ATTACHMENT PB-1
NRCO 2021 SOLAR PROPOSAL

East Kentucky Power Cooperative

NRCO 2021 - Solar Proposal

Revised - May 2023

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

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I. Bidder Contact Information:

Corporate Name: East Kentucky Power Cooperative, Inc.
Corporate Address: PO Box 707, Winchester, KY 40392-0707

Legally Authorized Representative

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Signature:

Primary Contact

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Signature:

II. Executive Summary:

East Kentucky Power Cooperative, and our proposed project team appreciate the opportunity to provide a proposal for the National Renewables Cooperative Organization (NRCO) 2021 Solar Request for Proposals (RFP) on behalf of East Kentucky Power Cooperative.

As a not-for-profit electric generation and transmission cooperative, EKPC is uniquely positioned in Kentucky to provide solar energy to our Owner-Members. Through the elimination of profits in a normal power purchase agreement (PPA), and the ability of EKPC to fully execute a solar generation project utilizing our regulatory position with the Kentucky Public Service Commission (PSC), EKPC's self-bid and self-build options are anticipated to be very competitive against a standard PPA proposal.

Within this revised proposal, EKPC is submitting two (2) projects into the NRCO 2021 Solar RFP for consideration as self-build solar options. The following summary highlights some of the key project details for each facility:

1. Bluegrass Plains Solar – This project is a 50.66MWdc solar development that would be purchased from another development entity if selected. The project is currently in the PJM queue Transition Cycle #1 AE2, with Feasibility, Facility, and System Impact Studies having already been completed.
2. Northern Bobwhite Solar – This project is a 125.688MWdc solar development that would be purchased from another development entity if selected. The project is currently in the PJM queue Transition Cycle #1 AE1 with Interconnection Service (ISA) and Interconnection Construction Service Agreements (CSA) executed.

EKPC has integrated a measured transition incorporating renewable energy into its generation portfolio through its Strategic Plan, Sustainability Plan and Integrated Resource Plan (IRP). The Strategic Plan updated for 2022 identifies four key areas where renewable energy plays a key component:

- Financial Integrity
  - Balance strength, flexibility, and affordability
- Generation and Transmission Assets
  - Actively manage EKPC's current and future asset portfolio to safely deliver reliable, affordable, and sustainable energy from appropriately diversified resources, and work with federal and state stakeholders to ensure high reliability and economic viability while mitigating evolving regulatory challenges including possible carbon emissions reduction mandates and penalties.

- Decarbonization
  - Seek to capitalize on regional renewable energy generation that is economically advantageous for EKPC's portfolio of resources

- Economic Development
    - Commercial and Industrial customers increasingly look to renewable energy commitment to serve their load and growth

EKPC's Sustainability Plan outlines Energy and Environment principles and goals that include:

- 35% CO2 reduction by 2035
- 10% energy from new renewables by 2030

Finally, EKPC's IRP calls for ~1,000 MW of renewables in the next 15 years. The projects provided in this proposal provide a significant advancement in realization of that goal.

The strategic alignment of renewable generation assets into EKPC's short- and long-term planning is clear. In addition to this forward vision of the EKPC fleet, the recent Inflation Reduction Act has presented a unique opportunity to receive significant capital investment credits and potential loan forgiveness to provide a competitive market edge to the self-build option.

III. Firm Offer

The undersigned submits this proposal as a firm offer and hereby gives assurance that the proposal will remain open, and not be revocable before February 23, 2023.

It is anticipated that the bid evaluation and contract execution process could extend three months or longer. Accordingly, short-listed Bidders may refresh their firm offer upon notification by NRCO and EKPC.

Name of Bidding Company: East Kentucky Power Cooperative, Inc.

Authorized Signature: 

Date Proposal Submitted: May 16, 2023

IV. Development and Siting Status

Bluegrass Plains Solar – 50.66MWdc

- Site, zoning and construction permitting: Include the size of project (acres), percentage of the site under control and any zoning restrictions that would impact development or use of facility
  - Bluegrass Solar has 388 acres of available land located in an agricultural rural zone. Two Memorandums of Option were signed with the landowners in 2018. Of the 388 acres, an evaluation was completed to review constraints such as wetlands, topography, and transmission/pipelines, and concluded that approximately 315 acres would be most suitable for solar development.
- Environmental assessments and studies
  - A critical issues analysis was completed for Bluegrass Solar site in 2019. East Kentucky Power Cooperative is coordinating with U.S. Fish and Wildlife Service, the Kentucky Department of Fish & Wildlife Resources, and the Office of Kentucky Nature Preserves to determine which of the 14 identified threatened and endangered species within the Project site will impact the development of the Project. There are no mapped wetlands on the project site, 3.2 acres of a freshwater pond, and 1.2 miles of mapped streams on the Project area. A Phase 1 Environmental Site Assessment will be completed prior to the site development. In addition, there is one National Park Service's National Register of Historical Places – listed resource on the Project site. East Kentucky Power Cooperation is in coordination with the Kentucky heritage Council to determine the extent of the designated historic district and what impacts may occur.
- Emissions and environmental permitting
  - East Kentucky Power Cooperative will begin permitting process upon full approval of the project by the EKPC Board and approval from the Kentucky Public Service Commission.
  - Full NEPA review will be required if RUS funding is pursued. This will require up to 12-months to conduct all required studies and receive approval from RUS.
- Regulatory and governmental approvals
  - East Kentucky Power Cooperative will be required to file a CPCN with the Kentucky Public Service Commission and a county permit with Fayette County to receive full project approval.
- Status of interconnection
  - Bluegrass Solar plans to interconnect into the Avon Substation. East Kentucky Power Cooperation is currently in the PJM Interconnection queue and has a queue number of AE2-339. Feasibility, facility, and system impact studies have been completed for the Bluegrass Solar Project.
- Engineering and design activities

- Screening-level desktop engineering has been completed for the Bluegrass Solar Project to identify the buildable area and preliminary solar layout for the arrays. This activity took into consideration any additional site information known to date (see other sections associated with this site) as well as industry best practices for solar constructability.

- Resource acquisitions (i.e., land, equipment such as solar panels, racking systems, inverters, interconnection equipment etc.)
  - The land is secured with Memorandum of Option agreements with the landowners. The major OEM information assumed for the project are described in the Part 5 - Project Data Sheet, however the final selection of the OEMs for the project will occur during the procurement phase of the project after receiving approval from the Kentucky Public Service Commission.
- Construction status and evidence of ability to construct and fulfill all contractual requirements; and project schedule and milestones, including construction start through commercial operation date.
  - East Kentucky Power Cooperative has incorporated into this plan to utilize a qualified solar EPC contractor to support and complete the engineering design, procurement, and construction of the Bluegrass Solar once the Kentucky Public Service Commission approval is received. The pricing included in the Part 5 – Project Data sheet is indicative in nature at this stage of the project and will be finalized with the EPC contractor as the engineering and procurements are completed for the project. However, EKPC reserves the ability to adjust the design and construction approach as needed to minimize costs to Owner-members.

C. **Northern Bobwhite 152.83MWdc**

- Site, zoning and construction permitting: Include the size of project (acres), percentage of the site under control and any zoning restrictions that would impact development or use of facility
  - Northern Bobwhite Solar has 1,825 acres of available agricultural land. East Kentucky Power Cooperative has 100% land control with signed leases. Of the 1,825 acres, an evaluation was completed to review constraints such as wetlands, topography, and transmission/pipelines, and concluded that approximately 1,060 acres would be most suitable for solar development.
- Environmental assessments and studies
  - A Phase I Environmental Site Assessment has been conducted for this project. The report found no recognized environmental conditions in the historical information reviewed. A Threatened and Endangered Species review was conducted in 2020. The review found that the Indiana Bat, Gray Bat, and Northern Long-eared Bat have potential habitat within the project area. Any tree clearing would be required to be performed seasonally. No critical habitats were identified within the project area.

East Kentucky Power Cooperation will coordinate with the Kentucky Heritage Council to develop archaeological studies and reviews and determine any historic significance the site may have.

- Preliminary desktop and field geotechnical evaluation are completed, including LiDAR analysis. The other environmental studies will be initiated in the first quarter of 2023, and permitting application will be submitted in Q3 of 2023.

- Emissions and environmental permitting
  - East Kentucky Power Cooperative will begin permitting process upon full approval of the project by the EKPC Board and approval from the Kentucky Public Service Commission.
  - Full NEPA review will be required if RUS funding is pursued. This will require up to 12-months to conduct all required studies and receive approval from RUS.
- Regulatory and governmental approvals
  - East Kentucky Power Cooperative will be required to file a CPCN with the Kentucky Public Service Commission to receive full project approval.
- Status of interconnection
  - Northern Bobwhite Solar plans to tie into the Marion County 161 kV switching station. East Kentucky Power Cooperation is currently in the PJM Interconnection queue and has a queue number of AE1-143. Feasibility, System Impact, and Facility Studies have been completed. The ISA and CSA have been executed as well.
- Engineering and design activities
  - Screening-level desktop engineering has been completed for the Northern Bobwhite Solar Project to identify the buildable area and preliminary solar layout for the arrays. This activity took into consideration any additional site information known to date (see other sections associated with this site) as well as industry best practices for solar constructability.
- Resource acquisitions (i.e., land, equipment such as solar panels, racking systems, inverters, interconnection equipment etc.)
  - The entire site is secured with lease agreements. The major OEM information assumed for the project are described in the Part 5 - Project Data Sheet, however the final selection of the OEMs for the project will occur during the procurement phase of the project after receiving approval from the Kentucky Public Service Commission.
- Construction status and evidence of ability to construct and fulfill all contractual requirements; and project schedule and milestones, including construction start through commercial operation date.
  - East Kentucky Power Cooperative has incorporated into this plan to utilize a qualified solar EPC contractor to support and complete the engineering design, procurement, and construction of the Northern Bobwhite Solar once the Kentucky Public Service Commission approval is received. The pricing included in the Part 5 – Project Data sheet is indicative in nature at this stage of the project and will be finalized with the EPC contractor as the engineering and procurements are completed for the project. However,

EKPC reserves the ability to adjust the design and construction approach as needed to minimize costs to Owner-members.

V. Project Overview, Pricing Information, and Energy Profile

EKPC has pursued the pricing development of the three proposed projects by assuming an EPC project execution approach. Alternate pricing can be provided, as requested, to evaluate costs related to a design, bid, build approach with materials being directly purchased by EKPC or purchased through the construction contractor. EKPC has also provided anticipated credits available through the Inflation Reduction Act (IRA). Table 5.1 below shows a breakdown of the costs associated with the three projects. And Table 5.2 provides the effective capital costs after the application of applicable IRA credits.

Table 5.1 – Solar Project Cost Breakdown

	Rating MWac	Acres	Design and Construction Costs	Land Acquisition	Owner's Costs	Network Upgrades	Capital Costs
Bluegrass Plains	40	388	$74,230,122	$9,700,000	$4,200,000[1]	$965,000[2]	$89,095,122
Northern Bobwhite	96	1825	$207,400,000	$0	$5,000,000[1]	$0	$212,400,000

[1] Owner's costs include project transfer fees, as applicable
[2] Network upgrades assumes this project will not bare costs related to previously identified system reinforcements per the PJM Impact Study. As described in the Study, this project may receive cost allocation based on queued projects withdrawing from the queue, reducing in size, etc.

Table 5.2 – Solar Project Effective Capital Costs

	Capital Costs	IRA Credit	Eff. Capital Costs	Annual O&M
Bluegrass Plains	$89,095,122	0.4	$53,457,073	$640,000
Northern Bobwhite	$212,400,000	0.3	$148,680,000	$2,631,000[1]

[1] Land has been secured through lease agreements. The full 1,855 acres have been assumed to be leased in this cost development. Not all acreage may be required to achieve the 120 MWac generation. EKPC will reduce as necessary in project implementation. The lease pricing provided is for the first year of the agreement; pricing is structured to escalate at 1.5% per year for up to a 20-year lease term.

Upon approval of any or all of the projects outlined in this proposal, EKPC will commence efforts to bid and award the major equipment; generator step-up transformers (GSUs), modules, racking, and inverters. These bid events will lock in the real project lead times for each piece of equipment as inputs to the overall project schedule. Design efforts will also lead to the 30% design package, which will allow the project team to firm up the overall project balance of plant (BOP) equipment quantities and construction pricing.

Additional project information, pricing, and energy profile information is proved, as requested, in the Excel spreadsheet, "*EKPC Solar RFP Project Spreadsheet.xls*". A digital copy of the spreadsheet file has been provided with this response.

