COMMONWEALTH OF KENTUCKY BEFORE THE KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of:

Electronic Application of Unbridled Solar, LLC)	
For Certificates of Construction for an)	
Approximately 160 Megawatt Merchant Electric)	
Solar Generating Facility and Nonregulated Electric)	Case No.
Transmission Line in Henderson and Webster)	2020-00242
Counties, Kentucky)	

Response to Siting Board Staff's Post-Hearing Request for Information

Applicant Unbridled Solar, LLC (hereinafter "Unbridled"), herewith submits its response

to the Siting Board Staff's Post-Hearing Request for Information. A signed, notarized

certification for this Response appears on the following page. The undersigned counsel is

responsible for any objection noted for a particular response.

Unbridled has requested an extension to and including Monday, April 26, 2021, in which

to complete this Response by providing a response to items 2-4 in the Staff's Post-Hearing

Request.

Respectfully Submitted,

/s/ Kathryn A. Eckert

Katherine K. Yunker Kathryn A. Eckert McBrayer PLLC 201 East Main St., Suite 900 Lexington, KY 40507 (859) 231-8780 kyunker@mcbrayerfirm.com keckert@mcbrayerfirm.com

Counsel for Unbridled Solar, LLC

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Certification of Response to Staff's Post-Hearing Request for Information

This is to certify that I have supervised the preparation of the response to the Siting Board Staff's Post-Hearing Request for Information to Unbridled Solar, LLC on behalf of the corporate respondent and that the responses are true and accurate to the best of my knowledge, information, and belief after reasonable inquiry.

DATE: April 19, 2021

Courtney Pelissero

Courtney Pelissero, Permitting Associate

Request

1. Provide a copy of the decommissioning plan that is subject to approval by the Henderson City-County Planning Commission.

Response

A redacted copy of the decommissioning plan submitted to Henderson City-County Planning Commission is attached hereto.¹ The plan includes a preliminary cost estimate for construction and decommissioning of the Project. Unbridled will finalize a decommissioning financial surety type and amount with Henderson County prior to obtaining a building permit. Unbridled will also discuss the decommissioning plan with Webster County and determine which County or Counties will hold the financial surety.

¹ An unredacted, highlighted copy of the attachment has been filed under seal with a concurrently-filed Motion seeking confidential treatment for this document



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Decommissioning Plan

April 2021

national**grid** renewables

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APPENDIX A - Project Cost Estimate and Decommissioning Estimate

1. Introduction

Unbridled Solar, LLC (Unbridled Solar) is proposing to construct an up to 160 MWac solar photovoltaic electric generating facility in Henderson and Webster Counties, Kentucky (the Facility). The Facility will span approximately 1680 acres and will connect to the electrical grid at the Reid Substation.. The operational life of the Facility is anticipated to be approximately 30 years. This Decommissioning Plan (Plan) describes the procedures, estimated costs, and financial assurances associated with decommissioning the Facility and has been created to support the project's application in seeking a Site Plan Approval from the Henderson County Planning Commission..

The goals for the Plan are to provide procedures for restoring the site to it's original use, based on the recent historical land use of the property, or other economical land uses as desired by the relevant landowner, at the end of the Facility's operational life. The Plan describes procedures and estimated costs for the removal of Facility components. The components of the Facility to be decommissioned are described in detail in Unbridled Solar's Application and the associated preliminary Facility layout.

2. Project Components

The Application and the preliminary Facility layout provide detailed information regarding the anticipated location and description of each of the Facility components. The Facility generally consists of the equipment and infrastructure outlined below:

- Steel Piers and Racking
- PV Panels
- Inverters
- Electrical Collection Lines
- Access Roads
- Fencing, Gating, and Safety Features
- Operations and Maintenance Building
- Weather Stations
- Project Substation

3. Regulatory Compliance

Prior to the commencement of decommissioning, Unbridled Solar will perform the appropriate due diligence requirements and obtain the necessary local, state, and federal approvals to complete decommissioning activities. Unbridled Solar will assess the necessary permits and approvals in the future regulatory environment to maintain regulatory compliance. However, anticipated types of evaluations may include activities such as the following:

- Review of on-site jurisdictional status and potential impacts to wetlands and waterbodies to comply with the Clean Water Act.
- Consultation with the United States Fish and Wildlife Service to evaluate compliance with the Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and any other relevant regulations at the time of decommissioning.

- Consultation with the Kentucky Energy and Environment Cabinet for compliance with any pertinent state regulatory requirements.
- Completion of a Phase I Environmental Site Assessment in support of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) protection
- Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP).
- Henderson and Webster County building, road, discharge, or erosion control permits (as necessary).
- Special state or local hauling permits (as necessary).

