

1 PLACE: Via Videoconference
2 DATE: Wednesday, October 27, 2021
3 TIME: 10:00 a.m. - 10:54 a.m.
4 DOCKET NO: EMP-118, Sub 0 and Sub 1
5 BEFORE: Chair Charlotte A. Mitchell, Presiding
6 Commissioner Daniel G. Clodfelter
7 Commissioner Kimberly W. Duffley
8

9 IN THE MATTER OF:

10 EMP-118, Sub 0

11 Application of Timbermill Wind, LLC, for a Certificate
12 of Public Convenience and Necessity to Construct a
13 Merchant Plant Wind Energy Facility in Chowan County,
14 North Carolina and Registration as a New Renewable
15 Energy Facility

16 and

17 EMP-118, Sub 1

18 Application of Timbermill Wind, LLC, for a Certificate
19 of Environmental Compatibility and Public Convenience
20 and Necessity to Construct a Transmission Line in
21 Chowan County, North Carolina

22
23 VOLUME 2
24

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T A B L E O F C O N T E N T S

E X A M I N A T I O N S

PREFILED DIRECT TESTIMONY OF EMMANUEL WEMAKOY .. 15

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As a Panel,

ELLEN BALFREY, JIMMY MERRICK AND DEEPESH RANA

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 of Ellen Balfrey

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 of Jimmy Merrick

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E X H I B I T S

IDENTIFIED/ADMITTED

Timbermill Application (Sub 0)	--/14
Timbermill Application (Sub 1)	--/14
Seltzer Direct Exhibit 1	14/14
Merrick Direct Exhibit 1	35/35
Merrick Supplemental Exhibits 1 - 5 ...	35/35
Rana CPCN Direct Exhibit 1	61/61

1 P R O C E E D I N G S

2 CHAIR MITCHELL: Let's come to order and go
3 on the record, please. I'm Charlotte Mitchell, Chair
4 of the North Carolina Utilities Commission, and with
5 me this morning are Commissioners Daniel G.
6 Clodfelter --

7 COMMISSIONER CLODFELTER: Good morning.

8 CHAIR MITCHELL: -- and Kimberly W. Duffley.
9 There you are, Commissioner Duffley.

10 I now call for hearing Docket No. EMP-118,
11 Sub 0, which is In The Matter of the Application of
12 Timbermill Wind, LLC, for a Certificate of Public
13 Convenience and Necessity to Construct a Merchant
14 Plant Wind Energy Facility with a Capacity of up to
15 189 MW to be located in Chowan County, North Carolina,
16 and Docket No. EMP-118, Sub 1, which is In The Matter
17 of the Application of Timbermill Wind, LLC, for a
18 Certificate of Environmental Compatibility and Public
19 Convenience and Necessity to Construct an
20 approximately 6-mile 230kV Transmission Line.

21 On June 14th, 2021, Timbermill Wind, to
22 which I will refer as the Applicant, filed in the
23 Sub 0 docket, an Application pursuant to North
24 Carolina General Statute § 62-110.1 and Commission

1 Rule R8-63 for a CPCN, along with the prefiled
2 testimony of Jimmy Merrick, Deepesh Rana, Ellen
3 Balfrey, Emmanuel Wemakoy and Jeremy Spaeth. The
4 Applicant also submitted its Registration as a new
5 renewable energy facility pursuant to Commission Rule
6 R8-66.

7 On June 21st, 2021, the Applicant filed in
8 the Sub 1 docket, an Application, pursuant to
9 § 62-101, 102, and 104 as well as Commission Rule
10 R8-62 for a CECPCN, along with the prefiled testimony
11 of Emmanuel Wemakoy, Jimmy Merrick and Jeremy Spaeth.

12 On June 22nd, 2021, the Commission issued an
13 Order in the Sub 1 docket Scheduling a Public Hearing
14 and Requiring Public Notice and Clearinghouse Review.

15 On July 22nd, 2021, due to the overlapping
16 nature of the Applicant's requests, the Commission
17 issued an Order consolidating the Sub 0 and Sub 1
18 proceedings, setting the deadlines for the filing of
19 direct and rebuttal testimony, requiring the Applicant
20 to file additional testimony and exhibits addressing
21 certain questions set forth in the Order, and setting
22 the schedule for the hearings on the Applications.

23 The Order set the public witness hearing for
24 October 14th, 2021, and the expert witness hearing for

1 today, October 27th, 2021.

2 On July 27th, 2021, Mr. Patrick Flynn filed
3 a document in the Sub 1 docket on behalf of his wife
4 and himself requesting to intervene in the docket and
5 to be allowed to appear at the public witness hearing
6 as well as commenting on the Application.

7 On July 30th, 2021, the North Carolina State
8 Environmental Review Clearinghouse filed its comments
9 in the Sub 1 docket.

10 On August 11th, 2021, the North Carolina
11 State Environmental Review Clearinghouse filed
12 additional comments in the Sub 1 docket.

13 On August 25th, 2021, the Applicant filed
14 the supplemental testimony of Jimmy Merrick.

15 On August 26th, 2021, the North Carolina
16 State Environmental Review Clearinghouse filed its
17 comments and request for additional information in the
18 Sub 0 docket.

19 On September 29th, 2021, the Public Staff
20 filed the testimony of Jeff Thomas, a portion of which
21 was identified as being confidential.

22 On October 4th, 2021, Mr. Flynn filed
23 additional comments in the docket.

24 On October 8th, 2021, the Commission issued

1 an Order acknowledging the filings of Mr. Flynn to be
2 public comments and denying his Petition to Intervene.

3 On October 11th, 2021, in light of the
4 transmission rates associated with Covid-19, the
5 Commission issued an Order directing that the expert
6 witness hearing would be held remotely by way of Webex
7 and establishing remote procedures for this expert
8 witness hearing.

9 On October 14th, 2021, the public witness
10 hearing took place at the Chowan County Courthouse for
11 the purpose of receiving public witness testimony
12 regarding the Applications.

13 On October 15th, the Applicant filed the
14 direct testimony of Hank Seltzer in substitution of
15 direct testimony that had been prefiled on behalf of
16 Brie Anderson.

17 Also on October 15th, 2021, the Applicant
18 filed a Motion to Cancel the Evidentiary Hearing.

19 On October 20th, 2021, both the Applicant
20 and the Public Staff filed Notices of Consent to hold
21 the expert witness hearing remotely. And that brings
22 us to today.

23 Before we begin, and in compliance with the
24 State Government Ethics Act, I remind members of the

1 Commission of our duty to avoid conflicts of interest,
2 and inquire at this time as to whether any
3 Commissioner has a known conflict of interest with
4 respect to the matters coming before us this morning?

5 (No response)

6 The record will reflect that no conflicts
7 have been identified, so I now call upon counsel for
8 the parties to announce their appearances for the
9 record, and we'll begin with the Applicant.

10 MS. PARROTT: Good morning, Commissioners.
11 Merrick Parrot with the Law Firm Parker Poe Adams and
12 Bernstein, here this morning on behalf of Timbermill
13 Wind, LLC.

14 MS. ROSS: Good morning. Catherine Ross
15 also with Parker Poe Adams and Bernstein appearing on
16 behalf of Timbermill Wind.

17 CHAIR MITCHELL: Good morning, Ms. Parrott
18 and Ms. Ross. Public Staff?

19 MR. JOSEY: Good morning, Chair,
20 Commissioners, my name is Robert Josey, and along with
21 Reita Coxton, we represent the Public Staff on behalf
22 of The Using and Consuming Public.

23 CHAIR MITCHELL: Good morning, Mr. Josey and
24 Ms. Coxton.

1 A few comments in light of the fact that
2 we're conducting this hearing remotely. We are all
3 very familiar now with how to proceed remotely but
4 just a few reminders. Please pay attention to your
5 mute button. Unmute yourself only if you must speak,
6 otherwise do us a favor, remain muted. Please be
7 cognizant of the fact that the court reporter is
8 transcribing this proceeding, so take care not to
9 disrupt her ability to hear. When you do speak,
10 please speak slowly, speak clearly, so that she may
11 accurately transcribe what is being said.

12 And just as a final point, it's my
13 understanding that the parties have indicated that
14 they do not intend to use examination exhibits today.
15 I'll check in with counsel one last time to confirm
16 that that is the case. Just give me a head nod.
17 Okay. I see Ms. Parrott indicating that that is the
18 case. Mr. Josey. All right. So, we will not use
19 cross-examination exhibits today.

20 A few preliminary procedural matters before
21 we get started with our witnesses.

22 On October 26th, which was yesterday, the
23 Applicant filed on behalf of itself and the Public
24 Staff a Joint Motion for witnesses to be excused from

1 appearance at the evidentiary hearing. The Applicant
2 states in its Motion that all parties have agreed to
3 waive cross examination of the Applicant's and the
4 Public Staff witnesses and offer no objection to the
5 introduction of their testimony and exhibits into the
6 record of evidence in this proceeding. The Applicant
7 and the Public Staff requests that their respective
8 witnesses be excused from appearing at this expert
9 witness hearing and that the prefiled testimony and
10 exhibits be received into evidence and made a part of
11 the record.

12 The Commission finds good cause to grant
13 this Motion in part as follows: We will excuse,
14 barring objection from my fellow Commissioners, we
15 will excuse the Applicant's witnesses Wemakoy, Spaeth,
16 and Seltzer, and I apologize for mispronunciation. I
17 am certain that I have mispronounced their names. But
18 again, Wemakoy, Spaeth and Seltzer are excused from
19 the hearing this morning. The Commission has
20 questions for the Applicant's witnesses Merrick, Rana
21 and Balfrey. And Mr. Thomas, we have questions for
22 you as well so we will not excuse the Public Staff's
23 witness.

24 At this time, I will turn to the Applicant

1 and ask for -- well, first check to see if there are
2 other preliminary matters we need to address. If
3 there are not, let's go ahead and get started with
4 moving some of your evidence into the record.

5 MS. ROSS: Yes, Madam Chair. The only
6 question I would have is for the witnesses not excused
7 this morning that we would like for them to appear as
8 a panel. We believe that will be most efficient. We
9 have discussed that with the Public Staff, do not
10 believe they have any objection, and if it is
11 acceptable to the Commission we would have
12 Ms. Balfrey, Mr. Merrick and Mr. Rana appear as a
13 panel.

14 CHAIR MITCHELL: Mr. Josey, I see that you
15 have indicated that you do not object to the
16 Applicant's witnesses appearing as a panel, so just to
17 make sure we're clear on the record. I want to check
18 in with my fellow Commissioners, make sure they're
19 okay with that.

20 COMMISSIONER CLODFELTER: (Nods head
21 affirmatively).

22 CHAIR MITCHELL: I'm not hearing any
23 objection from Commissioners Clodfelter and Duffley,
24 so your witnesses may appear as a panel, Ms. Ross.

1 MS. ROSS: Great. And I will invite
2 witnesses Wemakoy, Spaeth and Seltzer to go off video
3 if they want to listen in or to log in as an attendee
4 or to exit completely at their wish, and thank them
5 for their time, brief time this morning, and thank the
6 Commission.

7 And with that, if it's appropriate, we do
8 not intend to make an opening but with that we would
9 call our first witness which would -- from the panel
10 perspective to move into direct, which would be Ellen
11 Balfrey.

12 CHAIR MITCHELL: Ms. Ross, before we do
13 that, why don't we move your -- let's -- just so that
14 the record is -- let's keep the record in order.
15 Let's move in your -- I'll take a motion to move in
16 your Application as well as the testimony and exhibits
17 of the witnesses that we've excused this morning.

18 MS. ROSS: Yes, Chair. We would make a
19 motion to move in the Application for the Certificate
20 of Public Convenience and Necessity as well as the
21 Application for the Certificate of Environmental
22 Compatibility Public Convenience and Necessity in the
23 consolidated dockets of EMP-118, as well as the
24 prefiled testimony and exhibits of Witness Wemakoy,

1 Spaeth and Seltzer.

2 CHAIR MITCHELL: Hearing no objection to
3 that motion, it will be allowed.

4 (WHEREUPON, Timbermill Wind, LLC,
5 Applications, Sub 0 and Sub 1,
6 are admitted into evidence.)

7 (WHEREUPON, Seltzer Direct
8 Exhibit 1 is marked for
9 identification as prefiled and
10 received into evidence.)

11 (WHEREUPON, the prefiled direct
12 testimony of EMMANUEL WEMAKOY
13 filed in Sub 0, the prefiled
14 direct testimony of JEREMY SPAETH
15 filed in Sub 0, and the prefiled
16 direct testimony of HANK SELTZER
17 filed in Sub 0 and Sub 1 are
18 copied into the record as if
19 given orally from the stand.)
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PREFILED DIRECT TESTIMONY OF
EMMANUEL WEMAKOY
ON BEHALF OF TIMBERMILL WIND, LLC

NCUC DOCKET NO. EMP-118, SUB 0

1

INTRODUCTION

2

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

3

A. My name is Emmanuel Wemakoy. I am a Senior Electrical Engineer for
4 Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300,
5 Charlottesville, VA 22902.

6

**Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL
7 EXPERIENCE.**

8

A. I completed my bachelor's degree in Electrical Engineering from St. Cloud
9 State University, in St. Cloud, Minnesota, and I am currently pursuing my master's
10 degree in Energy Systems at Arizona State University (anticipated graduation: May
11 2023). I am a licensed Professional Engineer (PE) in the State of Minnesota. I have
12 been building and designing collection systems, transmission lines, and substations
13 throughout the United States for the past 7 years.

14

**Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT
15 RESPONSIBILITIES.**

16

A. I manage and coordinate technical aspects of renewable energy projects
17 from origination to construction and operations, including for the Timbermill Wind, LLC
18 ("Timbermill") facility in Chowan County, NC (the "Facility"). I support the delivery of
19 technical concepts and engineering design of projects at various stages of their life-cycle
20 and manage third party electrical engineering and design work.

21

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

22

A. No.

23

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

24 A. The purpose of my testimony is to support the Application for Certificate
25 of Public Convenience and Necessity to construct a merchant plant (the “CPCN
26 Application”) and the Application for Certificate of Environmental Compatibility and
27 Public Convenience and Necessity (the “CECPCN Application”) to construct an
28 approximately 6 mile 230kV transmission line (the “Timbermill Line”) to interconnect the
29 Facility to the existing 230kV Winfall-Mackeys transmission line (the “Winfall Line”)
30 owned by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina
31 (“DENC”).

32 **Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL’S CPCN and**
33 **CECPCN APPLICATIONS IN THE ABOVE-REFERENCED DOCKETS?**

34 A. Yes.

35 **Q. PLEASE BRIEFLY DESCRIBE THE FACILITY AND TIMBERMILL**
36 **LINE.**

37 A. The Facility will consist of 45 Vestas V150-4.2MW turbines, or a turbine
38 model with a substantially similar profile. The electrical collection lines will consist of
39 approximately 130,000 feet of medium voltage (34.5kV) underground cables. The
40 collection lines will connect the turbines to each other and then to the Collector
41 Substation. My testimony focuses on the Timbermill Line, including the Collector
42 Substation and the Interconnection Switching station, as described in the CPCN and
43 CECPCN Applications.

44 The Collector Substation will be a single bus system with the following major
45 equipment:

- 46 1. One (1) 222 MVA, 230/34.5kV Main Power Transformer,
- 47 2. One (1) 230 kV, 1200 A SF6 Breaker,
- 48 3. Five (5) 34.5 kV, 1200A Vacuum Breakers,

- 49 4. Three (3) 180kV CCVTs,
- 50 5. Three (3) 180kV Arresters,
- 51 6. One (1) 230 kV Disconnecter,
- 52 7. One (1) Cap Banks,
- 53 8. Various 34.5 kV Disconnectors, and
- 54 9. One (1) Control Enclosure.

55 The Timbermill Line between the Collector Substation and the Interconnection Switching
56 Station will be approximately 6 miles and will be 795 kcmil ACSR, Drake conductors
57 supported by steel and wood monopole transmission structures. Steel monopoles will be
58 utilized in locations where the Transmission Corridor is 75 feet wide and where guy
59 wires (which are required for wood transmission structures) will interfere with road
60 easements or farming equipment. H-frame transmission structures will be utilized in the
61 fenced area of the Collector Substation and Interconnection Switching Station. The
62 transmission structures will be 75 to 120 feet in height and the minimum ground
63 clearance will be 25.4 feet.

64 The Interconnection Switching Station, owned by DENC, will have a 230kV ring
65 bus system with the following major equipment:

- 66 1. Three (3) 230 kV, 3000A SF6 Circuit Breakers,
- 67 2. Eight (8) 230 kV, 3000A Gang Operated Switches,
- 68 3. Nine (9) 180kV, Station Class Arresters,
- 69 4. Nine (9) 230kV CCVTs, and
- 70 5. One (1) Control Enclosure.