VI. Operations and Maintenance

EKPC will operate and maintain any or all of the proposed project's in this proposal in a similar manner to the current program for the 8.5 MW Cooperative Solar 1 site. A routine preventative maintenance program has been established that includes:

- Bi weekly inspection of the grounds and facility
- Quarterly inverter inspection
- Quarterly tracker drive shaft assembly inspection
- Quarterly inspection of SCADA and weather stations
- Quarterly solar field inspections
- Quarterly inverter inspection – solar panel wash
- Semi-annual racking inspection
- Semi-annual recombiner replacement of fan and vent filters
- Annual inverter inspection performed by manufacturer
- Annual combiner/recombiner boxes inspection (de-energized system)
- 5-year inverter inspection by manufacturer

EKPC's plant staff at Smith Station operate and maintain Cooperative Solar 1. The proposed project at Bluegrass Plains would also be operated and maintained by Smith Station staff. Response time for Bluegrass Plains would be approximately 30 minutes.

For the Northern Bobwhite project located in Marion County, EKPC plans on utilizing Cooper Station staff located in Burnside, KY to handle operations and maintenance activities. Response time would be approximately one hour and thirty minutes.

VII. Financing and Credit Arrangements

As a basis for planning purposes, EKPC would pursue RUS funding for this project, consistent with other major capital construction projects executed by EKPC. However, EKPC's Finance department will maintain flexibility to take advantage of potential opportunities that may arise.

In line with EKPC's 2022 Strategic Plan, this proposal offers EKPC's Owner-Members the opportunity to take advantage of lucrative credits and potential loan forgiveness outlined in the Inflation Reduction Act (IRA).

Within the IRA there are two primary tax credit types applicable to renewable energy projects. These credits are the investment tax credit (ITC), a one-time credit based on a percentage of the qualifying costs of the project, and the production tax credit (PTC), which as an annual credit based on the amount of energy produced and sold by a project over a 10-year period. These credits are in placed (pending any modifications to the IRA) thru 2032. The ITC option will provide a 30% credit and the PTC option provides an annual credit of $26/MWh for ten years, if prevailing wages and apprenticeship requirements are met for the project. The ITC and the PTC can be recovered via a direct pay tax credit that is available to non-taxable entities, which includes cooperatives.

There are additional credits available if further project requirements are met.

- 10% credit for domestic content (steel, iron, battery energy storage systems, etc.) production and recycled content from domestic manufacturers and US trade partners
- 10% credit for qualification as an "Energy Community". Energy Communities have yet to be clearly defined by the IRS, but the IRA outlines qualifications for brownfield site usage, post-2009 coal mine or generating unit retirement, or high unemployment region with significant fossil fuel industry

EKPC believes, based off current interpretations and guidance, that each of the three proposed projects in this proposal will qualify for project construction cost recovery credits through the IRA. These are summarized below in Table 7.1.

Table 7.1 – IRA Credit Applicability

	30% ITC	10% Domestic Content	10% Energy Community Bonus			Overall Direct Pay Tax Credit
			Brownfield	Fossil Fuel Reliance	Coal Retirement	
Bluegrass Plains	Yes	No	No	No	Yes	Up to 40%
Northern Bobwhite	Yes	No	No	No	No	Up to 30%

In addition to the significant capital construction cost offered through the IRA recovery outlined above, there is additional opportunity for EKPC to minimize costs to Owner-Members. As another portion of the IRA, USDA received $4B that will be available for the forgiveness of 25% for loans used for renewable projects.

EKPC further maintains market competiveness through a self-build approach by eliminating profit typically built in to purchase power agreements with independent power producers. These profits typically range from 18% to 22%.

Further guidance and clarification around the credits, direct payment mechanisms, loan forgiveness, and other components of the IRA will be clarified by the IRS later in 2023.

VIII. References

EKPC has implemented over $575.5M of capital construction in the past three years. This effort includes the management of production and transmission projects. A summary of construction spend per discipline over the past three years is summarized below in Table 8.1.

Table 8.1 – EKPC Three-Year Capital Construction Spend

	2019	2020	2021
Transmission	$54,636,655	$57,318,462	$46,664,916
Production	$183,911,404	$161,515,929	$71,456,075
Total	$238,548,059	$218,834,391	$118,120,991

Notable projects executed in the budget years above include:

Spurlock CCR/ELG – $262.4M – Project included all development, engineering, procurement, and installation/construction of modifications and upgrades necessary to achieve CCR Rule and ELG compliance for Units 1 and 2 at Spurlock Station. Major components of the ELG scope included clarifiers, falling film evaporators, storage tanks, associated chemical feed equipment, and enclosures/buildings for the wastewater treatment equipment. CCR scope included a wet to dry conversion of the bottom ash and economizer ash from Units 1 and 2, replacement of the fly ash transfer building, construction of a new bottom ash silo, construction of a new Water Mass Balance Pond and chemical treatment system, and clean closure of Spurlock's ash impoundment.

Bluegrass Dual Fuel – $62.8M – Project included modifications to the three combustion turbines, site improvements, balance of plant systems, and the addition of fuel oil storage equipment to support fuel oil operation of the three combustion turbines.

Spurlock Unit 1 Cooling Tower Replacement – $9,144,800 – Project included asbestos abatement and demolition of the existing wood structure cooling tower and construction of the replacement fiberglass structure cooling tower on the existing basin.

Spurlock Unit 2 Cooling Tower Replacement – $16,654,699 – Project included asbestos abatement and demolition of the existing wood structure cooling tower and construction of the replacement fiberglass structure cooling tower on the existing basin.

In 2017, EKPC executed, through an Engineering, Procurement, and Construction (EPC) approach a 60-acre, 8.5MW solar farm at the EKPC Headquarters campus.

Cooperative Solar 1 – $17.3M – EKPC, along with its sixteen Owner-Members, implemented a community solar project in order to offer renewable solar energy to end users within the Owner-Members' service territories. The 8.5 MW facility began operations in November 2017. This facility produced 13,859 MWh in 2018.

IX. Project Team Information

EKPC is a not-for-profit, member-owned generation and transmission cooperative located in Winchester, Kentucky. EKPC provides electricity to 16 owner-member distribution cooperatives with 588,000 meters at homes, farms, and businesses in 87 Kentucky counties. EKPC does not directly serve any retail customers. Owner-members served by EKPC include:

Big Sandy RECC	Jackson Energy Cooperative
Blue Grass Energy Cooperative	Licking Valley RECC
Clark Energy Cooperative	Nolin RECC
Cumberland Valley Electric	Owen Electric Cooperative
Farmers RECC	Salt River Electric Cooperative
Fleming-Mason Energy Cooperative	Shelby Energy Cooperative
Grayson RECC	South Kentucky RECC
Inter-County Energy Cooperative	Taylor County RECC

EKPC owns and operates coal-fired generation at Cooper Station in Pulaski County (341 MW) and Spurlock Station in Mason County (1,346 MW). EKPC owns and operates gas-fired generation at Smith Station in Clark County (989 MW winter rating) and Bluegrass Generation Station (Bluegrass) in Oldham County (567 MW winter rating). EKPC also owns and operates Landfill Gas to Energy renewable generation facilities in Boone County (4.6 MW), Laurel County (3.0 MW), Glasgow (0.9 MW), Greenup County (2.3 MW), Hardin County (2.3 MW), and Pendleton County (3.0 MW). EKPC owns an 8.5 MW solar generation facility in Clark County.

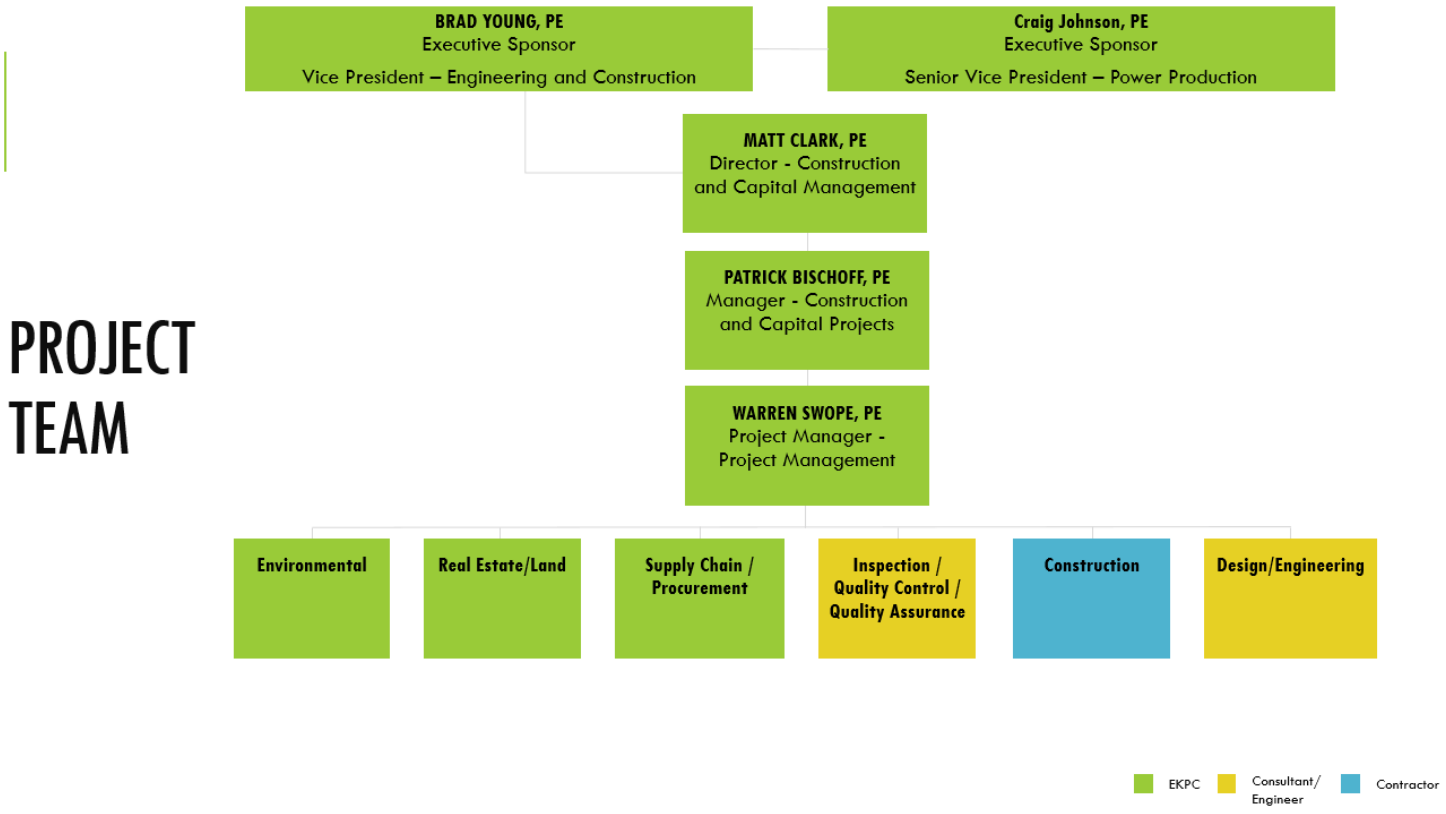
EKPC purchases hydropower from the Southeastern Power Administration (SEPA) on a long-term basis. This includes Laurel Dam (70 MW) and Wolf Creek Dam (100 MW).

In total, EKPC owns and/or purchases 2,965 MW (summer rating) of generation. EKPC operates within the PJM Interconnection, Inc. (PJM), which has over 180,000 MW of generation. EKPC's all-time peak demand of 3,507 MW occurred on February 20, 2015.

EKPC owns and operates a 2,955-circuit mile network of high voltage transmission lines consisting of 69 kV, 138 kV, 161 kV, and 345 kV lines, and all the related substations. EKPC is a member of the SERC Reliability Corporation (SERC). EKPC maintains 74 normally closed free-flowing interconnections with its neighboring utilities.

EKPC will execute the planning, design, and construction out of the Engineering and Construction business unit, through the Project Management department. This execution plan is consistent with the major capital construction projects EKPC has executed in the past. A potential organizational structure and responsibility breakdown for the execution of the project is detailed below in Figure 9.1.