4. Decommissioning

The Project will be decommissioned at the end of its useful life. The project is presumed to be at the end of its useful life if the facility generates no electricity for a continuous period of 12 months. At least 30 days prior to the commencement of decommissioning activities, Unbridled Solar will notify Henderson County staff. The following general decommissioning activities will occur:

- Removal of panels
- Removal of weather stations, inverters, electrical equipment, racking, and scrap
- Removal of piles
- Removal of access roads
- Removal of electrical collection lines
- Removal of fencing
- Removal of substation

Some components may be left in place under certain circumstances. Electrical lines that will not impact future use of the Project Area (at least 3 feet in depth) may be left in place per the County Solar Ordinance. Steel piles, where full removal is unattainable, may be cut and left in place at a depth of 3 feet or greater below the ground surface. The Project substation could remain should another agreement necessitate its continued use. Utility owned infrastructure at the substation is not subject to decommissioning. Additionally, landowners may desire that private access roads remain in place for their personal use. Should a landowner request a road or structure (such as the O&M building) remain in place, Unbridled Solar will obtain a written request from the landowner. In keeping with the ordinance all non-utility owned infrastructure would be removed.

5. Materials Salvage, Recycling, and Disposal

Many components of the Facility, such as racking, wiring, piles, and panels, retain value over time. Panels, while slightly less efficient, may be reused elsewhere, or components may be broken down and recycled. Recycling of solar panels and equipment is rapidly evolving and can be handled through a combination of sources such as certain manufacturers, PV Cycle (an international waste program founded by and for the PV industry), or waste management companies. More than 90 percent of the semiconductor material and glass can be reused in new modules and products. Other waste materials that hold no value will be recycled or disposed of via a licensed solid waste disposal facility.

6. Site Restoration

Following the completion of decommissioning activities, it is anticipated that the site will primarily be converted back to pre-construction land uses. The land will be graded as necessary, though minimal grading is expected to be required, and decompacted to allow for productive agricultural use. Decommissioning of the Facility, including the removal of materials followed by site restoration, should be completed in approximately 12-18 months.

7. Cost Estimate

Unbridled Solar contracted with Timmons Group to obtain a cost estimate for the decommissioning activities summarized above and for a cost estimate for the entire project (labor only), based on the preliminary Facility layout provided with Unbridled Solar's Site Plan Approval Application. Based on current recycling costs and salvage values, the net cost of decommissioning the Facility is estimated to be approximately a credit of **Exercised**. A decommissioning estimate is provided in Appendix A.

Table 1 in Appendix A has a cost estimate of the entire project. That cost estimate is **Exercise**. The estimate is based on similar projects now under construction. The financial surety for the decommissioning is set at 1% of this cost which is estimated to be **Exercise** A final decommissioning estimate will be filed with Henderson County prior to obtaining a building permit.

8. Financial Assurance

Unbridled Solar will post a financial surety, such as, but not limited to, a Letter of Credit, with the County as the obligee based on 1.0% of the total project cost per Section 30.02.G(1) of the ordinance. Since the Project is located in both Henderson and Webster County, Unbridled Solar may add Webster County as an obligee to the financial surety or divide up the financial surety between the two counties. Unbridled Solar will come to an agreement with both counties on the financial surety prior to applying for a building permit. Based on industry trends, the projected and actual costs of decommissioning are expected to reduce overtime based on improvements both to best practices in calculating these costs and the decommissioning process itself. Unbridled Solar will reevaluate decommissioning costs with a qualified independent third party every five years thereafter during the life of the Project.



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Appendix A **Project Cost Estimate Decommissioning Estimate**



Decommissioning Costs Based on Construction Cost Estimate

The following table below lists the estimated decommissioning costs to remove the project components and restore the site to its previous condition.

Cost			Unit of		
Code	Description of Work	Quantity	Measure	Unit Cost	Total
A50.3.6	Mobilization & Onsite Facilities - Full Notice to Proceed	1	PLS		
A50.3.1	Design and Engineering	1	PLS		
A50.3.6	Engineered Equipment Procurement	1	PLS		
A50.3.1	Sitework and Property Improvements - Furnish and Install	1	PLS		
A50.3.4	Substation and Interconnection - Furnish and Install	1	PLS		
A50.3.7	Balance of Plant Electrical - Furnish and Install	1	PLS		
A50.3.8	Concrete/Foundations - Furnish and Install	1	PLS		
A50.3.8	161 kV Transmission line	1	PLS		
A50.3.10	Structural & Equipment - Furnish and Install	1	PLS		
A50.3.6	Commercial	1	PLS		
	Total				

Table 1 – Project Cost Estimate



Table 2 – Detailed Decommissioning Costs

Unbridled Solar Project Detailed Decommissioning Cost Estimate



Total

Project Size: 160 MW ac (210.81 MW dc) Project land area: 971 acres Disturbed land area: 971 acres *Final project design may not include these facilities



The Project components will have a salvage value at the end of their useful life. Table 2 below shows those values based on information known today about the assets.