71 **Q. WHAT ENGINEERING CONSIDERATIONS WERE TAKEN INTO**
72 **ACCOUNT DURING THE DESIGN OF THE TIMBERMILL LINE?**

73 A. The Institute of Electrical and Electronics Engineers (IEEE) and the US
74 Department of Agriculture Rural Utilities Service have published National Electrical
75 Safety Code and RUS Bulletin 1724E-20, which provides general transmission line
76 design criteria utilized in transmission line design around the country. This set of criteria
77 was utilized in the Timbermill Line design. The same set of criteria was used for weather
78 and structure loading and safety factors. For ground clearance, the Timbermill Line was
79 designed so as to allow the safe movement of agricultural equipment underneath the
80 Timbermill Line at its lowest sag point. With a clearance height of approximately 33 feet,
81 most agricultural equipment will be able to continue to operate under the Timbermill
82 Line.

83 **Q. WILL THE TIMBERMILL LINE CONFORM TO ALL APPLICABLE**
84 **FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS?**

85 A. Yes. All construction, operations and maintenance will be conducted in
86 accordance with applicable laws and regulations.

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

88 A. Yes.

PREFILED DIRECT TESTIMONY OF
JEREMY SPAETH
ON BEHALF OF TIMBERMILL WIND, LLC

NCUC DOCKET NO. EMP-118, SUB 0

1

INTRODUCTION

2

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

3

A. My name is Jeremy Spaeth. I am a Civil Engineer for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

4

5

6

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

7

8

A. I received my Bachelor of Science degree in Civil Engineering from the University of Wisconsin – Milwaukee. I have worked professionally as a civil engineer for over 10 years and have been a licensed Professional Engineer for the past 5 years. Prior to joining Apex Clean Energy, Inc., I worked for an engineering consulting firm as well as for Strata Solar where I was a project engineer assisting the development and construction of solar facilities across North Carolina and the southeastern United States.

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Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

15

16

A. I provide subject matter expertise on the design and civil engineering matters for both wind and solar projects in Apex Clean Energy Holdings, LLC's ("Apex") portfolio. I assist in the layout and design of wind energy facilities, as well as manage consultants performing services related to geotechnical investigation and design, surveying, and civil engineering. This includes civil engineering activities for the Timbermill Wind, LLC ("Timbermill") facility (the "Facility").

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Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

23

A. No.

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

25 A. The purpose of my testimony is to support the Application for Certificate
26 of Public Convenience and Necessity to construct a merchant plant (the "CPCN
27 Application") and the Application for Certificate of Environmental Compatibility and
28 Public Convenience and Necessity (the "CECPCN Application") to construct an
29 approximately 6 mile 230kV transmission line (the "Timbermill Line") to interconnect the
30 Facility to the existing 230kV Winfall-Mackeys transmission line (the "Winfall Line")
31 owned by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina
32 ("DENC").

33 **Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL'S CPCN AND**
34 **CECPCN APPLICATIONS IN THE ABOVE-REFERENCED DOCKETS?**

35 A. Yes.

36 **Q. PLEASE BRIEFLY DESCRIBE THE FACILITY COMPONENTS.**

37 A. The Facility will consist of up to 45 4.2MW Vestas V150 turbines, or a
38 turbine model with a substantially similar profile. The Vestas V150 turbines have a hub
39 height of 345 feet and a maximum tip height of 591 feet. The turbine foundations are
40 typically circular and approximately 60 to 80 feet in diameter and approximately 6 to 12
41 feet in depth. The foundation consists of poured-in-place concrete with steel rebar for
42 reinforcement. All foundations will be designed and stamped by a structural engineer.
43 An independent quality control testing firm will be on site during construction to test the
44 concrete and soils to ensure they meet design requirements. Final site layout will be
45 determined based on additional geotechnical and environmental studies and
46 meteorological data.

47 A medium voltage (34.5kV) underground collection line will connect each turbine
48 as a circuit and run back to the Collector Substation, which is located near the center of
49 the Facility. The underground collection lines will be buried at a minimum of 42 inches

50 deep. At the Collector Substation, which will be owned by Timbermill, the voltage will be
51 stepped up to 230kV. The Timbermill Line will connect the Collector Substation to the
52 Interconnection Switching Station owned by DENC. The testimony of my engineering
53 colleague, Emmanuel Wemakoy, provides additional detail on the Collector Substation,
54 Timbermill Line, and Interconnection Switching Station.

55 Existing access roads will be utilized as much as possible throughout the Project
56 Area, and will be improved as needed to support deliveries to the turbine locations.
57 New, approximately 16-foot gravel access roads to each turbine location will be built off
58 of the existing roads. Cranes required to construct the turbine sections will be “walked”
59 from one turbine to the next.

60 **Q. WHAT ENGINEERING CONSIDERATIONS WERE TAKEN INTO**
61 **ACCOUNT DURING THE DESIGN OF THE FACILITY?**

62 A. The proposed Facility layout, included in the CPCN Application as CPCN
63 Application Addendum 5, takes into consideration setbacks required by the Conditional
64 Use Permit issued by Chowan County, as well as Timbermill’s internal setbacks from
65 property lines, habitable buildings, and other features.

66 Timbermill has delineated all wetlands and streams within the proposed area of
67 disturbance and is currently working with the United States Army Corps of Engineers to
68 receive a jurisdictional determination with respect to the delineated waters of the United
69 States and the State of North Carolina in the Project Area. Timbermill will permit any
70 wetland and stream impacts from the Facility. A significant portion of the Project Area is
71 managed timber with well-built access roads to serve the active timber operations.
72 Timbermill will utilize these existing roads for equipment deliveries and operations, and
73 will make improvements to the roads where necessary. New access roads will be built
74 for the Collector Substation and where turbines are not readily located off existing roads.
75 Collection lines will be underground and to the greatest extent possible will avoid

76 disturbance of any jurisdictional ditches. Turbine foundations will be designed to all
77 state and national building codes, and specifically for extreme weather events such as
78 hurricanes and other high-wind events.

79 **Q. WHAT RULES AND REGULATIONS GOVERN THE DESIGN AND**
80 **CONSTRUCTION OF THE FACILITY?**

81 A. The Facility design is regulated by the North Carolina Building Code, the
82 National Electric Code, and applicable federal, state and local permits obtained for the
83 Facility. All engineering drawings will be stamped by a professional engineer licensed in
84 North Carolina and construction material testing will be performed throughout
85 construction to ensure materials meet the engineering requirements.

86 **Q. WHO WILL BE RESPONSIBLE FOR CONSTRUCTING THE FACILITY?**

87 A. Timbermill will contract with a proven and experienced Engineering,
88 Procurement, and Construction (“EPC”) firm to oversee the construction of the Facility.
89 DENC will construct the Interconnection Switching Station.

90 **Q. PLEASE DESCRIBE THE DECOMMISSIONING PROCESS FOR THE**
91 **FACILITY.**

92 A. Decommissioning includes the removal of all turbines, the Collector
93 Substation, the Timbermill Line, and all other ancillary equipment above ground. The
94 collection lines, turbine foundations, and underground ancillary equipment will be
95 removed to a depth of three feet. New access roads will be removed unless landowners
96 approve the roads remaining in place. After the Facility components described above
97 are removed, the Project Area will be returned to conditions substantially similar to
98 preconstruction and will be re-seeded. The decommissioning process will take
99 approximately three months.

100 **Q. CAN YOU SPEAK TO THE AREA'S SUITABILITY FOR**
101 **CONSTRUCTION OF A WIND ENERGY FACILITY?**

102 A. The Project Area has good access, with close accessibility from US-17
103 which has connectivity to I-95 via US-64. That, and close proximity to the coast and
104 various coastal ports, provide routes to transport Facility components to the Project
105 Area.

106 The topography in the Project Area is limited, which eases all aspects of the
107 construction process and reduces the amount of grading required. As mentioned above,
108 the Project Area is a mixture of a timber plantation and farming; therefore, the land has
109 been improved over many years to provide adequate drainage and site access. The
110 current land uses of the participating properties help the suitability of the land for the
111 construction of a wind energy facility. In addition, the current land uses will be able to
112 co-exist once the Facility is operational.

113 **Q. WILL THE FACILITY CONFORM TO ALL APPLICABLE FEDERAL,**
114 **STATE AND LOCAL LAWS AND REGULATIONS?**

115 A. Yes. All construction, operations and maintenance will be conducted in
116 accordance with applicable laws and regulations.

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

118 A. Yes.

PREFILED DIRECT TESTIMONY OF
HANK SELTZER
ON BEHALF OF TIMBERMILL WIND, LLC
NCUC DOCKET NO. EMP-118, SUBS 0 & 1

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

2 A. My name is Hank Seltzer. I am a Senior Environmental Permitting
3 Manager for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300,
4 Charlottesville, VA 22902.

5 **Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL**
6 **EXPERIENCE.**

7 A. I have a Bachelor of Arts in Government and a Master of Environmental
8 Management. I have more than 15 years of experience as an environmental specialist and
9 have been working on clean energy projects at the federal, state, and local levels for more
10 than 10 years. A copy of my resume is attached as Seltzer Direct Exhibit 1.

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

13 A. As Senior Environmental Permitting Manager, my responsibilities include
14 obtaining and advising on environmental permits for projects in Apex Clean Energy
15 Holdings, LLC's ("Apex") portfolio, including coordinating with federal, state and local
16 natural resource agencies to assess project sites, identify study requirements, and ensure
17 regulatory compliance. My responsibilities include managing the environmental permitting
18 for the Timbermill Wind, LLC ("Timbermill") wind energy facility.

19 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

20 A. No.

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

22 A. The purpose of my testimony is to support the Application for Certificate of
23 Environmental Compatibility and Public Convenience (the “CECPCN Application”) for the
24 Timbermill Line.

25 **Q. PLEASE DESCRIBE YOUR FAMILIARITY WITH THE FACILITY AND**
26 **TIMBERMILL LINE.**

27 A. As part of the Apex team developing the Timbermill wind energy facility, I
28 have been managing consultants performing environmental studies for the Facility and the
29 Timbermill Line, reviewing environmental survey data, preparing and advising on
30 applications for environmental permits, coordinating with various governmental agencies,
31 and assisting with the layout of the Facility and the Timbermill Line to avoid and minimize
32 impacts to natural resources. I was part of the team that oversaw the development of the
33 Environmental Report by Merjent, Inc. that has been filed as CECPCN Application Exhibit
34 3, as required by N.C. Gen. Stat. § 62-102(a)(4) and North Carolina Utilities Commission
35 Rule R8-62.

36 **Q. BRIEFLY DESCRIBE THE TIMBERMILL LINE.**

37 A. The Timbermill Line will include approximately 6 miles of 230 kV
38 transmission line between the proposed Collector Substation and proposed
39 Interconnection Switching Station. Those components are described in the CECPCN
40 Application and are adjacent to the Point of Interconnection (“POI”) at the existing 230 kV
41 Winfall-Mackeys transmission line owned by Virginia Electric and Power Company d/b/a
42 Dominion Energy North Carolina. The Timbermill Line crosses through a predominantly
43 rural area used for agricultural and silvicultural operations, with sparsely scattered rural
44 residences farmsteads, and agricultural support facilities located throughout the area.

45 **Q. BASED ON THE ANALYSIS CONDUCTED TO DATE, HAS THE**
46 **TIMBERMILL LINE BEEN SITED SO AS TO MINIMIZE ENVIRONMENTAL IMPACTS?**

47 A. Yes. Potential impacts to natural resources as a result of the Timbermill
48 Line are anticipated to be minimal. This assessment is due, in part, to the fact that the
49 Transmission Route is primarily sited in agricultural and silvicultural land with limited
50 natural resource diversity and that potential impacts to natural resources, to a great extent,
51 can be avoided and mitigated.

52 As discussed throughout the Environmental Report, the Timbermill Line has been
53 sited to avoid and minimize natural and human environmental impacts. Table 2.3-1
54 provides a summary of quantitative impacts on each resource described throughout the
55 Environmental Report. Detailed Route Maps (Figures 7a-7d) provide an overview of the
56 Timbermill Line Preliminary Alignment, preliminary transmission structures, the
57 transmission ROW, Collector Substation, Switching Station, and access road on 2020
58 aerial photography with environmental features. Timbermill has committed to complying
59 with all applicable regulatory and permit requirements, implementing resource-specific
60 minimization and mitigation measures, and utilizing best management practices during
61 construction, restoration, and operation.

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

63 A. Yes.

1 CHAIR MITCHELL: If there is no additional
2 evidence at this time, let's go ahead with your -- you
3 may call your witnesses, Ms. Ross.

4 MS. ROSS: At this time we would ask
5 Ms. Balfrey to come to the stand as our first witness
6 on our panel.

7 CHAIR MITCHELL: Let's -- I've got a --
8 let's call all of them so we can just do the
9 affirmation once.

10 MS. ROSS: Perfect. Then we would request
11 Ms. Balfrey, Mr. Merrick and Mr. Rana to come to the
12 stand to be sworn in.

13 CHAIR MITCHELL: I see, there's Ms. Balfrey.
14 Then we'll see Mr. Merrick. There you are. And
15 Mr. Rana, where are you?

16 MR. RANA: (Indicating by waving).

17 CHAIR MITCHELL: There you are.

18 AS A PANEL,
19 ELLEN BALFREY, JIMMY MERRICK and DEEPESH RANA;

20 having been duly affirmed,

21 testified as follows:

22 CHAIR MITCHELL: Ms. Ross, you may proceed.

23 MS. ROSS: Thank you.

24 DIRECT EXAMINATION BY MS. ROSS:

1 Q Ms. Balfrey, would you please state your name and
2 business address?

3 A Ellen Balfrey. My business address is 310 4th
4 Street Northeast, Suite 300, Charlottesville,
5 Virginia 22902.

6 Q By whom are you currently employed and in what
7 capacity?

8 A I'm the Senior Vice President of Finance for Apex
9 Clean Energy.

10 Q Did you cause to be prefiled on June 14th, 2021,
11 three pages of direct testimony in question and
12 answer form to support the merchant plant CPCN
13 Application in Docket EMP-118, Sub 0?

14 A Yes.

15 Q Do you have any changes or corrections to your
16 testimony?

17 A No.

18 Q If I were to ask you those same questions today,
19 would your answers be the same as they appear in
20 your prefiled testimony?

21 A Yes.

22 MS. ROSS: At this time, I would move that
23 Ms. Balfrey's prefiled direct testimony be copied into
24 the record as if given orally from the stand.

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CHAIR MITCHELL: Hearing no objection to
your motion, it is allowed.

(WHEREUPON, the prefiled direct
testimony of ELLEN BALFREY filed
in Docket No. EMP-118, Sub 0 is
copied into the record as if
given orally from the stand.)

PREFILED DIRECT TESTIMONY OF
ELLEN BALFREY
ON BEHALF OF TIMBERMILL WIND, LLC
NCUC DOCKET NO. EMP-118, SUB 0

INTRODUCTION

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

A. My name is Ellen Balfrey. I am Senior Vice President of Finance for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I have worked at Apex Clean Energy, Inc. for 5 years and have been in the renewable energy industry for over 15 years, working in various roles for wind and solar project development companies and a wind turbine manufacturer. I graduated from Yale University with a BA in philosophy.

Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

A. As Senior Vice President of Finance, my current responsibilities include managing the team that secures financing for renewable energy projects within Apex Clean Energy Holdings, LLC’s (“Apex”) portfolio. This includes directing financing activity for the Timbermill Wind, LLC (“Timbermill”) facility in Chowan County, NC (the “Facility”).

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No.

Q. WERE YOU INVOLVED IN PREPARING THE FINANCIAL INFORMATION INCLUDED IN TIMBERMILL’S APPLICATION IN THIS DOCKET?

A. Yes.

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Nov 19 2021

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

25 A. The purpose of my testimony is to support the Application for Certificate
26 of Public Convenience and Necessity to construct a merchant plant filed by Timbermill,
27 and to provide the Commission with background information about the financial
28 capability of Apex and the financing plan for the Facility.

29 **FINANCIAL CAPABILITY**

30 **Q. PLEASE DESCRIBE APEX.**

31 A. Apex develops, constructs, and operates utility-scale wind and solar
32 power facilities across North America. Apex has one of the most experienced renewable
33 energy development teams in the industry and can internally manage the entire
34 development cycle from site identification through commercial operation. Our mission-
35 driven team of more than 250 renewable energy experts uses a data-focused approach
36 and an unrivaled portfolio of projects to create solutions for the world's most innovative
37 and forward-thinking customers. Headquartered in Charlottesville, Virginia, Apex's work
38 has led to over \$9 billion in clean energy investment—equal to nearly 7 GW of clean
39 energy being added to the grid—and we operate more than 2 GW from our remote
40 monitoring facility, also in Charlottesville.

41 **Q. PLEASE EXPLAIN THE RELATIONSHIP BETWEEN APEX AND**
42 **TIMBERMILL.**

43 A. Timbermill is a single-member managed limited liability company and an
44 indirect subsidiary of Apex. Apex provides experienced personnel and capital to develop
45 and source financing for its project subsidiaries, including Timbermill. As a special
46 purpose limited liability company, Timbermill directly owns or will own the assets
47 necessary for the development, construction, and operation of the Facility, including
48 project components and contractual rights.

