

PRE-FILED DIRECT TESTIMONY OF
WHITNEY RUBIN
ON BEHALF OF AMERICAN BEECH SOLAR LLC

NCUC DOCKET NO. EMP-108, SUB 0

PUBLIC (REDACTED) VERSION

INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. My name is Whitney Rubin. I am a Development Manager with BayWa r.e. Solar Projects, LLC (“BayWa Solar”) at 17901 Von Karman Avenue, Suite 1050 in Irvine, CA 92614.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I have more than twelve years of experience in land use, urban planning, government affairs and community outreach. I bring that experience to the solar industry beginning with work at Center for Resource Solutions, SunPower, followed by First Solar and now at BayWa Solar renewable energy. In total I have two and a half years of experience in solar. I started as a Project Manager with BayWa Solar in January of 2019. My prior roles include Senior Planning Deputy for a Los Angeles City Councilmember, Project Manager for a non-profit building schools, and a Project Associate writing documents to follow the California Environmental Quality Act (CEQA) regulations. I hold a Bachelor of Arts degree in Geography and Environmental Studies from the University of California, Los Angeles (UCLA), and two MA degrees from UCLA with a Master of Arts in Latin American Studies, and a Master of Arts in Urban Planning.

1 **Q. WHAT IS YOUR RELATIONSHIP TO THE APPLICANT?**

2 **A.** As discussed in the application, American Beech Solar LLC (“American Beech
3 Solar”) is a limited liability company organized for the development and ownership of the
4 American Beech Solar Project (“the Project”) for which a Certificate of Public Convenience
5 and Necessity is being sought in this proceeding. American Beech Solar was initially
6 developed by Geenex Solar, LLC, a Delaware limited liability company (“Geenex”), and later
7 fully acquired by my employer, BayWa Solar. While Geenex spearheaded land acquisition
8 and local permitting with BayWa Solar’s support, BayWa Solar is in charge of engineering,
9 procurement, construction, power marketing, and O&M.

10 **Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT**
11 **RESPONSIBILITIES.**

12 **A.** My current role as a Development Manager with BayWa Solar covers the whole
13 spectrum of solar PV development from land acquisition to support of closing of project sales
14 with long-term owners. This includes local, state, and federal permitting, title curative work,
15 and budgeting. Local permitting focuses on obtaining conditional use permits and fulfilling
16 their condition to enable issuance of a grading and building permit. State permitting includes
17 state environmental permits as well as Certificates of Public Convenience and Necessity or
18 Reports of Proposed Construction, as applicable. Federal permits are usually limited to
19 wetland related permits issued by the U.S. Army Corps of Engineers.

20 Within BayWa Solar, the Development department coordinates with Engineering,
21 Construction, Legal, and Project Finance to take a project from idea to marketable asset.

22 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS**
23 **COMMISSION?**

1 A. No.

2 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

3 A. The purpose of my testimony is to provide the Commission with background
4 information about the American Beech Solar Project, its sponsoring developer BayWa Solar,
5 its development process, as well as project timeline and electricity offtake. The information I
6 am providing will serve to expand on topics in American Beech Solar's application, including
7 the regulatory and permitting process for the Project, community engagement related to the
8 Project, and its current permitting status.

9 **COMPANY BACKGROUND AND PROJECT FINANCE**

10 **Q. PLEASE DESCRIBE THE COMPANY'S TECHNICAL EXPERIENCE**
11 **AND FINANCIAL CAPABILITIES TO OWN AND OPERATE THE PROJECT.**

12 A. As described in the application, BayWa Solar is a fourth-tier subsidiary, wholly
13 owned by its Munich-based international parent company BayWa AG ("BayWa AG"). BayWa
14 Solar is the sole member of BayWa r.e. Development, LLC, which again is the sole member
15 of American Beech Solar.

16 BayWa Solar has the experience to build, own, and operate solar power generation
17 facilities, including the Project. As mentioned in the application, BayWa Solar operates, has
18 developed or sold, or has in its development pipeline 46 solar facilities throughout the United
19 States including projects in Washington State, Utah, New York, Illinois, Kentucky, Virginia,
20 California, Georgia, and North Carolina. With the completion of these additional projects and
21 the Project, BayWa Solar expects to develop approximately 1.2 gigawatts ("GW") of capacity
22 across the United States.

