undervoltage relay will be required for static inverters with an AC output nominal rating of ≥1000 kW, or whenever the aggregate inverter AC output nominal rating of a Generating Facility ≥1000 kW. For installations ≥10 MW redundant over/undervoltage and over/underfrequency protection will be required. Such protection shall be applied to one or more breakers external to the inverter(s).

The IC shall ensure, at a minimum, that the inverter performance tests specified below are performed and certified by a NRTL to ensure compliance with the following sections of IEEE1547-2018 Section 7.0 Power Quality

a. *Section 7.1 Limitation of DC Injection*
b. *Section 7.2 Limitation of Voltage Fluctuations induced by the DER*
c. *Section 7.3 Limitation of Current Distortion*
d. *Section 7.4 Limitation of Overvoltage Contribution*

The IC shall provide EKPC with a copy of the test results and certification from the NRTL, for EKPC review and approval.

B. Transmission Owner Facilities Study Results

The facilities identified to be installed, replaced, and/or upgraded by EKPC to accommodate the proposed project are described in this section. During detailed design and analysis, other components may be identified for installation or replacement due to this project.

1. Transmission Lines – New

A new loop-in tap line will be constructed from EKPC's existing Tommy Gooch-Garrard County 69 kV transmission line to the new South Lancaster Switching 69 kV substation as shown in Attachment 1 of this report. The new transmission line loop-in facilities will be owned, operated, and maintained by EKPC. The tap from the existing transmission line into the new switching station will consist of two steel single-pole, guyed 90-degree transmission structures and two guyed small-angle suspension steel structures between the tap and the new South Lancaster substation. The new structures are assumed to be direct embedded steel structures. The tap will allow for the connection of the existing transmission line to the new switching station. The loop-in tap is scheduled to be completed before the summer months and before the new substation is complete; therefore, the construction contractor will install a temporary tie between the two loop-in structures until the substation is ready (beginning of September). The loop from the Tommy Gooch-Garrard County 69 kV line to the new substation is expected to extend approximately 250 feet **(PJM ID n6915)**

The estimated cost for the new line construction for this project is $235,000.

Transmission Line Assumptions:

The following general assumptions have been included for the transmission line information provided:

1. Required transmission line outages can be scheduled as planned. An outage will be required to install the new OPGW from the new South Lancaster substation to the Garrard County substation as well as to replace the existing 69kV transmission pole adjacent to the new station with two single-pole guyed 90 degree transmission structures and two guyed angle suspension structures between the tap and the new station. The existing 69 kV structure will be removed. Transmission line outages are:

a. typically not taken in the summer (June-August) or winter (December-February),
b. cancelled during extreme weather conditions, and
c. in some cases, required to be scheduled twelve (12) or more months in advance.

2. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
3. No significant sub-surface rock encountered during construction, and soil conditions are suitable for standard foundation installations.

The following engineering assumptions have been included for the transmission line information provided:

1. The conceptual design/analysis completed for this study anticipates no significant foundation or structural issues are present for the existing transmission line and the structures between the new South Lancaster Switching substation and the Garrard County substation; however, the two new loop structures and tangent suspension structures at the new South Lancaster Switching substation location will require a full design effort.
2. Material and equipment costs are based on current (November 2020) pricing.
3. Easements, if necessary, shall be acquired by EKPC.
4. Environmental permits and reviews shall be completed by EKPC and can be completed in a timely manner.

2. Transmission Line – Modifications

Overhead optical ground wire ("OPGW") installation will be required to meet communications requirements for the new EKPC South Lancaster Switching substation. EKPC will need to establish a fiber-optic communications path to its nearest microwave tower site. Therefore, OPGW installation on the Garrard County – South Lancaster Switching 69 kV line section (1.9 miles) is required **(PJM ID n6918).** The new OPGW will replace the existing 3/8" steel shield wire from the Garrard County Substation to the tap at the new switching station and it is assumed that the new OPGW will not overload the structures based on spot checking during the cost estimating phase. The new OPGW will be terminated overhead within the new substation fence at the new South Lancaster substation location.

The estimated cost for the new OPGW installation necessary to facilitate this project is $275,000.

