

BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

In the Matter of the Application)	
Of Cherrywood Solar I, LLC for a)	
Certificate Of Public Convenience and)	Case No. 9477
Necessity To Construct a 202 MW Solar)	
Photovoltaic Generating Facility in)	
Caroline County, Maryland)	

DIRECT TESTIMONY OF HELEN STEWART

ON BEHALF OF THE
MARYLAND DEPARTMENT OF NATURAL RESOURCES
POWER PLANT RESEARCH PROGRAM

Tawes State Office Bldg., B-3

Annapolis, MD 21401

410-260-8667

December 13, 2018

1 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

2 A. Helen Stewart, Program Manager, Power Plant Research Program (PPRP),
3 Department of Natural Resources (DNR), Tawes State Office Building,
4 Annapolis, Maryland 21401.

5 **Q. WHAT IS YOUR POSITION WITH PPRP?**

6 A. I am a Program Manager for PPRP and responsible for the management,
7 oversight, and analysis of environmental impact assessments related to the
8 construction, operation, and maintenance of power plants, including utility-scale
9 solar facilities. I have held the position of Program Manager with PPRP since
10 July 2016.

11 **Q. PLEASE DESCRIBE YOUR EXPERIENCE.**

12 A. I have been employed by DNR since 1986 and have been a Program Manager
13 with PPRP since 2016. A brief statement of my educational background,
14 occupational history, and professional qualifications is attached to this testimony
15 as Appendix A.

16 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

17 A. I earned a B.S. in Civil Engineering from the University of Maryland in 1988, and
18 I am a Professional Engineer licensed in Maryland since 1993.

19 **Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?**

20 A. I provide technical and administrative direction on a variety of environmental
21 assessment projects and tasks performed by PPRP staff and consultants related to
22 electricity generation projects. My responsibilities include directing the
23 evaluation and analyses necessary to provide a comprehensive assessment of
24 environmental and socioeconomic impacts associated with the construction and

1 operation of electric generating facilities. As Program Manager, I am responsible
2 for leading the Certificate of Public Convenience and Necessity (CPCN) licensing
3 reviews of new electric generation projects before the Public Service Commission
4 (PSC), in which I coordinate the project review with other State agencies, prepare
5 written testimony, and serve as an expert witness in CPCN proceedings.

6 **Q. AS A PROGRAM MANAGER, WHAT IS YOUR ROLE IN THE CPCN**
7 **PROCESS?**

8 A. With respect to each application for a CPCN for new or modified transmission or
9 generation facilities that is assigned to me, I oversee a comprehensive
10 independent environmental and socioeconomic review of the project and
11 coordinate the development of recommended license conditions that are
12 submitted to the PSC. This process is described in Maryland's Power Plant
13 Siting Act of 1971, Chapter 31 of the Laws of Maryland of 1971, which, along
14 with Maryland's Environmental Policy Act, requires the PSC to consider a broad
15 range of socioeconomic, environmental, health, safety, and system reliability
16 impacts associated with proposed power plants, and new or modified overhead
17 electric transmission lines in excess of 69,000 volts. PPRP coordinates the review
18 of such projects with other units within DNR and other State agencies, including
19 Maryland's Department of Agriculture, Environment, Commerce, Planning
20 (including the Maryland Historical Trust), Transportation, and the Maryland
21 Energy Administration.

22 PPRP is supported by contractors that address economic (Exeter Associates),
23 atmospheric (ERM, Inc.), socioeconomic (Metametrics Inc.), biological (Versar,
24 Inc.), and engineering (ERM, Inc.) issues. Under my direction, appropriate
25 members of these staffs participated in the reviews and evaluations of the
26 documents submitted by the Applicant and participated in field investigations.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide the PSC with a summary of the findings and preliminary recommendations resulting from PPRP's evaluation of the Cherrywood Solar I, LLC (Cherrywood Solar) CPCN application to construct a solar photovoltaic (PV) facility in Caroline County, Maryland. This Project is referred to as the Cherrywood Solar Project (Project). My testimony summarizes the results of PPRP's evaluation and recommendations for the initial recommended license conditions for this Project. My testimony also serves to introduce the testimony of the following expert witnesses, which are being filed today on behalf of PPRP:

- Peter D. Hall, Metametrics – discussing socioeconomic, visual and cultural resource impacts; and
- Donald Strebel, Versar – discussing ecological impacts.

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PROPOSED PROJECT.