49

50 **Q. PLEASE DESCRIBE THE FINANCIAL CAPABILITY OF APEX.**

51 A. Apex has the financial capability and experience to build, own, and
52 operate wind facilities, including the Facility. This includes arranging adequate
53 assurances, guarantees, financing and insurance for the Facility's development,
54 construction and operation through a combination of Apex's balance sheet, corporate
55 lenders, and corporate financing partners. The most recent audited balance sheet and
56 income statement for Apex Holdings have been provided, under seal, as Confidential
57 CPCN Application Addendum 2.

58 **Q. HOW WILL THE FACILITY BE FINANCED?**

59 A. Prior to start of construction, the Facility will primarily be financed on
60 Apex's balance sheet. In addition, Apex may make use of various lender facilities it has
61 access to that provide Apex with the ability to use a surety bond or letter of credit to
62 provide security instruments that may be required for the Facility. As the Facility nears
63 the start of construction, Apex may obtain a construction loan that will provide funding for
64 the majority of the capital costs of the Facility or arrange for the sale of the Facility at the
65 start of construction or at commercial operation. Apex is highly experienced in raising
66 corporate and project-level financing in support of developing, constructing, and
67 operating renewable energy facilities, as well as partnering with national and
68 international companies seeking to own renewable energy projects.

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

70 A. Yes.

1 BY MS. ROSS:

2 Q Ms. Balfrey, would you please describe your job
3 responsibilities as they relate to the Timbermill
4 Wind energy facility?

5 A I manage the team that is responsible for
6 financing the projects that Apex develops. So,
7 we obtain the capital to build and construct the
8 project.

9 Q Thank you.

10 MS. ROSS: At this time Ms. Balfrey is -- at
11 this time we would move on to the direct examination
12 of Jimmy Merrick as a panelist, if that is okay with
13 the Commission?

14 CHAIR MITCHELL: You may.

15 MS. PARROTT: Thank you.

16 DIRECT EXAMINATION BY MS. PARROTT:

17 Q Mr. Merrick, will you please state your name and
18 business address for the record?

19 A Yes. My name is Jimmy Merrick and my business
20 address is 310 4th Street Northeast, Suite 300,
21 Charlottesville, Virginia.

22 Q By whom are you employed and in what capacity?

23 A I'm employed by Apex Clean Energy as a
24 Development Manager.

1 Q Did you cause to be prefiled on June 14th, 2021,
2 14 pages of direct testimony in Q and A form and
3 one exhibit to support the merchant plant CPCN
4 Application in Docket EMP-118, Sub 0?

5 A Yes.

6 Q Do you have any changes or corrections to your
7 testimony?

8 A I do not.

9 Q Did you also cause to be prefiled on June 21,
10 2021, three pages of direct testimony in Q and A
11 form to support the transmission line CECPCN
12 Application in Docket EMP-118, Sub 1?

13 A Yes, I did.

14 Q Do you have any changes or corrections to that
15 testimony?

16 A I do not.

17 Q Lastly, did you cause to be prefiled on
18 August 25th, 2021, five pages of supplemental
19 testimony in Q and A form and five exhibits in
20 support of the CPCN and CECPCN Applications?

21 A Yes.

22 Q Do you have any changes or corrections to that
23 testimony?

24 A I do not.

1 Q And if I were to ask you those same questions
2 today, would your answers be the same as they
3 appear in your prefiled testimonies?

4 A Yes, they would.

5 Q Mr. Merrick, are you aware that a revised site
6 plan was filed on September 21st, 2021?

7 A Yes.

8 Q And does that revised site plan change your
9 testimony?

10 A It does not.

11 Q Thank you.

12 MS. PARROTT: At this time I would move that
13 Mr. Merrick's prefiled direct testimony and
14 supplemental testimony be copied into the record as if
15 given orally from the stand and that the exhibits to
16 his testimony be marked for identification and
17 included in the record.

18 CHAIR MITCHELL: I'm hearing no objection to
19 your motion, Ms. Parrott. It will be allowed and --
20 it will be allowed. I'll stop there.

21 (WHEREUPON, Merrick Direct
22 Exhibit 1 and Merrick
23 Supplemental Exhibits 1 - 5 are
24 marked for identification as

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prefiled and received into
evidence.)
(WHEREUPON, the prefiled direct
testimony filed in Sub 0, the
prefiled direct testimony filed
in Sub 1, and the prefiled
supplemental testimony filed in
Sub 0 and Sub 1 of JIMMY MERRICK
are copied into the record as if
given orally from the stand.)

PREFILED DIRECT TESTIMONY OF
JIMMY MERRICK
ON BEHALF OF TIMBERMILL WIND, LLC
NCUC DOCKET NO. EMP-118, SUB 0

INTRODUCTION

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

A. My name is Jimmy Merrick. I am a Development Manager for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I hold a B.S. in Integrated Science and Technology, with a concentration in Energy, from James Madison University. I started working professionally in the renewable energy industry in 2014 and have been working full time as a developer with Apex Clean Energy, Inc. since June of 2018. I have successfully permitted multiple solar projects in the state of Virginia, totaling approximately 310 MW_{AC} of capacity. I currently manage a development pipeline of 889 MW_{AC} of wind, solar, and storage assets across the states of Virginia and North Carolina.

Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

A. As a Development Manager, my responsibilities include managing all stages of development for projects in Apex Clean Energy Holdings, LLC's ("Apex") portfolio from concept to construction, including project origination, land leasing, transmission, public outreach, environmental permitting, and land use permitting. I also support engagement in the power marketing and financing of projects. I share responsibility for the development of the Timbermill Wind, LLC ("Timbermill") wind

23 energy facility that has a capacity of up to 189 MW_{AC} located in Chowan County, NC (the
24 “Facility”).

25 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

26 A. No, but I will also provide prefiled direct testimony to support the
27 Application for Certificate of Environmental Compatibility and Public Convenience and
28 Necessity to construct the approximately 6-mile 230kV transmission line (the “Timbermill
29 Line”) necessary to interconnect the Facility to the existing 230kV Winfall-Mackeys
30 transmission line (the “Winfall Line”) owned by Virginia Electric and Power Company
31 d/b/a Dominion Energy North Carolina (“DENC”) that will be filed by Timbermill in docket
32 EMP-118, Sub 1 (the “CECPCN Application”).

33 **Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL’S**
34 **APPLICATION IN THIS DOCKET?**

35 A. Yes.

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

37 A. The purpose of my testimony is to support the Application for Certificate
38 of Public Convenience and Necessity to construct a merchant plant (the “CPCN
39 Application”) filed by Timbermill. My testimony provides the Commission with
40 information on Apex, Timbermill, and the development history of the Facility, and
41 expands on topics in the CPCN Application, including the regulatory and permitting
42 process for the Facility and the need for the Facility.

43 **THE APPLICANT**

44 **Q. PLEASE PROVIDE INFORMATION ABOUT TIMBERMILL AND APEX.**

45 A. Timbermill is a limited liability company registered to do business in North
46 Carolina. Timbermill was organized for the development of the Facility that is the subject
47 of this CPCN Application. Timbermill is an indirect subsidiary of Apex Clean Energy
48 Holdings, LLC (“Apex”).

49 Apex is an independent renewable energy company headquartered in
50 Charlottesville, Virginia. Apex has one of the nation’s largest, most diversified portfolios
51 of renewable energy assets and has the experience, skills, personnel, and proven
52 capabilities to successfully manage development of the Facility. Apex offers
53 comprehensive in-house capabilities, including site origination, financing, construction,
54 and long-term asset management services, and has a successful track record of working
55 with corporations, utilities, and government entities as partners to bring our projects to
56 fruition.

57 **Q. PLEASE DESCRIBE APEX’S EXPERIENCE IN THE RENEWABLE**
58 **ENERGY INDUSTRY, AND SPECIFICALLY WITH DEVELOPING WIND ENERGY**
59 **FACILITIES.**

60 A. As a leading independent renewable energy company, Apex develops,
61 constructs, and operates clean energy assets across the United States. Apex is actively
62 developing approximately 11 gigawatts (“GW”) of wind projects. To date, nearly two
63 dozen Apex-originated wind facilities are now operating around the country, totaling over
64 5 GW. Furthermore, Apex serves as the operator for 11 commercial wind farms across
65 North America (totaling an operating capacity of over 2 GW).

66 **PROJECT AREA AND FACILITY DESCRIPTION**

67 **Q. DESCRIBE THE PROPOSED LOCATION FOR THE FACILITY.**

68 A. The Facility includes approximately 6,300 acres of privately-owned land in
69 Chowan County, North Carolina (the “Project Area”), which includes approximately 123
70 acres in the Transmission Corridor, as defined below, and approximately 5.5 acres
71 where the Interconnection Switching Station is sited. The maps and layouts at CPCN
72 Application Addendum 3 accurately reflect the location of the proposed Facility, including
73 the Timbermill Line and the Interconnection Switching Station. The Project Area is a
74 large rural area used primarily for agricultural and forestry purposes.

75 Apex and its affiliates have entered into voluntary site control agreements with
76 individual private landowners for the Project Area. These agreements afford Apex and
77 its affiliates the right to develop and use the property for wind energy purposes, including
78 ingress and egress, the installation of wind measuring equipment and turbines, collection
79 and transmission lines, and other such activities required to develop, construct and
80 operate the Facility.

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

82 A. The proposed Facility is a wind energy facility that will generate up to 189
83 MW_{AC} of electrical power. The Facility will consist of up to 45 Vestas V150-4.2MW
84 turbines (or a turbine model with a substantially similar profile), 34.5 kilovolt (“kV”)
85 underground electrical collector lines, a 34.5kV to 230kV Collector Substation owned by
86 Timbermill, the Timbermill Line, an Interconnection Switching Station owned by DENC,
87 an Operations and Maintenance (“O&M”) building, access roads, and four permanent
88 meteorological towers. Each component is described in detail in the CPCN Application.

89 The proposed site layout included as CPCN Application Addendum 3 reflects the
90 boundary of the Project Area and a preliminary layout of all major components of the
91 Facility.

92 **Q. WILL THE ELECTRICAL COLLECTOR LINES BE INSTALLED**
93 **UNDERGROUND?**

94 A. The electrical collector lines connecting the turbines to the Collector
95 Substation will be installed approximately 42 inches below the ground to avoid potential
96 impact from the existing land uses.

97 **Q. HOW WILL THE FACILITY BE INTERCONNECTED TO THE ELECTRIC**
98 **GRID?**

99 A. The Timbermill Line, an approximately 6-mile, aboveground 230kV
100 transmission line designed, constructed, owned and operated by Timbermill, will run

101 between the Collector Substation and the Interconnection Switching Station. An
102 approximately 150-foot 230 kV tap line, designed, constructed, owned, and operated by
103 Dominion Energy, will run from the Interconnection Switching Station to the Point of
104 Interconnection on the existing Winfall Line.

105 **Q. WILL THE TIMBERMILL LINE REQUIRE A CERTIFICATE FROM THE**
106 **COMMISSION?**

107 A. Yes. Timbermill will file a CECPCN Application for the 230kV Timbermill
108 Line in Docket EMP-118, Sub 1.

109 **CONSTRUCTION AND OPERATION CONSIDERATIONS**

110 **Q. WHAT IS THE ANTICIPATED CONSTRUCTION TIMEFRAME AND**
111 **PROCESS FOR THE FACILITY?**

112 A. Upon receipt of all necessary permits, construction for the Facility is
113 planned to begin in November 2022 and reach commercial operations in October 2023.

114 **Q. PLEASE DESCRIBE THE ACCESS ROADS FOR THE FACILITY.**

115 A. Where necessary, new access roads will be constructed between existing
116 roadways and Facility components. Existing roads will be improved where necessary.
117 The new and improved access roads will be all-weather, compacted surfaces. During
118 construction, some existing access roads will be widened to accommodate movement of
119 turbine components and the turbine erection crane. Prior to construction, Timbermill or
120 its contractor will enter into road use agreements with the appropriate road authority to
121 identify haul roads, define use and authorized upgrades, and restoration of roads utilized
122 during construction of the Facility.

123 **Q. PLEASE DESCRIBE HOW THE FACILITY WILL BE MONITORED.**

124 A. Each turbine is connected to a Supervisory Control and Data Acquisition
125 (“SCADA”) system via fiber-optic cable, which allows the turbines to be monitored in real
126 time by the O&M staff. The SCADA system also allows the Facility to be remotely

127 monitored, thus increasing Facility oversight, as well as the performance and reliability of
128 the turbines. Not only will the on-site O&M office have full control of the wind turbines,
129 but a 24/7 remote operations facility will also have control of the individual turbines.
130 These two teams coordinate to ensure that the turbines operate safely and efficiently. At
131 least one member of the local O&M staff will be available on-call 24/7/365.

132 **Q. WHAT STEPS WILL BE TAKEN TO PREPARE FOR A POTENTIAL**
133 **EMERGENCY SITUATION AT THE FACILITY?**

134 A. Timbermill's contractor will prepare an Emergency Action Plan ("EAP") in
135 coordination with the county emergency management services and fire services.
136 Timbermill will work with the county to obtain 9-1-1 addressing for the Facility access
137 points and components, as well as install appropriate signage and mapping. Timbermill
138 and its contractors will provide training as requested by Chowan County.

139 **ANTICIPATED LOCAL, STATE AND FEDERAL PERMITS AND APPROVALS**

140 **Q. DESCRIBE THE PERMITS AND APPROVALS ANTICIPATED TO BE**
141 **NECESSARY TO COMMENCE CONSTRUCTION OF THE FACILITY.**

142 A. The anticipated local, state and federal permits required for construction
143 of the Facility are set forth in CPCN Application Exhibit 2, and include but are not limited
144 to Federal Aviation Administration ("FAA") Determinations of No Hazard, an Individual
145 Permit from the United States Army Corps of Engineers ("USACE"), a Wind Energy
146 Facility Permit and Erosion and Sedimentation Control approvals from the North
147 Carolina Department of Environmental Quality ("DEQ"), and a Conditional Use Permit
148 ("CUP"), zoning permit, grading permit, building permit, and electrical permit from
149 Chowan County.

150 **Q. WHICH PERMITS HAVE BEEN OBTAINED TO DATE?**

151 A. The CUP from Chowan County was obtained in 2016 and amended for
152 the current Facility configuration in 2018. All other permits remain in process at this
153 time.

154 **Q. WHAT COORDINATION WITH GOVERNMENTAL AGENCIES HAS**
155 **APEX UNDERTAKEN TO DATE?**

156 A. Timbermill has engaged with and continues to coordinate with all local,
157 state and federal agencies that will require various regulatory permits, reviews, and
158 approvals for construction of the Facility. Timbermill has engaged with USACE on
159 potential jurisdictional features and is in the process of requesting a jurisdictional
160 determination from the USACE as well as applying for an individual permit pursuant to
161 Section 404 of the Clean Water Act. Timbermill has engaged with the United States
162 Fish and Wildlife Service, with multiple divisions of the North Carolina DEQ, including but
163 not limited to the Division of Water Resources, the Division of Water Quality, the Division
164 of Coastal Area Management, the North Carolina Wildlife Commission, the Division of
165 Cultural Resources, and the Division of Energy, Mineral and Land Resources.

166 With respect to the local permits for the Facility, Apex has extensively engaged
167 with Chowan County officials since 2015 with respect to local permits. A CUP was
168 obtained in 2016 and subsequently amended for the current Facility configuration in
169 2018. Apex continues to engage with Chowan County elected officials and County staff
170 members.

171 **Q. DESCRIBE APEX'S COORDINATION WITH THE DEPARTMENT OF**
172 **DEFENSE AND WITH NORTH CAROLINA MILITARY BASES.**

173 A. Apex has conducted extensive diligence with respect to Timbermill and
174 military facilities since 2013. Beginning in 2013, Apex initiated meetings and has
175 maintained communications with base commanders and military related organizations,
176 including, but not limited to, Naval Support Activity Hampton Roads, NAS Oceana,

177 Andrews AFB, Allies for Cherry Point (“ACP”), and Friends of Seymour Johnston
178 (“FOSJ”). Apex filed a turbine layout and Notice of Proposed Construction (“NPC”) for
179 Timbermill with the FAA on September 22, 2020. The FAA filing initiated a mission
180 compatibility review with the Department of Defense Siting Clearinghouse (“DoD
181 Clearinghouse”). This process is designed to allow all military stakeholders the
182 opportunity to research and resolve any potential impacts Timbermill may have on
183 military missions. After years of collaboration between the Navy, MIT’s Lincoln
184 Laboratory, the DoD Clearinghouse, and Timbermill, U.S. Southern Command and The
185 Joint Staff notified the DoD Clearinghouse in June, 2021 that the Facility would not
186 adversely impact U.S. Southern Command’s mission and that no mitigation is
187 necessary. Accordingly, the military services and the DoD Clearinghouse cleared all 45
188 turbines in the FAA’s Obstruction Evaluation/Airport Airspace Analysis system.

