



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

November 12, 2020

Ms. Kimberley A. Campbell, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. EMP-102, Sub 1 – CPCN for 150MW Solar Located East of NC 11 South and North of NC 30 in the Town of Bethel NC Pitt County

Dear Ms. Campbell:

In connection with the above-referenced docket, I transmit herewith for filing on behalf of the Public Staff the testimony of Dustin R. Metz, Utilities Engineer, Electric Section, Energy Division.

By copy of this letter, I am forwarding a copy of the above to all parties of record.

Sincerely,

Electronically submitted
/s/ Gina C. Holt
Staff Attorney
gina.holt@psncuc.nc.gov

Attachment

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. EMP-102, SUB 1

In the Matter of)	
Application of Pitt Solar, LLC, for a)	TESTIMONY OF
Certificate of Public Convenience and)	DUSTIN R. METZ
Necessity to Construct a 150-MW Solar)	PUBLIC STAFF – NORTH
Facility in Pitt County, North Carolina)	CAROLINA UTILITIES
)	COMMISSION
)	

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. EMP-102, SUB 1**

Testimony of Dustin R. Metz

On Behalf of the Public Staff

North Carolina Utilities Commission

November 12, 2020

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

3 A. My name is Dustin R. Metz. My business address is 430 North
4 Salisbury Street, Raleigh, North Carolina.

5 **Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.**

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

7 **Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?**

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

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

12 A. The purpose of my testimony is to make recommendations to the
13 Commission on the request filed on August 10, 2020, for a certificate

1 of public convenience and necessity (CPCN) filed by Pitt Solar, LLC
2 (Applicant) (formerly Bethel NC 11 Solar, LLC) as well as the
3 Supplemental Testimony filed by the Applicant's witness, Linda
4 Nwadike, on October 16, 2020 and a notice of name change filed on
5 October 23, 2020. The notice of name change renamed the facility
6 from Bethel NC 11 Solar, LLC to Pitt Solar, LLC.

7 **Q. PLEASE DESCRIBE THE FACILITY.**

8 A. The Applicant plans to construct a 150-megawatt AC (MW_{AC}) solar
9 photovoltaic electric generating facility (the Facility) near Bethel in
10 Pitt County, North Carolina. The Facility will interconnect with the
11 Virginia Electric and Power Company, d/b/a Dominion Energy North
12 Carolina (DENC) transmission system via the Elmont-Greenwood
13 DP 115 KV line #59 in conjunction with a new switching station. Since
14 DENC is part of PJM Interconnection (PJM), the Applicant is required
15 to enter into an interconnection service agreement with both entities.
16 The aggregate nameplate capacity of the facility is the result of two
17 subprojects being merged by the Applicant. The first portion of the
18 150 MW_{AC} facility is an 80 MW_{AC} facility for which the Applicant
19 originally requested a CPCN in Docket No. EMP 102, Sub 0, and
20 which was assigned PJM queue number AC1-189. The second
21 portion of this Sub 1 filing is an additional 70 MW_{AC} with PJM queue
22 number AF2-080.

1 **Q. PLEASE PROVIDE A BRIEF HISTORY OF THIS DOCKET.**

2 A. The Applicant filed an application for the first 80-MW portion of the
3 Facility in the Sub 0 docket on October 4, 2018, but did not pursue
4 completion of the application process.

5 In May 2020, the Public Staff learned that Duke Energy Progress,
6 LLC (DEP), had conducted an affected system interconnection study
7 for PJM Interconnection Cluster AC1 (AC1 Cluster), of which the first
8 80-MW of the Facility is a part. Through the study, DEP determined
9 that it will likely have to construct network upgrades to its Rocky
10 Mount-Battleboro 115 kV transmission line (DEP Upgrade) to
11 accommodate the interconnection of the Facility and four other solar
12 photovoltaic projects that are part of the AC1 Cluster. DEP's AC1
13 Cluster Report (DEP AC1 Report) was completed on May 6, 2020.
14 The DEP AC1 Report indicated that these upgrades to the Rocky
15 Mount-Battleboro 115 kV line will cost approximately \$23 million.
16 Exhibit 6 to the supplemental testimony of witness Nwadike is a copy
17 of the DEP AC1 Report.