Figure 9.1 – Project Team Organizational Chart



Attachment A

Bluegrass Plains Solar Exhibits

Bluegrass Solar

Bluegrass Solar | Site Overview

LOCATION Fayette County, Kentucky

TARGET CAPACITY
40 MW

AVAILABLE AREA
388 acres

GENERAL INFORMATION

- Agricultural and forested terrain throughout site
- POI: Avon Power Station

Bluegrass Solar | Transmission

TRANSMISSION LINES

- 35-69 kV
- 70-138 kV
- 139-230 kV
- 231-345 kV

Interconnect Voltage

138 kV

Bluegrass Solar | Wetlands and Flood Plains

NWI WETLANDS AND FLOOD PLAINS

- Riverine
- Freshwater Pond
- 100-year Flood Plain

NOTE

- No FEMA Flood Plains on site

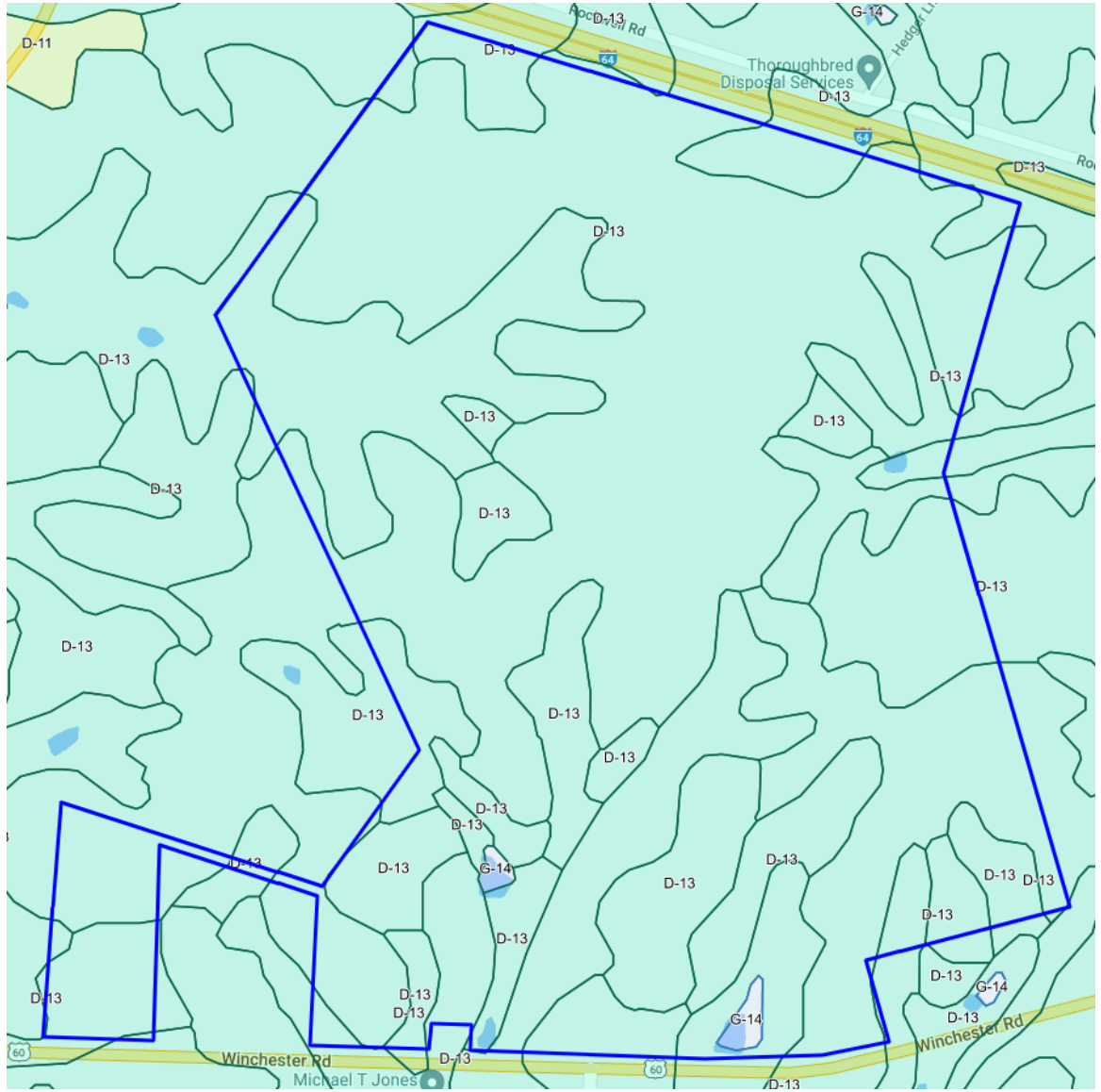
Bluegrass Solar | Soil

Soil Class (0-2 ft)

- D-11 Medium Stiff Low-Plasticity Fine-Grained Soils
- D-12 Soft Low-Plasticity Fine-Grained Soils
- D-13 Very Soft Low-Plasticity Fine-Grained Soils

KEY TAKEAWAY

- The Web Soil Survey map created by USDA shows that the site has three major concerns: (1) low strength, (2) high steel corrosivity, and (3) frost activity
- The bedrock is over 4ft below the topsoil. This reduces risk of shallow bedrock.



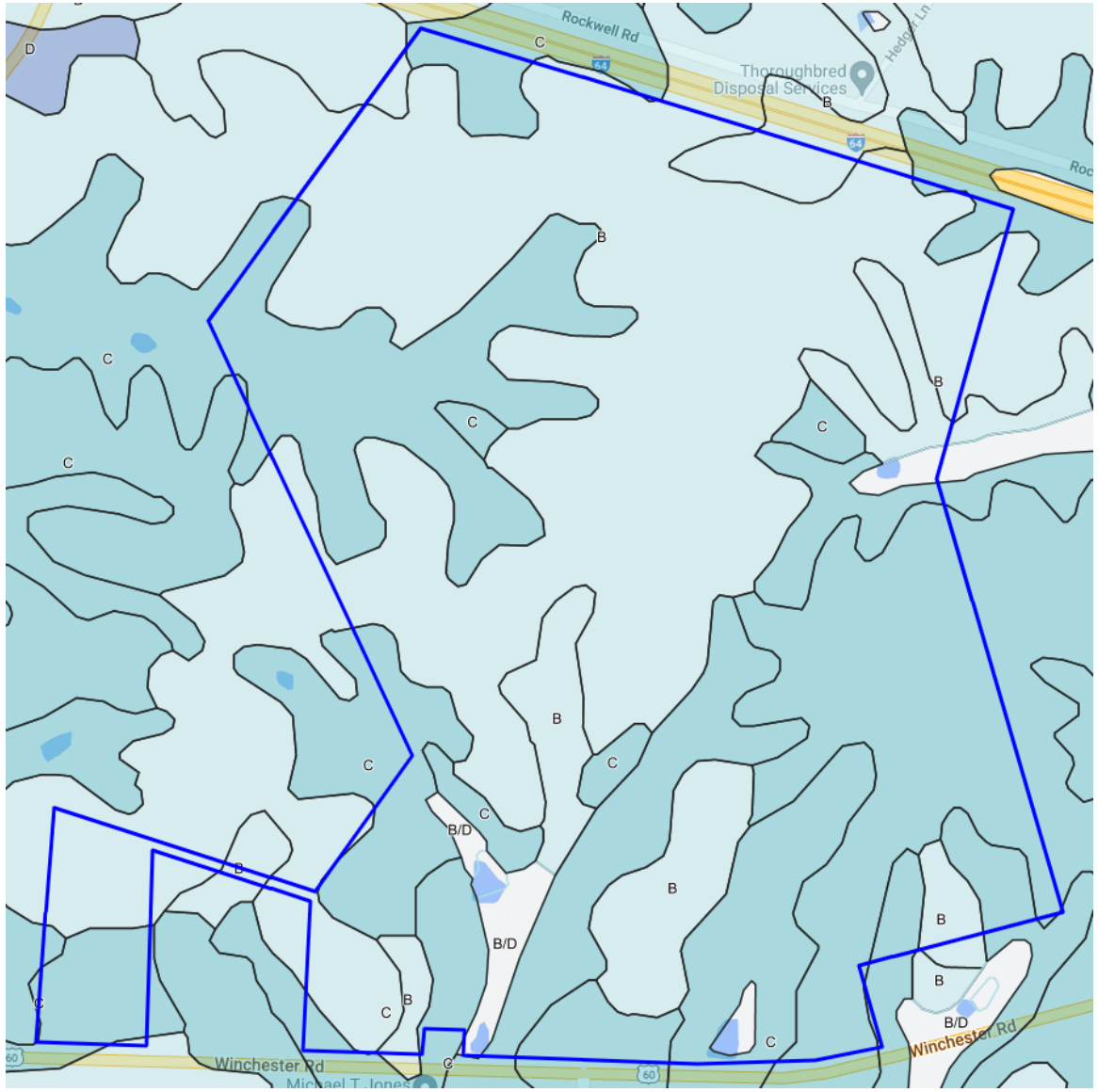
Bluegrass Solar | Soil

HYDROLOGIC GROUP

- A
- A/D
- B
- B/D
- C
- C/D
- D

KEY TAKEAWAY

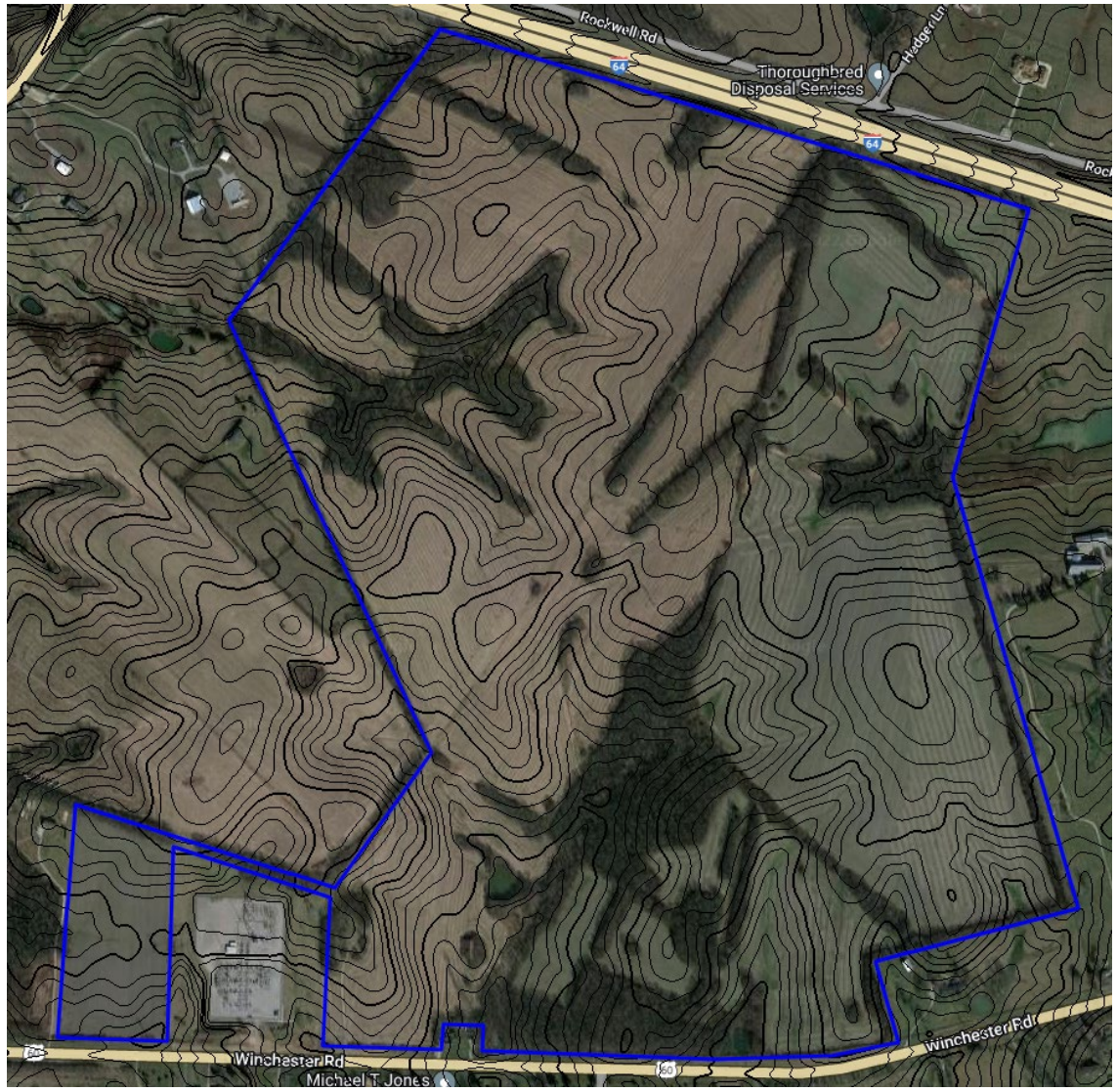
- Areas categorized as B/D have a smaller depth to the saturated zone but can still drain water
- The remainder of the site does not have any significant concerns regarding flooding or depth to saturated zone



Bluegrass Solar | Topography

SLOPES

- No slopes over 15% located on project site.
- Rolling topography across the Project Site with low slopes



SITE BOUNDARIES SLOPES > 15%

Bluegrass Solar | Compiled Site Constraints

RESTRICTIONS

- NWI Wetland and NHD Waterbody
- Site Boundary
- Existing Pipelines
- Powerlines