1 BayWa Solar also has the financial capacity to build and operate the Project. The
2 development of the Project is funded by BayWa Solar through intra-company loans provided
3 by its parent company, BayWa AG. The most recent consolidated financial statements of
4 BayWa AG, BayWa Solar's parent company, for 2019 are provided as **Schedule 3** to the
5 **Application**.

6 **Q. HOW WILL THE PROJECT BE FINANCED?**

7 **A.** As mentioned earlier in my testimony, the development of the Project is funded
8 through intra-company loans between BayWa AG and BayWa Solar. Prior to purchasing
9 major equipment and commencing construction, BayWa will obtain a construction loan from
10 a third-party lender, likely a commercial bank. About 80% of project cost can be financed
11 through a loan. During construction, BayWa Solar will raise tax equity, additional cash equity,
12 and term debt. The loan will be retired when the project goes operational with proceeds from
13 term debt and tax equity.

14 **Q. WHAT IS THE CONSTRUCTION TIMELINE FOR THE FACILITY?**

15 **A.** As discussed in the Application **Exhibit 2**, Construction for the project is
16 expected to proceed in two phases, Phase I (80 MW) and Phase II (30 MW). Phase I is expected
17 to begin construction in the second quarter of 2021 with an estimated date of commercial
18 operation date in the fourth quarter of 2022. Phase II is expected to begin construction in the
19 4th quarter of 2021 with an estimated date of commercial operation date in the 4th quarter of
20 2022.

21 **Q. DESCRIBE BAYWA SOLAR'S EXPERIENCE WITH RAISING**
22 **PROJECT FINANCING.**

1 A. As a subsidiary of BayWa AG, BayWa Solar has the capability on behalf of the
2 Project to arrange adequate financing, insurance, guarantees, security, and other assurances for
3 the Project's development, construction, and operation. Although BayWa Solar finances
4 construction for smaller projects on balance sheet, BayWa Solar has also successfully obtained
5 third party financing for loans on behalf of its other solar PV projects that is similar to the
6 third-party financing BayWa anticipates for the Project. BayWa Solar arranges project
7 financings through a team of professionals in Irvine, California.

8 **SITE AND FACILITY DESCRIPTION**

9 **Q. PLEASE DESCRIBE THE LOCATION OF THE PROJECT, AS WELL**
10 **AS CURRENT LAND USE AND ANTICIPATED USE.**

11 A. The American Beech Solar Project is made up of portions of land owned by
12 twelve (12) different landowners who in total own 3070 acres of privately-owned land outside
13 of Scotland Neck in Halifax County, North Carolina. There are also easements obtained from
14 a 13th landowner that connect parts of the project. The Project will include approximately 1,800
15 fenced acres of this privately-owned land plus land outside the fence that will be used for
16 screening and other project needs.

17 The site is largely rural and agricultural in nature and most of the landowners will
18 continue to farm and live in proximity to the site. The site will primarily lie behind ongoing
19 farm operations and natural vegetative buffers. The Project's remote location will allow it to
20 be shielded from roadway views and neighboring landowners through the use of generous
21 setbacks, natural buffers and added vegetative screening.

22 American Beech Solar has executed thirteen (13) lease or purchase options plus one
23 (1) transmission and communication easement for the solar array area of the site. Two

1 easements are from the same landowner and the Applicant is working to obtain a third
2 redundant easement from another landowner. These land control agreements give American
3 Beech Solar the right to develop and use the property for solar energy purposes, including the
4 installation of solar racking, solar panels, inverters, transformers, and the other elements of the
5 Facility described in the application and my testimony.

6 **REGULATORY APPROVALS AND PERMITS**

7 **Q. DESCRIBE THE PERMITS AND APPROVALS YOU ANTICIPATE**
8 **WILL BE NECESSARY TO COMMENCE CONSTRUCTION OF THE FACILITY.**

9 **A.** American Beech Solar proposes to develop, install, and operate a utility-scale
10 solar photovoltaic solar energy system in Halifax County in a manner consistent with local
11 zoning ordinance and in accordance with all federal, state, and local regulations.

12 The Project requires a conditional use permit (CUP) and an electrical/building permit
13 from Halifax County. American Beech Solar's local CUP application confirmed that it either
14 met or exceeded all applicable zoning district requirements, parcel line and equipment
15 setbacks, height limitations and vegetative buffering as defined by the Halifax County Zoning
16 Ordinance. American Beech Solar obtained its CUP approval on November 13, 2018 by a
17 unanimous vote of the Halifax County Board of Adjustments. The official documentation of
18 this CUP approval was issued by Halifax County on November 15, 2018 with a one-year
19 extension issued on October 29, 2019. Building/electrical permits will be applied for when the
20 project is ready to be constructed which is anticipated to be second quarter of 2022.