18 Because of the increase in the number of merchant plant
19 applications, the Commission, in its October 5, 2020, *Order*
20 *Scheduling Hearings, Requiring Filing of Testimony, Establishing*
21 *Procedural Guidelines, and Requiring Public Notice* (Procedural

1 Order), required, *inter alia*, that the Applicant and the Public Staff file
2 additional testimony on the following questions:

- 3 1. Are there any network upgrades to DENC's or any
4 affected system's transmission system required to
5 accommodate the operation of the Applicant's
6 proposed facility? If so, provide the amount of
7 network upgrades on DENC's or any affected
8 system's transmission system, if any, required to
9 accommodate the operation of the Applicant's
10 proposed facility.
- 11 2. If there are any required system upgrades does the
12 Applicant have Levelized Cost of Transmission
13 (LCOT) information for the system upgrades? If so,
14 provide the LCOT information for any required
15 transmission system upgrades or modifications.
- 16 3. Is there any interconnection study available for the
17 proposed facility? If so, provide any interconnection
18 study received for the proposed facility. If the
19 Applicant has not received a study, provide a date
20 by when the study is expected to be completed.
- 21 4. Is the Applicant aware of any system other than the
22 studied system that is or will be affected by the
23 interconnection? If yes, explain the impact and
24 basis.
- 25 5. Is the Applicant proposing to sell energy and
26 capacity from the facility to a distribution utility
27 regulated by the Commission? If so, provide a
28 discussion of how the facility's output conforms to or
29 varies from the regulated utility's most recent IRP.
- 30 6. Is the Applicant proposing to sell energy and
31 capacity from the proposed facility to a distribution
32 utility not regulated by the Commission but serving
33 retail customers in North Carolina (e.g. co-op or
34 muni)? If so, discuss how the facility's output
35 conforms to or varies from the purchasing
36 distribution utility's long-range resource plan.

1 7. Is the Applicant proposing to sell energy and
2 capacity from the proposed facility to a purchaser
3 who is subject to a statutory or regulatory mandate
4 with respect to its energy sourcing (e.g., a REPS
5 requirement or Virginia's new statutory mandate for
6 renewables)? If so, explain how, if at all, the
7 proposed facility will assist or enable compliance
8 with that mandate. In addition, provide any contracts
9 that support that compliance.

10 8. Does the Applicant have any PPA agreements, REC
11 sale contracts or contracts for compensation for
12 environmental attributes for the output of the
13 proposed facility? If so, provide any PPA
14 agreements, REC sale contracts, or contracts for
15 compensation for environmental attributes for the
16 output of the facility

17 On October 16, 2020, the Applicant filed the supplemental testimony
18 of its witness Nwadike addressing the questions in the Procedural
19 Order. On October 23, 2020, the Applicant filed its notice of the name
20 change.

21 **Q. HAVE YOU REVIEWED THE SUPPLEMENTAL TESTIMONY AND**
22 **EXHIBITS FILED BY WITNESS NWADIKE?**

23 A. Yes. I have reviewed the supplemental testimony and exhibits of
24 witness Nwakide. I believe her responses to the Commission's
25 questions in the Procedural Order are largely complete; however, I
26 am concerned about her answer to the Commission's second
27 question regarding the LCOT. Her LCOT calculations are attached
28 as Confidential Exhibits 1 and 2 to her supplemental testimony.