A. Cherrywood Solar proposes to build a 202 MW alternating current (AC) solar PV Project in Caroline County, Maryland. The solar array will use a single axis tracker racking system. In addition to the approximately 499,086 solar PV panels, the facility components will also include direct current (DC) to AC power inverters, medium-voltage transformers, control and distribution cabinets, a medium voltage collection system, project switchgear, and other equipment necessary to interconnect to the Delmarva Power and Light (DPL) regional bulk transmission system. Subject to CPCN approval, construction of the Project is anticipated to begin in November 2019, with completion and operational startup in October 2020.

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SITE FOR THE PROPOSED PROJECT.

1 A. The proposed Cherrywood Solar facility (Project) will be located on properties
2 that run from southwest to northeast between the Towns of Greensboro and
3 Goldsboro just west of the Choptank River. The Project is within a 1,088-acre
4 portion of 1,723 acres of parcels. The property consists of 18 parcels and 4
5 additional parcel easements used to accommodate connector lines. Cherrywood
6 Solar has entered into long-term lease agreements or purchased the parcels from
7 the landowners. The Project is in a rural area surrounded by a mixture of
8 agricultural, residential, and commercial/industrial use land. There are 12 non-
9 participating residences with line-of-sight to the Project. Lands with active
10 mining permits and an existing small-scale solar project are also within close
11 proximity to the Project parcels.

12 The Project parcels are all zoned Rural (R) and all have agriculture as the existing
13 property use. Cherrywood Solar states in its CPCN application that the Project is
14 a commercial use that will undergo site plan review consistent with Caroline
15 County's Commercial Site Plan Checklist. Caroline County has a Solar Ordinance
16 that limits utility scale solar projects to 2,000 acres of farmland. This project
17 would be well within the 2,000-acre limit for agricultural land. The Town of
18 Greensboro has issued a letter of support for the Project, subject to Cherrywood
19 submitting its agreement and consent to annex 414 acres of designated growth
20 area into the Town of Greensboro.

21 The Project parcels are in three sections: Upper, Middle, and Lower. The majority
22 of parcels consist of mostly flat agricultural land. In its ERD, Cherrywood Solar
23 states that minimal tree clearing will be necessary to accommodate the Project.
24 As currently proposed, the Project will maintain a minimum 35-foot setback from
25 the drip line of the trees.

26 The Project is located within the Upper Choptank River Basin. The Maryland
27 Critical Area Commission has determined that the Project is not located in the

Chesapeake Bay Critical Area. Wetlands are present on the property. While construction of the solar panels themselves will not affect any jurisdictional waters, the Maryland Department of the Environment (MDE) has determined that Cherrywood Solar must obtain a wetlands permit, due to the project size and the total number of minor crossings needed to accommodate emergency vehicle access to the site.

Q. HOW DOES THE APPLICANT PLAN TO DELIVER ELECTRICITY TO THE POWER GRID?

A. The Project will be located in the PJM service territory and connected to the local grid by tapping the Delmarva Power & Light (DPL) Keeney-Steele 230 kV regional bulk transmission circuit. Cherrywood Solar will install a new three-breaker 230 kV ring bus substation to interconnect. Cherrywood Solar will be responsible for all costs of the interconnection upgrades needed for tapping the line. The electricity produced by the Project solar panels and inverters will be delivered into the PJM Interconnection System. The proposed substation location is on Tax Map 15 Parcel 66, in the Lower Section of the Cherrywood Site, along the western edge of the Church-Steele Transmission Line right-of-way. This area drains immediately into the Choptank River, approximately ½ mile upstream from a Wetland of Special State Concern at the confluence of Gravelly Branch and the Choptank River. Any contaminants from the substation would rapidly enter environmentally sensitive areas. Consequently, the reviewing State agencies are proposing a Recommended License Conditions related to spill control for the Project substation.

Q. HAS THE APPLICANT PROVIDED ANY DOCUMENTS CONTAINING ITS ENVIRONMENTAL AND SOCIOECONOMIC ANALYSIS OF THE PROPOSED PROJECT?

A. Yes. Cherrywood Solar described its environmental and socioeconomic analyses

1 of the potential effects of the proposed Project in its CPCN application, direct
2 testimony, and in responses to PPRP data requests. Cherrywood Solar submitted
3 its CPCN application to the Public Service Commission (PSC) on January 23,
4 2018. This CPCN application included an Environmental Review Document
5 with appendices. The Applicant filed direct testimony with the PSC regarding
6 the Project on June 1, 2018 and filed an updated Environmental Review
7 Document with the direct testimony.