21 From the State of North Carolina, the Project will require (a) a certificate of public
22 convenience and necessity for an electric merchant plant; (b) a stormwater management permit
23 from the Department of Environmental Quality; (c) an erosion and sedimentation control plan

1 permit for construction-related activities; and (d) N.C. Department of Transportation driveway
2 permits.

3 With respect to federal approvals, the facility will need final wetlands determination
4 and/or a permit from the U.S. Army Corps of Engineers (the “Corps”) under Section 404 of
5 the federal Clean Water Act. American Beech Solar has submitted a wetlands study to the
6 Corps, but no jurisdictional determination has been made by the Corps at this time.

7 The facility may apply for Market-Based Rate Authorization from the Federal Energy
8 Regulatory Commission (“FERC”), pursuant to Sections 205 and 206 of the Federal Power
9 Act, and may seek to self-certify with FERC as an Exempt Wholesale Generator pursuant to
10 the Public Utility Holding Company Act of 2005.

11 Although the Facility is not located on federally obligated airport land, the Federal
12 Aviation Administration (“FAA”) may request for American Beech Solar to voluntarily submit
13 a glare study to conform to the FAA’s solar policy. If requested by FAA, American Beech
14 Solar will have a glare study performed and then submit the glare study to the FAA.

15 **Q. DOES HALIFAX COUNTY HAVE A SOLAR ENERGY ORDINANCE?**

16 **A.** Yes, Halifax County established a Solar Energy Systems Ordinance (“SESO”),
17 adopted December 1, 2014 and amended March 2, 2015.¹ The Ordinance requires a permit for
18 solar energy facilities proposed in Halifax County based on the size of the facility and the
19 facility’s zoning district. Depending on the size of the facility, the ordinance requires certain
20 setbacks, vegetative buffers, height limitations, site plan specifications, and a
21 decommissioning plan for the removal of equipment and return of the property to its prior
22 condition upon the end of the facility’s production.

1 As required by the SESO, the Project Site is buffered from view from most roadways
2 by natural vegetative buffering and continuing farm operations, and significant setbacks and
3 buffering consideration has been given to neighboring landowners. The decommissioning
4 plan, which was submitted and signed by all landowners of the Site, is attached as Exhibit A
5 to this prefiled testimony. The decommissioning plan provides that at the end of the Facility's
6 useful life, the Site will be stabilized and restored in such a manner to ensure it is clean, safe,
7 and environmentally stable. Environmentally conscious practices are developing so that solar
8 photovoltaic ("PV") panels can be collected and recycled at the end of their useful life rather
9 than deposited in a landfill. The site plan and CUP application for the Facility were prepared
10 in order to satisfy all applicable requirements as defined in the Halifax County SESO. The
11 SESO also requires a stormwater permit and a Conditional Use Permit as previously mentioned
12 in my Testimony and in the Application.

13 **Q. HOW WILL THE PROJECT BE INTERCONNECTED TO THE GRID?**

14 **A.** The American Beech Project will interconnect with the transmission grid
15 owned by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina
16 ("Dominion"). The Project (PJM Queue no. AC1-098/AC1-099 and AC2-083/84) will
17 interconnect with the PJM transmission system via a new three breaker ring bus switching
18 station that connects on Dawson Crossroads – South Justice Branch 115kV line after a new
19 step-up transformer.

20 American Beech received an executable Interconnection Service Agreement with
21 Dominion, and PJM Interconnection LLC on January 6, 2020 for AC1-098/99. This
22 Interconnection Service Agreement provides the terms and conditions under which Phase I of
23 the Project will interconnect. The estimated Network Upgrade charges for the Project are

1 [REDACTED] [REDACTED] The estimated
2 Attachment Facility charges are [REDACTED] [REDACTED] [REDACTED]
3 [REDACTED], for a total estimated cost of [REDACTED]
4 [REDACTED] The Project will be funding the entire cost of these upgrades and
5 does not expect to receive reimbursement of those costs from PJM, Dominion, or Dominion's
6 ratepayers. An amendment to the Interconnection Service Agreement adding Phase II of the
7 project (which was assigned PJM Queue No. AC2-083/84) is expected by May 31, 2020.
8 Additional costs if any, will be identified in the future amendment.