Project Component	Qty	Estimated New Cost/Unit	Estimated New Cost	Estimated Salvage Value*
525 W Solar Panels* 4200 KVA Transformers Conductor Substation Transformer 35 kV Circuit Breakers 161 kV Circuit Breaker Fence Posts (Gal) Module Racks (Gal Steel)** Steel Piles** Fence Steel (assumes commercial fencing 8' high) Total Salvage Value				

Table 3 - Estimated Salvage Value of Project Components

Estimated salvage values are 10% of original cost except where noted.

* Salvage value of these components for after-market use is estimated to be 10% of original cost. After 35 years of use, solar panels are expected to generate electricity at approximately 85% of their original capacity.

** Used present market scrap price per Scrapmonster.com schedule 12/16/2020. The salvage prices are \$0.47/lbs. for 304 SS (racking, fence, steel piles).

As noted, the total estimated decommissioning costs will be **second and**, and the total estimated salvage value of Project components will be **second and**



1. Decommissioning Assumptions

To develop a cost estimate for the decommissioning of the Unbridled Solar Project, Timmons Group made the following assumptions and costs were estimated based on current pricing, technology, and regulatory requirements. The assumptions are listed in order from top to bottom of the estimate spreadsheet. We developed time and materialsbased estimates considering composition of work crews. When materials have a salvage value at the end of the project life, the construction activity costs and from the hauling/freight cost are separated from the disposal costs or salvage value to make revisions to salvage values more transparent.

- 1. Decommissioning year is based on a 5-year initial period for the financial security. The projected life of the project is 35 years.
- 2. This Cost Estimate is based on the Timmons Group data sheet from the project.
- 3. Common labor will be used for the majority of the tasks except for heavy equipment operation. Pricing is based on local southeast US labor rates.
- 4. Permit applications required include the preparation of a Stormwater Pollution Protection Plan (SWPPP) and a Spill Prevention Control and Countermeasure (SPCC) Plan.
- 5. Road gravel removal was estimated on a time and material basis using a 16-foot width and an 8-inch thickness for the access roads. Substation aggregate is included in the substation quantities. Since the material will not remain on site, a hauling cost is added to the removal cost. Road aggregate can often be disposed of by giving to landowners for use on driveways and parking areas.
- 6. Fence removal includes loading, hauling, and recycling.
- 7. Array support posts are generally lightweight "I" beam sections installed with a piece of specialized tracked equipment. Pricing was acquired from www.scrapmonster.com.
- 8. The solar panels rated at 525 watts and can easily be disconnected, removed, and palletized for recycling.
- 9. No topsoil is planned to be removed from the site during decommissioning and most of the site will not have been compacted by heavy truck or equipment traffic so the site turf establishment cost is based on RS Means unit prices for applying lime, fertilizer, and seed at the price of per acre plus an allowance for some areas to be decompacted.
- 10. There is an active market for reselling and recycling electrical transformers and inverters with several national companies specializing in recycling. We have assumed a 25% recovery of these units based on field experience with used transformers as opposed to trying to break them down into raw material components.
- 11. The underground collection lines are assumed to be aluminum conductor. The majority of collection lines will be buried deep enough so that they do not have to be removed per the Henderson County Zoning Ordinance, Article XXX.



12. Care to prevent damage and breakage of equipment, PV modules, inverters, capacitors, and SCADA must be exercised, but removal assumes unskilled common labor under supervision.

The estimated salvage values are derived from years of experience decommissioning and uprating electric substations, overhead transmission and distribution hardware and underground distribution hardware that would include but not be limited to substation and pad mounted transformers, overhead and underground conductors, poles, fencing, ground grid conductors, control housings, circuit breakers (high and medium voltage), protective relaying, and other hardware items. These individual items have high salvage value either as stand-alone components to be reused or recycled and sold as used items. These items also have a relatively high salvage value as pure scrap for steel, copper and other commodities.

For all medium voltage transformers, breakers and other items, Southeastern Transformer Company in Dunn, NC provides complete repair, upgrading and recycling and resale for all items mentioned above. Their website is: <u>https://www.setransformer.com</u>.