3. New Substation/Switchyard Facilities

EKPC will build a new 69 kV switching station ("South Lancaster Switching") in the vicinity of the IC's substation for interconnection of the new generating facility. The new switching station will be constructed near EKPC's Tommy Gooch-Garrard County 69 kV transmission line,

approximately 1.9 miles from the Garrard County Substation and 5.6 miles from the Tommy Gooch transmission substation. This new 69 kV switching station will be owned, operated, and maintained by EKPC. **(PJM ID n6914)**

The major equipment and material associated with the new switching station is listed below:

QTY	Unit	DESCRIPTION
1	Each	69 kV High Profile Substation Structure
3	Each	69 kV, 2000 Amp Circuit Breakers
14	Each	69 kV GOAB Switches
1	Lot	Electrical Material (insulators, terminals, etc.)
1	Each	Station Service Transformer, 100 KVA (93 kV-50/240V)
9	Each	Arresters, Lightning 69 kV Station 57 MCOV Polymer
3	Each	CT's, 69 kV
3	Each	PT's, 69 kV

For attachment facilities, EKPC will also construct a 69 kV switch structure to provide a single stand-alone isolation point between the EKPC switching station and the IC substation. The POI between EKPC and the IC will be the 4-hole pad on the disconnect switch on this structure. The IC will build its bus conductors from its facilities to this demarcation point. EKPC will own, operate, and maintain this switch and its associated structure. This switch will be located on a steel structure immediately outside of the new South Lancaster Switching substation. The attachment facilities also include the required interconnection metering facilities and telecommunications facilities installed by EKPC on the connection facilities between the new EKPC substation and the IC substation. **(PJM ID n6913)**

The IC is responsible for construction of all of the facilities on its side of the POI, as shown in the attached one-line diagram.

The IC is responsible for obtaining property rights for the EKPC switching station site and deeding the property to EKPC. EKPC also assumes that the IC will provide all necessary easements for a permanent road to provide substation access. This substation access shall be from an existing county or state road. The IC will convey these rights to EKPC if they own the property on which the substation access road will be located. Otherwise, EKPC will need to acquire the access rights from the owner of the property.

System Protection

The following system protection scope of work applies for this project. All system protection equipment described in this section will be owned, operated, and maintained by EKPC.

Control House: EKPC shall procure and install a drop-in style control building fully furnished and complete with one bus differential panel, two transmission line panels, the option of a transformer differential panel, bus differential panel or another line panel for the connection to the Turkey Creek solar facilitysubstation, two 125V DC battery banks, and all required operating equipment.

Relay Panels: EKPC shall install a standard bus panel complete with P1 SEL-587Z and P2 SEL-487B relays tripping P1 & P2 lock out relays.

Line Panel for protection of the Turkey Creek Solar facility connection -- EKPC shall install either a standard line panel with P1 SEL-411L relays & P2 SEL-421 relays, standard bus panel with P1 SEL-587Z & P2 SEL-487B relays, or standard transformer panel with P1 SEL 787 & P2 SEL 487E relays. Line option relays shall utilize a differential and step distance protection to reach into the customer solar transformer impedance with an instantaneous zone 1 whereas a bus option will use differential protection and a transformer option will also use differential protection. A SEL-451 relay shall be utilized for breaker control, breaker failure, and reclosing.

Line Panels for the Tommy Gooch and Garrard County 69 kV Line Exits– EKPC shall install a standard line panel with P1 SEL-411L relays & P2 SEL-421 relays . The P1 relay shall utilize a high-speed DIFF scheme over fiber. SEL-451 relays shall be utilized for breaker control, breaker failure, and reclosing. The P2 relays shall utilize a high-speed POTT scheme over fiber.

EKPC requires the IC to utilize all Schweitzer Engineering Laboratories (SEL) relays and related protective equipment for facilities that will be interconnecting or communicating with EKPC relaying. EKPC reserves the right to specify relays or other protective equipment utilized in the IC substation as required based on the protection schemes utilized. All protection system designs shall be reviewed by EKPC System Protection during the design phase to ensure proper clearing times, coordination, and compliance with applicable NERC regulations.

