Sebree Solar II, LLC Case No. 2022-00131

Application – Exhibit 12 Attachment A Exhibit 6

Traffic and Dust Study (20 Pages)

Traffic Study and Dust Study for the Sebree Solar II Project, LLC Electric Generation Facility

April 13, 2023

Prepared for:

Kentucky State Board on Electric Generation and Transmission Siting

Kentucky Public Service Commission

Prepared by:

PRIME AE

651 Perimeter Drive, Suite 300 Lexington, KY 40517

On Behalf of:

Environmental Consulting

and

& Technology, Inc. 3125 Sovereign Drive, #9C Lansing, MI 48911 Sebree Solar II, LLC 700 Universe Blvd Juno Beach, FL 33408

Table of Contents

1.	Introduction1
2.	Sebree Solar II Project Traffic Study
	2.1. Existing Road Network and Traffic Conditions1
	2.2. Sebree Solar II Project Construction of Traffic
	2.2.1. Traffic During Construction of Proposed Sites
	2.2.2. Traffic Safety Precautions During Site Construction
	2.2.3. Physical Impact of Existing Road Infrastructure4
	2.3. Facility Operation and Maintenance Traffic5
	2.4. Traffic Summary and Conclusion5
3.	Fugitive Dust Impacts5
4.	Impacts on Existing Railways6
5.	Signatures of Professionals6

Attachments

- Site Exhibit 1A
- Site Exhibit 1B
- Site Exhibit 2A
- Site Exhibit 2B
- Site Exhibit 2C
- Site Exhibit 2D
- Site Exhibit 2E
- Site Exhibit 2F

1.0 Introduction

The proposed Sebree Solar II Project (Project) will be capable of generating 150 megawatts alternating current (MWac). Generated power will pass through the previously submitted Sebree Solar Project, which includes an approximately 4.85-mile transmission line. The Project is to be located on a site encompassing approximately 1,000 acres located in Henderson County, Kentucky, approximately six (6) miles south of the City of Henderson, directly west of the Town of Robards, west of U.S. Highway 41 ("US-41"), north of State Road 56 ("HWY-56"), and east of US-41A. The Project components will include photovoltaic ("PV") solar panels mounted on a fixed angle racking system. Additional infrastructure for the Project will include central electric inverters and transformers, underground electrical collection systems (distribution equipment), power control equipment, two solar meteorological stations, and SCADA hardware. A control house for protective relay panels and site controllers will also be constructed. Permanent private gravel and/or earthen access roads with gated ingress/egress points and security fencing will be constructed to access and maintain the facilities. The power generated by the Project will provide clean, renewable electricity, and will interconnect with the transmission system owned by the Big Rivers Electric Corporation at the 161 kilovolt (kV) Reid Substation, located east of Pennyrile Parkway (Interstate 69) in Webster County, Kentucky.

A Site Assessment report must be prepared for the Sebree Solar II Project as part of an application for a construction certificate from the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board). The Site Assessment Report requires a traffic study and a dust study for the proposed facility. PRIME AE was hired to perform the studies and evaluate multiple private access roads that will be necessary for construction and operations for the solar farm. This site assessment includes a comprehensive traffic study evaluating the existing roadway network and traffic conditions, traffic safety, dust study, and railroad assessment.

This is Sebree Solar LLC's second solar farm project in the area (Sebree Solar II Project). Sebree Solar Project construction Certificate was granted previously under Case No. 2021-00072.

2.0 Sebree Solar II Project Traffic Study

2.1 Existing Roadway Network and Traffic Conditions

Three major roadways are present in the Sebree Solar II Project's vicinity. Kentucky Highway 416 (KY 416) runs east-west through the project site connecting to the west the city of Robards, US Highway 41, and Interstate 69. Kentucky Highway 283 (KY 283) runs north-south through the project site connecting US 41 to the north and the city of Dixon to the south. Kentucky Highway 1299 (KY 1299) runs north-south through the project site connecting KY 416 to Kentucky Highway 425 (KY 425).