9 **Q. DOES THE APPLICANT HAVE PLANS TO INCORPORATE ENERGY**
10 **STORAGE AT THE FACILITY?**

11 **A.** At this time the Applicant has no plans to include energy storage at the Facility.

12 **Q. WHAT IS THE PROJECT'S ANTICIPATED ELECTRICITY**
13 **PRODUCTION CAPABILITY?**

14 **A.** The combined nameplate generating capacities of Phase I (80 MW) and Phase
15 II (30 MW) at the facility will be 110 MW, with anticipated gross capacity of approximately
16 110 MW and an anticipated generation of 267 GWh of electricity per year. Because solar
17 power is subject to intermittent solar irradiance, American Beech's maximum dependable
18 capacity is projected to be 0 MW during some hours of the day.

19 **Q. PLEASE DESCRIBE THE BASIC COMPONENTS OF THE FACILITY.**

20 **A.** For the American Beech Solar Project, 110 MW of monocrystalline
21 photovoltaic solar modules will be installed on single-axis trackers. These trackers are installed
22 on a north-south axis tilting in an east-west direction to enable the modules to follow the sun
23 throughout the day. Trackers consist of galvanized steel and are anchored on H-shaped steel

1 posts that are driven about six feet into the ground. The trackers do not have a concrete
2 foundation. The total number of modules will be roughly 420,498 depending on exact wattage
3 of the modules.

4 Forty-six (46) inverters will transform DC power generated by the solar modules into
5 110 MW of AC capacity. Forty-six (46) transformers will step the voltage of generated power
6 up from 630V at the inverters to 34.5kV. Power from these step-up transformers will be
7 collected at the main power transformer that will again step up the voltage from 34.5kV to
8 115kV to align with the voltage at a switching station which will be built for the project. The
9 switching station will connect to the existing 115kV transmission lines crossing the project
10 site.

11 The project is located on a number of adjacent and non-adjacent parcels of land. The
12 individual blocks of trackers with solar modules will be connected through medium-voltage
13 cable runs between the parcels. These connections will be using either overhead poles or buried
14 cable installed in culverts or via directional boring. Where projects parcels are not adjacent,
15 easements with neighboring landowners have been secured to allow for installation of power
16 lines.

17 **Q. PLEASE EXPLAIN THE NEED FOR THE FACILITY.**

18 **A.** American Beech Solar is expected to generate about 267 GWh per year, which
19 will be injected into the existing power grid.

20 The American Beech Solar Project will interconnect with the Dominion Energy
21 transmission grid, affording it access to the PJM Interconnection (“PJM”), a Regional
22 Transmission Organization (“RTO”) in which Dominion participates. PJM coordinates the
23 movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky,

1 Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia,
2 West Virginia, and the District of Columbia.

3 As discussed in Exhibit 3 of the Application, projections for corporate purchase of
4 energy and renewable energy credits (“RECs”) from solar facilities in the southeast market of
5 PJM is expected to increase over the next few years. American Beech believes that healthy
6 market conditions will create sustainable offtake for its production.

7 Demand for renewable power is expected to increase in the Southeast over the expected
8 lifetime of the Project. Dominion Energy has committed to increasing its use of renewable
9 power to generate 5,000 MW of electricity by 2028. As noted in Exhibit 1 and Schedule 4 to
10 the Application, the Business Renewables Center, a non-profit initiative that is the leading
11 industry convener between corporate renewable energy buyers and renewable energy
12 developers, predicts that the demand for renewable energy in the PJM market, described below,
13 will increase over the next year as shared in a chart with its members in April 2018. Projections
14 from PJM indicate that the demand for power, particularly in the Southeast, will increase as
15 described below.

16 Dominion’s commitment is consistent with state-level policy set by the Virginia
17 General Assembly, which affirmed the growing importance of renewable energy generation in
18 passing the Grid Transformation and Security Act of 2018 (the “GTSA”), signed into law by
19 Governor Ralph Northam on March 9, 2018. The GTSA finds that up to an additional 5,000
20 MW of utility-scale electric generating facilities powered by solar and wind energy is in the
21 public interest, along with up to an additional 500 MW of non-utility scale solar or wind
22 generating facilities, including rooftop solar installations.