1 **Q. PLEASE EXPLAIN YOUR CONCERNS REGARDING THE LCOT**
2 **CALCULATIONS OF WITNESS NWADIKE.**

3 A. I believe that some of the values in the Applicant's LCOT calculations
4 are too low for the following reasons:

5 First, the Applicant's request is for 150 MW; therefore, witness
6 Nwadike's Exhibit 1, which addresses only the initial 80 MW does not
7 provide the full potential LCOT unless the Applicant is seeking
8 approval for only 80 MW at this time. Second, Exhibit 1 does not
9 include any affected system costs from the DEP AC1 Report. The
10 affected system costs should be included because the Facility most
11 likely cannot operate at 80 MW without the DEP Upgrade, and given
12 the speculative nature of projects dropping out of the queue, the
13 costs should be assigned to the "next up" for any project in the overall
14 queue. Third, the AF2-080 (70 MW addition) Feasibility Study Report
15 lists network upgrade costs of \$881,680,000, but it is premature to
16 accurately identify any costs for an LCOT calculation. The System
17 Impact Study for the Facility will provide more accurate network
18 upgrade costs as well as an Interconnection Service Agreement
19 (ISA). The Feasibility Study Report does not explain whether the
20 AF2-080 system upgrade costs¹ assume that all previous PJM
21 cluster upgrade costs have been completed. Also, given the

¹ Based on my review of the July 2020 Feasibility Study, the ~\$880M has not had any type of cost allocation applied to the projects in the overall cluster.

1 speculative nature of projects that drop out of earlier queues, more
2 upgrades could be moved onto the AF2 cluster, thus increasing the
3 overall cost², or, alternatively, the costs could decrease as well. This
4 application is unique, because it spans the AC, AD, AE, and AF PJM
5 clusters. The rise in North Carolina-specific requests to interconnect
6 in PJM's North Carolina Transmission area adds to the uncertainty
7 of this and other interconnection projects.

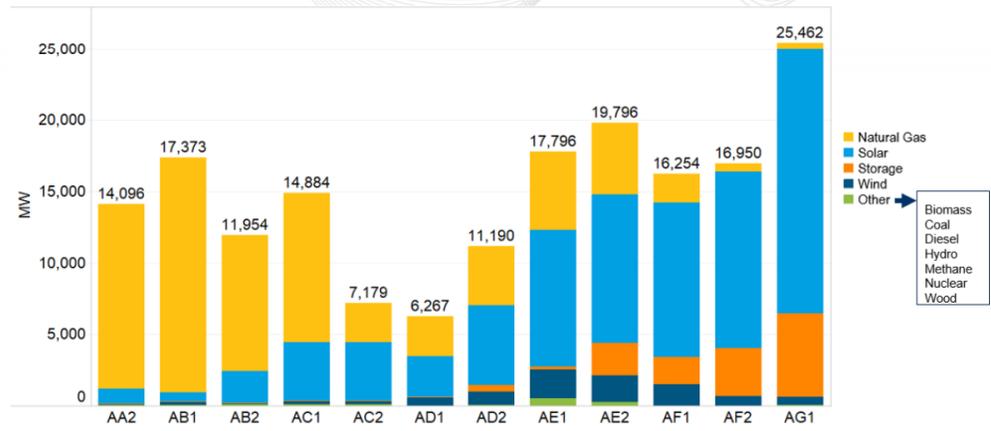
8 **Q. DO YOU HAVE ANY DOCUMENTATION OF THE INCREASE IN**
9 **PJM INTERCONNECTIONS IN NORTH CAROLINA?**

10 A. Yes. PJM released its most recent statistical queue trends on
11 November 4, 2020.³ PJM provides public information each year on
12 the interconnection queue status update. The most recent release
13 provides trends from previous clusters, and details of the most recent
14 cluster studied.

15 Figure 1 below shows that total MW of interconnection requests for
16 PJM is increasing by each cluster.

² Duke Energy is still completing affected system studies for post AC1 cluster, see Duke comments filed in E-100 Sub 170.