In the southern part of the project, proposed site entrances #101, 102, 103, 201 and 202 are located on local road West North Royster Road, which connects to KY 416. Proposed site

entrances #105, 106, 108, 109, 110, and 203 are located on minor collector KY 416. Site entrances #205A, 205B, 206 and 207 are located on Thomason Road, which connects to KY 416. On the northern side of the project, proposed site entrances #111, 115, 117, 118, 208, and 209 are on minor collector KY 1299 which connects to KY 416. Site entrances #119 and 120 are on local road Meahl-Cates Road, which connects to KY 1299. Site entrances #121, 122, 123, 211, 212 and 213 are located on local road Cherry Hill Road, which connects to KY 1299. An exhibit showing the proposed sites, entrances, and transmission line is attached with this report as Exhibit 1 Sheets 1A and 1B. The summary of the entrance roadways can be found in the following table:

Phase II Site Entrance	Adjoining Road Name	Highway Functional	Lane Width	Paved	Shoulder
#		Classification	(Feet)		
101, 102, 103, 201,	W N Royster Road	Local	16	Yes	No
202					
105, 106, 108, 109,	KY 416	Minor Collector	24	Yes	No
110, 203					
205A, 205B, 206, 207	Thomason Rd	Local	16	Yes	No
111, 115, 117, 118,	KY 1299	Minor Collector	18	Yes	No
208, 209					
119, 120	Meahl-Cates Road	Local	18	Yes	No
121, 122, 123, 211,	Cherry Hill Road	Local	16	Yes	No
212, 213					

The Kentucky Transportation Cabinet (KYTC) collects traffic information and publishes various roadways' annual average daily traffic (AADT). For a given roadway location, AADT shows the mean traffic volume across all days for a year. Located in the project vicinity, and listed below, are three KYTC AADT monitoring stations:

- Station ID 507 located on KY 416
- Station ID 256 located on KY 416
- Station ID 299 located on KY 1299

A summary of the AADT in the project vicinity is given below:

Proposed Phase II Site Entrance	Proposed Phase IISite Entrance'sNearest AADTDistaSiteAdjoiningMonitoringMonSiteRoadwayStation IDto F		Distance (feet) from Monitoring Station to Proposed Site	Annual Average Daily Traffic (AADT)	Year Assessed
Entrance #101	W N Royster Rd	507	7520	416	2019
Entrance #102	W N Royster Rd	507	7402	416	2019
Entrance #103	W N Royster Rd	507	6070	416	2019
Entrance #105	KY 416	507	260	416	2019
Entrance #106	KY 416	507	40	416	2019
Entrance #108	KY 416	507	2850	416	2019
Entrance #109	KY 416	256	1733	490	2019
Entrance #110	KY 416	256	387	490	2019
Entrance #111	KY 1299	256	10038	490	2019
Entrance #115	KY 1299	299	8043	180	2020
Entrance #117	KY 1299	299	6904	180	2020
Entrance #118	KY 1299	299	6251	180	2020
Entrance #119	Meahl-Cates Road	299	5980	180	2020
Entrance #120	Meahl-Cates Road	299	6635	180	2020
Entrance #121	Cherry Hill Road	299	8811	180	2020
Entrance #122	Cherry Hill Road	299	9039	180	2020
Entrance #123	Cherry Hill Road	299	9364	180	2020
Entrance #201	W N Royster Rd	507	6775	416	2019
Entrance #202	W N Royster Rd	507	4643	416	2019
Entrance #203	KY 416	507	1717	416	2019

Entrance #205A	Thomason Rd	507	3545	416	2019
Entrance #205B	Thomason Rd	507	3534	416	2019
Entrance #206	Thomason Rd	507	6937	416	2019
Entrance #207	Thomason Rd	507	7381	416	2019
Entrance #208	KY 1299	256	13110	490	2019
Entrance #209	KY 1299	256	13894	490	2019
Entrance #211	Cherry Hill Road	299	11023	180	2020
Entrance #212	Cherry Hill Road	299	11504	180	2020
Entrance #213	Cherry Hill Road	299	11911	180	2020

Traffic collision data in the project area has been collected from the Kentucky State Police website. From September 1, 2019, to September 1, 2022, the collision data reports 3 property damage only on KY 283. In the same time period, KY 416 had 7 property damages, 3 injury crashes. The collision locations are shown in the attached Exhibit 1. Not all are visible in the exhibit due to being outside of project vicinity.