Control cables shall be pulled from new breakers and other required equipment to the control house.

Commissioning: Each relay panel shall be fully commissioned prior to being placed in service. Commissioning shall include AC current and potential circuits, DC functional, relay testing, and end-to-end testing where required. Each of the remote line ends (Liberty Junction and Garrard

County substations) shall be commissioned using end-to-end testing prior to energizing the POTT scheme to the South Lancaster Switching substation.

The estimated total cost for the South Lancaster Switching substation and system protection construction for this project is $4,175,000. This estimate also includes costs for metering and telecommunications equipment that will be located inside the new EKPC substation. The estimated cost of $4,545,000 includes EKPC's cost for all attachment facilities to make the interconnection between its substation and the IC substation.

Substation & System Protection Assumptions:

The following general assumptions have been included for the substation information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, property/easement acquisitions, extreme weather, or similar events.
2. No significant sub-surface rock encountered during construction, and soil conditions suitable for standard ground-grid and foundation installations.
3. IC shall acquire an adequate and suitable site and grant ownership to EKPC to accommodate EKPC's interconnection substation, as mentioned above.
4. The IC will provide all necessary easements for a permanent road to provide substation access. This substation access shall be from an existing county or state road. The IC will convey these rights to EKPC if they own the property on which the substation access road will be located. Otherwise, EKPC will need to acquire the access rights from the owner of the property.

The following engineering assumptions have been included for the substation information provided:

1. Neither foundation nor structural analyses have been performed. Information provided assumes that no significant foundation or structural issues are present.
2. The schedule assumes no issues related to scheduling outages of existing transmission lines to terminate into the new substation.
3. Material and equipment-related costs are based on current (November 2020) pricing.
4. Environmental permits and reviews will be completed by EKPC and can be completed in a timely manner.

4. Upgrades to Substation/Switchyard Facilities

EKPC shall complete the required non-direct connection network substation upgrades, which will include system protection changes at both the existing Liberty Junction and Garrard County 69 kV substations to accommodate the addition of this new facility.

Garrard County – Relays will need to be replaced for Liberty Junction - Garrard County 69 kV line to accommodate the new South Lancaster Switching station, and relay files will be updated

accordingly. The existing POTT scheme using SEL-421 relays will need to be replaced with SEL-411L differential relays. The estimated total cost of this work at Garrard County is $100,000. **(PJM ID n6916)**

Liberty Junction – Relay settings shall be reviewed for the Liberty Junction - Garrard County 69 kV line to accommodate the new South Lancaster Switching station, and relay files will be updated accordingly. The estimated total cost of this work at Liberty Junction is $10,000. If acceptable relay setting adjustments are not possible due to older KD model relays, and new modern SEL line relays are required, this cost will be higher. This is to be determined during detailed design. **(PJM ID n6917)**

Therefore, the estimated total cost for the relay upgrades and settings changes at the existing remote ends of the lines to be connected to the South Lancaster Switching substation is $110,000.

5. Metering & Communications

EKPC Metering:

Metering requirements for this facility include the installation of EKPC's standard revenue-quality metering package, including potential transformers, current transformers, remote-terminal unit and associated SCADA equipment.

The cost for installation of the metering facilities contained in the new EKPC substation are included in the substation costs provided in Section 3 above.

Metering Assumptions:

The following assumptions have been included for the metering information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Fiber-optic cable and associated equipment installation is completed as scheduled.
3. Material and equipment-related costs are based on current (November 2020) pricing.
4. Once fiber-optic cable installation is complete; the fiber will not be damaged.

Communications:

EKPC shall use telecommunications equipment that matches its current network and equipment requirements.

A 48-count ADSS fiber will be installed between the EKPC substation control house and the IC facility for relaying, metering, and SCADA circuit requirements. The exact details and installation plans for this fiber will be developed during project scoping.

The cost for installation of the telecommunications facilities contained in the new EKPC substation are included in the substation costs provided in Section 3 above.

Communications Assumptions:

The following assumptions have been included for the telecommunications information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Material and equipment-related costs are based on current (November 2020) pricing.
3. Once fiber-optic cable installation is complete, the fiber will not be damaged.