³ <https://www.pjm.com/-/media/committees-groups/committees/pc/2020/20201104/20201104-pc-info-only-pjm-queue-status-update.ashx>



1

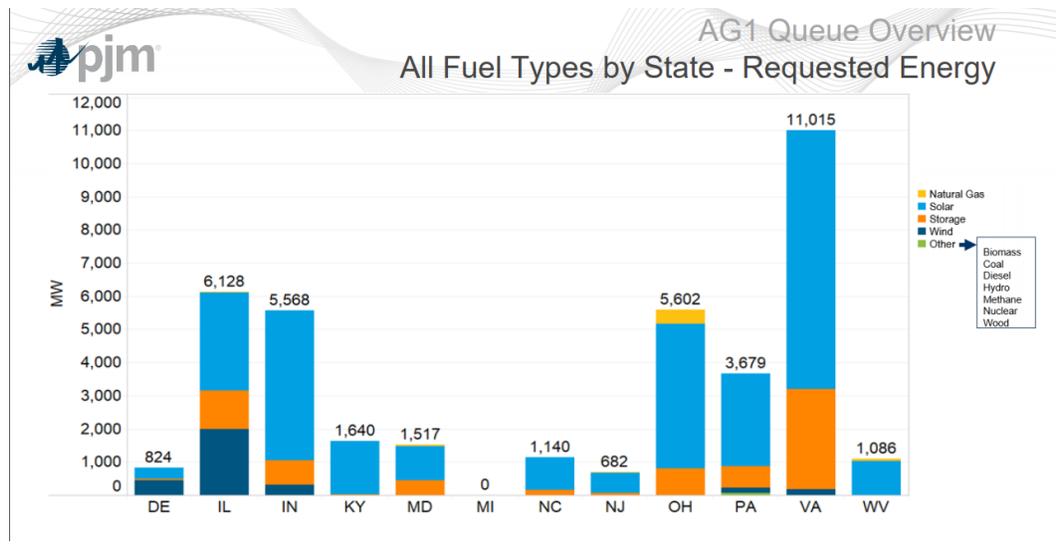
2

Figure 1

3

Figure 2 below shows the significant amount of requested solar in Virginia and continued interest in North Carolina.

4



5

6

Figure 2

1 Figure 3 below shows that approximately 6,600 MW (nameplate) of
2 solar has been requested for interconnection in PJM's North Carolina
3 territory⁴ from the AC2 cluster through present, AG1 cluster.

Total Solar (MW) Located in PJM's area of North Carolina per Cluster Study								
MW	900	500	400	900	430	1600	900	1000
Cluster	AC 2	AD 1	AD 2	AE 1	AE 2	AF 1	AF 2	AG 1

4
5 Figure 3

6 **Q. WHAT IS YOUR RECOMMENDED LCOT CALCULATION?**

7 A. Due to the speculative nature of the Applicant's estimated upgrade
8 cost of \$881,680,000 in regards to the second portion of the Facility
9 (70 MW), I calculated an LCOT for the first portion of the facility (80
10 MW), using the recent PJM costs found in witness Nwadike's Exhibit
11 5 of approximately \$8.9M plus the affected system costs found in
12 Exhibit 6, \$23.2M, for a total of \$32.1M. I adjusted the overall
13 capacity factor, because the supplied calculation did not properly
14 account for degradation. Keeping everything else equal in witness
15 Nwadike's analysis provided in her Exhibit's but adjusting the
16 capacity factor to 24%⁵ (levelized), while using \$32.1M for overall
17 system upgrades, I calculate an LCOT of approximately \$9/MWh.⁶

⁴ Some of the semi-annual updates do not provide an exact value, so some visual estimation was utilized to determine a proxy of solar megawatts requesting to interconnect.

⁵ Utilization of a 24% capacity factor gives an estimation of the average capacity factor for the Facility over its entire life. It is important to note that this is an estimate, and an increase and decrease of the capacity factor greatly changes the LCOT calculation depending on the magnitude of the upgrade costs.

⁶ When using the Applicant's first year capacity factor, the LCOT is still greater than \$7/MWh.

1 Again, utilization of the currently known AF cluster value is of no
2 benefit and should not be used in this analysis as the results are
3 unrealistic. A reasonable estimate should be used in providing
4 insight into the required costs of system upgrades. One could assign
5 a percentage of the AF cluster costs as a proxy, but that would be
6 too speculative in my opinion.