The expected crash frequency for the segments of KY 283 and KY 416 in the project vicinity is slightly higher than predicted for roads with similar characteristics. To address any traffic safety concerns during the construction of the proposed sites, Sebree Solar II, LLC will ensure that a traffic management plan will be developed by the contractor. Several of the traffic safety techniques to be used are described below.

2.2 Sebree Solar II Project Construction Traffic

2.2.1. Traffic During Construction of Proposed Sites and Transmission Line

The Sebree Solar II Project site entrances will provide ingress and egress during construction for each solar site. The construction activities are expected to take eighteen to twenty-four months. During this time, a temporary increase in traffic is anticipated near the proposed sites. The increased traffic is associated with travel of construction workers, deliveries of construction equipment and material, and delivery of solar panel components and equipment. The construction workers will take trips along the roadways in the morning and evening as they come and go from work. During the construction phase up to 300 workers will be employed for the project. At the beginning of construction, heavy machinery will be delivered to the sites. Throughout the construction process, deliveries of equipment and materials will occur on trailers, flatbeds, or other large vehicles at various times of day. Sebree Solar II, LLC will inform and obtain permits from State and local road authorities as needed for Class 21 vehicle transport to the sites. Road officials will help identify any special transportation requirements for heavy trucks during construction (e.g., the need to avoid existing bridges, the need to reinforce or ramp over existing bridges for which there is no detour, detours of highway traffic, or temporary closures). Sebree Solar II, LLC will comply with all permit requirements and will coordinate with proper road officials as needed.

2.2.2. Traffic Safety Precautions during Site Construction

Appropriate signage and traffic guidance will be utilized to increase driver safety and reduce the risk of any vehicle accidents. Long term lane closures are not anticipated during the construction of the solar facilities. However, when construction work nears the roadways or when the larger deliveries arrive, temporary lane or shoulder closures may be used for the safety of the traveling public and the construction workers. For example, flaggers may temporarily stop highway traffic to allow a delivery truck and trailer to safely turn into the site. *Construction Work* signs will be placed along the roadside to alert motorists that construction traffic may be present on the highway.

2.2.3. Physical Impact on Existing Road Infrastructure

The construction traffic needed for the proposed project should not significantly degrade the existing roadways. The increase in localized traffic and use of heavy trucks may wear the existing roadway around the project sites but significant damage is not expected. Sebree Solar II, LLC will adhere to all local and state requirements related to repair of road infrastructures following construction.

Access drives and internal roads will be constructed or improved as needed to accommodate vehicles and equipment. Internal roads will be compacted gravel, which may result in an increase

in airborne dust particles. During construction, water may be applied to the internal road system to reduce dust generation.

Intersection sight distances were considered at the proposed project entrances. The sites were generally free of sight obstructions that might limit a driver's visibility. Additionally, the land topography in the project area is flat to gently rolling. Therefore, the length of roadway visible to drivers is adequate for safe turning movements. Please note: Site Entrance 108 has limited sight distance on westbound KY 416. It is advised to use flaggers to temporarily stop traffic when construction vehicles are using Entrance 108.

2.3. Facility Operation and Maintenance Traffic

The operation of the Sebree Solar II facility will mostly be self-operating with 2-3 employees making site visits a few times a week to inspect the site, ensure proper equipment operation, and note any maintenance needs. Vehicular traffic on the project site will be limited to typical weekday work hours. Employees will drive mid or full-sized trucks and will contribute less to existing traffic than a typical single-family home; operation of this solar facility will not significantly increase traffic in the project vicinity.