8 **Q. HAS PPRP PERFORMED AN INDEPENDENT ENVIRONMENTAL AND**
9 **SOCIOECONOMIC EVALUATION OF THE PROPOSED PROJECT?**

10 A. Yes. PPRP has performed an independent environmental and socioeconomic
11 evaluation of the proposed Project by reviewing application materials and
12 testimony provided by Cherrywood Solar. PPRP gathered information necessary
13 to verify the evaluations that Cherrywood Solar included in its application.
14 PPRP also participated in a field review of the Project on February 27, 2018.

15 **Q. WHAT IS THE STATUS OF PPRP'S ENVIRONMENTAL AND**
16 **SOCIOECONOMIC EVALUATION OF THE PROPOSED PROJECT?**

17 A. This filing represents a summary of the technical and environmental analyses of
18 the proposed Project completed to date, as well as preliminary conclusions and
19 initial recommendations. Our evaluations are summarized in PPRP's document
20 entitled *Project Assessment Report for Cherrywood Solar*, a draft of which is being
21 filed as PPRP Exhibit __ (HS-3) in this case.

22 **Q. ARE PPRP AND OTHER REVIEWING STATE AGENCIES FILING INITIAL**
23 **RECOMMENDED LICENSE CONDITIONS WITH THE PUBLIC SERVICE**
24 **COMMISSION FOR THIS PROCEEDING?**

25 A. Yes, accompanying my testimony today, PPRP is also filing the initial
26 recommended license conditions along with the Secretarial Letter, which is PPRP

Exhibit ____ (HS-2). PPRP developed these recommended conditions in coordination with the Departments of Environment, Natural Resources, Agriculture, Transportation, Commerce, Planning, and the Maryland Energy Administration (reviewing State agencies). On behalf of these seven State agencies, the Secretaries and the Director of the Maryland Energy Administration have approved these initial recommended conditions. PPRP may amend, add to, or delete these initial recommended license conditions in the final recommended conditions submitted to the PSC, as necessary, to address any issues and impacts that may arise during the proceedings in this case. However, unless additional issues arise requiring such modifications, the proposed initial license conditions submitted in PPRP Exhibit ____ (HS-2) will serve as the reviewing State agencies' final recommended conditions to be incorporated into any order issuing a CPCN in this case.

Q. IN DEVELOPING THE INITIAL RECOMMENDED LICENSE CONDITIONS, WHAT IMPACTS OF THE PROPOSED PROJECT DID PPRP CONSIDER?

A. PPRP has examined the potential environmental impacts of the proposed Project on vegetation resources; wildlife; rare, threatened and endangered species; and wetlands at the Project location. Also, PPRP has examined the potential socioeconomic impacts of the Project to economic and fiscal issues, transportation, land use, historic and archaeological sites, public services and safety, and property values. In addition, PPRP examined the visual impacts, and the noise and electromagnetic field impacts from the proposed Project.

Q. BASED ON PPRP'S EVALUATION, WHAT ARE YOUR CONCLUSIONS REGARDING THE VIABILITY OF THE PROPOSED PROJECT?

A. PPRP believes that the proposed Project is viable for the following reasons. Solar PV projects require open land free from shading impacts caused by nearby trees

1 and high buildings. The proposed property meets this criterion, with only
2 limited tree coverage and sufficient land area not impacted by building shading.
3 The solar PV technology is sound and well tested, with thousands of megawatts
4 of electricity being generated via solar PV technology throughout the United
5 States. Caroline County has a Solar Ordinance that limits utility scale solar
6 projects to 2,000 acres of farmland. This project would be well within the 2,000-
7 acre limit for agricultural land. The Project will require site plan approval from
8 Caroline County in addition to grading and building permits. The County's
9 zoning ordinance defines setbacks and landscaping requirements, which are
10 negotiated in the site plan review process. Assuming that the remaining
11 approvals and financing are successfully obtained, the Cherrywood Solar Project
12 appears to be a viable project in support of the Maryland Renewable Portfolio
13 Standard (RPS).

14 **Q. DOES THIS PROJECT PROVIDE ANY BENEFIT TO THE STATE OF**
15 **MARYLAND?**

16 A. Yes, Maryland has several policies that encourage the deployment of solar
17 energy systems. The first is the State's RPS that calls for 25 percent renewable
18 energy by 2020, including two percent that must come from solar energy sources.
19 Utilities must purchase solar generation or face penalties of up to \$350 per MWh
20 (declining through time), providing a financial incentive to homeowners,
21 business, and independent developers to install solar renewable energy systems.
22 The RPS is not the only policy mechanism providing incentives for the
23 development of solar power in Maryland. Also available are State tax credits,
24 grants, loans, and rebate programs.