Bluegrass Solar | Useable Area

TOTAL AVAILIABLE AREA

388 acres

GENERAL INFORMATION

- Some rolling topography throughout, minimal clearing, possible drainages

CONSTRAINT AREA

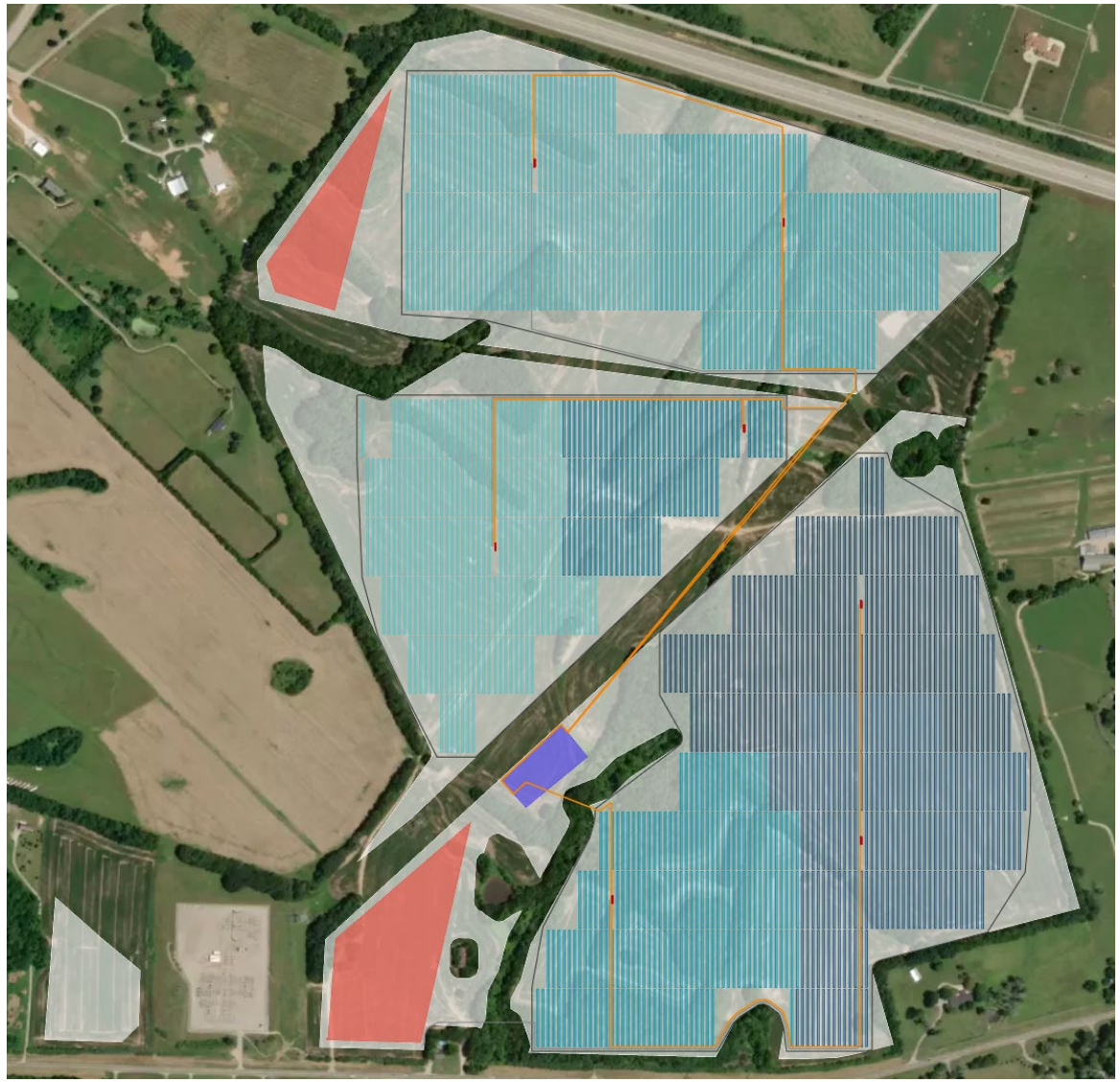
73 acres

"USEABLE AREA"

315 acres

Bluegrass Solar | SAT Layout

	Bluegrass	SAT
POWER	Interconnection Capacity (MW)	**40.0**
	Rated Power (MWac)	**40.525**
	Peak Power (MWdc)	**50.659**
	DC/AC Ratio	**1.25**
	Specific Production (kWh/kWp)	**1,672.0**
	Annual Production (Yr 1, GWh)	**84.701**
EQUIPMENT	PV Module	**Jinko Solar (570 W)**
	Inverter	**Central: TMEIC (840 kVA)**
	Racking System	**1V Single Axis Tracking**
QUANTITIES	GCR	**31%**
	Modules	**88,875**
	Power Stations	**8**
	Inverters	**53**



Bluegrass Solar | Updated Cost Estimate

GENERAL INFORMATION

- Does not include taxes or escalation
- Assumes EPC full wrap
- Excludes Owner's costs and contingency
- Does not include network upgrades or land cost

50,659,000 WDC

Description	Total Cost	$/WDC
PV Modules	$ 20,263,600	$ 0.400
Racking Piles	$ 3,530,063	$ 0.070
Trackers	$ 5,572,490	$ 0.110
Inverter Skids	$ 2,532,950	$ 0.050
BOP Elec	$ 7,598,850	$ 0.150
Civil	$ 6,079,080	$ 0.120
Install Modules	$ 1,956,465	$ 0.039
Install Piles/Trackers	$ 3,892,324	$ 0.077
Install Inverters	$ 109,397	$ 0.002
Substation	$ 5,560,000	$ 0.110
Total Direct Cost	**$ 57,130,862**	**$ 1.128**
Total Indirect Cost	**$ 17,099,260**	**$ 0.323**
Total Project Cost	**$ 74,230,122**	**$ 1.451**

Attachment B

Northern Bobwhite Solar Exhibits

Northern Bobwhite Solar

Northern Bobwhite Solar | Site Overview

LOCATION Marion County, Kentucky

TARGET CAPACITY
96 MW

AVAILABLE AREA
1,825 acres

GENERAL INFORMATION

- Agricultural and forested terrain throughout site
- POI: Marion County Substation

Northern Bobwhite Solar | Transmission

TRANSMISSION LINES

- 35-69 kV
- 70-138 kV
- 139-230 kV
- 231-345 kV

Interconnect Voltage

161 kV

Northern Bobwhite Solar | Wetlands and Flood Plains

NWI WETLANDS AND FLOOD PLAINS

- Riverine
- Freshwater Pond
- 100-year Flood Plain

NOTES

- No FEMA Flood Plains on site
- All environmental studies have been completed and incorporated into design

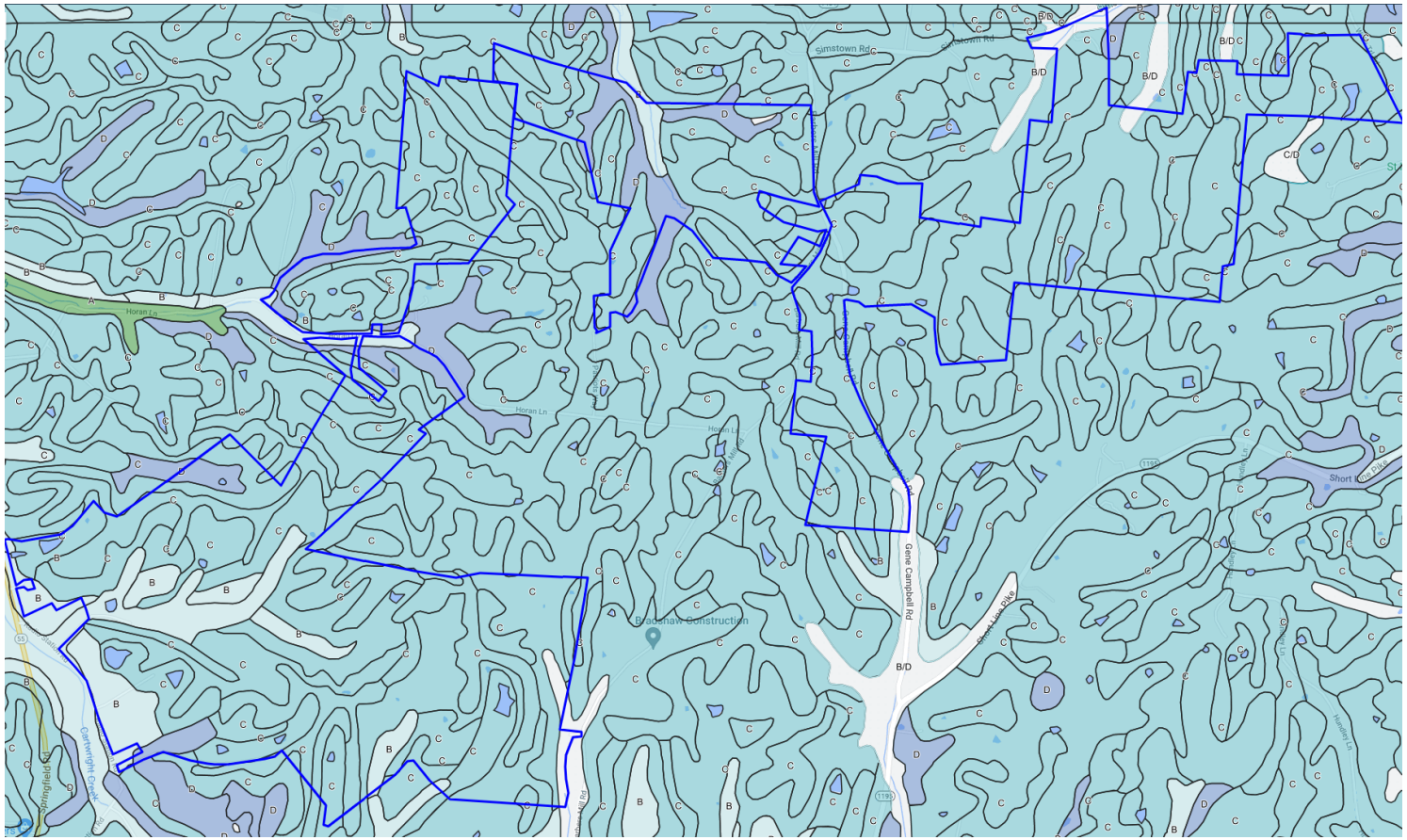
Northern Bobwhite Solar | Soil

HYDROLOGIC GROUP

- A
- A/D
- B
- B/D
- C
- C/D
- D

KEY TAKEAWAY

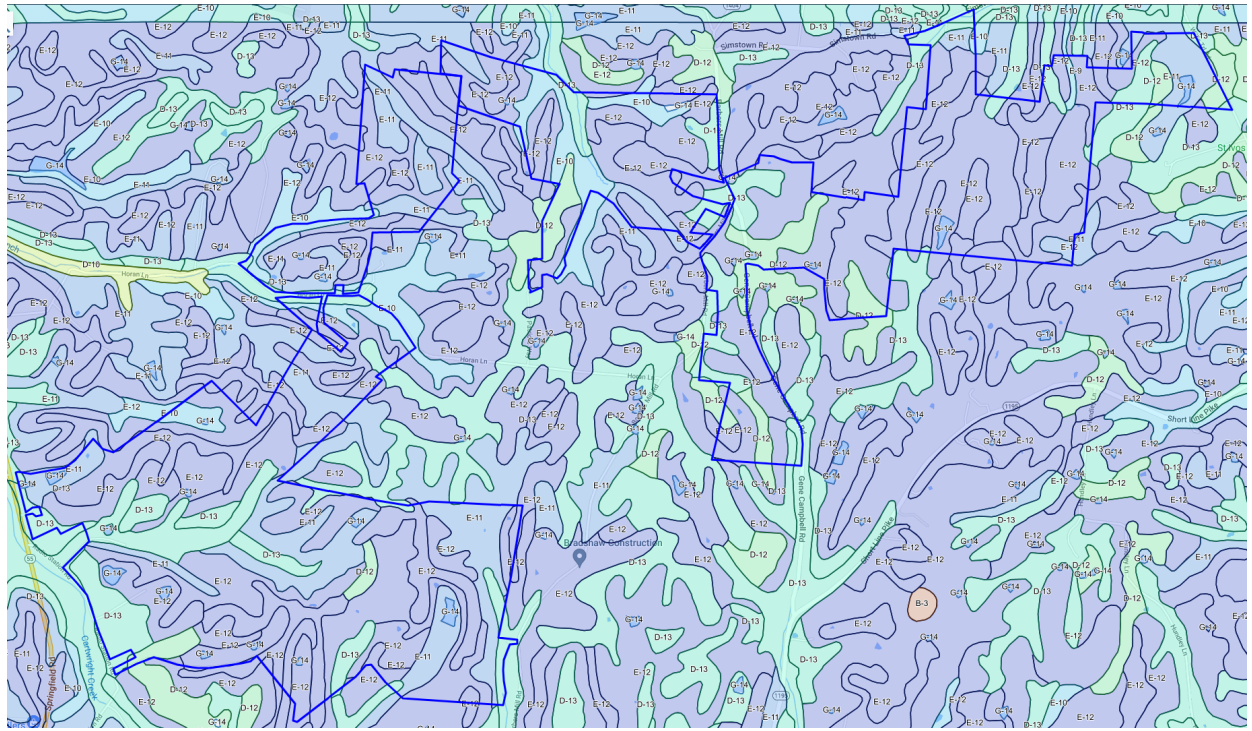
- Areas categorized as B/D have a higher chance of flooding and are closer to the saturated zone.
- The rest of the site does not have any significant concerns regarding flooding or depth to saturated zone.