6. Other Required Upgrades

No other required upgrades were identified on the EKPC transmission system.

7. Environmental, Real Estate and Permitting Issues

The IC is responsible for obtaining all of the required property rights to provide EKPC ownership of the new switching station site, as well as any other property ownership needed for the switching station access road and the transmission tap line, if appropriate. The IC shall convey the necessary property rights to EKPC for construction of its facilities. The IC shall work directly with EKPC when acquiring these rights to ensure that they meet EKPC requirements and standards.

EKPC will perform all necessary environmental assessments and obtain all necessary permits/approvals associated with construction of all EKPC facilities required to facilitate the interconnection of the new generating facility.

The following general assumptions have been included for environmental permitting requirements:

1. For the IC's project, there are no "federal actions" (i.e. federal financial assistance or grants; or federal permit, license or approval) present that would trigger NEPA compliance obligations for the EKPC facilities as a connected action.
2. Substation location will remain in the currently identified location, which is approximately 1,200 feet SSW of the point where EKPC's Tommy Gooch-Garrard County 69 kV transmission line crosses the identified property line, on the west side of the line (see Attachment 2). Relocation of the substation site would require a re-evaluation of the permitting obligations.

8. Cost Summary

The necessary projects and estimated costs to facilitate interconnection of the AE2-254 queue project (Turkey Creek Solar) are summarized in the tables below:

Description	Direct Labor	Direct Material	Indirect Labor	Indirect Material	Total
Attachment Facilities					
EKPC to install necessary equipment (a 69 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 South Lancaster Switching station to accept the IC generator lead line/bus **(PJM ID n6913)**	$293,738	$562,753	$197,490	$81,379	$1,135,360
Direct Connection					
EKPC to construct a new 69 kV switching station (South Lancaster Switching) to facilitate connection of the Turkey Creek Solar generation project **(PJM ID n6914)**	$967,076	$1,567,236	$648,582	$227,106	$3,410,000
Non-Direct Connection					
EKPC to design and construct facilities (~250 feet) to loop the existing Tommy Gooch-Garrard County 69 kV line section into the new South Lancaster Switching substation **(PJM ID n6915)**	$143,180	$62,798	$12,249	$16,773	$235,000

Description	Direct Labor	Direct Material	Indirect Labor	Indirect Material	Total
EKPC to upgrade relays and modify relay settings at Garrard County substation for existing line to South Lancaster Switching substation **(PJM ID n6916)**	$28,360	$45,960	$19,020	$6,660	$100,000
EKPC to modify relay settings at Liberty Junction substation for existing line to South Lancaster Switching station **(PJM ID n6917)**	$5,971	$0	$4,029	$0	$10,000
EKPC to design and install OPGW in the Garrard County – South Lancaster Switching 69 kV line section (1.9 miles) **(PJM ID n6918)**	$224,346	$27,562	$11,659	$11,433	$275,000
EKPC Network Upgrades					
None	N/A	N/A	N/A	N/A	N/A
Total Estimated Facility Costs	**$1,662,671**	**$2,266,309**	**$893,029**	**$343,351**	**$5,165,360**

Total Estimated Costs of Facilities	
Description	**Total Cost**
Attachment Facilities	$1,135,360
Direct Connection Network Upgrades	$3,410,000
Non-Direct Connection Network Upgrades	$620,000
EKPC System Upgrades	$0
Total Costs	**$5,165,360**

9. EKPC Oversight Costs for Customer Self-Build Option

The PJM Tariff allows an Interconnection Customer to exercise the Option-to-Build alternative during the ISA/ICSA execution phase with regard to a new greenfield substation needed to facilitate the generation facility interconnection to the transmission system. For the Turkey Creek Solar project, the IC will have the option to build the South Lancaster 69 kV switching station. EKPC's estimated costs for design review, project coordination activities, construction

oversight, and witness testing and commissioning is $645,000 for the Option-to-Build alternative.