25 **Noise Impact Assessment**

26 **Q. PLEASE DESCRIBE ANY NOISE IMPACTS FROM THE PROPOSED**
27 **PROJECT.**

1 A. Noise generally consists of many frequency constituents of varying loudness.
2 Three decibels (dB) is approximately the smallest change in sound intensity that
3 can be detected by the human ear. A tenfold increase in the intensity of sound is
4 expressed by an additional 10 units on the dB scale, a 100-fold increase by an
5 additional 20 dB. Because the sensitivity of the human ear varies according to
6 the frequency of sound, a weighted noise scale is used to determine impacts of
7 noise on humans. This A-weighted decibel (dBA) scale weights the various
8 components of noise based on the response of the human ear. However, sound
9 energy dissipates with increasing distance from the noise source. For every
10 doubling of the distance, the sound pressure level produced by a given noise
11 source decreases by approximately 6 dBA.

12 The maximum allowable noise levels specified in Maryland regulations
13 (COMAR 26.02.03) vary with zoning designation and time of day. The noise
14 limit for residential areas is 55 dBA during nighttime hours and 65 dBA during
15 daytime hours. The regulations also allow for construction activity to generate
16 noise levels up to 90 dBA during daytime hours, but the nighttime standard may
17 not be exceeded during construction. A noise source should not create noise that
18 exceeds the allowable levels, as measured at the receiving property.

19 The reviewing State agencies' recommended license conditions would require
20 that the construction of the proposed solar facility comply with the State's
21 regulatory standards of 65 dBA (day) and 55 dBA (night), and the 90 dBA level
22 during daytime construction (Recommended License Condition No. 4.j).

23 PPRP conducted an independent modeling analysis of the potential noise
24 impacts expected to occur during construction and operation of the proposed
25 facility. PPRP concluded that, based on the available information, the Project
26 will comply with both the construction and operational noise limits.

Electromagnetic Field Impact Assessment

Q. WILL THE PROJECT CREATE ANY HUMAN HEALTH IMPACTS DUE TO ELECTROMAGNETIC FIELDS (EMF)?

A. EMF levels, in particular magnetic field levels, from the proposed Project are projected to fall below threshold human health standards at a distance of 3 feet, therefore the typical buffer from the solar panels to the adjacent homes (greater than 100 feet) is sufficient so that EMF levels from the Project are not anticipated to pose a potential health risk to nearby residents.

Q. DOES THAT CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

APPENDIX A:
STATEMENT OF QUALIFICATIONS
for Helen Stewart

Helen Stewart received a B.S. in 1988 from the University of Maryland in Civil Engineering. She is a Professional Engineer licensed in Maryland since 1993. Ms. Stewart has worked at the Department of Natural Resources (Department) since 1986.

Ms. Stewart has served as a Program Manager with the Maryland Power Plant Research Program (PPRP) since July 2016. She is responsible for leading the Certificate of Public Convenience and Necessity (CPCN) licensing reviews of new electric generation projects before the Public Service Commission (PSC), including coordinating project review with other State agencies, preparing written testimony, and serving as expert witness in CPCN proceedings.

From 2007 to 2016, Ms. Stewart served as the Department's BayStat/StateStat Director and liaison to the Governor's Office of StateStat. Created by Executive Order on February 14, 2007, BayStat was implemented to advance accountability and coordination among key government agencies. Its chief function was to provide the impetus to regularly evaluate state initiatives directed at improving the health of the Chesapeake Bay, ensuring these programs were coordinated and operating at the highest efficiency.

From 1995 to 2007, Ms. Stewart was Chief of the Watershed Analysis Section in the Ecosystem Analysis Center, where she supervised a multidisciplinary team of scientists, engineers and economists to integrate scientific (e.g., biological, ecological, spatial, and demographic) and economic information into cost-effective and sustainable strategies and policies for improving water quality and protecting

and managing natural resources.

From 1986 to 1995, Ms. Stewart worked as a Water Resources Engineer with the three regulatory programs within the Department: the Dam Safety Division, the Waterway Permits Division, and the Tidal Wetlands Division. (These programs were subsequently moved to Maryland Department of the Environment.)