Northern Bobwhite Solar | Soil

Soil Class (0-2 ft)

- B-3 Very Dense Gravel
- D-10 Stiff Low-Plasticity Fine-Grained Soils
- D-12 Soft Low-Plasticity Fine-Grained Soils
- D-13 Very Soft Low-Plasticity Fine-Grained Soils
- E-8 Hard High Plasticity Fine-Grained Soils
- E-9 Very Stiff High-Plasticity Fine-Grained Soils
- E-10 Stiff High-Plasticity Fine-Grained Soils
- E-11 Medium Stiff High-Plasticity Fine-Grained Soils
- E-12 Soft High-Plasticity Fine-Grained Soils
- E-13 Very Soft High-Plasticity Fine-Grained Soils
- G-14 Water



KEY TAKEAWAY

- The Web Soil Survey map created by USDA shows that the site has three major concerns: (1) low strength, (2) shallow depth to hard bedrock, (3) steel corrosion
- Approximately 40% of the site has bedrock above 4ft. Increases likelihood of requiring pile driver on-site

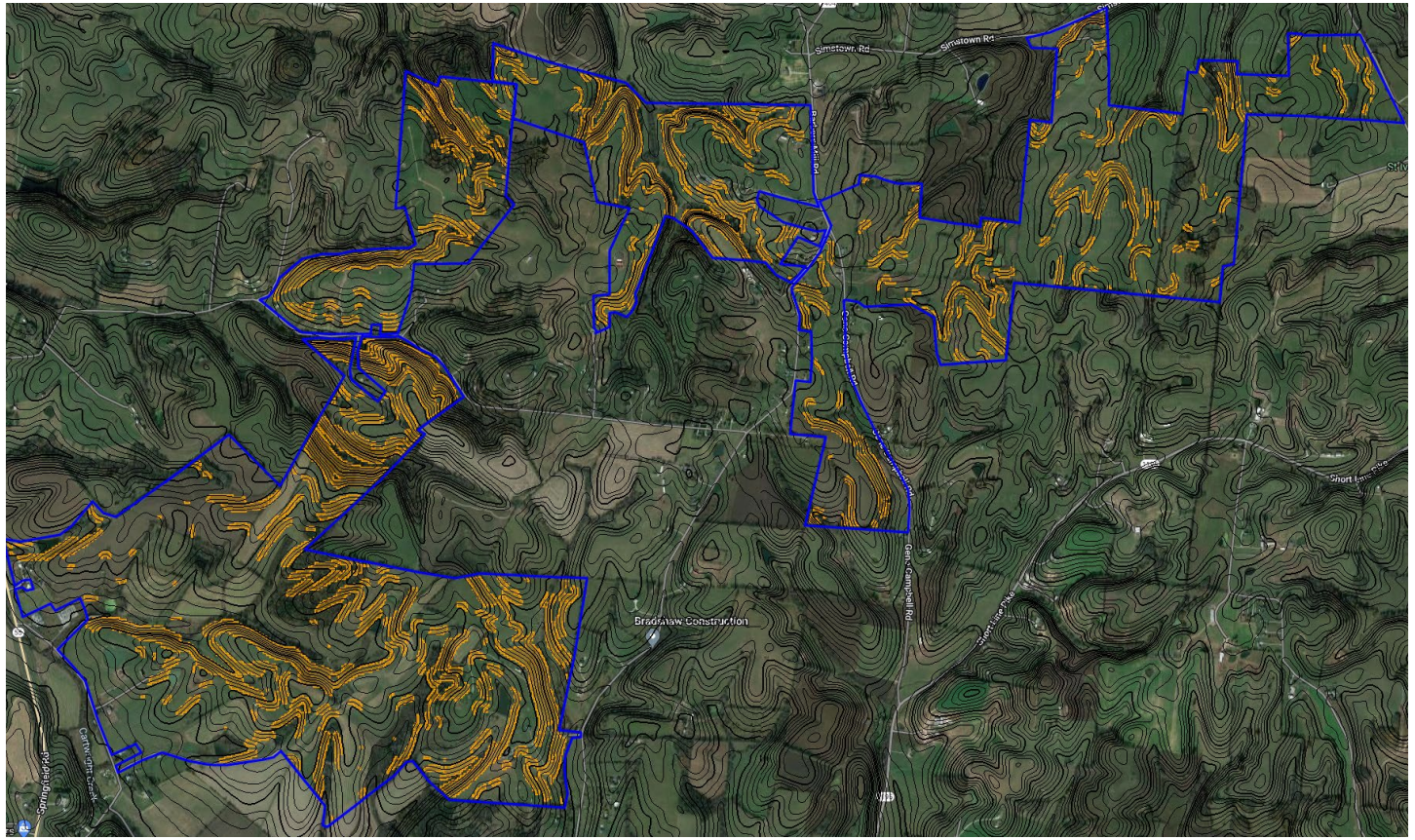
Northern Bobwhite Solar | Topography

SLOPES

Orange indicates slopes **> 15%.**

Siting analysis includes additional earthwork to increase the usable area.

Slopes >15% are generally avoided when determining net buildable area to minimize site civil costs.

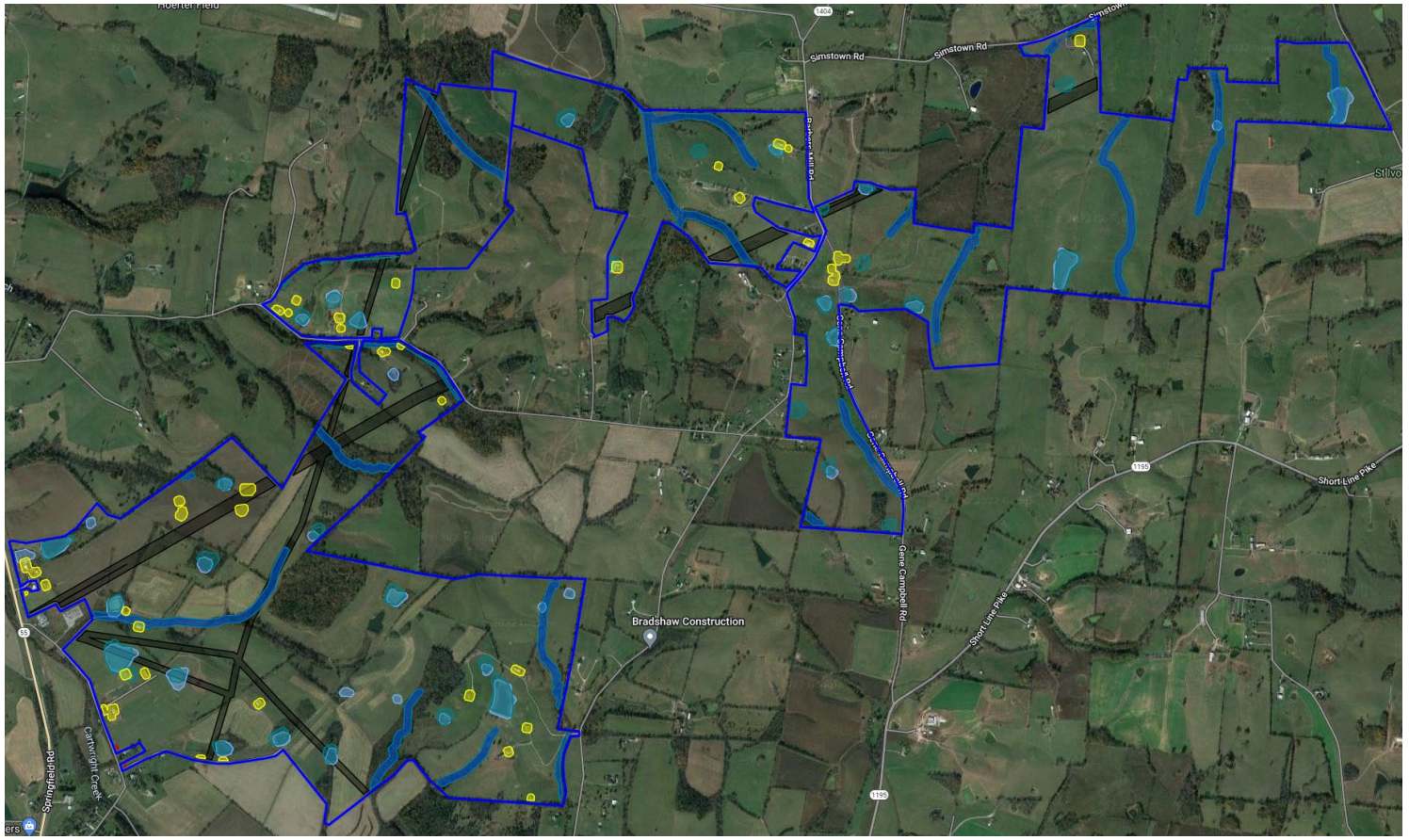


SITE BOUNDARIES SLOPES > 15%

Northern Bobwhite Solar | Compiled Site Constraints

RESTRICTIONS

- Floodplain
- Structures (e.g. houses, barns)
- NWI Wetland and NHD Waterbody
- Site Boundary
- Existing Pipelines
- Roads
- Powerlines



Northern Bobwhite Solar | Useable Area

TOTAL AVAILABLE AREA

1,825 acres

GENERAL INFORMATION

- Some topography with slope over 15%, minimal clearing, possible drainages

CONSTRAINT AREA

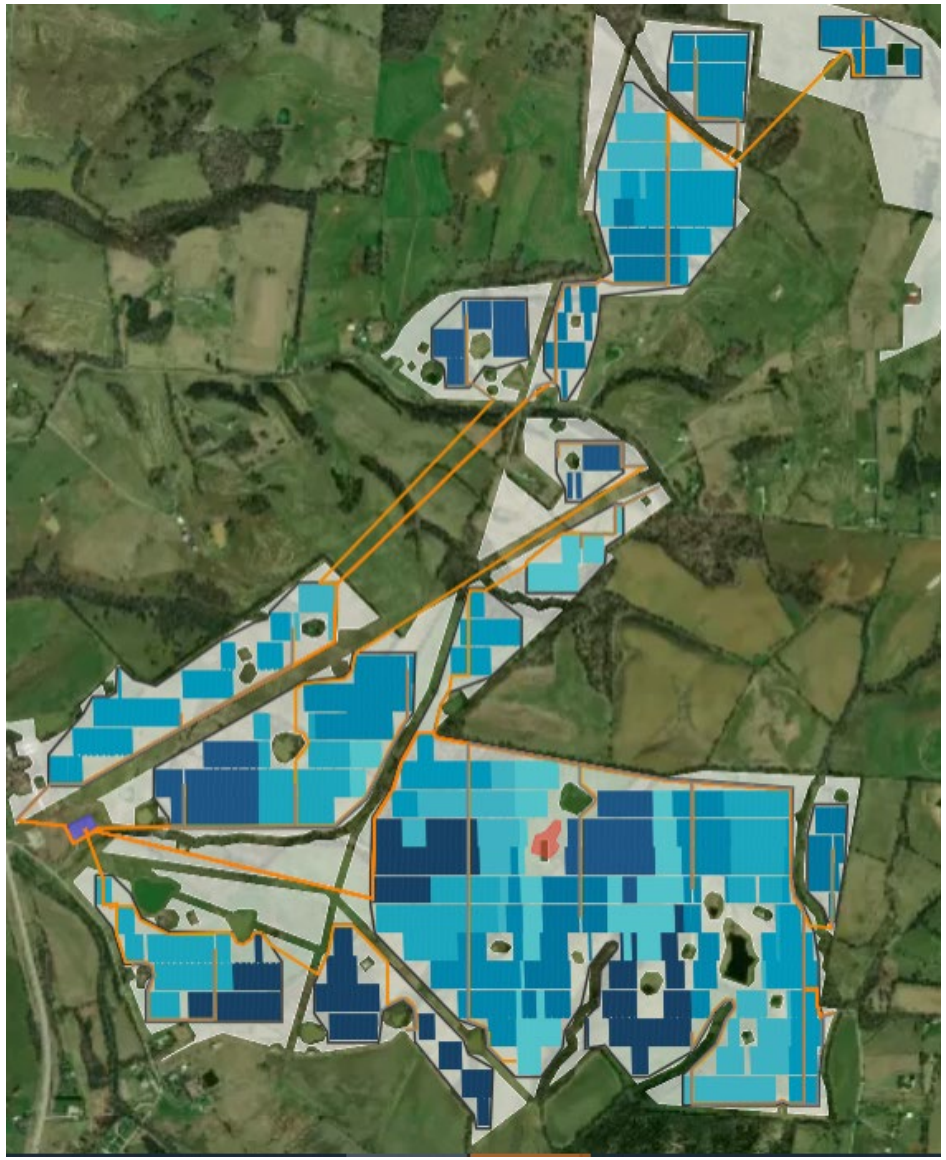
765 acres

"USEABLE AREA"

1,060 acres

Northern Bobwhite Solar | SAT Layout (2022 Layout)