1 American Beech Solar anticipates contracting the sale of energy, capacity, and
2 Renewable Energy Credits (“RECs”) through PJM. Load growth for the PJM RTO as a whole,
3 and more specifically for the Dominion Virginia power zone, which serves parts of Eastern
4 North Carolina and Virginia (as shown as Schedule 8 to the Application), is expected to
5 increase over the next ten to fifteen years as described below for both winter and summer
6 months.

7 Summer peak load in PJM is expected to grow by 0.3% per year over the next ten years,
8 and by 0.3% over the next 15 years.¹ For the Dominion Virginia Power zone, summer peak
9 load growth is expected to grow by 0.9% per year over the next ten years, and 0.8% per year
10 over the next fifteen years.² The anticipated ten-year summer peak load growth in the
11 Dominion Virginia Power zone represents 1.4% growth over the January 2018 load forecast
12 report.³

13 Winter peak load growth in PJM is projected to average 0.4% per year over the next
14 10-year period, and 0.4% over the next 15-years.⁴ Winter peak load growth for the Dominion
15 Virginia Power zone is expected to grow by 0.9% per year over the ten years, and 0.9% per
16 year over the next nine to fifteen years.⁵ The anticipated ten-year winter peak load growth in
17 the Dominion Virginia Power zone represents 1.4% growth over the January 2018 load forecast
18 report.⁶

¹ PJM Load Forecast Report (Mar. 2019 – RPM Update), available at <https://www.pjm.com/-/media/library/reports-notices/load-forecast/2019-rpm-load-forecast.ashx?la=en>, at 43-44.

² *Id.*

³ *Id.* at 40.

⁴ *Id.* at 47-48.

⁵ *Id.*

⁶ *Id.*

1 The PJM service area of North Carolina has slightly higher projected load growth than
2 Virginia. North Carolina is expected to average between 0.9 and 1.1% per year over the next
3 10 years versus the PJM RTO load growth projections to average between 0.3% and 0.4% over
4 the next ten years.⁷

5 Generation retirement also demonstrates the need for new sources of electricity in the
6 region, and in North Carolina in particular. Approximately 209 MW of capacity in North
7 Carolina was retired in 2017. This represents more than 10 percent of the 2,084 MW that retired
8 RTO-wide in 2017.⁸

9 **OFFTAKE PLANS**

10 **Q. DESCRIBE THE OFFTAKE PLANS FOR THE PROJECT.**

11 **A.** BayWa Solar has substantial experience with offtake in the PJM market and the
12 expectations for power purchase from the PJM market in the southeast United States are strong.
13 BayWa Solar has previously secured and is actively negotiating for over 300 MW of offtake
14 within the PJM market, and is using this experience to secure offtake for American Beech.
15 Currently, American Beech Solar is in active negotiations for power purchase agreements with
16 a group of investment-grade off-takers for approximately 110 MW and is expecting final power
17 purchase agreements with these parties in the first quarter of 2020.

18 **Q. WHAT ARE THE LONG-TERM PLANS FOR OWNERSHIP OF THE**
19 **PROJECT?**

20 **A.** After securing power offtake, BayWa Solar plans to market the project to
21 potential long-term owners who are able to utilize the federal investment tax credit. This is

⁷ PJM, 2018 North Carolina State Infrastructure Report (January 1, 2018 – December 31, 2018), May 2019, 21, available at <https://www.pjm.com/-/media/library/reports-notice/state-specific-reports/2018/2018-north-carolina-state-data.ashx?la=en>.

⁸ *Id.* at 21

1 usually done through a competitive, multi-stage bidding process. This process has not yet
2 started.

3 While the project assets will be owned by a long-term investor, BayWa Solar will
4 provide operation and maintenance services to the project.

5 **Q. PLEASE DESCRIBE THE ANTICIPATED BENEFITS OF THE**
6 **PROJECT TO THE LOCAL COMMUNITY.**

7 **A.** The American Beech Solar Project will create significant benefits for the local
8 community, including a substantial increase in tax revenues. The current tax revenue is
9 estimated at \$20,812 per year at the current land designation as agricultural. The Halifax
10 County taxes solar projects at \$5,000 per acre for Primary land and \$1,000 per acre for
11 Secondary or Marginal land. The project contains 1578.56 acres of Primary land and 1492.03
12 acres of Secondary/Marginal land. To provide a conservative estimate of the total yearly taxes,
13 it is estimated that the project used half of the Primary land and half of the Marginal land. The
14 resulting yearly tax created by the solar project would be \$4,692,420 for Halifax County
15 annually.