189 **Q. WILL THE FACILITY BE DESIGNED, CONSTRUCTED AND**
190 **OPERATED IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND**
191 **LOCAL LAWS AND REGULATIONS?**

192 A. Yes.

193 **BENEFITS FROM THE FACILITY**

194 **Q. PLEASE DESCRIBE THE ANTICIPATED ECONOMIC BENEFITS**
195 **FROM THE FACILITY TO CHOWAN COUNTY.**

196 A. Chowan County will realize an increase in tax revenues as a result of the
197 Facility being in its jurisdiction. The estimated taxable investment by Timbermill is \$246
198 million, which will result in an estimated \$30 million in tax revenue for Chowan County
199 over a 30-year period (in 2020 dollars). The Facility is expected to be one of the largest
200 taxpayers in Chowan County, providing long-term, stable revenue that will allow Chowan
201 County an opportunity to direct significant revenue into education, health care, public
202 health or critical infrastructure, as the County leadership sees fit. In return, the Facility

203 will require minimal public services, thereby resulting in a substantial net tax benefit to
204 Chowan County.

205 Timbermill will provide a one-time influx of economic activity in Chowan County
206 estimated to support 150 local jobs, invest \$5.5 million in labor income and \$19.8 million
207 in economic output during construction of the Facility.

208 After construction, a team of approximately 10 employees, based out of an on-
209 site operations center, will be responsible for the operation and management of the
210 Facility. The O&M staff will receive competitive salaries and benefits, as well as training
211 in the operation and maintenance of utility-scale wind energy facilities. In addition,
212 landowners will receive lease and royalty payments during the life of the Facility.

213 **Q. PLEASE DESCRIBE ENVIRONMENTAL BENEFITS FROM THE**
214 **FACILITY.**

215 A. The Facility will rely solely on the local wind resource to generate power.
216 Wind is a form of energy that can be converted into electricity passively, without the
217 need for fuel such as coal or natural gas. As a result, the Facility requires no off-site
218 mining, drilling or transportation of fuel, can produce electricity without emitting air
219 pollution, uses virtually no water, and creates no hazardous or radioactive waste. Wind
220 energy also displaces harmful emissions from fossil fuel power plants and offsets carbon
221 emissions, making it a safer generation option for people, wildlife, and natural
222 ecosystems.

223 **NEED FOR THE FACILITY**

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

225 A. Need for the facility is demonstrated by the North Carolina Renewable
226 Energy and Energy Efficiency Portfolio Standard (“REPS”), Dominion Energy’s most
227 recent Integrated Resource Plan, the Virginia Clean Energy Economy Act, Duke

228 Energy's most recent Integrated Resource Plan, and demand by corporate and industrial
229 entities.

230 North Carolina's REPS

231 G.S. § 62-133.8 established a Renewable Energy and Energy Efficiency Portfolio
232 Standard under which investor-owned utilities in North Carolina are required to meet up
233 to 12.5% of their energy needs through renewable energy resources or energy efficiency
234 measures by 2021 and thereafter. Under the REPS statute, wind qualifies as a
235 renewable energy resource. Investor-owned utilities, electric cooperatives and municipal
236 electric suppliers demonstrate compliance through the purchase of renewable energy
237 certificates ("RECs"). The Facility will provide approximately 465,000 RECs annually for
238 use by those entities that must comply with the REPS requirements. North Carolina has
239 also shown a commitment to clean energy through its Clean Energy Plan finalized by the
240 North Carolina DEQ in October 2019, which sets a statewide carbon neutrality goal by
241 2050.

242 The development of the REPS was intended to diversify the resources used to
243 reliably meet the energy needs of consumers in the State, provide greater energy
244 security through the use of indigenous energy resources available within the State,
245 encourage private investment in renewable energy and energy efficiency and provide
246 improved air quality and other benefits to energy consumers and citizens of the State.
247 The Facility will help achieve all four of these goals. Allowing this Facility to go forward
248 will enable a new, clean, renewable energy resource with low environmental, health and
249 safety impacts, and significant economic development benefits to meet the growing
250 demand for electricity in the State and region.

251 Dominion Energy's Integrated Resource Plan

252 Need for the Facility is also supported by the 2020 Integrated Resource Plan
253 ("IRP") filed by Dominion Energy. The IRP forecasts its load serving entity peak and

254 energy requirements are estimated to grow at approximately 1.0% and 1.3% annually
255 throughout the 15-year planning period. Each Alternative Plan in the IRP calls for a
256 significant amount of retirement of coal-fired and inflexible, higher cost oil-and natural
257 gas-fired generation, ranging from 3,030 MW to 3,183 MW over the 15-year planning
258 period and 4,651 MW to 13,978 MW over the 25-year planning period. In an analysis of
259 the annual assumed levelized cost of energy of select new renewable capacity options,
260 “onshore wind resources reflect the most economic option in the near-term given the
261 ability to take advantage of production tax credits.” Further, Dominion Energy’s IRP also
262 states it anticipates it will soon become a full participant in the Regional Greenhouse
263 Gas Initiative, a regional effort to cap and reduce CO₂ emissions from the power sector.

264 Virginia Clean Energy Economy Act and the PJM Region

265 The Virginia Clean Economy Act (“VCEA”), which established a mandatory
266 renewable portfolio standard aimed at 100% clean energy from Dominion Energy’s
267 generation fleet by 2045, requires the development of significant energy efficiency, solar,
268 wind, and energy storage resources, and requires the retirement of all generation units
269 that emit carbon dioxide by 2045 (unless such retirement would threaten grid reliability
270 and security). Notably, the VCEA requires Dominion to seek all necessary approvals for
271 at least 16,100 MW of new solar or onshore wind resources by December 31, 2035.

272 In addition to needs specific to Dominion Energy, significant need exists in the
273 PJM Interconnection (“PJM”) region to which the Facility will be interconnected.
274 Summer peak load in PJM is expected to grow by 0.6% per year over the next 10 years,
275 and by 0.5% over the next 15 years. For the Dominion Virginia Power zone, summer
276 peak load growth is expected to grow by 1.2% per year over the next 10 years, and
277 1.0% per year over the next 15 years. The anticipated 10-year summer peak load
278 growth in the Dominion Virginia Power zone represents 4.6% growth over the January
279 2019 load forecast report.

280 Winter peak load growth in PJM is projected to average 0.4% per year over the
281 next 10-year period, and 0.3% over the next 15 years. Winter peak load growth for the
282 Dominion Virginia Power zone is expected to grow by 1.4% per year over the next 10
283 years, and 1.2% per year over the next 15 years. The anticipated 10-year winter peak
284 load growth in the Dominion Virginia Power zone represents 15.7% growth over the
285 January 2019 load forecast report. The PJM service area in Dominion Energy territory,
286 including North Carolina, is expected to average between 1.2% and 1.4% per year over
287 the next 10 years versus the PJM RTO load growth projections to average 0.6% over the
288 next 10 years.

289 Thus, the PJM projected load increases, announced generation retirements, and
290 renewable portfolio standards provide a need for new resources in the PJM footprint.
291 The Facility, located in the PJM footprint, will help fill this need.

292 *Duke Energy's Integrated Resource Plan*

293 There is also a showing of need for the Facility in the Duke Energy Progress,
294 LLC ("DEP") and Duke Energy Carolinas, LLC ("DEC") (together, "Duke") IRPs. Duke
295 has a goal of net-zero carbon emissions by 2050 that will "require a diverse mix of
296 renewable, and other zero-emitting, load following resources," including onshore wind.
297 Duke included multiple input assumptions regarding renewable energy in its 2020 IRPs,
298 including "up to 150 MW of onshore Carolinas wind generation, assumed to be located
299 in the central Carolinas, [which] could be selected by the capacity expansion model
300 annually to provide a diverse source of economic energy and capacity." Duke also
301 found that adding onshore wind would benefit winter peak demand, which drives the
302 resource planning process.

303 The Duke IRPs also include a discussion of Duke's corporate commitment to
304 reduce CO₂ emissions from power generation by at least 50% from 2005 levels by 2030,
305 and achieve net-zero emissions by 2050.

306 Corporate Demand for Clean Energy

307 According to Renewable Energy World, 2019 was “a record year for renewable
 308 energy procurement with corporate buyers purchasing over 7 GW of renewable energy
 309 capacity” in the United States.¹ Corporate buyers included major corporations such as
 310 AT&T, Google, Facebook, Microsoft, Walmart, Starbucks, Amazon, and many more.²
 311 According to BloombergNEF, in 2020, corporations purchased even more (23.7 GW)
 312 than the record-breaking amounts in 2019 (20.1 GW) “despite a year devastated by the
 313 pandemic, a global recession and uncertainty about U.S. energy policy ahead of the
 314 presidential election.”³ The report found that “to not only maintain, but grow, the clean
 315 energy procurement market under these conditions is a testament to how high
 316 sustainability is on many corporations’ agendas.”⁴ Wind projects in PJM’s territory are
 317 well positioned to meet the robust demand of corporations.

318 **MANAGERIAL AND TECHNICAL CAPABILITY OF APEX**

319 **Q. PLEASE DESCRIBE APEX’S TECHNICAL AND MANAGERIAL**
 320 **CAPABILITY TO CONSTRUCT AND OPERATE A WIND POWER FACILITY.**

321 A. As an Apex subsidiary, Timbermill will have full access to the managerial
 322 and technical capabilities of Apex to construct and operate the Facility. Apex brings the
 323 experience of having successfully developed 24 wind and solar facilities with a total
 324 operating capacity of more than 5 GW and serving as the operator for 11 commercial
 325 wind farms across North America (totaling an operating capacity of over 2 GW).

¹ <https://www.renewableenergyworld.com/solar/reba-corporate-renewable-energy-buyers-set-new-record-in-2019/>

² *Id.*

³ [https://about.bnef.com/blog/corporate-clean-energy-buying-grew-18-in-2020-despite-mountain-of-adversity/#:~:text=Partnership-,Corporate%20Clean%20Energy%20Buying%20Grew%2018,2020%2C%20Despite%20Mountain%20of%20Adversity&text=New%20York%20and%20London%2C%20January,published%20by%20BloombergNEF%20\(BNEF\).](https://about.bnef.com/blog/corporate-clean-energy-buying-grew-18-in-2020-despite-mountain-of-adversity/#:~:text=Partnership-,Corporate%20Clean%20Energy%20Buying%20Grew%2018,2020%2C%20Despite%20Mountain%20of%20Adversity&text=New%20York%20and%20London%2C%20January,published%20by%20BloombergNEF%20(BNEF).)

⁴ *Id.*

326 Apex has one of the most experienced renewable energy development teams in
327 the industry with more than 250 professionals with expertise in wind and solar resource
328 assessment, GIS, land management, permitting, transmission and interconnection,
329 turbine procurement, project finance, engineering, and construction management.
330 Included as **Merrick CPCN Direct Exhibit 1** is information on Apex's executive team. In
331 construction management specifically, Apex employs responsible and experienced
332 onsite construction managers to ensure that projects are built in compliance with all
333 applicable local, state and federal laws and regulations, approved construction plans,
334 and in a way that respects community and landowner concerns and results in a high-
335 quality facility that will operate smoothly for years to come.

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

337 A. Yes.

PREFILED DIRECT TESTIMONY OF
JIMMY MERRICK
ON BEHALF OF TIMBERMILL WIND, LLC
NCUC DOCKET NO. EMP-118, SUB 1

INTRODUCTION

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

A. My name is Jimmy Merrick. I am a Development Manager for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I hold a B.S. in Integrated Science and Technology, with a concentration in Energy, from James Madison University. I started working professionally in the renewable energy industry in 2014 and have been working full time as a developer with Apex Clean Energy, Inc. since June of 2018. I have successfully permitted multiple solar projects in the state of Virginia, totaling approximately 310 MW_{AC} of capacity. I currently manage a development pipeline of 889 MW_{AC} of wind, solar, and storage assets across the states of Virginia and North Carolina.

Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

A. As Development Manager, my responsibilities include managing all stages of development for projects in Apex Clean Energy Holdings, LLC's ("Apex") portfolio from concept to construction, including project origination, land leasing, transmission, public outreach, environmental permitting, and land use permitting. I also support engagement in the power marketing and financing of projects. I share responsibility for the development of the Timbermill Wind, LLC ("Timbermill") wind

23 energy facility that has a capacity up to 189 MW_{AC} located in Chowan County, NC (the
24 “Facility”).

25 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

26 A. No, but I have also provided prefiled direct testimony to support the
27 Application for a Certificate of Public Convenience and Necessity to construct the Facility
28 (the “CPCN Application”), filed by Timbermill in docket EMP-118, Sub 0.

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

30 A. The purpose of my testimony is to support the Application for Certificate
31 of Environmental Compatibility and Public Convenience and Necessity (the “CECPCN
32 Application”) to construct an approximately 6 mile 230kV transmission line (the
33 “Timbermill Line”) necessary to interconnect the Facility to the existing 230kV Winfall-
34 Mackeys transmission line (the “Winfall Line”) owned by Virginia Electric and Power
35 Company d/b/a Dominion Energy North Carolina (“DENC”).

36 **Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL’S CECPCN**
37 **APPLICATION IN THIS DOCKET?**

38 A. Yes.

39 **Q. WHY IS TIMBERMILL REQUESTING THE COMMISSION GRANT THIS**
40 **CERTIFICATE?**

41 A. The Timbermill Line is needed in order to interconnect the Facility, which
42 is the subject of the CPCN Application, to the existing DENC electrical grid.

43 **Q. TO YOUR KNOWLEDGE, WILL TIMBERMILL FILE AND PROVIDE**
44 **ALL INFORMATION, PUBLISH PUBLIC NOTICE AS REQUIRED BY THIS**
45 **COMMISSION, AND OBTAIN ALL FEDERAL AND STATE LICENSES, PERMITS,**
46 **AND EXEMPTIONS REQUIRED UNDER APPLICABLE LAW FOR CONSTRUCTION**
47 **AND OPERATION OF THIS TIMBERMILL LINE?**

48 A. Yes.

49 **Q. PLEASE DESCRIBE THE PROCESS UTILIZED TO SITE THE**
50 **TIMBERMILL LINE.**

51 A. In 2013, Apex began approaching landowners along the most direct
52 route from the Collector Substation to the Interconnection Switching Station about
53 participating in the Facility. At the same time, Apex was conducting diligence to
54 understand land use and environmental constraints along potential routes. As an
55 independent power producer, Timbermill does not have eminent domain authority.
56 Therefore, the route for the Timbermill Line was established through the entering of
57 voluntary agreements with individual private landowners. Apex has entered into 37 site
58 control agreements for the Facility, ten of which are specifically for the Transmission
59 Corridor.

60 **Q. DESCRIBE THE PERMITS AND APPROVALS ANTICIPATED TO BE**
61 **NECESSARY TO COMMENCE CONSTRUCTION OF THE TIMBERMILL LINE.**

62 A. The anticipated local, state and federal permits required for construction
63 of the Timbermill Line are set forth in Table 3.0-1 in the environmental report included as
64 CECPCN Application Exhibit 3.

65 **Q. WHICH PERMITS HAVE BEEN OBTAINED TO DATE?**

66 A. A conditional use permit (“CUP”) from Chowan County was obtained for
67 the Facility in 2016 and amended for the current Facility configuration in 2018. The CUP
68 allows for the construction of the Timbermill Line. All other permits remain in process at
69 this time.

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

71 A. Yes.

PREFILED SUPPLEMENTAL TESTIMONY OF
JIMMY MERRICK
ON BEHALF OF TIMBERMILL WIND, LLC

NCUC DOCKET NO. EMP-118 Sub 0 and Sub 1

1

INTRODUCTION

2

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS

3

ADDRESS.

4

A. My name is Jimmy Merrick. I am a Development Manager for Apex

5

Clean Energy, Inc. My business address is 310 4th 4 St. NE, Suite 300,

6

Charlottesville, VA 5 22902.

7

Q. ARE YOU THE SAME JIMMY MERRICK WHO CAUSED TO BE

8

PREFILED DIRECT TESTIMONY IN THIS MATTER ON JUNE 14, 2021?

9

A. Yes.

10

Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL

11

TESTIMONY?

12

A. The purpose of my testimony is to provide additional information in

13

response to the Commission's July 22, 2021 *Order Consolidating Dockets,*

14

Scheduling Hearings, Requiring Filing of Testimony, Establishing Procedural

15

Guidelines, and Requiring Public Notice, which directed the Applicant to file

16

additional testimony addressing issues related to interconnection costs and the

17

Applicant's plans to sell the energy and capacity generated by the Project.

18

Q1. ARE THERE ANY NETWORK UPGRADES TO DENC'S OR ANY

19

AFFECTED SYSTEM'S TRANSMISSION SYSTEM REQUIRED TO

20

ACCOMMODATE THE OPERATION OF THE APPLICANT'S PROPOSED

21

FACILITY? IF SO, PROVIDE THE AMOUNT OF NETWORK UPGRADES ON

22 **DENC'S OR ANY AFFECTED SYSTEM'S TRANSMISSION SYSTEM, IF ANY,**
23 **REQUIRED TO ACCOMMODATE THE OPERATION OF THE APPLICANT'S**
24 **PROPOSED FACILITY.**

25 A. No. As stated in Deepesh Rana's prefiled direct testimony filed on
26 June 14, 2021, the Facility requires only Attachment Facilities and Direct
27 Connection Network Upgrades associated with a new three-breaker ring bus
28 switching station and minimal relay upgrades at stations along the 230kV Winfall-
29 Mackeys transmission line. The total cost of the Attachment Facilities and Direct
30 Connection Network Upgrades is \$7,093,084.