	Northern Bobwhite	SAT
POWER	Interconnection Capacity (MW)	**96.0**
	Rated Power (MWac)	**100.258**
	Peak Power (MWdc)	**125.244**
	DC/AC Ratio	**1.249**
	Specific Production (kWh/kWp)	**1,726.5**
	Annual Production (Yr 1, GWh)	**216.229**
EQUIPMENT	PV Module	**Jinko Solar (570 W)**
	Inverter	**Central: TMEIC (840 kVA)**
	Racking System	**1V Single Axis Tracking**
QUANTITIES	GCR	**31%**
	Modules	**219,726**
	Power Stations	**32**
	Inverters	**134**



Northern Bobwhite Solar | Updated Cost Estimate

GENERAL INFORMATION

- Does not include taxes or escalation
- Assumes EPC full wrap
- Excludes Owner's costs and contingency
- Does not include network upgrades or land cost

125,688,000 WDC

Description	Total Cost	$/WDC
PV Modules	$ 50,097,600	$ 0.400
Racking Piles	$ 8,767,080	$ 0.070
Trackers	$ 13,776,840	$ 0.110
Inverter Skids	$ 6,262,200	$ 0.050
BOP Elec	$ 18,786,600	$ 0.150
Civil	$ 15,029,280	$ 0.120
Install Modules	$ 4,884,516	$ 0.039
Install Piles/Trackers	$ 9,643,788	$ 0.077
Install Inverters	$ 250,488	$ 0.002
Substation	$ 8,060,000	$ 0.064

Total Direct Cost	**$ 135,558,392**	**$ 1.082**
Total Indirect Cost	**$ 38,992,694**	**$ 0.311**

Total Project Cost	**$ 174,551,086**	**$ 1.394**

Attachment C

Credit Reports – S&P, Fitch

S&P Global
Ratings

RatingsDirect®

Summary:

East Kentucky Power Cooperative; Rural Electric Coop

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Table Of Contents

Summary:

East Kentucky Power Cooperative; Rural Electric Coop

Credit Profile		
East Kentucky Pwr Coop ICR		
Long Term Rating	A/Stable	Affirmed

Rating Action

S&P Global Ratings affirmed its 'A' issuer credit rating on East Kentucky Power Cooperative Inc. (EKPC). The outlook is stable.

Credit overview

The rating reflects favorable regulatory support of this rate-regulated generation and transmission (G&T) cooperative electric utility. Regulatory support includes a formulaic monthly fuel adjustment clause and an environmental remediation cost surcharge. Although the previous base-rate adjustment was in 2010, adjustment mechanisms have supported fixed charge coverage (FCC) of at least 1.3x since 2018. In 2021, the Kentucky Public Service Commission approved a 4.4% rate increase that became effective Oct. 1, 2021.

EKPC reported $952 million of fiscal 2021 operating revenues and $2.6 billion of debt at fiscal year-end (Dec. 31), which was 15% lower than 2017's almost $3 billion.

Long-term contracts with EKPC's 16 member distribution cooperatives extend through 2050 and members account for about 95% of revenues. Member distribution cooperatives serve almost 570,000 retail customers in 87 of Kentucky's 120 counties. The members derive two-thirds of their revenues from residential customers. In 2020, EKPC was among the 10 largest G&T cooperatives in the U.S. as measured by member energy sales.

Tempering the cooperative's strengths are the utility's significant reliance on coal generation assets that accounted for 88%-94% of self-production since 2017 and 46%-65% of those years' energy supply that includes power purchases.

We attribute additional credit exposures to the regional economy's reliance on coal mining, which underlies low income levels. Retrenchment in coal mining operations by utility customers exposes remaining customers to reallocations of fixed costs. We also believe the utility is vulnerable to the outmigration of those seeking employment outside the service territory. Mine closures also create the potential for growth in customers relying on transfer payments to support basic needs, which could make electric bills more burdensome.

Contributions of self-generation to energy sales vary with market conditions and are lower when opportunities for economic market purchases are greater. Self-generation accounted for 71% of 2021's energy sales when the economics of owned coal assets were more attractive relative to gas-fired market generation. By comparison, in 2019, the cooperative produced 52% of the energy it sold.

The stable outlook reflects our expectations that 2021's moderate 4% base-rate increase and pockets of energy sales growth within a service territory that is also susceptible to declines, should facilitate achieving consistently strong FCC of at least 1.3x.

Environmental, social and governance

We believe the utility faces significant environmental exposures because of its coal fleet's significant contributions to electric sales. Depending on opportunities to purchase economic energy from others, EKPC produces half to more than two-thirds of its customers' electricity needs. Coal accounts for 90% of self-production. Purchases reduce coal's contribution to total energy sales but do not diminish the environmental exposures we associate with the utility's coal generation. The utility does not plan to retire its Cooper coal station that accounted for less than 2% of 2021's coal generation, nor does EKPC plan to retire its Spurlock coal generation that accounted for 98% of 2021's coal generation. Cooper's depreciable life ends June 30, 2030. Citing the earlier retirement of its coal-fired Dale units in 2015 and 2016 and an integrated resource plan that targets adding 1,100 megawatts of solar capacity, management projects that its 2035 carbon dioxide emissions will be 35% lower than 2010's.

Although weighted-average retail rates are in line with the state average, we believe that the prevalence of low income levels within the service territory presents social risks and can limit financial flexibility, particularly because large swaths of the service area's economy are closely tied to the economically vulnerable coal mining industry.

We believe the utility faces limited governance risk because it has a cohesive board and because it operates under the state's favorable regulatory framework.

Stable Outlook

Downside scenario

We could lower the rating if the costs of complying with more stringent emissions regulations erode financial margins or if financial performance is adversely affected by economic dislocations tied to the region's mining industry.

Upside scenario

Although FCC has been consistently favorable, we do not expect to raise the rating during our two-year outlook period because we believe the utility's carbon intensity creates a financial vulnerability to further regulation and the regional economy is closely tied to the struggling coal mining industry.

Credit Opinion

S&P Global Ratings calculated favorable FCC that averaged 1.35x in 2018-2021. S&P Global Ratings' FCC calculation treats portions of purchased power expense as debt service to reflect our view that actual and imputed capacity payments fund generation suppliers' recovery of capital investments in assets dedicated to serving EKPC. The utility's FCC ratio closely tracks its debt service coverage ratio because energy purchases from others are primarily opportunistic economy purchases from power markets, rather than bilateral arrangements that include capacity payments. We view debt to capitalization of 77% in 2020-2021 as high, but consistent with that of many other G&T cooperative utilities. Liquidity levels are very strong. Unrestricted cash and investments at Dec. 31, 2021, provided

almost three months' operating expenses, net of depreciation expense. Liquidity facilities' undrawn balances added access to liquidity equivalent to 10 months' operating expenses.

Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

FitchRatings

17 MAY 2022

Fitch Affirms East Kentucky Power Cooperative's Bonds at 'BBB+'; Outlook Stable

Fitch Ratings - Austin - 17 May 2022: Fitch Ratings has affirmed East Kentucky Power Cooperative's (EKPC) Issuer Default Rating (IDR) and the underlying ratings on the utility's $1.4 million Pulaski County, KY solid waste disposal revenue bonds series 1993B at 'BBB+'.

The Rating Outlook is Stable.

ANALYTICAL CONCLUSION

EKPC's rating reflects the utility's leverage profile, which is expected to decline closer to 8.0x in fiscal 2022 from 9.4x in fiscal 2021 as the utility benefits from a recently approved wholesale base rate increase. Capex, which had been elevated in recent years to address environmental regulations, are also expected to moderate over the medium term and should mitigate the need for meaningful debt issuances. Fitch expects EKPC's current liquidity levels and overall financial performance will remain supportive of the current rating.

EKPC's revenue defensibility assessment and rating further consider the aggregate credit quality of the cooperative's members. Member service territories are diverse, both economically and geographically, with credit quality among the largest members ranging between midrange and strong. Fitch believes EKPC's low cost power supply is diversified and, together with wholesale market purchases, is sufficient to meet members' peak energy demands.

CREDIT PROFILE

EKPC provides wholesale power and energy to 16-member distribution cooperatives, which in turn provide retail electric service to 559,576 energy meters across 87 counties in Kentucky. Member territories are reasonably diverse and located throughout central and eastern Kentucky. The territories served include mountainous coal mining areas, rolling farmlands and the more suburban areas surrounding the state's largest cities.

KEY RATING DRIVERS

Revenue Defensibility: 'a'

Unconditional Power Sales Contracts; Rate Regulated

EKPC's revenue defensibility assessment reflects the very strong revenue source characteristics of its all-requirements long-term wholesale power agreements with its members that extend through Jan. 1,

2051. Aggregate member credit quality is assessed as strong, but credit weaknesses -- including service high unemployment, low median income levels and customer concentration -- exist at certain members. Wholesale electric rates and those of its members are regulated by the Kentucky Public Service Commission (PSC) limiting rate flexibility.

Operating Risk: 'a'

Ample and Low Cost Power Supply

EKPC's operating risk assessment of strong is based on the utility's history of providing a consistently low cost power supply to its members. EKPC owns a diverse generating fleet and supplements its power supply with economic purchases from the PJM wholesale market. EKPC expects capex will decline to an annual average spend ranging from approximately $120 million to $150 million during the five-year period ending in 2026 following elevated levels of capex in 2019 and 2020 related to environmental capital improvements.

Financial Profile: 'bbb'

Elevated Leverage Expected to Decline

EKPC's leverage ratio is expected to improve to 8.0x in fiscal 2022 from 9.4x in fiscal 2021 as the utility's operating margins improve following the utility's implementation of a 4.4% wholesale base rate increase on Oct. 1, 2021. Fitch believes EKPC's leverage profile will remain supportive of the financial profile assessment as the utility's debt amortizes and future capex levels moderate. EKPC's liquidity profile is neutral to the rating assessment.

Asymmetric Additional Risk Considerations

No asymmetric additional risk considerations affected this rating determination.

RATING SENSITIVITIES

Factors that could, individually or collectively, lead to positive rating action/upgrade:

--A sustainable decline in net leverage below 8.0x in Fitch's base and stress cases;

--An increase in operating cash flow through rate increases or reduced discretionary expenditures.

Factors that could, individually or collectively, lead to negative rating action/downgrade:

--An inability, or unwillingness, to increase member rates, which leads to weakened operating margins;

--Sustained increase in leverage of 9.0x in Fitch's base and stress cases.

Best/Worst Case Rating Scenario

International scale credit ratings of Sovereigns, Public Finance and Infrastructure issuers have a best-case rating upgrade scenario (defined as the 99th percentile of rating transitions, measured in a

positive direction) of three notches over a three-year rating horizon; and a worst-case rating downgrade scenario (defined as the 99th percentile of rating transitions, measured in a negative direction) of three notches over three years. The complete span of best- and worst-case scenario credit ratings for all rating categories ranges from 'AAA' to 'D'. Best- and worst-case scenario credit ratings are based on historical performance. For more information about the methodology used to determine sector-specific best- and worst-case scenario credit ratings, visit https://www.fitchratings.com/site/re/10111579.

SECURITY

The solid waste disposal revenue bonds are secured by a mortgage interest in substantially all of EKPC's tangible and certain of its intangible assets.

Revenue Defensibility

EKPC's revenue source characteristics are very strong. The wholesale power agreements extend through Jan. 1, 2051 and require members to serve their entire load through purchases from EKPC.

EKPC also actively participates in the PJM marketplace. The cooperative uses the marketplace to make economic purchases and sales, and has historically used gains to mitigate member wholesale base rate increases. Energy sales to PJM represented nearly 7% of EKPC's total operating revenues, slightly elevated relative to the three-year historical average of less than 5% of operating revenues.

Fitch does not believe that the PJM market sales and other off-system sales warrant an asymmetric risk consideration. Non-member sales account for approximately 4% of total annual sales, on average, in EKPC's forecast.

Rate Flexibility

EKPC's wholesale electric rates and those of its members are regulated by the PSC. The PSC has a history of being supportive of EKPC, but Fitch believes regulatory oversight limits rate flexibility. EKPC's most recent rate case, which resulted in a 4.4% wholesale base rate increase, was approved on Sept. 30, 2021.

The rate increase allows EKPC to budget for a 1.50 Times Interest Earned Ratio (TIER) for base rates; however, as part of the PSC approval, EKPC agreed to return excess margins to its customers in the form of a bill credit to the extent the utility achieves a per book margin in excess of 1.40 TIER. Fitch views the rebate mechanism favorably as it provides some cushion to the utility's projected operating cash flows to the extent there is an unanticipated reduction in energy demand, or an unanticipated increase in operating costs.

The rate increase represented the first adjustment to EKPC's base rates in 10 years. Part of the reason for the long hiatus in base rate adjustments was the economic benefit EKPC earned through the generous interest rates on the RUS cushion of credit program. Following the passage of the Farm Bill in December 2018, the high interest rates provided by the cushion of credit program were phased out over the next two years (funds in the program earn the one-year Treasury rate). Fitch believes the

recently approved base rate increase will improve the utility's operating margins in fiscal 2022, after declining to a five-year historical low of $11 million in fiscal 2021.