For any and all recycling and upgrading, Solomon Corporation offers the same set of services for transformer repair and recycling and complete substation decommissioning services. With seven different locations, Solomon is one of several vendors that can decommission and recycle the components as noted above. Their website is: https://www.solomoncorp.com/. Solomon Corporation is only one of many transmission and distribution recycle and decommissioning shops that do this mainly to harvest the components.

For recycling conductor, General Cable and Southwire both utilize extensive scrap procurement programs to reuse copper and aluminum conductor harvested from projects such as this one to supplement and reduce their raw material costs. Here is the link to the General Cable program which only increases the salvage values found in this Plan: General Cable Recycling: <u>https://es.generalcable.com/na/us-</u>can/socialresponsibility/sustainability/recycling

As for solar panels, they are in demand as salvageable items either in whole or for their raw material. According to the International Renewable Energy Agency (IRENA), more than 90% of all the materials are high grade silicon, aluminum and glass and are typically harvested to produce new panels. This is far less expensive than buying unprocessed raw materials for production.



The base industry assumption is that since solar panels are expected to retain about 85% of their production capability after 35 years of use, a salvage value of 10% of original cost is a low estimate of their expected value and as we note in assumption. This considers possible technology improvements and undervalues the anticipated salvage value of the panel's raw materials. The Solar Energy Industries Association (SEIA) has an approved set of PV recycling vendors that specialize in doing this today and they can be found at: https://www.seia.org/initiatives/seia-national-pv-recycling-program.

First Solar, which has been active in the solar industry since its inception, takes solar modules and recycles 90% of the semiconductor material which is then reused in new modules. 90% of the glass product can be reused as new glass products, including panels and fiber optic cable. We can conclude that realistically the estimated 10% salvage value is low and reflects a conservative figure. Information about First Solar's recycling program is at: http://www.firstsolar.com/en/Modules/Recycling.



Request

5. Refer to the Application, Exhibit D, regarding the individual notices that were mailed to nearby property owners. Provide an unredacted list of those property owners under a petition for confidential treatment.

Response

A redacted copy of the lists of landowners who were mailed notices is attached hereto. An unre-

dacted copy of the lists has been filed under seal with a request for confidential treatment and to

protect the privacy of non-parties to this case.

lame	Last Name	Company	Address	Address 2
				Atlanta, GA 31139
				Henderson, KY 42420
				Robards, KY 42452
				Henderson, KY 42420
				Robards, KY 42452
				Henderson, KY 42420
				Evansville, KY 47714
				Providence, KY 42450
				Robards, KY 42452
				Robards, KY 42452
				Henderson, KY 42420
				Henderson, KY 42420
				Robards, KY 42452
				Robards, KY 42452
				Robards, KY 42452
				Robards, KY 42452
				Robards, KY 42452

Henderson, KY 42420

Robards, KY 42452

Wayne, PA 19087

Robards, KY 42452

Wayne, PA 19087

Henderson, KY 42420

Henderson, KY 42420

Robards, KY 42452

Newburg, IN 47630

Henderson, KY 42420

Sebree, KY 42455

Jacksonville, FL 32202

Henderson, KY 42420

Robards, KY 42452

Robards, KY 42452

Henderson, KY 42420

Robards, KY 42452

Robards, KY 42452

Robards, KY 42452

Sebree, KY 42455

Robards, KY 42452

Robards, KY 42452

Henderson, KY 42420

Robards, KY 42452



First Name	Last Name	Address	Address 2
			Atlanta, GA 31139
			Henderson, KY 42420
			Robards, KY 42452
			Henderson, KY 42420
			Robards, KY 42452
			Henderson, KY 42420
			Evansville, KY 47714
			Providence, KY 42450
			Robards, KY 42452
			Robards, KY 42452
			Henderson, KY 42420
			Henderson, KY 42420
			Robards, KY 42452
			Owensboro, KY 42301
			Henderson, KY 42420
			Robards, KY 42452
			Wayne, PA 19087
			Robards, KY 42452
			Wayne, PA 19087
			Henderson, KY 42420
			Henderson, KY 42420
			Robards, KY 42452
			Henderson, KY 42420
			Robards, KY 42452
			Newburg, IN 47630
			Henderson, KY 42420
			Sebree, KY 42455
			Jacksonville, FL 32202
			Henderson, KY 42420
			Robards, KY 42452
			Robards, KY 42452
			Henderson, KY 42420
			Robards, KY 42452