31 **Q2. IF THERE ARE ANY REQUIRED SYSTEM UPGRADES, DOES**
32 **THE APPLICANT HAVE LEVELIZED COST OF TRANSMISSION (LCOT)**
33 **INFORMATION FOR THE SYSTEM UPGRADES? IF SO, PROVIDE THE LCOT**
34 **INFORMATION FOR ANY REQUIRED TRANSMISSION SYSTEM UPGRADES**
35 **OR MODIFICATIONS.**

36 A. Regardless of the lack of Network Upgrades, other than the Direct
37 Connection upgrades discussed above, Timbermill proactively provided an LCOT
38 analysis in Mr. Rana's prefiled direct testimony. The LCOT for the Facility has
39 been calculated for two scenarios: 1) assuming a 30-year Facility life, and 2)
40 assuming a 60-year transmission asset life. The resulting LCOT for the Facility is
41 \$1.07/MWh in Scenario 1 and \$0.90/MWh in Scenario 2. Further information on
42 Timbermill's LCOT can be found in Mr. Rana's testimony and associated
43 exhibits.

44 **Q3. IS THERE ANY INTERCONNECTION STUDY AVAILABLE FOR**
45 **THE PROPOSED FACILITY? IF SO, PROVIDE ANY INTERCONNECTION**

46 **STUDY RECEIVED FOR THE PROPOSED FACILITY. IF THE APPLICANT**
47 **HAS NOT RECEIVED A STUDY, PROVIDE A DATE BY WHEN THE STUDY IS**
48 **EXPECTED TO BE COMPLETED.¹**

49 A. The following interconnection studies have been issued for
50 Timbermill: (1) a Feasibility Study Report dated February, 2014, attached as
51 **Merrick Supplemental Exhibit 1**; (2) a System Impact Study Report dated
52 September, 2014, attached as **Merrick Supplemental Exhibit 2**; and (3) a
53 Facility Study Report dated September, 2015, attached as **Merrick**
54 **Supplemental Exhibit 3** (collectively, the “Interconnection Studies”).

55 As described in Mr. Rana’s pre-filed testimony, Timbermill has entered
56 into an Interconnection Service Agreement (“ISA”), attached as **Merrick**
57 **Supplemental Exhibit 4** and an Interconnection Construction Service
58 Agreement (“ICSA”), attached as **Merrick Supplemental Exhibit 5**. Further
59 information on Timbermill’s interconnection studies and interconnection history
60 can be found in Mr. Rana’s testimony.

61 **Q4. IS THE APPLICANT AWARE OF ANY SYSTEM OTHER THAN**
62 **THE STUDIED SYSTEM THAT IS OR WILL BE AFFECTED BY THE**
63 **INTERCONNECTION? IF YES, EXPLAIN THE IMPACT AND BASIS.**

64 A. No, Timbermill is not aware of any system other than the studied
65 system that is or will be affected by the interconnection. As shown in the
66 Interconnection Studies and the executed ISA, Timbermill has no impact on any
67 Affected System.

¹ All Interconnection Studies, as well as the ISA and ICSA, are available by searching queue number Z1-036 at <https://www.pjm.com/planning/services-requests/interconnection-queues.aspx>

68 **Q5. IS THE APPLICANT PROPOSING TO SELL ENERGY AND**
 69 **CAPACITY FROM THE FACILITY TO A DISTRIBUTION FACILITY**
 70 **REGULATED BY THE COMMISSION? IF SO, PROVIDE A DISCUSSION OF**
 71 **HOW THE FACILITY’S OUTPUT CONFORMS TO OR VARIES FROM THE**
 72 **REGULATED UTILITY’S MOST RECENT INTEGRATED RESOURCE PLAN**
 73 **(IRP).**

74 A. Timbermill has engaged in discussions with numerous potential
 75 offtakers for the energy and capacity from the Facility, including utilities regulated
 76 by the Commission. A discussion of how the Facility’s output conforms to or
 77 varies from recent integrated resource plans of Dominion Energy North Carolina,
 78 Duke Energy Progress, and Duke Energy Carolinas, is included in Exhibit 3 to
 79 Timbermill’s CPCN application and in my prefiled direct testimony.

80 **Q6. IS THE APPLICANT PROPOSING TO SELL ENERGY AND**
 81 **CAPACITY FROM THE PROPOSED FACILITY TO A PURCHASER WHO IS**
 82 **SUBJECT TO A STATUTORY OR REGULATORY MANDATE WITH RESPECT**
 83 **TO ITS ENERGY SOURCING (E.G., A REPS REQUIREMENT OR VIRGINIA’S**
 84 **NEW STATUTORY MANDATE FOR RENEWABLES)? IF SO, EXPLAIN HOW,**
 85 **IF AT ALL, THE PROPOSED FACILITY WILL ASSIST OR ENABLE**
 86 **COMPLIANCE WITH THAT MANDATE. IN ADDITION, PROVIDE ANY**
 87 **CONTRACTS THAT SUPPORT THAT COMPLIANCE.**

88 A. Timbermill has engaged in discussions with numerous potential
 89 offtakers for the energy and capacity from the Facility, including purchasers
 90 subject to statutory or regulatory mandates with respect to its energy sourcing. A
 91 discussion of how the Facility’s output will assist or enable compliance with such

92 mandates in Virginia and North Carolina is included in Exhibit 3 to Timbermill's
93 CPCN application and in my prefiled direct testimony. Timbermill has not
94 entered into any contracts for the output of the Facility to date.

95 **Q7. DOES THE APPLICANT HAVE A POWER PURCHASE**
96 **AGREEMENT (PPA), REC SALE CONTRACTS OR CONTRACTS FOR**
97 **COMPENSATION FOR ENVIRONMENTAL ATTRIBUTES FOR THE OUTPUT**
98 **OF THE PROPOSED FACILITY? IF SO, PROVIDE ANY PPA AGREEMENTS,**
99 **REC SALE CONTRACTS, OR CONTRACTS FOR COMPENSATION FOR**
100 **ENVIRONMENTAL ATTRIBUTES FOR THE OUTPUT OF THE FACILITY.**

101 A. No, Timbermill has not entered into any PPA, REC sale contract, or
102 contracts for compensation for environmental attributes for the output of the
103 Facility to date. However, Timbermill has engaged in discussions with numerous
104 potential offtakers and purchasers of the Facility and Apex remains confident in
105 its ability to contract offtake for the Timbermill facility.

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

107 A. Yes.

1 MS. PARROTT: Thank you.

2 BY MS. PARROTT:

3 Q Mr. Merrick, finally, will you please describe
4 your job responsibilities as they relate to the
5 Timbermill Wind energy facility?

6 A Sure. As a Development Manager my
7 responsibilities include managing all stages of
8 development from concept to construction. This
9 includes leasing, transmission, public outreach,
10 permitting, this is environmental permitting,
11 land use permitting, and I also support the
12 engagement in power marketing and financing of
13 the projects, and I share responsibility for the
14 development of the Timbermill Wind facility with
15 a multi-disciplinary team within Apex.

16 Q Thank you, Mr. Merrick.

17 MS. PARROTT: That concludes our direct
18 testimony with Mr. Merrick. And we're ready to
19 proceed to our last witness on the panel, Mr. Rana.

20 CHAIR MITCHELL: Please do so.

21 DIRECT EXAMINATION BY MS. ROSS:

22 Q Mr. Rana, would you please state your name and
23 business address for the record?

24 A Sure. My name is Deepesh Rana and my business

1 address is 310 4th Street Northeast, Suite 300,
2 Charlottesville, Virginia 22902.

3 Q By whom are you currently employed and in what
4 capacity?

5 A I am employed by Apex Clean Energy as the Senior
6 Manager of Transmission and Interconnection.

7 Q Did you cause to be prefiled on June 14th, 2021,
8 six pages of direct testimony in question and
9 answer form and one exhibit to support the
10 merchant plant CPCN Application in Docket
11 EMP-118, Sub 0?

12 A Yes.

13 Q Do you have any changes or corrections to your
14 testimony?

15 A I do not.

16 Q If I were to ask you those same questions today,
17 would your answers be the same as they appear in
18 your prefiled testimony?

19 A Yes, they would.

20 MS. ROSS: At this time, I would move that
21 Mr. Rana's prefiled direct testimony be copied into
22 the record as if given orally from the stand and that
23 the exhibits (sic) to his testimony be marked for
24 identification and included in the record.

1 CHAIR MITCHELL: Hearing no objection to
2 that motion, Ms. Ross, it will be allowed.

3 MS. ROSS: Thank you.

4 (WHEREUPON, Rana CPCN Direct
5 Exhibit 1 is marked for
6 identification as prefiled and
7 received into evidence.)

8 (WHEREUPON, the prefiled direct
9 testimony filed in Docket No.
10 EMP-118, Sub 0 of DEEPESH RANA is
11 copied into the record as if
12 given orally from the stand.)
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PREFILED DIRECT TESTIMONY OF
DEEPESH RANA
ON BEHALF OF TIMBERMILL WIND, LLC
NCUC DOCKET NO. EMP-118, SUB 0

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INTRODUCTION

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

A. My name is Deepesh Rana. I am a Senior Manager, Transmission and Interconnection for Apex Clean Energy, Inc. My business address is 310 4th St. NE, Suite 300, Charlottesville, VA 22902.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I hold a B.S. and M.S. in Electrical Engineering, Power Systems, from Drexel University. I started working professionally as an engineer in the energy industry in 2013. I have been working full time in a managerial role on transmission & interconnection of Apex Clean Energy, Inc. facilities since July of 2018.

Q. PLEASE SUMMARIZE YOUR CURRENT EMPLOYMENT RESPONSIBILITIES.

A. In my current position, I am responsible for managing the interconnection portfolio and associated studies for Apex Clean Energy Holdings, LLC's ("Apex") portfolio of generation resources in multiple independent system operator ("ISO") regions, including PJM Interconnection ("PJM"). My specific responsibilities include reviewing, managing and negotiating Interconnection Agreements and associated technical studies, including Feasibility and System Impact Studies; providing strategic, regulatory compliance, technical and financial input on grid integration of renewable projects on transmission and interconnection-related matters; and filing interconnection request applications and tracking their progress through the project life-cycle of an interconnection queue.

24 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

25 A. No.

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

27 A. The purpose of my testimony is to support the Application for Certificate
28 of Public Convenience and Necessity (the "CPCN Application") filed by Timbermill, and
29 to provide the Commission with information on the interconnection of the Facility to the
30 electrical grid via the existing 230kV Winfall-Mackeys transmission line (the "Winfall
31 Line") owned by Virginia Electric and Power Company d/b/a Dominion Energy North
32 Carolina ("DENC").

33 **Q. WERE YOU INVOLVED IN PREPARING TIMBERMILL'S**
34 **APPLICATION IN THIS DOCKET?**

35 A. Yes.

36 **INTERCONNECTION**

37 **Q. PLEASE GIVE A BRIEF HISTORY OF THE INTERCONNECTION**
38 **PROCESS FOR THE FACILITY.**

39 A. Timbermill submitted an Interconnection Request ("IR") to PJM
40 Interconnection, LLC ("PJM") in July 2013, and was assigned PJM Queue Number Z1-
41 036. PJM finalized the Facility Study Report ("FSR") for the Facility in September 2015,
42 and Timbermill entered into an Interconnection Service Agreement ("ISA") and an
43 Interconnection Construction Service Agreement ("ICSA") with PJM and DENC, with
44 effective dates of December 3, 2015 and December 15, 2015, respectively. In May 2020
45 Timbermill requested for the ICSA to be placed in suspension while permitting work
46 continues. Under the ICSA and PJM interconnection procedures, the ICSA may remain
47 in suspension for up to three years. Additionally, the Facility's milestone dates in the ISA
48 are deemed to be extended coextensively for the duration of ICSA suspension.

49 **Q. PLEASE DESCRIBE HOW THE FACILITY WILL INTERCONNECT**
 50 **WITH THE ELECTRIC GRID AND THE RESULTS OF THE FSR.**

51 A. The Facility will interconnect via a new three-breaker ring bus switching
 52 station, referred to in the CPCN Application as the Interconnection Switching Station,
 53 that connects to the existing Winfall Line. The FSR performed by PJM concluded that
 54 the interconnection of the Facility will require only Attachment Facilities and Direct
 55 Connection Network Upgrades associated with the new switching station, along with
 56 minimal relay upgrades at stations along the Winfall Line. Remote station relay
 57 upgrades are quite common to help coordinate protection schemes when new switching
 58 stations are constructed between existing remote stations. As reflected in the FSR and
 59 the ISA, Timbermill will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	\$ 891,265
Direct Connection Network Upgrades	\$4,434,840
Non Direct Connection Network Upgrades	\$1,766,979
Allocation for New System Upgrades	\$ 0
Contribution for Previously Identified Upgrades	\$ 0
Total Cost	\$7,093,084

60

61 **Q. WHEN DOES APEX ANTICIPATE REQUESTING THAT THE FACILITY**
 62 **COME OUT OF SUSPENSION WITH PJM?**

63 A. The Facility may remain in suspension without impact to the ISA or ICSA
 64 through May 2023. The timing for Timbermill's request to come out of suspension will
 65 depend on issuance of outstanding permits, including the CPCN at issue in this docket
 66 and the related application for Certificate of Environmental Compatibility and Public
 67 Convenience and Necessity that will be filed in EMP-118, Sub 1. Timbermill anticipates
 68 requesting the ISA come out of suspension by May 2022 to achieve an anticipated start
 69 of construction by November 2022.

70 **Q. WILL ADDITIONAL STUDIES BE TRIGGERED WHEN THE FACILITY**
71 **COMES OUT OF SUSPENSION?**

72 A. PJM and/or DENC may engage in a limited sensitivity analysis typical of
73 projects exiting suspension, but the Facility will not be subject to restudy and will
74 maintain its interconnection queue position. The initial Facility IR was for 300.3 MW_{AC}
75 and the Facility proposed in this CPCN application is 189 MW_{AC}. This reduction is not a
76 Material Modification and will not impact the Facility's queue position or trigger a new
77 study. For avoidance of doubt, a "Material Modification" is a modification that has a
78 material adverse effect on the cost of timing of interconnection studies, or cost of
79 Network Upgrades for a later queued project.

80 Because Timbermill does not have any system upgrades other than those
81 associated with its own new three-breaker switching station and related relay upgrades
82 at stations along the Winfall Line, it cannot materially alter the timing or cost of studies
83 and/or upgrades for later queued projects. The reduction in output can only benefit later-
84 queued projects.

85 **INTERCONNECTION COSTS AND AFFECTED SYSTEMS**

86 **Q. ARE THERE AFFECTED SYSTEM STUDY COSTS FOR THE**
87 **FACILITY?**

88 A. No.

89 **Q. ARE YOU AWARE OF THE AFFECTED SYSTEM QUESTIONS**
90 **RAISED BY THE COMMISSION IN DOCKET E-100 SUB 170?**

91 A. Yes, I am generally aware of the affected system questions raised with
92 respect to a number of merchant plant applications for solar facilities and which are
93 addressed in Docket E-100 Sub 170.

94 **Q. ARE THE AFFECTED SYSTEM ISSUES RELEVANT TO THE**
95 **FACILITY?**

96 A. No. The Facility has no impact on any affected system, as evidenced by
97 the System Impact Study, the FSR, and the fully executed ISA.

98 **Q. HAS TIMBERMILL CALCULATED THE LEVELIZED COST OF**
99 **TRANSMISSION (“LCOT”) FOR ANY REQUIRED TRANSMISSION SYSTEM**
100 **UPGRADES?**

101 A. Yes. Using the formula included in the 2019 study by Lawrence Berkeley
102 National Laboratory (“LBNL Study”) referenced by the Public Staff in NCUC Docket
103 EMP-105 Sub 0, the LCOT for the Facility has been calculated for two scenarios: 1)
104 assuming a 30-year Facility life, and 2) assuming a 60-year transmission asset life.¹ The
105 resulting LCOT for the Facility is \$1.07/MWh in Scenario 1 and \$0.90/MWh in Scenario
106 2. The Timbermill LCOT is comparable to the average wind LCOT in PJM (\$0.3/MWh)
107 and in MISO (\$2.48/MWh), and the LCOT average calculated by EIA (\$0.97/MWh), from
108 the LBNL Study. Timbermill’s LCOT analysis is provided as Rana CPCN Direct
109 Exhibit 1.