16 The Applicant also anticipates that the proposed Project will require the hiring of
17 somewhere between 150 and 250 local positions during construction as this is consistent with
18 similar projects of this type and size. Construction materials will need to be purchased,
19 delivered, and installed during construction as well. In addition, there will be a demand for
20 locally-sourced contractors during facility operation (landscaping, grounds keepers,
21 maintenance etc.). Contractors and employees traveling from outside Halifax County to assist
22 with the Project will require the services of local accommodation providers and local
23 restaurants/grocery stores. Solar also will bring employment opportunity and development for

1 the local Halifax County workforce. For a project of this size, the cumulative spending in the
2 area from the development and construction process is anticipated to be in the millions of
3 dollars.

4 The proposed Project will not meaningfully increase demand for County services. It
5 will have no adverse impact on schools, law enforcement, or fire and rescue. Construction of
6 the Project will not necessitate any new or expanded public infrastructure and/or
7 improvements. Once operational, the Project will not substantially change the character of the
8 area.

9 Lastly, the Project's site control arrangements allow landowners involved in the Project
10 to keep their land under family control while ensuring them a long-term and stable income
11 source through long-term solar lease agreements. Many of our landowners will use this income
12 to continue agricultural operations on other land in the area.

13 **Q. WHAT ARE THE EXPECTED ENVIRONMENTAL IMPACTS OF THE**
14 **FACILITY?**

15 **A.** By design and by its nature as a solar PV facility, the Facility will provide clean
16 renewable power with minimal environmental impacts. The Facility will create no air or water
17 emissions or other environmental contamination, nor will it create any noise impacts outside
18 the fence line. Minimal reflectivity or glare will be created, as the panels are designed to
19 absorb as much sunlight as possible. At the end of the Facility's useful life, materials can be
20 recycled or sold for scrap, and the land can be returned to agricultural use. The
21 decommissioning plan for the Project is attached as Exhibit A.

22

**Q. HOW HAVE THE APPLICANTS ENGAGED THE LOCAL
COMMUNITY IN RELATION TO THE PROJECT?**

A. Since the CUP was approved and issued, American Beech Solar has continued to engage with the local community. BayWa Solar plans to work with 4H in the community to achieve its goal of empowering young people with the “skills to lead for a lifetime.” BayWa Solar also plans to work with the Halifax Community College on its efforts to provide affordable and needed job training.

Through donations, BayWa Solar has supported the Center for Energy Education with their local job training program. The Center for Energy Education is an important local community and solar education center. More than 50 Halifax County teachers have participated in training and received materials to help teach their students about renewable energy. In addition, hundreds of Halifax County citizens have come to participate in many C4EE sponsored/hosted events such as: Martin Luther King, Jr. Community Service Program, Education on Climate Change, “Teach for America” information sessions, local Rotary Club meetings, Senior Citizen Workshops, and solar education and facility tours.

Prior to submission of the Project’s CUP application, American Beech Solar held a community information meeting at the Scotland Neck Municipal Building on October 30th, 2018. Neighboring landowners within 300 feet of the Project's boundary were notified by mail about this event. Development professionals associated with the Project, along with industry experts, were on hand to answer questions and review Project details. The Center for Energy Education and Halifax Community College was also on hand to discuss its renewable energy programs.

1 Attendees at the meeting included the Mayor of Scotland Neck, the Town
2 Administrator of Scotland Neck, a Halifax County Planning Board Member (and farm-owner
3 near the site), a Halifax County Economic Development Committee Board Member, the
4 Halifax County Economic Development Director, and eight other nearby landowners.

5 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 **A.** Yes.

EXHIBIT A

TO

PRE-FILED DIRECT TESTIMONY OF
WHITNEY RUBIN
ON BEHALF OF AMERICAN BEECH SOLAR LLC

NCUC DOCKET NO. EMP-108, SUB 0

DECOMMISSIONING PLAN

AMERICAN BEECH SOLAR DECOMMISSIONING PLAN

Prepared by BayWa r.e. Development LLC
Dated: 10/24/2019

1. INTRODUCTION

1.1 Project Background

American Beech Solar LLC and American Beech Solar 2 LLC, with substation address 830 Bynum's Bridge Road - Scotland Neck, NC 27874 is an expected 110MW project located in Halifax County, North Carolina. The project is 3070 total acres with the panels expected to take up approximately one half of that acreage. The solar photovoltaic power array owned by American Beech LLC and American Beech Solar 2 LLC, ("**Project**"), is anticipated to operate for a period of no less than 20 years under a power purchase agreement. It is anticipated that the Project will use the existing technology up to an additional 20 for a total operating period of 40 years. At the completion of its operating life, the Project will either be redeveloped with modern equipment, or it will be decommissioned and removed from the site in accordance with this plan.