2.4. Traffic Summary and Conclusion

Traffic operation on two-lane rural highways is unique based upon the geometric and traffic characteristics of each road. Therefore, roadway level of service is derived through investigating travel speed, delay (vehicles following slower vehicles), and capacity utilization. However, the primary roadways in the Sebree Solar project area – KY 416, KY 283, and KY 1299 – have very low daily traffic numbers. In fact, the capacity for a two-lane rural highway will be around 2,800 passenger cars per hour, both directions, under ideal conditions¹. The existing average daily traffic on these roads is far less than capacity. Even though the traffic in the project vicinity is predicted to increase during the construction phase of the project, there is so much excess capacity that this roadway system will continue to perform at a very high level of service. This includes morning and evening peaks as construction workers enter and exit the project site and periodic delivery of construction materials and equipment. Also, Sebree Solar II, LLC will ensure that a traffic management plan will be developed by the contractor. This plan will describe measures to address highway traffic impacts due to construction activities.

¹ NCHRP 825 method for highway capacity

During construction, appropriate signage and traffic guidance will be used as necessary to ensure driver safety. Significant damage to existing roadway infrastructure is not expected.

Solar farms are not highway-traffic generators. Therefore, during the operational phase of this solar facility, there will be no significant increase in traffic and there will be very little, if any, impact on the existing road system.

3.0 Fugitive Dust Impacts

Land disturbing activities associated with the proposed project may temporarily contribute to airborne materials. To reduce wind erosion of disturbed areas, appropriate revegetation measures, application of water, or covering of spoil piles may occur. In addition, any open-bodied truck transporting dirt will be covered when the vehicle is in motion. The size of the project site, distance to nearby structures and roadways, combined with vegetative buffers along the property boundaries and fencerows will aid in managing off sites dust impacts. Internal roads will be compacted gravel, which may result in an increase in airborne dust particles during dry conditions and when internal road traffic is heavy. During construction activities, water may be applied to the internal road system to reduce dust generation. Water used for dust control is authorized under the Kentucky Pollutant Discharge Elimination System (KYDES) as a non-stormwater discharge activity, which will be required for the proposed project.

4.0 Impacts on Existing Railways

One CSX rail line passes through the project corridor. The information collected from CSX shows that eleven (11) freight trains pass from 6 a.m. to 6 p.m. and another nine (9) passes from 6 p.m. to 6 a.m. every day. The rail track consists of one main line and no siding. The typical speed over the crossing ranged from 40 mph to 60 mph. The construction of this solar site will not be using railways for any construction or operation activities.

Additional roadway traffic created during the proposed construction will not have any impact to the CSX Railway. Railway impacts to construction traffic are anticipated to be very minimal with only sporadic delays when the railway is active. Likewise, there will be no railway impact during the operational phase of this solar site. There is no anticipated damages to existing railroad infrastructure.

Signatures of Professionals



Jonathan McCracken, P.E.

Assistant Director- Water/Wastewater

PRIME AE Group, Inc.



Jeff Jasper, P.E.

Engineer Director

Professional Engineer License Kentucky PE#20181

JK4 Consulting, LLC







SITE ENTRANCE # 101 Eastbound W N Royster Road



SITE ENTRANCES # 101 and 102 Northbound W N Royster Road



SITE ENTRANCE #102 Northbound W N Royster Road



SITE ENTRANCE # 103 Northbound W N Royster Road



SITE ENTRANCE # 103 Southbound W N Royster Road



SITE ENTRANCE # 105 Westbound KY 416



SITE ENTRANCES # 101 and 102 Northbound W N Royster Road



SITE ENTRANCE # 103 Westbound W N Royster Road



SITE ENTRANCE # 105 Northbound KY 416



SITE ENTRANCE # 101 and 102 Southbound W N Royster Road



SITE ENTRANCE # 103 Westbound W N Royster Road



SITE ENTRANCE # 105 Eastbound KY 416





Westbound KY 416 SITE ENTRANCE # 106



SITE ENTRANCE # 108 Northbound

KY 416





KY 416 Eastbound SITE ENTRANCE # 1 80





SITE ENTRANCE #

Westbound KY 416

KY 416

Eastbound











#

SITE ENTRANCE # Northbound KY 416





SITE ENTRANCE # 106 Eastbound KY 416



SITE ENTRANCE # 108 Westbound KY 416



KY 416 SITE ENTRANCE # 109 Southbound



Eastbound KY 416 SITE ENTRANCE # 110

N U

EXHIBIT 2	PROJECT NO.: 22515 Date: April 2023 Drawn By: SMS/BL Checked By: JM	PROJECT <u>SEBREE PHASE II</u> <u>SOLAR SITE ASSESSMENT</u> ROBARDS, KY KENTUCKY <u>ECT, INC.</u> 3399 VETERANS DRIVE TRAVERSE CITY, MI 49684	BRINE ® 651 Perimeter Drive, Suite 300 1 Lexington, KY 40517 9 (859) 368-0145 ~ F (859) 904-1538
-----------	--	--	--