110 **Q. COULD THE FACILITY BE SUBJECT TO NEW AFFECTED SYSTEM**
111 **STUDY COSTS ONCE THE FACILITY COMES OUT OF SUSPENSION?**

112 A. No. As reflected in the studies for the Facility, the Facility does not
113 impact any affected system. Timbermill re-initiating work with DENC and taking the
114 ICSA out of suspension has no impact on an affected system because, as discussed
115 above, the Facility was taken into consideration in the study of any later-queued project.

116 **Q. WILL TIMBERMILL BE RESPONSIBLE FOR ALL OF THE**
117 **INTERCONNECTION COSTS CALLED FOR IN THE ISA?**

¹ Gorman, W., Mills, A., & Wisner, R. (2019). Improving estimates of transmission capital costs for utility-scale wind and solar projects to inform renewable energy policy. Energy Policy, 135. DOI: <https://doi.org/10.1016/j.enpol.2019.110994>. Preprint version accessed at http://eta-publications.lbl.gov/sites/default/files/td_costs_formatted_final.pdf.

118 A. Yes. Timbermill will pay for all of the interconnection costs outlined in the
119 Facility's ISA and will not be entitled to reimbursement for such costs from DENC or
120 PJM.

121 **Q. WILL ANY OF THE COSTS TO INTERCONNECT THE FACILITY BE**
122 **BORNE BY RATEPAYERS?**

123 A. No.

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

125 A. Yes.

1 BY MS. ROSS:

2 Q Mr. Rana, would you please briefly describe your
3 job responsibilities, excuse me, responsibilities
4 as they relate to the Timbermill Wind energy
5 facility?

6 A Sure. So, as Senior Manager for -- of
7 Transmission and Interconnection here at Apex,
8 I'm responsible for managing the interconnection
9 portfolio and associated studies of that
10 portfolio for Apex's generation resources and its
11 assets across multiple independent system
12 operators and multiple utility footprints,
13 including within PJM interconnection.

14 My responsibilities specifically
15 include reviewing, managing, and negotiating
16 interconnection agreements and associated
17 technical studies, including the Feasibility and
18 System Impact Studies within PJM; providing
19 strategic, regulatory compliance, technical and
20 financial input to other stakeholder departments
21 and subject matter experts within Apex for the
22 grid integration of renewable energy facilities
23 that Apex has in its portfolio; and specifically
24 on transmission and interconnection-related

1 matters, also including filing interconnection
2 request application packages and tracking their
3 progress through the interconnection queue
4 life-cycle, including that, of course, of
5 Timbermill Wind's facility.

6 Q Thank you.

7 MS. ROSS: Chair Mitchell, at this time our
8 panel is prepared for Commission questions.

9 CHAIR MITCHELL: Thank you, Ms. Ross. I
10 will check in with my colleagues to see if they have
11 questions for the panel. Commissioner Clodfelter,
12 starting with you?

13 COMMISSIONER CLODFELTER: (Shakes head no).

14 CHAIR MITCHELL: Commissioner Duffley?

15 COMMISSIONER DUFFLEY: No questions.

16 CHAIR MITCHELL: All right. I do have some
17 questions for your panel, Ms. Ross. So, I will go
18 ahead and just get started and I'm going to direct the
19 questions to the panel. Any of you, answer it --
20 answer my questions as appropriate and, if multiple of
21 you would like to respond, that's perfectly fine.

22 EXAMINATION BY CHAIR MITCHELL:

23 Q Section 2 of the specifications on the ISA
24 Interconnection Services Agreement, capacity

1 interconnection rights at the point of
2 interconnection are specified as 39 megawatts.
3 One of you all shake your head to make sure you
4 know what I'm talking about.

5 A (Mr. Rana) (Nods head in agreement).

6 Q Mr. Rana, it looks like you're going to be
7 answering these questions.

8 Help me understand what this
9 means. You know, you -- the facility as
10 identified in the Interconnection Services
11 Agreement was a 300-megawatt facility. The CPCN
12 indicates that the facility is going to be up to
13 189 megawatts. And then there's this sort of
14 interconnection rights at the point of
15 interconnection specified as 39. So, help me
16 understand specifically what the 39 megawatts are
17 and what that means for purposes of the project,
18 and how that relates to 189.

19 A (Mr. Rana) Sure. So, PJM has -- most RTO's
20 actually have two buckets of interconnection
21 rights; one is energy and this is defined, and
22 the other is capacity. It's easy to interpret
23 "capacity" as a generic term. And within PJM
24 "capacity interconnection rights" is a defined

1 term and essentially what that means is at what
2 amount of the project's output can be allocated
3 to firm service to serve network load during peak
4 demand periods.

5 Given that Timbermill is a wind
6 project, which is depending on wind resource, and
7 it's intermittent in nature, it cannot be
8 expected to serve 100 percent of its output to
9 meet 100 percent of the load demands 100 percent
10 of the time throughout the whole year. So
11 39 megawatts is a function of the average
12 capacity factor and the ability of the project to
13 service that peak load during very specific time
14 periods, and this is a standard in PJM which
15 is -- you know, more and more recently this
16 terminology has been called the Effective Load
17 Carrying Capability, or the ELCC.

18 Previously PJM, at the time that
19 Timbermill was studied, was assigning depending
20 on the type of technology in this case wind plus
21 average capacity factors of about 13 percent to
22 the projects, especially wind projects, which is
23 where the 39 megawatts come from.

24 To the second part of your

1 question, how does this compare to the overall
2 output which, as currently contemplated by the
3 project design, is 189 megawatts. It does not in
4 any fashion or form limit the project's ability
5 to output 189 megawatts. All it says is that if
6 this project's output is used to serve network
7 load during specific periods, the amount that
8 that project can bid into the PJM capacity
9 markets would be limited to 39 megawatts. And
10 then the other megawatts, the project can
11 participate in the PJM markets through the
12 energy -- through the energy wholesale markets.

13 Does that answer your question?

14 Q It does. It does, thank you. Actually, your
15 response was very helpful.

16 Just so I'm clear and I think you
17 said this but I'm going to ask you to say it
18 again. The 39 megawatts was calculated using the
19 class average capacity factor of 13 percent. PJM
20 didn't actually apply ELCC here just due to the
21 age of the Interconnection Services Agreement; is
22 that right?

23 A That's right.

24 Q Okay. And a follow up for you, and you've sort

1 of answered this, but again I want to make sure
2 I'm clear in my mind. The 39 megawatts has more
3 to do with what the project can bid into the
4 capacity market and has no bearing on the output
5 that was studied for purposes of the
6 interconnection request?

7 A That's correct.

8 Q So, the project can to the extent that the
9 project is actually producing at 189 megawatts,
10 it's not going to cause a problem under the
11 interconnection -- under the Interconnection
12 Services Agreement?

13 A No, ma'am.

14 Q Okay. Let's see, last question sort of on
15 interconnection-related issues. Mr. Rana, I'm
16 just going to assume you're going to answer this
17 one. The capacity studied was 300 megawatts.
18 The current project design contemplates 189 as I
19 understand the Application and your testimony
20 just now. Will this reduction in capacity impact
21 the studies that PJM has already performed?

22 A No. It will not simply because the project does
23 not have any other system upgrades that were
24 identified for any other portion, does not have

1 dependency on other projects other than the
2 facilities required for the point of
3 interconnection. The facilities required at the
4 point of interconnect would be the same
5 facilities even if we had submitted the project
6 as a 189-megawatt project and PJM had studied it
7 as a 189-megawatt project.

8 So, to -- the short answer to your
9 question is simply no, simply because there are
10 no other upgrades enhanced. Even with a
11 reduction it can only help other projects by
12 removing 110 megawatts of previously studied
13 service now made available to somebody else or
14 some other project.

15 Q Okay. And so -- okay. And so the reduction in
16 capacity wouldn't be viewed by PJM as a material
17 modification to the interconnection request?

18 A It would not and because it does not have an
19 adverse impact on costs or timing of other
20 projects. Under PJM's rule that is what is
21 defined as material modification. And a
22 reduction, like I said, only helps other
23 projects. It does not impact their cost or
24 timing.

1 Q Thank you, Mr. Rana. A few questions about the
2 sale of the output from the facility. It's my
3 understanding your testimony makes clear that
4 there's no -- at present there's no contract for
5 the sale of the output; is that correct?

6 A (Ms. Balfrey) That's right.

7 Q Have you all taken any action with respect to
8 selling into PJM? I know your testimony
9 indicates that it's one possibility, but have you
10 actually taken definitive steps to that end?

11 A Do you mean in the market or as far as talking to
12 customers?

13 Q Selling into the PJM energy market or capacity.

14 A No. No, not at this point.

15 Q Okay. Your testimony also indicates that the
16 Company has engaged in discussions with numerous
17 potential off-takers, including utilities
18 regulated by the Commission. If the facility
19 were to sell to Duke, would the facility have to
20 pay -- with that type of arrangement -- let me
21 just ask my question this way. Would that time
22 of arrangement require the payment for
23 transmission service through PJM?

24 A Deepesh, you might know better.

1 A (Mr. Rana) I think it's -- it depends. It may
2 require transmission service through PJM, but I
3 cannot say with certainty without knowing exactly
4 where the project would -- or where Duke would
5 like to take service from the project in this
6 hypothetical scenario.

7 Q So, are you saying then, Mr. Rana, that if the
8 project -- if you all were to enter into a deal
9 with Duke, you perhaps would contemplate a
10 different point of interconnection?

11 A No, not a different point of interconnection.
12 I'm saying different point of withdrawal. Point
13 of withdrawal meaning where that contract would
14 settle. The point of interconnection is not
15 going to change.

16 Q Okay, fair. Thank you. Ms. Balfrey, this is a
17 hypothetical for you. If the facility were to
18 sell into PJM, an energy market and/or capacity
19 or ancillary services, would it be necessary for
20 the facility to enter into another financial
21 transaction such as a contract for differences in
22 order to be able to obtain financing for the
23 project?

24 A (Ms. Balfrey) It's not necessary, it's the most

1 likely that it would. It's more typical for a
2 project to be financed with some sort of
3 long-term contract.

4 Q So that's the benefit of the contract for
5 differences. It just provides some long-term
6 certainty in revenue for the project? Okay.

7 A That's right, yes. Usually that would be
8 something like a 12-to-15-year contract.

9 Q Okay. Your testimony addresses the Public
10 Staff's concern about the change in turbines.
11 Have you alerted Chowan County about the change
12 in turbine?

13 A (Mr. Merrick) I can take that one, Commissioner.
14 The County is aware that we've changed turbines.
15 Yes.

16 Q Does it have any -- does that change have any
17 bearing on the approvals that the County has
18 already issued to you all?

19 A No. The turbine we're proposing at this stage
20 still adheres to the Chowan County CEP.

21 Q Okay. The Public Staff mentions in its testimony
22 that there are Site Control Agreements that have
23 expired or are about to expire. Counsel for the
24 Applicant filed a letter in this docket on

1 October 18th, is that correct, addressing the
2 Site Control --

3 A (Mr. Merrick) Correct. Yes.

4 Q -- Agreement; is that correct? And Mr. Merrick,
5 can you help me understand what the letter said?

6 A Yes. I can flip to it but, in summary, basically
7 since filing, a handful of agreements had expired
8 and then we went ahead and proactively amended or
9 extended those agreements. And at this stage we
10 have 100 percent site control for all property
11 within the project area where we're proposing to
12 locate the facility. So, there are no more
13 unexpired Site Control Agreements for Timbermill
14 at this time.

15 Q And that -- and thank you for that clarification,
16 Mr. Merrick. And that includes property for the
17 actual generating facility as well as for the
18 transmission line?

19 A Correct for both. Yes.

20 Q Thank you. Do you -- Mr. Merrick, update me on
21 the status of the Clearinghouse review for the
22 generating facility -- well, for both projects.
23 Where is the Clearinghouse on both of these
24 projects?

1 A When you say Clearinghouse, are you referring to
2 the Department of Defense?

3 Q No. It's the North Carolina Clearinghouse that
4 collects comments from various agencies that have
5 jurisdiction here. I'm just curious as to
6 whether you all have completed the archaeological
7 survey.

8 A So, as far as the archaeological survey goes, we
9 are still wrapping up fieldwork with regards to
10 that and we've coordinated with SHPO to ensure
11 that we're still in alignment with the
12 methodology that was previously approved. And so
13 once we wrap up the fieldwork associated with
14 that, we'll plan to submit a report to SHPO in
15 the coming weeks here. And as they've indicated
16 in a letter in the docket, they would plan to
17 review that within 30 days of receipt.

18 Q Okay. So am I hearing -- is your testimony,
19 Mr. Merrick, that you all are working towards
20 completion of the archaeological survey and in
21 doing so in coordination with SHPO, and envision
22 completing that process soon?

23 A That's correct. This is a result of some shifts
24 in the facility. As you're aware, we submitted

1 an updated layout in September so we had to
2 restudy a few areas to finalize the report before
3 we were able to submit it to SHPO.

4 Q Okay. Timeline to development. Your materials
5 in the record indicate that potential in-service
6 date of October 2023; is that accurate?

7 A Yes, that is accurate.

8 Q Still the plan, October 2023 you all could be in
9 service?

10 A Yes.

11 Q Okay. For construction of the 230-kV line, is
12 that something that you all would construct
13 yourselves or does -- who actually constructs
14 that line?

15 A Yes, Timbermill Wind would be responsible for the
16 construction of the transmission line, and then
17 Duke Energy North Carolina (sic) would be
18 responsible for the construction of the
19 interconnection switching station. And so
20 there's sort of a change of hands there, but from
21 the collection station and the six --
22 approximately 6-mile transmission line,
23 Timbermill would be responsible for that.

24 Q And Mr. Merrick, do you mean Dominion Energy

1 North Carolina? You said Duke Energy.

2 A Yes.

3 Q Okay.

4 A Sorry. Yes. Dominion Energy North Carolina.

5 Q Okay. Mr. Merrick, what can you tell me about
6 the operating profile of the facility? At what
7 point -- I'm going to ask you sort of an
8 open-ended question here. Describe the operating
9 profile of the facility?

10 A As far as generation?

11 Q Yes.

12 A Typically, just with wind in general, it has the
13 ability to operate 24/7 whenever the wind
14 resource is strong enough to turn the turbine,
15 and so we see -- we see higher generation numbers
16 typically at night and in the early morning.

17 Q What about wintertime?

18 A To my knowledge, yes, wintertime is also a
19 stronger wind resource than in the summer.

20 Q Has the Company conducted studies of the wind
21 resource specific to this site that you can
22 describe for us?

23 A Yes. We've had wind measuring devices, MET
24 towers and also SODAR units, dating back to 2013.

1 So, at this point we have a tremendous amount of
2 wind data that's very reliable. And so it's been
3 well-studied and it's well-understood.

4 Q Is there anything you can tell me about the
5 alignment of output from the facility with either
6 the PJM peak or the DEP peak?

7 A I don't have the expertise to answer that
8 question.

9 CHAIR MITCHELL: Okay. I have nothing
10 further. I will see if Duffley, Clodfelter, anything?

11 COMMISSIONER CLODFELTER: (Shakes head no).

12 COMMISSIONER DUFFLEY: (Shakes head no).

13 CHAIR MITCHELL: Okay. Questions on
14 Commissioner questions? Mr. Josey, I'll start with
15 you.

16 MS. ROSS: No questions.

17 CHAIR MITCHELL: No questions. Okay.
18 Ms. Ross, Ms. Parrott, any questions?

19 MS. ROSS: Chair, one moment.

20 (Pause).

21 No, ma'am. At this point, we have no
22 further questions for the witnesses. Thank you.

23 CHAIR MITCHELL: At this point then, if
24 there's nothing further for you all, you may step down

1 and you may be excused. Thank you very much for your
2 testimony this morning.

3 WITNESS MERRICK: Thank you.

4 (The witnesses are excused)

5 MS. ROSS: Chair, as we exit, from a
6 procedural perspective, after the witnesses are off
7 the stand, will we -- should we anticipate an Order
8 for proposed orders or should we address that here on
9 the record now?

10 CHAIR MITCHELL: Well, we have questions for
11 Public Staff Witness Thomas.

12 MS. ROSS: Oh, apologies. Yes. Thank you.

13 CHAIR MITCHELL: We'll move through this one
14 quickly. We're almost to the finish line.

15 MS. ROSS: Awesome.

16 CHAIR MITCHELL: I've got to ask -- I've got
17 some questions for Mr. Thomas and then we'll get to
18 post-hearing matters.

19 MS. ROSS: Thank you.

20 CHAIR MITCHELL: Mr. Thomas, I need to see
21 you on camera. And Mr. Josey, y'all may call your
22 witness.

23 MR. JOSEY: Public Staff calls Jeff T.
24 Thomas to the stand.

1 MR. THOMAS: Good morning.

2 JEFF T. THOMAS;
3 having been duly affirmed,
4 testified as follows:

5 CHAIR MITCHELL: You may proceed, Mr. Josey.

6 DIRECT EXAMINATION BY MR. JOSEY:

7 Q Please state your name, position and business
8 address for the record.

9 A My name is Jeff Thomas. I am an Engineer with
10 the Public Staff, Energy Division, and my
11 business address is 430 North Salisbury Street,
12 Raleigh, North Carolina 27603.

