NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION

February 10, 2020

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

Re: Docket No. EMP-105, Sub 0 - Application for CPCN for 70MW Solar Facility Located at Leisure Road near Academy Road in Laurinburg. NC in Scotland County

Dear Ms. Campbell:

Attached for filing are public and confidential versions of the Public Staff's Proposed Order in the above-referenced docket. In consideration of the Commission's October 25, 2019 Interlocutory Order on Legal Issues, Scheduling Hearing, Allowing Filing of Testimony, and Establishing Discovery Guidelines, in which the Commission stated that its "final order on the merits of the CPCN application will include the Commission's full discussion and conclusions relevant to these issues", we have included a placeholder for the Commission's final discussion on this matter, but did not re-brief that issue.

By copy of this letter, I am forwarding a copy of the redacted version to all parties of record by electronic delivery. The confidential pages will be provided to those parties that have entered into a confidentiality agreement.

Sincerely,

/s/ Tim R. Dodge
Staff Attorney
tim.dodge@psncuc.nc.gov

Attachments

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. EMP-105, SUB 0

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of		
Application for CPCN for 70MW Solar Facility	)	ORDER DENYING
Located at Leisure Road near Academy Road	)	CERTIFICATE FOR MERCHANT
in Laurinburg. NC in Scotland County	)	GENERATING FACILITY

HEARD: Wednesday, December 19, 2019, at 10:00 a.m. in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina

BEFORE: Chair Charlotte A. Mitchell, Presiding; and Commissioners ToNola D. Brown-Bland, Lyons Gray, Daniel G. Clodfelter, Kimberly W. Duffley, and Jeffrey A. Hughes

APPEARANCES:

For Friesian Holdings, LLC:

Karen M. Kemerait, Fox Rothschild, LLP, 434 Fayetteville Street, Suite 2800, Raleigh, North Carolina 27601

Steven J. Levitas, Kilpatrick Townsend & Stockton, LLP, 4208 Six Forks Road, Suite 1400 Raleigh, North Carolina 27609

For Duke Energy Progress, LLC:

Jack E. Jirak, Associate General Counsel, Duke Energy Corporation, P.O. Box 1551/NCH 20, Raleigh, North Carolina 27602

For North Carolina Sustainable Energy Association:

Peter Ledford, Esq.
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North Carolina Sustainable Energy Association, 4800 Six Forks Road Suite 300, Raleigh, North Carolina 27609

For North Carolina Clean Energy Business Alliance:

Benjamin L. Snowden, Kilpatrick Townsend & Stockton, LLP, 4208 Six Forks Road, Suite 1400, Raleigh, North Carolina 27609

For the Using and Consuming Public:

Tim R. Dodge, Staff Attorney
Layla Cummings, Staff Attorney
Public Staff-North Carolina Utilities Commission, 4326 Mail Service Center, Raleigh, North Carolina 27699-4300

BY THE COMMISSION: On May 15, 2019, Friesian Holdings, LLC (Friesian or Applicant) filed an application for a certificate of public convenience and necessity (CPCN) to construct a 70-MW_{AC} solar Photovoltaic (PV) electric generating facility to be located in Scotland County, North Carolina, pursuant N.C. Gen. Stat. § 62-110.1 and Commission Rule R8-63. As part of the Application, Friesian included the supporting pre-filed direct testimony and exhibits of Brian Bednar, President of Birdseye Renewable Energy, LLC (Birdseye), an affiliate of the Applicant, and Manager and Authorized Agent of Friesian.

On June 13, 2019, the Commission issued an Order that, among other things, scheduled hearings in this proceeding, established a procedural schedule for the filing of petitions to intervene and of testimony, and directed the Applicant to publish notice of the public hearing once a week for four consecutive weeks, beginning at least 30 days prior to July 26, 2019 (June 13 Order).

On June 21, 2019, the North Carolina Electric Membership Corporation (NCEMC) filed a petition to intervene. The Commission granted the petition on July 2, 2019. On July 18, 2019, NCEMC filed comments.

On July 18, 2019, Friesian filed the final, executed confidential Power Purchase Agreement (PPA) to replace the draft, confidential PPA that was originally filed as Confidential Exhibit No. 7 with the original Application on May 15, 2019.

On July 23, 2019, Duke Energy Progress, LLC (DEP) filed a petition to intervene. The Commission granted the petition on August 2, 2019.

On July 29, 2019, the North Carolina Sustainable Energy Association (NCSEA) filed a petition to intervene. The Commission granted the petition on August 20, 2019.

On August 5, 2019, the North Carolina Clean Energy Business Alliance (NCCEBA) filed a petition to intervene. The Commission granted the petition on August 16, 2019.

The intervention of the Public Staff is recognized pursuant to N.C. Gen. Stat. § 62-15(d) and Commission Rule R1-19(e).

On August 5, 2019, the Commission issued an Order Suspending the Procedural Schedule and Allowing the Parties to File Pre-Hearing Briefs (August 5 Order) addressing several legal issues.

On August 26, 2019, the Applicant, DEP, NCCEBA, and the Public Staff each filed briefs. On September 9, 2019, the Applicant, DEP, NCCEBA and NCSEA (jointly), and the Public Staff each filed reply briefs.