SITE ENTRANCE # 111 Northbound KY 1299



SITE ENTRANCE # 111 Westbound KY 1299



SITE ENTRANCE # 115 Westbound KY 1299



SITE ENTRANCE # 115 Westbound KY 1299



SITE ENTRANCE # 117 Westbound KY 1299



SITE ENTRANCE # 117 Southbound KY1299





SITE ENTRANCE # 111 Southbound KY 1299



SITE ENTRANCE # 115 Southbound KY 1299



SITE ENTRANCE #118 Northbound KY 1299



SITE ENTRANCE # 115 Northbound KY 1299



SITE ENTRANCE # 117 Northbound KY1299



SITE ENTRANCE # 118 Eastbound KY 1299

					SEAL
		V	651 PERIMETER DRIVE SLITE 300	LEXINGTON, KY 40517	P (859) 368-0145 ~ F (859) 904-1538
PROJECT SEBREE PHASE II	SOLAR SITE ASSESSMENT ROBARDS, KY		<u>3399 Veterans Drive</u>	TRAVERSE CITY, MI 49684	
PROJECT NO.: 22515	DATE: APRIL 2023	DRAWN BY:	SMS/BL	CHECKED BY:	ML
DESCRIPTION OF REVISION					
		EXHIBIT 2			
	Sне 2		NO.		

Eastbound Cherry Hill Road SITE ENTRANCE # 121

SITE ENTRANCE Southbound

#

121

Cherry Hill Road









Westbound SITE ENTRANCE **Meahl-Cates Road** # 119

Southbound KY 1299

SITE ENTRANCE # 118











Southbound **Meahl-Cates Road** SITE ENTRANCE # 119



Meahl-Cates Road Eastbound SITE ENTRANCE # 120



Westbound **Cherry Hill Road** SITE ENTRANCE #122



SITE ENTRANCE # 119 **Meahl-Cates Road** Eastbound



Westbound Cherry Hill Road SITE ENTRANCE # 121



N EXHIBIT 2	PROJECT NO.: 22515 DATE: APRIL 2023 DRAWN BY: SMS/BL CHECKED BY: JM	PROJECT <u>SEBREE PHASE II</u> <u>SOLAR SITE ASSESSMENT</u> ROBARDS, KY <u>KENTUCKY</u> <u>ECT, INC.</u> 3399 VETERANS DRIVE TRAVERSE CITY, MI 49684	BRINE TER DRIVE, SUITE 300 LEXINGTON, KY 40517 P (859) 368-0145 ~ F (859) 904-1538	SEAL
-------------	--	---	---	------



SITE ENTRANCE # 122 Eastbound **Cherry Hill Road**



SITE ENTRANCE # 123 Westbound **Cherry Hill Road**



SITE ENTRANCE # 201 Eastbound W N Royster Road



SITE ENTRANCE # 201 Southbound W N Royster Road



SITE ENTRANCE # 202 Southbound W N Royster Road



SITE ENTRANCE # 202 Northbound W N Royster Road



SITE ENTRANCE # 123 Southbound **Cherry Hill Road**



SITE ENTRANCE # 201 Northbound W N Royster Road



SITE ENTRANCE # 203 Southbound **KY 416**



SITE ENTRANCE # 123 Eastbound **Cherry Hill Road**



SITE ENTRANCE # 202 Westbound W N Royster Road



SITE ENTRANCE # 203 Westbound **KY 416**

			SEAL
			601 РЕКІМЕТЕК DRIVE, SUITE 300 LEXINGTON, KY 40517 P (859) 368-0145 ~ F (859) 904-1538
SEBREE PHASE II	SOLAR SITE ASSESSMENT ROBARDS, KY KENTUCKY	ECT, INC.	TRAVERSE CITY, MI 49684
PROJECT NO.: 22515	DATE: April 2023	DRAWN BY: SMS/BL	CHECKED BY: JM
DESCRIPTION OF REVISION			
	Shee 2	T NO.	\neg