13 Q And did you cause to be prefiled in this docket
14 on or about September 29th, 2021, testimony in
15 question and answer form consisting of 18 pages
16 and one appendix?

17 A I did.

18 Q Do you have any additions or corrections to your
19 testimony?

20 A I do not.

21 Q If you were to be asked those same questions
22 today, would your answers be the same?

23 A They would.

24 MR. JOSEY: Madam Chair, I request that the

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testimony of Mr. Thomas be copied into the record as if given orally from the stand.

CHAIR MITCHELL: The motion is allowed.

(WHEREUPON, the prefiled direct testimony and Appendix A of JEFF T. THOMAS is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NOS. EMP-118, SUBS 0 AND 1

Testimony of Jeff T. Thomas
On Behalf of the Public Staff
North Carolina Utilities Commission

September 29, 2021

1 Q. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

2 A. My name is Jeff T. Thomas. My business address is 430 North Salisbury
3 Street, Raleigh, North Carolina.

4 Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.

5 A. My qualifications and duties are included in Appendix A.

6 Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF – NORTH
7 CAROLINA UTILITIES COMMISSION (PUBLIC STAFF)?

8 A. I am an engineer in the Operations and Planning Section of the Public
9 Staff's Energy Division.

10 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS
11 PROCEEDING?

12 A. The purpose of my testimony is to make recommendations to the North
13 Carolina Utilities Commission (Commission) on the application, testimony,

1 and related filings for a wind energy facility and associated transmission line
2 in Chowan County, North Carolina.

3 **Q. PLEASE PROVIDE A BRIEF HISTORY OF THE APPLICATION.**

4 A. On June 14, 2021, Timbermill Wind, LLC (Timbermill Wind or the Applicant),
5 an indirect subsidiary of Apex Clean Energy Holdings, LLC, filed an
6 application for a Certificate of Public Convenience and Necessity (CPCN)
7 to construct a 189-megawatt alternating current (MW) wind energy
8 generating facility (the Facility) in Docket No. EMP-118, Sub 0.
9 Contemporaneously, Timbermill Wind filed a Registration Statement for the
10 Facility. The application included the testimony of witnesses Ellen Balfrey,
11 Jimmy Merrick, Deepesh Rana, Jeremy Spaeth, and Emmanuel Wemakoy.
12 The Facility will be located in Dominion Energy North Carolina (DENC)
13 territory, which is part of PJM Interconnection, L.L.C. (PJM).

14 On June 21, 2021, Timbermill Wind filed an application for a Certificate of
15 Environmental Compatibility and Public Convenience and Necessity
16 (CECPCN) in Docket No. EMP-118, Sub 1, to construct a six-mile, 230-
17 kilovolt (kV) transmission line to connect the Facility to DENC's transmission
18 system. The application included the testimony of witnesses Brie Anderson,
19 Jimmy Merrick, Jeremy Spaeth, and Emmanuel Wemakoy.

20 On June 22, 2021, the Commission issued its *Order Scheduling Public*
21 *Hearing, Requiring Public Notice, and Requiring Clearinghouse Review in*

1 Docket No. EMP-118, Sub 1. Also on June 22, 2021, the Commission sent
2 a letter to the State Environmental Review Clearinghouse (State
3 Clearinghouse) along with the CECPCN application for review.

4 On June 28, 2021, the Public Staff filed a Notice of Completeness for the
5 CPCN application.

6 On June 29, 2021, the Applicant filed supplemental information regarding
7 construction costs.

8 On July 22, 2021, the Commission issued its *Order Consolidating Dockets,*
9 *Scheduling Hearings, Requiring Filing of Testimony, Establishing*
10 *Procedural Guidelines, and Requiring Public Notice* (July Order),
11 consolidating the CPCN and CECPCN proceedings and requiring the filing
12 of additional testimony and exhibits addressing the questions listed below.
13 Also on July 22, 2021, the Commission sent a letter to the State
14 Clearinghouse along with the CPCN application for review.

15 On July 27, 2021, Patrick Flynn filed a Petition to Intervene in both dockets.
16 On August 11, 2021, Timbermill Wind filed a Motion to Deny Petition to
17 Intervene.

18 Also on August 11, 2021, the State Clearinghouse filed comments in Docket
19 No. EMP-118, Sub 1, requesting additional information for the North
20 Carolina Department of Natural and Cultural Resources (DNCR). The State
21 Clearinghouse made a similar filing in Docket No. EMP-118, Sub 0 on

1 August 26, 2021. I describe the State Clearinghouse comments more fully
2 below.

3 On August 25, 2021, the Applicant filed the Supplemental Testimony of
4 Jimmy Merrick in response to the Commission's July Order.

5 On September 21, 2021, the Applicant filed an Updated Site Plan detailing
6 changes to several access roads, turbine locations, collection lines,
7 meteorological towers, and the laydown yard and operations and
8 management structure.

9 **I. COMPLIANCE WITH THE JULY ORDER**

10 **Q. PLEASE DESCRIBE THE QUESTIONS THAT THE COMMISSION**
11 **INCLUDED IN ITS JULY ORDER.**

12 A. In its July Order, the Commission noted the increase in merchant plant
13 facility applications and recognized its statutory duty to examine the long-
14 range needs for the generation of electricity in North Carolina. It directed
15 the Applicant to file additional testimony and exhibits addressing the
16 following questions regarding the Facility, to the extent they were not
17 answered in the application:

18 1. Provide the amount of network upgrades on DENC's or
19 any affected system's transmission system, if any,
20 required to accommodate the operation of Timbermill
21 Wind's proposed facility.

- 1 2. Provide the Levelized Cost of Transmission (LCOT)
2 information for any required transmission system
3 upgrades or modifications.
- 4 3. Provide any interconnection study received for the
5 Facility. If Timbermill Wind has not received a study,
6 provide a date by when the study is expected to be
7 completed.
- 8 4. If Timbermill Wind is aware of any system other than
9 the studied system that is or will be affected by the
10 interconnection, explain the impact and basis.
- 11 5. If Timbermill Wind proposes to sell energy and capacity
12 from the facility to a distribution utility regulated by the
13 Commission, provide a discussion of how the Facility's
14 output conforms to or varies from the regulated utility's
15 most recent integrated resource plan (IRP).
- 16 6. If Timbermill Wind proposes to sell energy and capacity
17 from the facility to a purchaser who is subject to a
18 statutory or regulatory mandate with respect to its
19 energy sourcing (e.g., a Renewable Energy Portfolio
20 Standard (REPS) requirement or Virginia's new
21 statutory mandate for renewables), explain how, if at
22 all, the Facility will assist or enable compliance with that
23 mandate. Provide any contracts that support that
24 compliance.
- 25 7. Provide any Power Purchase Agreements (PPA),
26 Renewable Energy Certificate (REC) sale contracts, or
27 contracts for compensation for environmental
28 attributes for the output of the Facility, if available.

29 On August 25, 2021, Timbermill Wind filed the additional testimony and
30 exhibits of witness Merrick in response to these questions.

31 **II. FACILITY OVERVIEW**

32 **Q. PLEASE PROVIDE A DESCRIPTION OF THE FACILITY.**

1 A. The Facility, related transmission line, and interconnection switching
2 station, are located on approximately 6,300 acres in central Chowan
3 County, north of Edenton. The Applicant has established site control for the
4 site through leases and easements with approximately 37 separate
5 landowners and been granted a Conditional Use Permit (CUP) by Chowan
6 County.¹ Timbermill Wind will improve and utilize existing access roads
7 where possible. New access roads will be constructed, if necessary, to
8 reach each planned turbine.

9 The Facility will consist of up to 45 wind turbine generators, each with an
10 anticipated nameplate capacity of 4.2 MW. Each turbine will have a
11 maximum hub height² of 345 feet, with a total turbine height³ of no more
12 than 599 feet. Each turbine will be connected to a Supervisory Control and
13 Data Acquisition (SCADA) system, allowing real-time monitoring by
14 operations and maintenance (O&M) staff and remotely. The turbines will be
15 monitored remotely 24 hours a day, seven days a week, and on-site O&M
16 staff will have control of each turbine at the on-site O&M office. The turbines
17 will be electrically connected via underground 34.5 kV electrical collector
18 lines, which will feed into a centrally located collector substation. At the
19 collector substation, the voltage is stepped up to 230 kV and conveyed to

¹ The CUP deadline was extended by several laws that were enacted due to the COVID-19 pandemic.

² Measured from the base of the tower to the center of the rotor hub on top of the tower.

³ Measured from the base of the tower to highest blade tip position.

1 the interconnection switching station, owned and operated by DENC, via a
2 six-mile aboveground transmission line.

3 **Q. DID THE UPDATED SITE PLAN IMPACT THE PUBLIC STAFF'S**
4 **REVIEW?**

5 A. No. The site plan changes did not add or remove any property parcels within
6 the site. The O&M office and the temporary laydown yard were relocated,
7 but there were no changes to the collector substation, the interconnection
8 substation, or the transmission line route. Some access roads, underground
9 collector lines, and individual turbines and met towers were moved slightly,
10 but these minor changes do not impact the Public Staff's recommendations
11 at this time.

12 **Q. PLEASE DESCRIBE THE TRANSMISSION LINE.**

13 A. The transmission line will connect the collector substation, owned and
14 operated by Timbermill Wind, to the interconnection switching station,
15 through the Transmission Corridor. Most of the corridor will be
16 approximately 150 feet wide with a short span that will be 75 feet wide. The
17 line will be supported primarily by H-frame structures and steel monopoles
18 will be used where necessary. Both types of structures are anticipated to be
19 75 to 120 feet tall. The environmental report required by Commission Rule
20 R8-62(c)(4) was included with the Application.

1 Approximately two thirds of the Transmission Corridor is located on the
2 property containing the Facility. The remaining one third is located from the
3 southeast corner of the Facility to the interconnection switching station.
4 Timbermill Wind determined the route through discussions with landowners
5 in a manner designed to maximize the owners' continued use of the
6 remainder of their property. The Transmission Corridor is located on land
7 belonging to willing landowners because Timbermill Wind does not have the
8 right of eminent domain. No alternative routes were proposed in the
9 CEPCN application.

10 **Q. WHY IS THE FACILITY NEEDED?**

11 A. According to Timbermill Wind, the Facility is needed because of the North
12 Carolina Renewable Energy and Energy Efficiency Portfolio Standard
13 (REPS); the most recently filed Integrated Resource Plans (IRPs) of Duke
14 Energy Carolinas, LLC (DEC), Duke Energy Progress, LLC (DEP), and
15 DENC; the Virginia Clean Energy Economy Act (VCEA); and corporate and
16 industrial demand for renewable energy. While Timbermill Wind has not
17 entered into any firm contracts for its output as of the date of the application,
18 it has been in discussions with multiple parties related to the sale of
19 Renewable Energy Certificates (RECs), the Facility output, or the Facility
20 itself. Timbermill Wind also states that its Facility has higher generation
21 during peak-load winter hours, which will help meet capacity needs in the
22 region.

1 The Public Staff notes that the VCEA establishes a renewable energy
2 portfolio standard (RPS) that can be met with out-of-state resources
3 connected to the PJM system.⁴ In addition, DEC and DEP anticipate
4 requiring 150 MW and 600 MW, respectively, of onshore wind resources by
5 2035 in their 2020 IRP, Portfolio B.

6 **Q. WHAT IS THE ESTIMATED COST OF THE FACILITY?**

7 A. Timbermill Wind estimates the total cost of the facility to be [BEGIN
8 **CONFIDENTIAL**] [REDACTED] [END CONFIDENTIAL], which includes \$3.5
9 million for the transmission line and \$7 million for associated network
10 upgrades.

11 **Q. DOES THE PUBLIC STAFF HAVE ANY CONCERNS ABOUT FACILITY**
12 **DECOMMISSIONING?**

13 A. Although the decommissioning of electric merchant facilities is outside the
14 purview of the Commission, the Public Staff reviewed the Chowan County
15 CUP and can confirm that Chowan County considered the eventual
16 decommissioning of the Facility in its permitting process. Timbermill Wind
17 is required to post a bond to cover all decommissioning costs. The
18 sufficiency of the bond will be reviewed every two years.

⁴ While the VCEA requires Dominion Energy to construct or procure at least 16,100 MW of new solar or onshore wind resources by December 31, 2035 (Va Code Ann. § 56-585.5(D)(2) (2021)), this requirement must be met by in-state resources only. The relevant RPS portion which allows out-of-state resources is described in Va Code Ann. § 56-585.5(C) (2021).

1 **III. NETWORK UPGRADES AND AFFECTED SYSTEM UPGRADES**

2 **Q. PLEASE PROVIDE A BRIEF HISTORY OF THE INTERCONNECTION**
3 **PROCESS FOR THE FACILITY.**

4 A. Timbermill Wind filed an interconnection request with PJM in July 2013, and
5 was assigned queue number Z1-036. At the time, the proposed project was
6 300 MW; the project size was reduced to 189 MW, which is permitted by
7 PJM's interconnection procedures without affecting queue position or
8 triggering a new study. PJM finalized the Facilities Study Report in
9 September 2015. Timbermill Wind entered into an Interconnection Service
10 Agreement and an Interconnection Construction Services Agreement with
11 DENC in December 2015. In May 2020, Timbermill Wind requested that the
12 Facility be put into suspension while permitting work continued. The project
13 may remain in suspension for up to three years without losing its queue
14 position.

15 Once the project exits suspension, PJM and DENC will review the Facility
16 and, if DENC's technical interconnections standards have materially
17 changed since the original study, PJM may restudy the Facility. Costs for
18 the scope of work will also be re-evaluated and updated to accommodate
19 inflation and elapsed time. As a result of the prior PJM studies, the Facility's
20 queue position and suspension, the Facility and its associated network
21 upgrades are included in the baseline for all PJM studies in later queue

1 positions. As a result, once the Facility exits suspension, it is highly unlikely
2 that PJM or DENC will identify any additional, significant upgrade costs.

3 **Q. WILL THE FACILITY REQUIRE ANY NETWORK UPGRADES?**

4 A. Yes. Pages 2 and 3 of witness Rana's direct testimony provide an itemized
5 list of required network upgrades totaling \$7,093,084. PJM will allocate the
6 cost responsibility for these upgrades to Timbermill Wind.

7 **Q. WILL NORTH CAROLINA RATEPAYERS BE RESPONSIBLE FOR ANY**
8 **OF THE IDENTIFIED NETWORK UPGRADES?**

9 A. No. Timbermill Wind is solely responsible for paying 100% of the network
10 upgrade costs.

11 **Q. WILL THE FACILITY REQUIRE ANY AFFECTED SYSTEM UPGRADES?**

12 A. No. As recently as February 26, 2021, PJM representatives have confirmed
13 that the Timbermill Wind project does not rely on any affected system
14 upgrades.

15 **Q. WHAT IS THE LCOT FOR THE NETWORK UPGRADES?**

16 A. Witness Rana provides an LCOT estimate based upon the 2019 Lawrence
17 Berkeley National Laboratory Study (LBNL Study)⁵ referenced by the Public

⁵ Gorman, W., Mills, A., & Wisner, R. (2019). Improving estimates of transmission capital costs for utility scale wind and solar projects to inform renewable energy policy. Energy Policy, 135. DOI: <https://doi.org/10.1016/j.enpol.2019.110994>. Preprint version accessed at http://etapublications.lbl.gov/sites/default/files/td_costs_formatted_final.pdf.

1 Staff in Docket No. EMP-105, Sub 0. According to witness Rana, the
 2 estimated LCOT is \$0.90 assuming a transmission life of 60 years, and
 3 \$1.07 assuming a transmission life of 30 years. The Public Staff estimates
 4 the LCOT to be approximately \$0.73, based on a 60-year transmission
 5 asset life and a 4.4% discount rate.⁶ The below table compares the
 6 Timbermill Wind LCOT (as calculated by the Public Staff) to the LCOT of
 7 wind projects in the Midcontinent Independent System Operator (MISO)
 8 region, PJM, and other wind projects with data reported to the Energy
 9 Information Administration (EIA). Timbermill Wind's LCOT is in line with
 10 other wind projects in the region. In any case, as Timbermill Wind will be
 11 responsible for paying the upgrade costs, North Carolina ratepayers will not
 12 bear any portion of the cost.

Projects Analyzed		LCOT
Timbermill Wind (Public Staff calculation)		\$ 0.73
MISO	Overall	\$ 2.48
	Constructed	\$ 0.85
	Proposed	\$ 4.05
PJM	Overall	\$ 0.30
	Constructed	\$ 0.25
	Proposed	\$ 0.69
EIA	Overall	\$ 0.97

13 **Q. IS THE PUBLIC STAFF CONCERNED ABOUT THE FACILITY'S**
 14 **NETWORK UPGRADE COSTS OR LCOT?**

⁶ The LBNL Study uses a 4.4% discount rate in calculating its LCOT for MISO, PJM, and EIA projects. To compare Timbermill Wind to other wind projects from the LBNL Study, the Public Staff used the same discount rate across the board.