7 **Affected System Studies**

8 **Q. COULD THE FACILITY AFFECT DEP'S TRANSMISSION LINES?**

9 A. Yes. According to the direct and supplemental testimony of witness
10 Nwadike, PJM has determined that generation by the Facility has the
11 potential to affect DEP's transmission system. DEP must therefore
12 perform affected system studies to determine the upgrades and
13 costs necessary for the Facility to safely interconnect.

14 **Q. PLEASE SUMMARIZE THE PUBLIC STAFF'S CONCERNS**
15 **REGARDING THE FACILITY AND OTHER MERCHANT POWER**
16 **FACILITIES LOCATED IN DENC SERVICE TERRITORY.**

17 A. The Public Staff is concerned that (1) the large amount of solar
18 capacity in PJM's North Carolina queue (over 6,600 MW-See Figure
19 3) could trigger many millions of dollars of affected system upgrades
20 that DEP's customers would have to pay but may not need for

1 reliable electric service; (2) the Virginia Clean Economy Act⁷ could
2 lead to more renewable energy facilities located in or in close
3 proximity to North Carolina, increasing the risk for more affected
4 system upgrades for DEP, and possibly Duke Energy Carolinas
5 (DEC); (3) because of future clusters, upgrades to accommodate an
6 earlier cluster could soon need to be replaced with even greater
7 transmission assets long before the end of their normal service life,
8 typically 40 to 60 years, and cause wasted investments
9 (undepreciated assets) on the behalf of DEP's customers.

10 **Docket No. E-100, Sub 170**

11 **Q. HOW DOES THE PUBLIC STAFF INTEND TO RESOLVE ITS**
12 **CONCERNS REGARDING THE FACILITY AND OTHER**
13 **MERCHANT PLANTS IN DENC TERRITORY?**

14 A. On September 16, 2020, the Commission issued its *Order Requiring*
15 *Comments and Reply Comments Regarding Affected System Study*
16 *Process and Cost Allocation* in the Docket No. E-100, Sub 170 (Sub
17 170) proceeding. On October 7, 2020, DEC and DEP filed joint
18 comments and DENC filed separate comments in Sub 170. DEC and
19 DEP provided Attachment A to their comments in which they
20 provided a new Affected Systems Process that became effective on

⁷ The Virginia Clean Economy Act, signed in to law on April 11, 2020, set clean energy and carbon emissions standards, and included numerous other requirements to encourage the adoption and construction of clean energy in Virginia. The full bill summary is at <https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1526>.

1 October 1, 2020. The evidence gathered in the Sub 170 proceeding
2 could assist the Commission in determining whether proposed
3 merchant generating facilities triggering significant network upgrade
4 costs or affected system costs are in the public convenience and
5 necessity.

6 **Q. PLEASE SUMMARIZE THE COMMENTS OF DEP AND DEC IN**
7 **THE SUB 170 PROCEEDING.**

8 A. DEP and DEC (together, Duke) stated on page 3 of their October 7,
9 2020, response that a merchant generator would be responsible for
10 any affected system upgrade costs:

11 Historically, interconnection customers that were
12 assigned affected system network upgrades in
13 DEP/DEC/DEF were reimbursed after the applicable
14 projects achieved commercial operation pursuant to
15 the terms of the affected system operating agreement.
16 However, DEP and DEC (along with Duke Energy
17 Florida, LLC) implemented a change to its standard
18 affected system operating agreement effective October
19 1, 2020 that eliminated the reimbursement.

20 **Q. PLEASE SUMMARIZE THE COMMENTS OF DENC.**

21 A. DENC also confirmed that the generator would be responsible for
22 any affected system upgrade costs, consistent with how they have
23 treated those costs historically.