Additional non-base rate filings with the PSC have resulted in an allowance of an economic development rider, an environmental surcharge that recovers costs for coal-related environmental expenditures including funding for the transfer of ash storage, and a fuel adjustment clause (FAC). EKPC management believes that its relationship with the PSC remains healthy and that the commission will likely remain supportive of the cooperative and its members.

The EKPC board is required to review its wholesale rate at least annually, and to seek revisions as necessary to ensure covenant compliance. The utility attempts to mitigate the risks related to rate regulation through a multi-year budgeting process. Given the anticipated time frame for PSC approval and implementation of rate increases (up to 10 months), the cooperative seeks to anticipate the need for rate relief well in advance of any projected revenue shortfall, to maintain minimum annual TIER and debt service coverage metrics. Timelier rate adjustments may be permitted if the PSC finds that EKPC's credit quality or operations will be materially impaired by a failure to implement rate changes.

Purchaser Credit Quality

Fitch assesses EKPC's Purchaser Credit Quality (PCQ) as strong based on the aggregate credit quality of its members. EKPC's member distribution cooperatives provide retail electric service throughout territories that are reasonably diverse, both economically and geographically, but sometimes weak.

EKPC's members serve many of the communities surrounding Cincinnati, Lexington and Louisville, which have experienced higher rates of economic and population growth. However, EKPC's members also serve many of the coal-mining communities in east Kentucky where average household income has reached 45% of the national average and unemployment is approximately nearly double the national average (e.g., Owsley County).

In accordance with criteria, Fitch evaluated the credit quality of EKPC's top five members, which accounted for approximately 58% of 2021 revenue. EKPC's top five members received a weighted average score of 2.48, which indicates a rating factor assessment of strong but approaches the midrange threshold of 2.5.

The scoring assessment evaluates wholesale members based on their ability to absorb rates, leverage and cash flow (measured by net margin and cash cushion). Member scores ranged from 2 to 3 (higher scores reflect weaker credit quality), with the lower credit quality members reflecting weak economic metrics, lower liquidity levels, and customer concentration. Rate competitiveness remained strong at each of the top five members, but affordability remains tempered by below average median household income levels.

Operating Risk

EKPC has consistently maintained low-cost energy to its members, averaging an operating cost burden of 5.8 cents/kWh during the past five years. EKPC's operating cost burden increased to 6.6 cents/kWh

in fiscal 2021 due to increasing fuel and purchased power costs, but still supports Fitch's assessment of EKPC's operating risk at 'a'.

EKPC's operating cost burden reflects the utility's low cost baseload coal power plants, which are supplemented with economic purchased power through EKPC's participation with the PJM marketplace. EKPC's strategy is to temper its exposure to coal and keep production costs low through optimization of its asset portfolio and flexible generation dispatching. Purchased power accounted for approximately 19% of EKPC's operating expenses in fiscal 2021, which was slightly lower than the five-year historical average of 21%.

Operating Cost Flexibility

EKPC owns a diverse generating fleet of coal-fired, natural gas-fired, and landfill gas and solar facilities, totaling nearly 3,300MWs, which is sufficient to meet EKPC's peak load (2021 peak load of 2,862MW). Market purchases accounted for approximately 27% of energy supplied during fiscal 2021, down from 37% in fiscal 2020 and significantly higher than 6% in fiscal 2011, primarily driven by market economics.

EKPC's owned coal-based facilities include Spurlock and Cooper. Spurlock is the cooperative's largest plant, with 1,346MWs of rated capacity. Cooper provides an additional 341MWs of capacity. EKPC purchases coal for its generating plants under long-term contracts. EKPC's natural gas-fired plants include Smith and Bluegrass, which together, provide 1,556 of rated capacity (winter). EKPC's 2021 owned power supply capacity remains largely unchanged from over the past five years, with coal, natural gas and renewable (landfill and solar) representing 57%, 42% and 1%, respectively, in fiscal 2021.

In addition to its coal and natural gas facilities, the cooperative has rights to 170MWs of hydroelectric power from the Southeastern Power Administration.

EKPC filed its 2022 Integrated Resource Plan with the PSC on April 1, 2022. Over the near to medium term, EKPC's IRP generally follows the utility's existing power supply strategy by continuing to supplement its owned generation with economic purchases from the PJM marketplace. The utility plans to layer in purchased power agreements to the extent EKPC's projected load demand requires additional power resources, but no additions are currently planned. Fitch views EKPC's power supply as adequately resourced.

Capital Planning and Management

EKPC's capital planning and management assessment of very strong reflects EKPC's average age of plant of 12 years, as well as the utility's continued investment in the utility's generation and transmission assets. Recent capital spending was aimed at addressing environmental regulations associated with both Coal Combustion Residuals (CCRs) and the Effluent Limitations Guidelines (ELG).

Management estimates that compliance expenditures at Spurlock will total approximately $262 million through fiscal 2024, although most of the capex was completed during the past three years. An

environmental surcharge was used to substantially recover all costs related to the Spurlock compliance capex. Emissions at Spurlock were previously reduced following the addition of flue gas desulphurization systems, electrostatic precipitators, selective catalytic reduction units and new low-NOx burners. Similar equipment was installed in 2015 at Cooper unit No. 1, with a tie into a new air quality control system for unit No. 2 that brought the unit into compliance with the Mercury and Air Toxics (MATS) rule.

EKPC conservatively estimates capex will range from approximately $120 million to $150 million annually over the next five years, the vast majority of which will be dedicated to transmission infrastructure investments. EKPC will fund its capital plan through a combination of operational cash flow and debt. Management continues to monitor proposed changes to federal environmental polices but EKPC believes that it is currently well positioned, both operationally and financially, to adapt to changes in environmental regulations.

Financial Profile

EKPC's financial profile weakened in fiscal 2021 as the utility's operating margins tightened. Growth in operating expenses, primarily driven by rising fuel and purchased power costs as well as rising maintenance expenses, outpaced the increase in the utility's operating revenues despite the utility's pass through of fuel charges through its FAC.

EKPC's weaker operating cash flows also drove EKPC's increase in leverage, which rose to 9.4x at FYE 2021, up from 8.1x in fiscal years 2018 and 2019. However, despite the rising leverage, the utility's debt burden continued to decline as outstanding debt amortized. Additionally, in fiscal 2020, EKPC used the remaining $353 million in its cushion of credit to prepay debt owed to RUS, which was permitted following the passage of the Farm Bill in 2018.

Liquidity was healthy with 97 days cash on hand (DCOH) at FYE 2021, in line with the utility's five-year historical average of 101 days. Management has historically targeted 80 to 100 DCOH. The cooperative also maintains a $600 million syndicated credit facility, which provides an additional source of liquidity. The utility currently has $440 million available on its credit facility at FYE 2021.

Fitch Analytical Stress Test (FAST) Scenarios

The FAST base case scenario represents Fitch's expectation of EKPC's financial performance through the five-year period ending in 2026. Under Fitch's base case, operating cash flow and leverage are both expected improve in fiscal 2022 as EKPC benefits from the recently approved wholesale base rate increase, which was implemented on Oct. 1, 2021. Leverage is projected to decline to 8.0x in fiscal 2022 and Fitch expects the leverage ratio will remain around that level over the next five years.

Capex, which had been elevated in fiscal years 2019 and 2020 primarily due to CCR and ELG capital improvements at the Spurlock facility, are also expected to decline over the next five years. The lower capex should alleviate EKPC's future debt issuances and Fitch expects the utility's debt burden will improve as outstanding debt amortizes. Energy sales are assumed to grow at 1.1% annually in the base case scenario.

The FAST considers a stress scenario which applies a demand stress case on EKPC's projected 2022 and 2023 energy sales followed by recoveries in fiscal years 2024 through 2025. The stress scenario also considered EKPC's new wholesale base rates, which only provide a bill credit to members to the extent EKPC achieves a per book margin in excess of 1.40 TIER. Fitch believes this mechanism provides some additional operating cash flow cushion upon an unanticipated decline in energy sales.

Under the revised stress case, leverage could still increase to over 9.0x in the near term, but Fitch would expect this to moderate over the long-term. No additional base rate increases (beyond the 2021 wholesale base rate increase) were considered in the stress case scenario.

Debt Profile

EKPC's debt profile is neutral to the rating. The cooperative reported total debt of $2.5 billion at Dec. 31, 2021, most of which ($2.0 billion) has been funded pursuant to the RUS loan program at conservatively fixed interest rates. Amortization of the RUS program debt extends through 2051. EKPC also has first mortgage bonds ($309 million) and first-mortgage promissory notes ($93 million). The cooperative's remaining debt has largely been funded through tax-exempt bonds ($19 million), and through credit facility with National Rural Utilities Cooperative Finance Corp. (CFC) and a syndicate of banks ($160 million).

All of the cooperative's debt is secured under its existing indenture, except for the CFC-led facility and $2.7 million National Cooperative Services Corporation fixed rate notes. Approximately $160 million, or 6% of EKPC's total debt, was variable rate at Dec. 31, 2021, exposing the cooperative to manageable interest rate risk.

In addition to the sources of information identified in Fitch's applicable criteria specified below, this action was informed by information from Lumesis.

REFERENCES FOR SUBSTANTIALLY MATERIAL SOURCE CITED AS KEY DRIVER OF RATING

The principal sources of information used in the analysis are described in the Applicable Criteria.

ESG Considerations

Unless otherwise disclosed in this section, the highest level of ESG credit relevance is a score of '3'. This means ESG issues are credit-neutral or have only a minimal credit impact on the entity, either due to their nature or the way in which they are being managed by the entity. For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

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Rating Actions

ENTITY/DEBT	RATING		RECOVERY	PRIOR
East Kentucky Power Cooperative (KY)	LT IDR	BBB+ ⊖	Affirmed	BBB+ ⊖

RATINGS KEY	OUTLOOK	WATCH
POSITIVE	⊕	◈
NEGATIVE	⊖	◈
EVOLVING	◈	◆
STABLE	⊖	

Applicable Criteria

Public Sector, Revenue-Supported Entities Rating Criteria (pub.01 Sep 2021) (including rating assumption sensitivity)

U.S. Public Power Rating Criteria (pub.09 Apr 2021) (including rating assumption sensitivity)

Applicable Models

Numbers in parentheses accompanying applicable model(s) contain hyperlinks to criteria providing description of model(s).

FAST Econometric API - Fitch Analytical Stress Test Model, v3.0.0 (1)

Additional Disclosures

Solicitation Status

Endorsement Status

Pulaski County (KY)	EU Endorsed, UK Endorsed

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The information in this report is provided “as is” without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US$1,000 to US$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US$10,000 to US$1,500,000 (or the applicable currency

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Endorsement policy

Fitch's international credit ratings produced outside the EU or the UK, as the case may be, are endorsed for use by regulated entities within the EU or the UK, respectively, for regulatory purposes, pursuant to the terms of the EU CRA Regulation or the UK Credit Rating Agencies (Amendment etc.) (EU Exit) Regulations 2019, as the case may be. Fitch's approach to endorsement in the EU and the UK can be found on Fitch's Regulatory Affairs page on Fitch's website. The endorsement status of international credit ratings is provided within the entity summary page for each rated entity and in the transaction detail pages for structured finance transactions on the Fitch website. These disclosures are updated on a daily basis.

Attachment D

Product Data Sheets

www.jinkosolar.com

Building Your Trust in Solar

Tiger Neo N-type 72HL4-BDV 550-570 Watt

BIFACIAL MODULE WITH DUAL GLASS

N-Type

Positive power tolerance of 0~+3%

IEC61215(2016), IEC61730(2016)

ISO9001:2015: Quality Management System

ISO14001:2015: Environment Management System

ISO45001:2018
Occupational health and safety management systems

Key Features

SMBB Technology

Better light trapping and current collection to improve module power output and reliability.

Hot 2.0 Technology

The N-type module with Hot 2.0 technology has better reliability and lower LID/LETID.

PID Resistance

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.

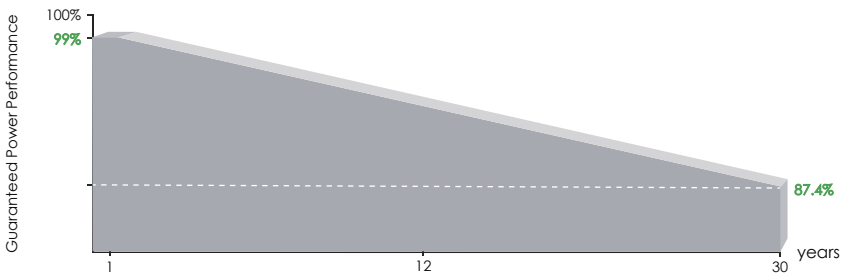
Enhanced Mechanical Load

Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).

Higher Power Output

Module power increases 5-25% generally, bringing significantly lower LCOE and higher IRR.