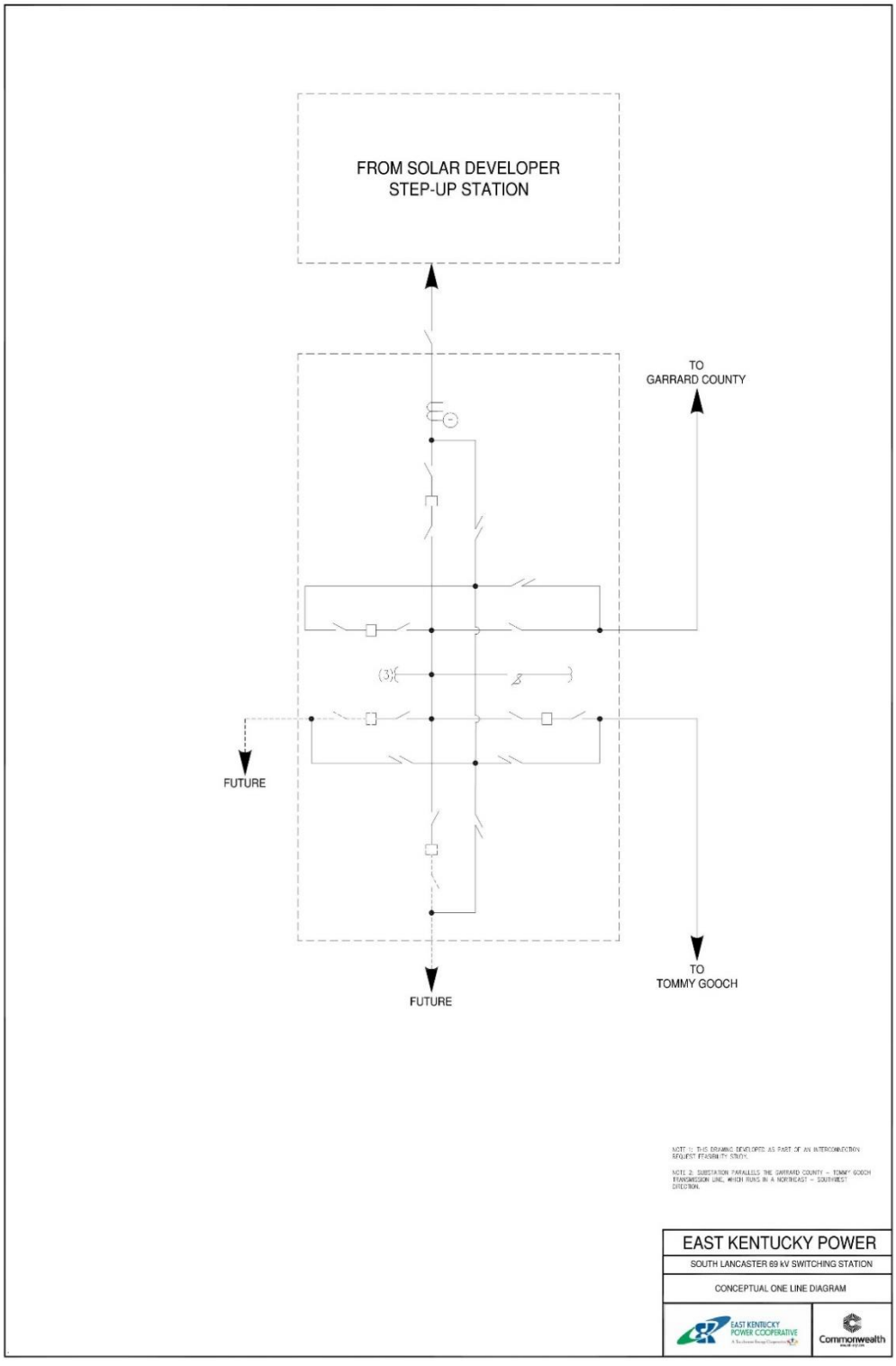
10. Attachments

Attachment 1 – EKPC Temporary One Line Diagram

Attachment 2 – EKPC General Substation Location/Layout

Attachment 1:

EKPC Temporary One Line Diagram



Attachment 2:

EKPC Station General Location/Layout