1 **Q. PLEASE IDENTIFY THE OTHER PARTIES THAT FILED REPLY**
2 **COMMENTS ON OCTOBER 28, 2020.**

3 A. On October 28, 2020, the Public Staff and Geenex Solar, LLC filed
4 reply comments. On that same date, the North Carolina Clean
5 Energy Business Alliance and the North Carolina Sustainable
6 Energy Association (collectively, NCCEBA-NCSEA) filed joint reply
7 comments.

8 **Q. PLEASE SUMMARIZE THE PUBLIC STAFF'S REPLY**
9 **COMMENTS IN THE SUB 170 PROCEEDING.**

10 A. As stated in the Public Staff's comments, the recent change to
11 Duke's affected system studies process addresses a key concern
12 raised by the Public Staff in recent merchant generator CPCN
13 proceedings that affected system upgrade costs could be passed on
14 to a utility's customers who were not causing or contributing to the
15 need for the upgrade. Thus, the Public Staff is supportive of the
16 proposed revisions. This change also brings Duke's cost
17 responsibility and cost allocation procedures for affected systems in
18 alignment with those of DENC.

19 Also in its Sub 170 comments, the Public Staff recommended that
20 for CPCN applications for merchant facilities going forward, the
21 Commission should condition any CPCN approval for a merchant
22 facility that includes potential affected system Network Upgrade

1 costs to require the Applicant to file a copy of an executed Affected
2 System Operating Agreement (ASOA) with the Commission at the
3 same time such filing is made at the FERC (at least 61 days prior to
4 commencing construction on the upgrades). The Public Staff also
5 recommended that the CPCN applicant file a verified statement
6 acknowledging that under Duke's Affected System Business
7 Procedure and PJM's OATT, the Interconnection Customer is
8 responsible for all affected system Network Upgrade Costs without
9 reimbursement.

10 **Q. DOES THE PUBLIC STAFF HAVE ANY COMMENTS ON THE**
11 **OTHER PARTIES' REPLY COMMENTS FILED IN THE SUB 170**
12 **PROCEEDING AS IT APPLIES TO THIS APPLICATION?**

13 A. In its joint reply comments, NCCEBA-NCSEA stated that Duke's
14 policy change to deny reimbursement for FERC-jurisdictional
15 network upgrade costs is a "sweeping policy change" and "it is far
16 from clear that Duke may do so without FERC approval." (NCCEBA-
17 NCSEA Reply Comments, p. 5.)

18 Geenex, a co-developer of Sumac Solar LLC, EMP-110, Sub 0,
19 similarly stated in their reply comments that "Duke's elimination of
20 cost reimbursement for Affected System Upgrades is a substantial
21 change in policy." (Geenex Reply Comments, p. 19.) Geenex stated
22 that because the policy is new it has not had the opportunity to

1 assess whether it must be approved by FERC, or whether it is
2 consistent with FERC requirements. (Id. at 3, fn. 1.)

3 The Public Staff agrees that if the new policy were challenged at the
4 FERC and the challenging parties were successful in shifting cost
5 responsibility ultimately back to retail and or wholesale ratepayers,
6 the Public Staff believes that it would be appropriate for the affected
7 system costs to be considered by the Commission as part of a
8 determination of whether the facility meets the public convenience
9 and necessity.

10 If the CPCN for that facility had already been granted and new costs
11 are assigned to the facility that will ultimately be borne by North
12 Carolina ratepayers, the Public Staff believes the Commission
13 should reconsider the issuance of the CPCN after the Applicant has
14 provided accurate updated cost estimates.

15 **Recommendation on the Application**

16 **Q. WHAT IS THE PUBLIC STAFF'S RECOMMENDATION ON THE**
17 **APPLICATION FOR A CPCN?**

18 A. The Public Staff has reviewed the application, the direct and
19 supplemental testimony of witness Nwadike, and the other evidence
20 in this docket. The Public Staff has also reviewed the comments and
21 reply comments in the Sub 170 Proceeding. As a result of this

1 information, and based on DEP and DENC's current interconnection
2 procedures applicable to merchant generation not providing for
3 reimbursement for interconnection facilities or network upgrade
4 costs, affected system costs, or other costs required to allow
5 energization and operation of the facility, the Public Staff
6 recommends that Commission grant the CPCN, subject to the
7 following conditions:

- 8 i. The Applicant notify the Commission within 30 days of any
9 change any revisions in the cost estimates for the
10 construction of the Facility itself, interconnection facilities,
11 network upgrades, or affected system costs within 30 days
12 of becoming aware of such revisions. Once the
13 Commission is notified, then subsequent steps and
14 actions along with a respective timeline for additional
15 actions can be defined on an as needed basis.
- 16 ii. That the Applicant file a copy of an executed Affected
17 System Operating Agreement (ASOA) with the
18 Commission at the same time such filing is made at FERC
19 (at least 61 days prior to commencing construction on the
20 upgrades).
- 21 iii. That the Applicant file a verified statement acknowledging
22 that under Duke's Affected Systems Business Procedure
23 and PJM's OATT, the Interconnection Customer is

1 responsible for all affected system Network Upgrade
2 Costs assigned to the Applicant's facility, if any, without
3 reimbursement.

4 If, however, at any time the Applicant seeks to be reimbursed for any
5 interconnection facilities, network upgrade costs, affected system
6 costs, or other costs required to allow energization and operation of
7 the facility, the Public Staff recommends that the CPCN be denied or
8 revoked. The Public Staff further recommends that if for any reason,
9 the DEP/DEC/DEF OATT is changed or modified, along with any
10 other governing document, to allow reimbursement of any of the
11 interconnection costs listed above, then consistent with the
12 Commission's ruling in its *Order Denying Application for a Certificate*
13 *of Public Convenience and Necessity for a Merchant Generating*
14 *Facility* requested by Friesian Holdings, LLC (Friesian), in Docket No.
15 EMP-105, Sub 0, the Commission should use its judgment to weigh
16 the costs to borne by DEP's retail and wholesale customers with the
17 generation needs in the State or region. Given the specifics of this
18 Application bridging multiple PJM clusters, the recent changes to
19 Duke Energy's Affected System process, the continued interest in
20 solar development in North Carolina, and the current cost estimates
21 or tools used to evaluate the reasonableness of the costs be passed
22 onto ratepayers (e.g., LCOT benchmark), the Public Staff believes
23 there is too much uncertainty regarding the magnitude and

1 responsibility of costs to recommend approval of the CPCN at this
2 time.

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

4 A. Yes, it does

QUALIFICATIONS AND EXPERIENCE

DUSTIN R. METZ

Through the Commonwealth of Virginia Board of Contractors, I hold a current Tradesman License certification of Journeyman and Master within the electrical trade, awarded in 2008 and 2009 respectively. I graduated from Central Virginia Community College, receiving Associates of Applied Science degrees in Electronics and Electrical Technology (Magna Cum Laude) in 2011 and 2012 respectively, and an Associates of Arts in Science in General Studies (Cum Laude) in 2013. I graduated from Old Dominion University in 2014, earning a Bachelor of Science degree in Engineering Technology with a major in Electrical Engineering and a minor in Engineering Management.

I have over 12 years of combined experience in engineering, electromechanical system design, troubleshooting, repair, installation, commissioning of electrical and electronic control systems in industrial and commercial nuclear facilities, project planning and management, and general construction experience, including six years with direct employment with Framatome, where I provided onsite technical support, craft oversight, engineer change packages and participated in root cause analysis teams at commercial nuclear power plants, including plants owned by both Duke and Dominion.

I joined the Public Staff in the fall of 2015. Since that time, I have worked on general rate cases, fuel cases, applications for certificates of public convenience and necessity, service and power quality, customer complaints, North American Electric Reliability Corporation (NERC) Reliability Standards, nuclear decommissioning, National Electric Safety Code (NESC) Subcommittee 3 (Electric Supply Stations) member, avoided costs and PURPA, interconnection procedures and power plant performance evaluations; I have also participated in multiple technical working groups and been involved in other aspects of utility regulation.