LINEAR PERFORMANCE WARRANTY

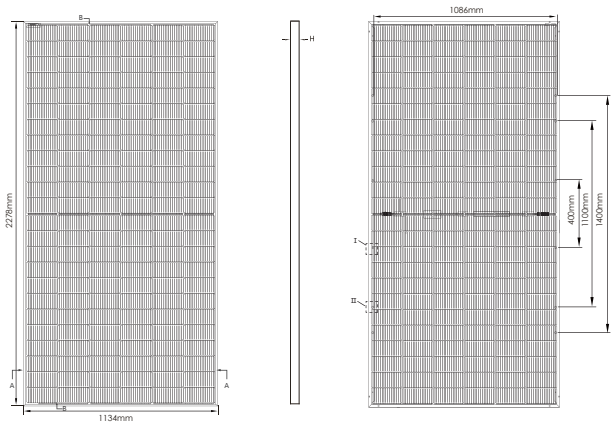


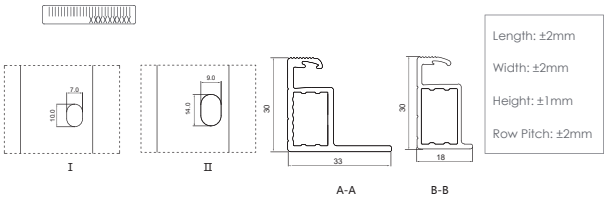
12 Year Product Warranty

30 Year Linear Power Warranty

0.40% Annual Degradation Over 30 years

Engineering Drawings



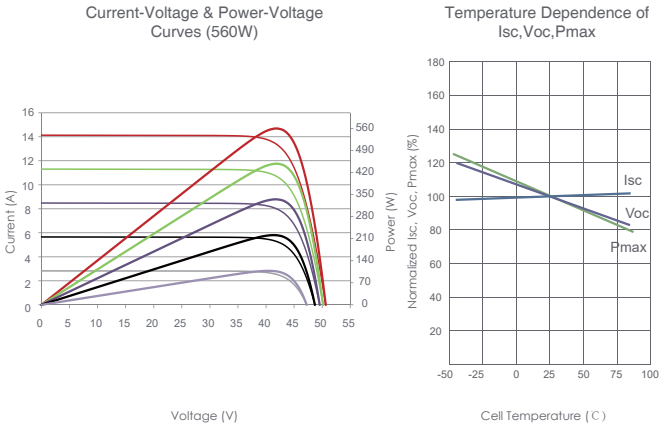


Packaging Configuration

(Two pallets = One stack)

36pcs/pallets, 72pcs/stack, 720pcs/ 40'HQ Container

Electrical Performance & Temperature Dependence



Mechanical Characteristics

Cell Type	N type Mono-crystalline
No. of cells	144 (6×24)
Dimensions	2278×1134×30mm (89.69×44.65×1.18 inch)
Weight	32 kg (70.55 lbs)
Front Glass	2.0mm, Anti-Reflection Coating
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm² (+): 400mm , (-): 200mm or Customized Length

SPECIFICATIONS

Module Type	JKM550N-72HL4-BDV		JKM555N-72HL4-BDV		JKM560N-72HL4-BDV		JKM565N-72HL4-BDV		JKM570N-72HL4-BDV	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	550Wp	414Wp	555Wp	417Wp	560Wp	421Wp	565Wp	425Wp	570Wp	429Wp
Maximum Power Voltage (Vmp)	41.58V	39.13V	41.77V	39.26V	41.95V	39.39V	42.14V	39.52V	42.29V	39.65V
Maximum Power Current (Imp)	13.23A	10.57A	13.29A	10.63A	13.35A	10.69A	13.41A	10.75A	13.48A	10.81A
Open-circuit Voltage (Voc)	50.27V	47.75V	50.47V	47.94V	50.67V	48.13V	50.87V	48.32V	51.07V	48.51V
Short-circuit Current (Isc)	14.01A	11.31A	14.07A	11.36A	14.13A	11.41A	14.19A	11.46A	14.25A	11.50A
Module Efficiency STC (%)	21.29%		21.48%		21.68%		21.87%		22.07%	
Operating Temperature(℃)	-40℃~+85℃									
Maximum system voltage	1500VDC (IEC)									
Maximum series fuse rating	30A									
Power tolerance	0~+3%									
Temperature coefficients of Pmax	-0.30%/℃									
Temperature coefficients of Voc	-0.25%/℃									
Temperature coefficients of Isc	0.046%/℃									
Nominal operating cell temperature (NOCT)	45±2℃									
Refer. Bifacial Factor	80±5%									

BIFACIAL OUTPUT-REARSIDE POWER GAIN

5%	Maximum Power (Pmax)	578Wp	583Wp	588Wp	593Wp	599Wp
	Module Efficiency STC (%)	22.36%	22.56%	22.77%	22.97%	23.17%
15%	Maximum Power (Pmax)	633Wp	638Wp	644Wp	650Wp	656Wp
	Module Efficiency STC (%)	24.48%	24.71%	24.93%	25.15%	25.37%
25%	Maximum Power (Pmax)	688Wp	694Wp	700Wp	706Wp	713Wp
	Module Efficiency STC (%)	26.61%	26.86%	27.10%	27.34%	27.58%

*STC: Irradiance 1000W/m² Cell Temperature 25℃ AM=1.5

NOCT: Irradiance 800W/m² Ambient Temperature 20℃ AM=1.5 Wind Speed 1m/s

HEM

The turn-key solution, simplifies the task of designing the installation, and reduces connection costs.

HEM

REFERENCES		FS4200M	
AC	AC Output Power (kVA/kW) @40°C[1]	4200	
	AC Output Power (kVA/kW) @50°C[1]	3900	
	Operating Grid Voltage (kV)[2]	34.5kV ±10%	13.8kV ±10%
	Operating Grid Frequency (Hz)	60Hz	
	Current Harmonic Distortion (THDi)	< 3% per IEEE519	
	Power Factor (cosine phi)[3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night	
DC	DC Voltage Range[4]	934V - 1500V	
	Maximum DC Voltage	1500V	
	Number of Inputs	Up to 40	
	Max. DC Continuous Current (A)[5]	4590	
	Max. DC Short Circuit Current (A)[5]	6940	
	Number of Freemaq DC/DC[5]	Up to 4	
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.8% including MV transformer	
	Euroeta (η) (preliminary)	97.51% including MV transformer	
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2	
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2	
	Weight (lbs)	30865	
	Weight (kg)	14000	
	Type of Ventilation	Forced air cooling	
ENVIROMENT	Degree of Protection	NEMA 3R	
	Permissible Ambient Temperature [6]	-25°C to +60°C, >50°C / Active power derating	
	Relative Humidity	4% to 100% non-condensing	
	Max. Altitude (above sea level) [7]	2000m	
CONTROL INTERFACE	Communication Protocol	Modbus TCP	
	Power Plant Controller	Optional	
	Keyed ON/OFF Switch	Standard	
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device	
	Humidity Control	Active heating	
	General AC Protection & Disconn.	MV switchgear (20 or 25 kA)	
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors	
	Overvoltage Protection	Type 2 protection for AC and DC (optionally, Type 1+2 for DC side)	
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16	
	Installation	NEC 2020	
	Utility Interconnect	IEEE 1547:2018 / UL 1741 SB	

NOTES

[1] Values at 1.00·Vac nom and cosφ=1.Consult Power Electronics for derating curves
[2] Consult Power Electronics for other configurations
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2)
[4] Consult Power Electronics for derating curves
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35ºC
[7] Consult Power Electronics for altitudes above 1000m

HEM

IEC

REFERENCES		FS4201M
AC	AC Output Power (kVA/kW) @40°C[1]	4200
	AC Output Power (kVA/kW) @50°C[1]	3900
	Operating Grid Voltage (kV)[2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi)[3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range[4]	934V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A)[5]	4590
	Max. DC Short Circuit Current (A)[5]	6940
	Number of Freemaq DC/DC[5]	Up to 4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.8% including MV transformer
	Euroeta (η) (preliminary)	97.51% including MV transformer
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
ENVIROMENT	Degree of Protection	IP55
	Permissible Ambient Temperature[6]	-25°C to +60°C, >50°C / Active power derating
	Relative Humidity	4% to 100% non-condensing
	Max. Altitude (above sea level) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	MV switchgear (2L+V)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
	Overvoltage Protection	Type 2 protection for AC and DC (optionally, Type 1+2 for DC side)
CERTIFICATIONS & STANDARDS	Safety	IEC 62477-2

NOTES

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[4] Consult Power Electronics for derating curves
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35ºC
[7] Consult Power Electronics for altitudes above 1000m

HEM

REFERENCES		FS4105M	
AC	AC Output Power (kVA/kW) @40°C[1]	4105	
	AC Output Power (kVA/kW) @50°C[1]	3810	
	Operating Grid Voltage (kV)[2]	34.5kV ±10%	13.8kV ±10%
	Operating Grid Frequency (Hz)	60Hz	
	Current Harmonic Distortion (THDi)	< 3% per IEEE519	
	Power Factor (cosine phi)[3]	0.5 leading … 0.5 lagging adjustable / Reactive power injection at night	
DC	DC Voltage Range[4]	913V - 1500V	
	Maximum DC Voltage	1500V	
	Number of Inputs	Up to 40	
	Max. DC Continuous Current (A)[5]	4590	
	Max. DC Short Circuit Current (A)[5]	6940	
	Number of Freemaq DC/DC[5]	Up to 4	
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.76% including MV transformer	
	Euroeta (η) (preliminary)	97.50% including MV transformer	
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2	
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2	
	Weight (lbs)	30865	
	Weight (kg)	14000	
	Type of Ventilation	Forced air cooling	
ENVIROMENT	Degree of Protection	NEMA 3R	
	Permissible Ambient Temperature [6]	-25°C to +60°C, >50°C / Active power derating	
	Relative Humidity	4% to 100% non-condensing	
	Max. Altitude (above sea level) [7]	2000m	
CONTROL INTERFACE	Communication Protocol	Modbus TCP	
	Power Plant Controller	Optional	
	Keyed ON/OFF Switch	Standard	
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device	
	Humidity Control	Active heating	
	General AC Protection & Disconn.	MV switchgear (20 or 25 kA)	
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors	
	Overvoltage Protection	Type 2 protection for AC and DC (optionally, Type 1+2 for DC side)	
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16	
	Installation	NEC 2020	
	Utility Interconnect	IEEE 1547:2018 / UL 1741 SB	

NOTES

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[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2)
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HEM

IEC

REFERENCES		FS4105MH
AC	AC Output Power (kVA/kW) @40°C[1]	4105
	AC Output Power (kVA/kW) @50°C[1]	3810
	Operating Grid Voltage (kV)[2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi)[3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range[4]	913V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A)[5]	4590
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	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
ENVIROMENT	Degree of Protection	IP55
	Permissible Ambient Temperature [6]	-25°C to +60°C, >50°C / Active power derating
	Relative Humidity	4% to 100% non-condensing
	Max. Altitude (above sea level) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	MV switchgear (2L+V)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
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CERTIFICATIONS & STANDARDS	Safety	IEC 62477-2

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HEM

REFERENCES		FS4010M	
AC	AC Output Power (kVA/kW) @40°C[1]	4010	
	AC Output Power (kVA/kW) @50°C[1]	3720	
	Operating Grid Voltage (kV)	34.5kV ±10%	13.8kV ±10%
	Operating Grid Frequency (Hz)	60Hz	
	Current Harmonic Distortion (THDi)	< 3% per IEEE519	
	Power Factor (cosine phi)[2]	0.5 leading … 0.5 lagging adjustable / Reactive power injection at night	
DC	DC Voltage Range[3]	891V - 1500V	
	Maximum DC Voltage	1500V	
	Number of Inputs	Up to 40	
	Max. DC Continuous Current (A)[4]	4590	
	Max. DC Short Circuit Current (A)[4]	6940	
	Number of Freemaq DC/DC[4]	Up to 4	
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.75% including MV transformer	
	Euroeta (η) (preliminary)	97.48% including MV transformer	
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2	
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2	
	Weight (lbs)	30865	
	Weight (kg)	14000	
	Type of Ventilation	Forced air cooling	
ENVIROMENT	Degree of Protection	NEMA 3R	
	Permissible Ambient Temperature [5]	-25°C to +60°C, >50°C / Active power derating	
	Relative Humidity	4% to 100% non-condensing	
	Max. Altitude (above sea level)	2000m	
CONTROL INTERFACE	Communication Protocol	Modbus TCP	
	Power Plant Controller	Optional	
	Keyed ON/OFF Switch	Standard	
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device	
	Humidity Control	Active heating	
	General AC Protection & Disconn.	MV switchgear (20 or 25 kA)	
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors	
	Overvoltage Protection	Type 2 protection for AC and DC (optionally, Type 1+2 for DC side)	
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16	
	Installation	NEC 2020	
	Utility Interconnect	IEEE 1547:2018 / UL 1741 SB	

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