Robards, KY 42452
Robards, KY 42452
Sebree, KY 42455
Robards, KY 42452
Robards, KY 42452
Henderson, KY 42420
Robards, KY 42452
Robards, KY 42452
Robards, KY 42452
Dixon, KY 42409
Robards, KY 42452
Sebree, KY 42455
Robards, KY 42452

Property Owner	Map Reference	Parcel Id	Address
	49	083-003-000	_
	50	083-004-017	-
	51	083-003-001	
	52	077-006-004	
	53	077-006-002	
	54	077-006-005	
	55	077-006-000	
	56	077-006-001-002	
	57	077-008-001	
	58	077-006-003	
	59	077-007-002	
	60	077-007-001	
	61	071-012-000	
	62	077-007-000	
	63	077-008-000	
	64	077-010-001	
	65	077-010-001-001	
	66	077-005-000	
	67	077-002-001	
	68	077-004-001	

Property Owner	Map Reference	Parcel Id	Address
	69	077-003-000	
	70	077-005-002	
	71	083-021-000	
	72	077-006-001-001	
	73	72-5	
	74	61-44.1	Ν
	75	61-44	
	76	71-32	
	77	71-33	
	78	72-25	
	79	71-43	
	80	72-28	
	81	72-3	,
	82	71-45	,
	83	71-46.2	
	84	71-36	
	85	71-47	
	86	71-46.1	
	87	71-46.4	,
	88	71-46.3	

Property Owner	Map Reference	Parcel Id	Address
	89	72-23	
	90	077-002-000	
-	91	81-13	-
	92	72-2	-
	93	61-41	-
	94	61-42.1	-
	95	61-42.3	-
	96	61-41.1	-
	97	61-42	-
	98	61-39	-
	99	61-38	-
	100	61-37	-
-	101	61-36	-
-	102	61-65	-
	103	81-14	-
	104	61-35	-
	105	71-21	-
	106	71-40	
	107	71a-37	
	108	72-24	

Property Owner	Map Reference	Parcel Id	Address
	109	72-26.1	
	110	72-7	
	111	72-9	
	*		

Request

6. Provide an electronic copy of the workpapers with inputs from Unbridled Solar for the results generated by the JEDI modeling methodology.

Response:

Please see the Excel workbook files in .xslm or .xslx format provided separately under seal and with a request for confidential treatment. The following describes the two workbook files provided:

JEDI Model Unbridled Solar (.xlsm)

- a. This is the generic JEDI model with certain modifications in select cells made by Unbridled Solar. JEDI-specific documentation exists on the first three tabs of this file for generic information about JEDI.
- b. Unbridled-specific modifications include changes to location of project (to Kentucky), percent of purchases/hires that are "local" and updated cost estimates, denoted in \$/kW, for certain elements of the project.
- Output from this model, detailed on the "Summary Results" tab, is representative of Kentucky-wide impacts.

Cardno Values for Unbridled Solar (.xlsx)

a. This file has notations in comment boxes and the margins to aid understanding where values and/or their calculations were deemed likely to be uncertain to a third-party reader.

- b. The "JEDI output + Local Adjustments" tab is composed of copied values from the Unbridled JEDI outputs in cells B2 through E26. Cells in B30 to E34 are quantitative adjustments to JEDI estimates for operational phase made by Cardno as a result of feedback from Unbridled Solar specifying 5-full time workers during operation. These adjusted operational impacts were those reported in the Socioeconomic section of the Unbridled filing. The calculations in the adjustments are represented in cell formulas.
- c. Columns G through I on the "JEDI output + Local Adjustments" tab represent estimated impacts for Henderson and Webster counties. These estimates are scaled down from statewide impacts (Columns B through E) as described in the socioeconomic report, and are also as detailed in the cell formulas.
- d. The specific scaling factor used to scale from statewide impacts to local impacts are presented on the tab, "Adjustment Factor".
- e. Finally, a tab called "Sales Tax Estimate" estimates Kentucky sales taxes during construction by estimating the total value of goods purchased locally and applying a 6% sales tax rate to all the total.

Request

7. State whether the electric facilities that will be buried more than three feet underground will need to be certified by either a state or local authority once the solar facility has been decommissioned. If there is no certification process for these electric facilities, state whether Unbridled Solar will identify the location of those electric facilities in its formal decommissioning plan.

Response

Unbridled is not aware of any certification process for underground electric facilities.

The decommissioning plan does not identify the location of the electric facilities. Once

the generating facility is operational, Unbridled will submit an as-built site plan to Hen-

derson County and the Siting Board, which will identify where underground electric

facilities are located.