1 A. No. The Public Staff has provided the foregoing information about the
2 Facility's LCOT to provide the Commission with context, but the Facility's
3 LCOT is not a concern nor a determining factor in the Public Staff's
4 recommendation for this specific CPCN and CECPCN application because
5 none of these network upgrade costs will be borne by North Carolina
6 ratepayers.

7 **IV. COMMENTS BY THE STATE CLEARINGHOUSE**

8 **Q. PLEASE PROVIDE THE STATUS OF THE CLEARINGHOUSE REVIEW**
9 **OF THE CPCN.**

10 A. On August 26, 2021, the State Clearinghouse file a letter in Docket No.
11 EMP-118, Sub 0, indicating that the DNCR has requested that the Applicant
12 provide an archeological survey report for further review and comment. In
13 its letter, the DNCR recommends that the required survey be provided as a
14 condition for, and prior to, the issuance of a Certificate of Environmental
15 Compatibility. At this time, the Applicant has not resolved this issue.

16 **Q. PLEASE PROVIDE THE STATUS OF THE CLEARINGHOUSE REVIEW**
17 **OF THE CECPCN.**

18 A. On August 11, 2021, the State Clearinghouse filed a letter indicating that
19 the DNCR has requested that the Applicant provide an archeological survey
20 report for further review and comment. In its letter, the DNCR recommends
21 that the required survey be provided as "a condition for, and prior to the

1 issuance of a Certificate of Environmental Compatibility.”⁷ At this time, the
2 Applicant has not resolved this issue.

3 **V. OTHER ISSUES**

4 **Q. ARE THERE ANY OTHER ISSUES TO BRING TO THE COMMISSION’S**
5 **ATTENTION?**

6 A. Yes, but these issues are minor and do not affect the Public Staff’s
7 recommendations in this docket.

8 First, Timbermill Wind’s CUP to Chowan County stated that the turbines
9 used would be 3.6 MW, but, according to this application, it plans to use 4.2
10 MW turbines. Timbermill Wind states that at the time of the CUP application,
11 the turbine had not been selected and a representative turbine was used.
12 For the sound and shadow flicker studies, a “hybrid, fictional turbine using
13 maximum impacts” was utilized. Timbermill Wind states that the turbine
14 capacity is immaterial to the CUP and CUP Amendment because the
15 turbine height has not changed and the decommissioning costs are not
16 materially impacted.

17 Second, due to the number of site control agreements and the timeline of
18 the project, several of the site control agreements have expired or will expire
19 soon. Timbermill Wind has assured the Public Staff that it will remove

⁷ State Clearinghouse Comments, page 2, filed on August 11, 2021 in Docket No. EMP-118, Sub 1 and State Clearinghouse Comments, page 22, filed on August 26, 2021 in Docket No. EMP-118, Sub 0.

1 turbines from any parcels for which it is unable to secure a renewed site
2 control agreement and re-route internal site access roads and collection
3 lines to avoid those parcels.

4 Finally, the State Clearinghouse raised one issue in its comments in Docket
5 No. E-100, Sub 101 filed on July 30, 2021. The State Clearinghouse noted
6 that “numerous bat species are in the area but were not listed” and that this
7 issue would be addressed during the Wind Energy Permit process.⁸

8 **VI. PUBLIC COMMENT**

9 **Q. HAVE ANY CONSUMER STATEMENTS OF POSITION BEEN FILED?**

10 A. Yes, as of the filing of my testimony, twenty-eight statements have been
11 filed. Most statements support the project and cite project benefits, such as
12 increased Chowan County tax revenues and locally generated low-carbon
13 generation. Two consumers filed statements in opposition to the project and
14 cited concerns about cost, safety, and harm to the local ecosystem.

15 **VII. RECOMMENDATIONS**

16 **Q. WHAT ARE THE PUBLIC STAFF’S RECOMMENDATIONS ON**
17 **TIMBERMILL WIND’S APPLICATION?**

⁸ The North Carolina Department of Environmental Quality is responsible for reviewing and approving wind energy permit applications. See N.C.G.S. §§ 143-215.115 through 143-215.122.

1 A. The Public Staff has reviewed the applications, the testimony of Timbermill
2 Wind witnesses, statements of position, and the other evidence in this
3 docket. Based on this information, the Public Staff recommends that the
4 Commission issue the CPCN for the generating facility and the CECPCN
5 for the associated transmission line after the Applicant files a letter with the
6 Commission stating that it has resolved DNCR's concerns, with supporting
7 documentation. The Public Staff also recommends that the Commission
8 issue the certificates, subject to the following conditions:

9 i. The Applicant shall notify the Commission of any significant
10 change (greater than 10%) in the cost estimates for the
11 interconnection facilities, network upgrades, or affected system
12 costs within 30 days of becoming aware of such change;

13 ii. The Facility shall be constructed and operated in strict
14 accordance with applicable laws and regulations, including any
15 environmental permitting requirements; and

16 iii. The CPCN shall be subject to Commission Rule R8-63(e) and all
17 orders, rules and regulations as are now or may hereafter be
18 lawfully made by the Commission.

19 The Public Staff also recommends that the Registration Statement be
20 considered complete and that the facility be considered a new renewable
21 energy facility.

1 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

2 A. Yes, it does.

APPENDIX A

1 **QUALIFICATIONS AND EXPERIENCE**

2 JEFF T. THOMAS, PE

3 I graduated from the University of Illinois Champaign-Urbana in 2009,
4 earning a Bachelor of Science in General Engineering. From 2009 to 2015, I
5 worked in various operations management roles for General Electric, United
6 Technologies Corporation, and Danaher Corporation. I left manufacturing in 2015
7 to attend North Carolina State University (NCSU), earning a Master of Science
8 degree in Environmental Engineering. I performed cost-benefit analysis evaluating
9 smart grid components, such as solid-state transformers and grid edge devices, at
10 the Future Renewable Energy Electricity Delivery and Management Systems
11 Engineering Research Center during my studies at NCSU. My master's thesis
12 focused on electric power system modeling, capacity expansion planning, linear
13 optimization, and the effect of various state and national energy policies on North
14 Carolina's generation portfolio and electricity costs. After obtaining my degree, I
15 joined the Public Staff in November 2017. In my current role, I have filed testimony
16 in avoided cost proceedings, general rate cases, and CPCN applications, and have
17 been involved in the implementation of HB 589 programs, utility cost recovery,
18 renewable energy program management, customer complaints, and other aspects
19 of utility regulation. I received my Professional Engineering license in April 2020
20 after passing the Principles and Practice of Engineering exam in Electrical and
21 Computer Engineering: Power.

1 MR. JOSEY: The witness does not have a
2 summary and is now available for Commission questions.

3 CHAIR MITCHELL: Mr. Thomas, let me check in
4 with Commissioners. Clodfelter, Duffley, questions
5 for Mr. Thomas?

6 COMMISSIONER CLODFELTER: (Shakes head no).

7 COMMISSIONER DUFFLEY: (Shakes head no).

8 CHAIR MITCHELL: Mr. Thomas, I've got a few
9 for you.

10 EXAMINATION BY CHAIR MITCHELL

11 Q Mr. Thomas, I assume you heard my questions that
12 I directed to the Applicant just a moment ago
13 about operating profile. The Applicant just
14 testified that the facility has higher generation
15 or has more output in the winter hours than in
16 the summer hours. Do you generally agree with
17 the Applicant's testimony on this point?

18 A Yes. I reviewed their P50 production profile as
19 well and I do agree with their summary of that.

20 Q And what can you tell me about alignment of the
21 output of this facility with peak needs in either
22 PJM or in DEP?

23 A Well, DEP is certainly more winter planning than
24 PJM. I think, again, there's still summer

NORTH CAROLINA UTILITIES COMMISSION

1 planning. So DEP -- this output profile would
2 compliment DEP's needs. And, in fact, DEP's 2020
3 IRP called for onshore wind resources in the
4 future. And since their peak is normally between
5 7:00 and 6:00 to 8:00 a.m. in the morning, the
6 output profile for wind is pretty high then, as
7 well as in the late hours in the winter.

8 PJM is a little bit different.
9 The wind facility still produces in the summer,
10 but the average output in the summer,
11 particularly during the summer peak, is a little
12 on the lower side, relatively lower. So, they
13 would still be able to provide energy and
14 capacity but it's a -- certainly, in my opinion,
15 a better fit for DEP in terms of the planning
16 mechanism.

17 Q Thank you, Mr. Thomas. Anything else you can
18 tell me about potential operating benefits that
19 this facility would provide to DEP, BA, or into
20 PJM.

21 A Sure, yes. So, one of the areas of need for the
22 facility that I highlighted in my testimony was
23 the Virginia Clean Energy Economy Act, and so
24 that law does provide and require 100 percent

1 carbon free and a significant amount of
2 renewables. And so this facility can certainly
3 satisfy Dominion Power's need for that renewable
4 energy. Importance with that law, and then just
5 in terms of the capacity that it can provide, you
6 know, just talking about Duke's IRPs as well, the
7 estimated load carrying capability or the -- also
8 known as the capacity value for wind in the
9 winter morning is much higher than it is for
10 solar. And so, certainly a diversity of
11 resources particularly intermittent generation
12 can be helpful for DEP in terms of meeting its
13 peak load and reducing the need to build
14 additional generation.

15 Q Thank you, Mr. Thomas. Moving on to a different
16 topic. You testified that as recently as
17 February 26th of this year 2021, PJM
18 representatives have confirmed that the
19 project -- that Timbermill Wind project doesn't
20 rely on any affected system upgrades. How -- was
21 this in conversation between you and someone at
22 PJM? How did you get that? How did you get that
23 confirmation from PJM?

24 A Sure. So, that information was submitted by the

1 Applicant. I believe it was through a data
2 request through discovery. It was an email
3 between Apex representatives and Timbermill
4 representatives and PJM stating that or
5 reaffirming rather that there was no affected
6 system upgrades.

7 And, you know, there's something
8 interesting about this project relative to other
9 projects, EMP projects that have been before this
10 Commission in recent weeks is that this project
11 is in the PJM Z cluster. And so we've seen
12 recent projects in the AD, AE and AC clusters.
13 So the Z cluster, the vast majority of projects
14 in the Z cluster are already either in service or
15 withdrawn. They have been studied. That cluster
16 began in I believe 2013. So, these projects have
17 been studied. And so there's -- really they're
18 baked into PJM's baseline with 100 percent
19 commercial success probability. And you know,
20 DEP in particular didn't really start to see
21 these types of affected system studies from the
22 Dominion North Carolina territory until about the
23 AA, AB clusters, so this one was pretty dated,
24 those problematic clusters.

1 Q Thank you, Mr. Thomas. And that leads me to my
2 next question for you. The Public Staff in
3 another of the EMP dockets that's presently
4 before us took a position that even though
5 affected system upgrades may not be indicated at
6 this time the Public Staff couldn't be certain
7 that such affected system upgrades might be
8 necessary at some point in the future.

9 A Uh-huh (Yes).

10 Q And here I read the Public Staff's testimony to
11 be bit more definitive on the issue of affected
12 system costs -- affected system upgrades and
13 affected system costs. Am I reading that
14 correctly? And just explain again if that is the
15 case why it's the case.

16 A Sure. So just to be clear, I believe you're
17 referring to Public Staff witness Evan Lawrence's
18 testimony in EMP-114 or Oak Trail; is that --

19 Q Yes, that's correct.

20 A Okay. So, in Evan's testimony or Mr. Lawrence's
21 testimony he pointed out that that facility is
22 part of the AD and AE clusters and Duke had just
23 finished its Affected System Study for the AC
24 cluster. And so even though at the time no

1 identified -- Mr. Lawrence had not identified any
2 affected system upgrades, there was still the
3 possibility that projects assigned affected
4 system upgrades in the AC cluster could withdraw
5 and that that responsibility for those particular
6 upgrades could be passed on to the AD clusters
7 and the AE clusters.

8 Obviously, it would take a certain
9 combination of withdrawals and upgrades and
10 contingency there to trigger that type of
11 cascading, you know, shifting of upgrades, but it
12 was still a very real possibility given the fluid
13 and given the tens of thousands of megawatts that
14 are in the AC through AE clusters.

15 So, but as I said, as Mr. Lawrence
16 had testified to Duke had just completed its AC
17 Affected System Study, and Timbermill is in the
18 AZ cluster. So, everything that Duke is doing in
19 terms of studying this interconnection and issues
20 with PJM facilities interconnecting, that's
21 already all baked into the baseline.

22 As I said, most of the Z
23 facilities are either withdrawn or in service.
24 Timbermill is one of very few projects that are

1 in suspension mode or active. So, we assume and
2 I believe it's a safe assumption that Duke has
3 moved on from the Z cluster. There's no upgrades
4 identified. And the affected system process
5 really does begin with PJM walking through this,
6 identifying potential, notifying Duke and then
7 Duke is able to then study that as the affected
8 utility. And that process has already played out
9 with the Z cluster, the AA cluster, the AB
10 cluster, and is currently going forward with the
11 AC cluster.

12 So, we believe that this project
13 is well enough in most baselines to not have even
14 the potential to trigger any sort of cascading
15 upgrades on the DEP system.

16 Q Thank you, Mr. Thomas, that's helpful. And just
17 so the record is clear, a moment ago you said the
18 project, you referenced cluster AZ, but I think
19 you meant just cluster Z; is that correct?

20 A Yes. Yes, I meant A -- just cluster Z is the
21 Timbermill cluster.

22 Q Okay. Mr. Thomas, the Public Staff recommends
23 issuance of the Certificate for the transmission
24 line even though the archaeological survey is not

1 yet complete; is that correct?

2 A I believe that my testimony had recommended that
3 the CECPCN and the CPCN both be withheld until
4 the required archaeological survey is completed.
5 Essentially, there's no reason to grant one
6 without the other. They're both needed. But I
7 believe that that was my testimony, what I
8 testified to.

9 Q Okay.

10 A Yeah, I believe I stated that the Commission
11 issue a CPCN and a CECPCN after the Applicant
12 files a letter with the Commission stating that
13 it has resolved the Department of Natural
14 Cultural Resources' concerns, and that's on page
15 17.

16 Q Okay. Thank you for clearing me up on that one.

17 CHAIR MITCHELL: Mr. Thomas, you have
18 answered all of my questions. Thank you very much,
19 sir, for your testimony. I will see if Commissioners
20 Clodfelter, Duffley, anything for Mr. Thomas?

21 COMMISSIONER DUFFLEY: (Shakes head no).

22 COMMISSIONER CLODFELTER: (Shakes head no).

23 CHAIR MITCHELL: Okay. Ms. Ross, any
24 questions for Mr. Thomas based on my questions?

1 MS. ROSS: Yes, Chair, just very, very
2 briefly for Mr. Thomas.

3 EXAMINATION BY MS. ROSS:

4 Q Perhaps, for clarity of the record, I believe it
5 is the Clearinghouse that would file notification
6 of no further comments or concerns by the
7 Department of Cultural Resources (sic), State
8 Historic Preservation Office related to the
9 Applicant providing the Department of Cultural
10 Resources the archaeological survey plan. Is it
11 fair to say that the Public Staff is looking for
12 the Clearinghouse to provide a letter that that
13 process is complete rather than the Applicant?

14 A Yes, I believe you are right. That is generally
15 the process that would be followed. The
16 Department of Natural Cultural Resources would
17 notify the State Clearinghouse and they would
18 file the letter.

19 MS. ROSS: Thank you. Based on that I have
20 no further questions.

21 CHAIR MITCHELL: Mr. Josey, questions for
22 your witness?

23 MR. JOSEY: No questions.

24 CHAIR MITCHELL: Mr. Thomas, thank you very

1 much for your testimony before us today, sir, and we
2 appreciate it, and you may step down and you are
3 excused.

4 A Thank you.

5 (The witness is excused)

6 CHAIR MITCHELL: At this point we are --
7 Mr. Josey, I'll check in with you to make sure nothing
8 else -- no other motions are necessary on your
9 evidence.

10 MR. JOSEY: No.

11 CHAIR MITCHELL: We've got -- all right.
12 With that then, we are at the conclusion of the
13 hearing today. We will take proposed orders -- you
14 certainly can submit it as soon as you'd like to. We
15 typically ask for them within 30 days of the filing of
16 the notice of the transcript, notice of the
17 availability of the transcript. Again, get them in as
18 soon as you'd like and you don't necessarily have to
19 wait on the transcript.

20 With that, I'll pause to see if there are
21 additional questions from counsel before we adjourn.

22 (No response)

23 Hearing none, we will be adjourned. Thank
24 you very much, everybody.

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(The proceedings were adjourned)

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C E R T I F I C A T E

I, KIM T. MITCHELL, DO HEREBY CERTIFY that
the Proceedings in the above-captioned matter were
taken before me, that I did report in stenographic
shorthand the Proceedings set forth herein, and the
foregoing pages are a true and correct transcription
to the best of my ability.

Kim T. Mitchell

Kim T. Mitchell