SITE ENTRANCE # 203 Eastbound KY 416

SITE ENTRANCE # 205 A&B Eastbound Thomason Rd

SITE ENTRANCE # 205 A&B Northbound Thomason Rd

SITE ENTRANCE # 206 Eastbound Thomason Rd

SITE ENTRANCE # 208 Northeastbound KY1299

SITE ENTRANCE # 208 Northwestbound KY1299

SITE ENTRANCE # 205 A&B Southbound Thomason Rd

SITE ENTRANCE # 206 Southbound Thomason Rd

SITE ENTRANCE # 207 Northbound Thomason Rd

SITE ENTRANCE # 205 A&B Westbound Thomason Rd

SITE ENTRANCE # 206 Northbound Thomason Rd

SITE ENTRANCE # 207 Southbound Thomason Rd

			SEAL
		\forall	651 PERIMETER DRIVE, SUITE 300 LEXINGTON, KY 40517 P (859) 368-0145 ~ F (859) 904-1538
PROJECT SEBREE PHASE II	SOLAR SITE ASSESSMENT ROBARDS, KY KENTLICKY	ECT, INC.	3399 VETERANS DRIVE TRAVERSE CITY, MI 49684
PROJECT No.: 22515	DATE: APRIL 2023	DRAWN BY: CMC /PI	CHECKED BY: JM
DESCRIPTION OF REVISION			
	, , , , , , , , , ,		
	Sнее 2		

SITE ENTRANCE # 208 Southeastbound KY1299

SITE ENTRANCE # 209 Northeastbound KY1299

SITE ENTRANCE # 211 Westbound **Cherry Hill Rd**

SITE ENTRANCE # 211 Eastbound **Cherry Hill Rd**

SITE ENTRANCE # 212 Southbound **Cherry Hill Rd**

SITE ENTRANCE # 212 Westbound **Cherry Hill Rd**

SITE ENTRANCE # 209 Northwestbound **KY1299**

SITE ENTRANCE # 211 Southbound **Cherry Hill Rd**

SITE ENTRANCE # 213 Eastbound **Cherry Hill Rd**

SITE ENTRANCE # 209 Southeastbound KY1299

SITE ENTRANCE # 212 Eastbound **Cherry Hill Rd**

SITE ENTRANCE # 213 Northbound **Cherry Hill Rd**

				SEAL
			651 Perimeter Drive, Suite 300 Lexington, KY 40517	P (859) 368-0145 ~ F (859) 904-1538
PROJECT SEBREE PHASE II	SOLAR SITE ASSESSMENT ROBARDS, KY KENTICKY	ECT, INC.	3399 VETERANS DRIVE TRAVERSE CITY, MI 49684	
PROJECT NO.: 22515	DATE: April 2023	DRAWN BY: CMC /DI	CHECKED BY:	ML
DESCRIPTION OF REVISION				
	(
	Shee 2	ET NO). 7	

SITE ENTRANCE # 213 Westbound Cherry Hill Rd

N SHEET NO. EXHIBIT 2	DESCRIPTION OF REVISION	PROJECT NO.: 22515 DATE: APRIL 2023 DRAWN BY: SMS/BL CHECKED BY: JM	PROJECT <u>SEBREE PHASE II</u> <u>SOLAR SITE ASSESSMENT</u> ROBARDS, KY <u>KENTUCKY</u> <u>ECT, INC.</u> 3399 VETERANS DRIVE TRAVERSE CITY, MI 49684	651 Perimeter Drive, Suite 300 Lexington, KY 40517 P (859) 368-0145 ~ F (859) 904-1538	SEAL
--------------------------	-------------------------	--	---	---	------