1.2 Objectives

The objective of this Decommissioning Plan, ("**Plan**"), is to provide the requisite financial surety to guarantee the decommissioning of the Project.

1.3 Plan Conditions:

Prior to commencing with any decommissioning activities in accordance with this Plan, American Beech Solar LLC and American Beech Solar 2 LLC will provide documentation to process the appropriate permit(s). If the Project is to be redeveloped, a new building plan permit will be processed before any installation of new equipment. Decommissioning the Project will allow the parcels that were changed under the Project's CUP to be returned to their original zone classifications.

2. DECOMMISSIONING OF FACILITY AFTER CEASING OPERATION

2.1 General Environmental Protection

During decommissioning and restoration activities, general environmental protection and mitigation measures will be implemented. Many activities during decommissioning will be comparable to the construction phase, including the use of heavy equipment on site, preparing staging areas, and restoring constructible areas.

2.2 Pre-Decommissioning Activities

Prior to engaging in decommissioning activities, American Beech Solar LLC and American Beech Solar 2 LLC will provide documentation to process the appropriate permits in accordance with all relevant county, state and federal statutes in place at the time of decommissioning.

Prior to any decommissioning or removal of equipment, staging areas will be delineated as appropriate. At the end of the Project's useful life, it will first be de-energized and isolated from all external electrical

lines. All decommissioning activities will be conducted within designated areas; this includes ensuring that vehicles and personnel stay within the demarcated areas. Work to decommission the collector lines and Project-owned transmission lines will be conducted within the boundaries of the municipal road allowance and appropriate private lands.

2.3 Equipment Decommissioning and Removal

The basic components of the Project are photovoltaic (PV) modules, mechanical racking system, electrical cabling, inverter racks, transformers and concrete pads as described below.

- **Modules:** The modules will be removed by hand and placed in a truck to be returned for recycling or disposal as described below in section 2.4.
- **Mechanical racking system:** will be removed with an excavator with a demolition thumb. The recyclable metal will be loaded on trucks and hauled away in accordance with section 2.9.
- **Inverters Racks and Inverters:** The inverters and its racks will be removed by hand and loaded on trucks for recycling in compliance with section 2.5.
- **Transformers:** Transformers will be removed in compliance with section 2.5 and then loaded on to a truck with a crane and sent for recycling.
- **Concrete pads:** The equipment will be disconnected and transported off site by truck. The concrete foundations and support pads will be broken up by mechanical equipment (backhoe-hydraulic hammer/shovel, jackhammer), loaded onto dump trucks and removed from the site. Smaller pre-cast concrete support pads and/or pre-manufactured metal skids will be removed intact by cranes and loaded onto trucks for reuse, or will be broken up and hauled away by dump trucks.

2.4 PV Module Collection and Recycling

All modules will be disconnected, removed from the trackers, packaged and transported to a designated location for resale, recycling or disposal. Any disposal or recycling will be done in accordance with applicable laws and requirements. The connecting underground cables and the junction boxes will be de-energized, disconnected, and removed. The mechanical racking system supporting the PV modules will be unbolted and dismantled by laborers using standard hand tools, possibly assisted by small portable cranes. All support structures will be completely removed by mechanical equipment and transported off site for salvage or reuse. Any demolition debris that is not salvageable will be transported by truck to an approved disposal area. Other salvageable equipment and/or material will be removed from the site for resale, scrap value or disposal.

2.5 Electrical Equipment and Inverters

All decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, state and federal laws. Any electrical decommissioning will include obtaining required permits, and following applicable safety procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and cabling.

Decommissioning will require the removal of the electrical equipment, including inverters, transformers, underground/aboveground cables and overhead lines. Equipment and material may be salvaged for resale or scrap value depending on the market conditions.

2.6 Roads, Parking Area

All access roads and the parking area will be removed to allow for the complete rehabilitation of these areas unless the landowner provides written consent to retain these features. Typically, the granular base covering of these areas will be removed using a wheel loader to strip off the material and dump trucks to haul the aggregate to a recycling facility or approved disposal facility. The underlying subsoil, if exhibiting significant compaction (more likely for the site entrance road than the interior access roads), will then be diced using a tractor and disc attachment to restore the soil structure and to aerate the soil. Clean topsoil will be imported on site by dump truck, replaced over the area and leveled to match the existing grade.

2.7 Other Components

Unless retained for other purposes, removal of all other facility components from the site will be completed, including but not limited to surface drains, access road cross-culverts, and fencing. Anything deemed usable shall be recovered and reused elsewhere. All other remaining components will be considered as waste and managed according to local, state, and federal laws. For safety and security, the security fence will be dismantled and removed from the site after all major components, PV modules, tracker system and foundations have been removed.

2.8 Site Restoration

The following activities will be undertaken to restore the site to substantially its previous condition;

- Site cleanup, re-grading to original contours and, if necessary, restoration of surface drainage swales and ditches.
- Any trenches/drains excavated by the Project will be filled with suitable materials and leveled.
- Any road, parking area will be removed completely, filled with suitable sub-grade material and leveled.
- Any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled.
- Topsoil will be spread as necessary to ensure suitable conditions for vegetation re-growth and reseeded with native seed mix to promote vegetation.

The project fence and existing fire access roads may remain in place upon written consent of the landowner.

2.9 Management of Wastes and Excess Materials

All waste and excess materials will be disposed of in accordance with local, state and federal laws. Waste that can be recycled under municipal programs will be done accordingly. Waste that requires disposal will be disposed of in a state licensed facility by a state licensed hauler.

2.10 Emergency Response and Communications Plans

During decommissioning, American Beech Solar LLC and American Beech Solar 2 LLC will coordinate with local authorities, the public, and others as required to provide them with information about the ongoing activities. Besides regular direct/indirect communication, signs will be posted at the Project facility to give information to the local public and visitors. The American Beech Solar LLC contact information (telephone number, email and mailing address) will be made public for those seeking more information about the decommissioning activities and/or reporting emergencies and complaints. All inquiries will be directed to the American Beech Solar LLC and American Beech Solar 2 LLC Representative who will respond to any inquiry. In the event of an emergency, American Beech Solar LLC and American Beech Solar 2 LLC will mobilize its resources to the site to respond to the event. Personnel involved in decommissioning will be trained in the emergency response and communications procedures. Emergency response procedures will be prepared prior to decommissioning.

3. PROJECT DECOMMISSIONING COST ESTIMATE

3.1 Cost Estimate:

American Beech Solar LLC and American Beech Solar 2 LLC shall provide a detailed Decommissioning Cost Estimate, prepared by a NC Licensed Engineer, prior to the issuance of building permits, which shall include the following:

- a) the gross estimated cost to perform Decommissioning as set forth in Section II above ("**Gross Cost**");
- b) an increase of the Gross Cost by 10% in order to eliminate any discrepancy in cost estimation techniques ("**Contingency**");
- c) the estimated resale and salvage values associated with the Project equipment ("**Salvage Value**");
- d) a reduction from the Salvage Value by 10% such that only 90% of the Salvage Value can be used as a credit against the Gross Cost and Admin Factor. The Salvage Value multiplied by 90% is the ("**Salvage Credit**").

Thus the Decommissioning Cost Estimate formula is:

Gross Cost + Contingency - Salvage Credit = the "**Decommissioning Cost Estimate**".

The Decommissioning Cost Estimate shall include a table allocating the net cost estimate across the Project area, based on the percentage of generating capacity in megawatts (MW) on each property ("Allocation Areas"). The Allocation Areas will be divided based upon the lease areas, however Allocation Areas will reference the underlying land, in case ownership of the underlying land changes control during the life of the Project.

3.2 Security:

American Beech Solar LLC and American Beech Solar 2 LLC will provide an amount equal to the Decommissioning Cost Estimate (as determined by a NC Licensed Engineer, per section 3), ("**Decommissioning Security**"). Decommissioning Security shall be provided by American Beech Solar LLC prior to the Commercial Operation Date.

The Decommissioning Security may be in one of the following forms: (i) cash to be held in escrow by the County Treasurer at a Bank, or (ii) a letter of credit from a financial institution reasonably acceptable to the County which shall be irrevocable unless replaced with cash or other form of security reasonably acceptable to County (each a form of "**Acceptable Credit Support**").