On October 3, 2019, the Commission issued an Order Scheduling Arguments for the parties to address the legal issues noted in the Commission's August 5 Order, and, additionally, another legal issue. On October 21, 2019, the Commission heard the matter for oral argument.

On October 25, 2019, the Commission issued an Interlocutory Order on the Legal Issues addressed in the parties' pre-hearing briefs and at the oral argument. The Commission further ordered the procedural schedule in this matter resumed, allowing for the filing of supplemental direct testimony and exhibits and setting the matter for evidentiary hearing.

On November 26, 2019, the Applicant filed supplemental direct testimony and corresponding exhibits of three witnesses: Charles Askey, Senior Project Manager in the Power Engineering & System Planning Group at Timmons Group; Brian Bednar; and Rachel Wilson, Principal Associate with Synapse Energy Economics, Incorporated (Synapse).

On December 6, 2019, the Public Staff filed the joint testimony and exhibits of Public Staff witnesses Evan D. Lawrence and Dustin R. Metz.

On December 12, 2019, the Applicant filed the rebuttal testimony and exhibits of Charles Askey, Brian Bednar, and Rachel Wilson.

Statements of position letters were filed in this docket by Helen Livingston in her individual capacity; Stephen De May, North Carolina President of Duke Energy, on behalf of DEP; Jack E. Jirak, Associate General Counsel for Duke Energy

Corporation, on behalf of DEP; Maggie Clark, Senior Manager of State Affairs, Solar Energy Industries Association (SEIA), on behalf of SEIA; James McDougald, Economic Development Director for the Town of Maxton; Ray Britt, Chairman of the Bladen County Board of Commissioners; and Bob Davis, Chair of the Scotland County Board of Commissioners.

This matter came on for hearing on December 18, 2019. Friesian presented the testimony and exhibits of witnesses Askey, Bednar, and Wilson, who testified as a panel. The Public Staff presented the testimony and exhibits of witnesses Lawrence and Metz, who also testified as a panel.

On December 20, 2019, the Public Staff filed a copy of the presentation given by the National Renewable Energy Laboratory (NREL) on its Carbon-free Resource Integration Report on the Duke System given to the Carbon Reduction Stakeholder Group hosted by the North Carolina Department of Environmental Quality (DEQ) at the Nicholas Institute on December 11, 2019, as a late-filed exhibit.

On January 8, 2020, DEP filed a response to a Commission question related to the increase in Network Upgrade costs as a late-filed exhibit.

On February 10, 2020, the Public Staff and the Applicant separately filed proposed orders.

Based upon consideration of the pleadings, testimony, and exhibits received into evidence and the record as a whole, the Commission makes the following:

FINDINGS OF FACT

1. Friesian is a limited liability company registered to do business in the State of North Carolina. Friesian is an affiliate of Birdseye Renewable Energy, LLC.

2. Friesian's Application for a CPCN authorizing the construction of a 70 MW_{AC} solar photovoltaic electric generating facility (Facility) to be located on approximately 544 acres in Scotland County, North Carolina was filed in compliance with N.C. Gen. Stat. § 62-110.1 and Commission Rule R8-63.

3. The Application has sufficiently completed State Clearinghouse Review.

4. The standard of public convenience and necessity for an electric generating facility is based on the facts and circumstances in each case.

5. Friesian will be constructed in the DEP service territory, but the power from the Facility will be wheeled from DEP to NCEMC pursuant to an executed PPA between Friesian and NCEMC for the sale of power and renewable energy certificates (RECs) generated by the Facility.

6. The Commission may consider other factors in its determination of need other than the Applicant's plan for the output of the Facility, including the long-term energy and capacity needs in the State and region, as well as system reliability concerns.

7. The placement of additional uncontrolled solar generation in a portion of DEP's system with existing significant solar generation capacity can increase and exacerbate system operational issues already being faced by DEP's system operators.

8. It is appropriate for the Commission to consider the total costs of a facility, including the costs to interconnect the facility and Network Upgrade costs, as well as utilization of the Network Upgrades when determining the public convenience and necessity of the facility.

9. The Facility proposes to interconnect with DEP at a newly constructed 34.5-kV collector station adjacent to the DEP Laurinburg-Bennettsville 230-kV transmission line, with an estimated commercial operation date of December 2023.

10. In order to interconnect the Facility, Friesian executed a Large Generator Interconnection Agreement (LGIA) with DEP in June 2019. The allocation of the Network Upgrade costs under the LGIA and the right of DEP to recover those costs upon completion of the project is Federal Energy Regulatory Commission (FERC)-jurisdictional.

11. The transmission lines identified in the Friesian LGIA are constrained, and load flow models indicate that additional generation capacity cannot be added in that portion of DEP's service territory without triggering significant.

12. The use of the levelized cost of transmission (LCOT) provides a benchmark as to the reasonableness of the transmission costs associated with interconnecting a new generating facility.

13. The potential for the Network Upgrades required by the Friesian (Friesian Upgrades) to reduce the costs for future planned generation is too uncertain and speculative to be given substantial weight in support of granting the certificate for the Facility.

14. The Synapse Report does not provide reliable evidence that the Friesian project or the associated upgrades provide quantifiable ratepayer savings, emission reductions, or other health benefits.

15. Until such time as compliance with Executive Order 80 and the policy recommendations in the Clean Energy Plan, as well as Duke's corporate sustainability goals, are fully investigated and considered in the context of the Utility's integrated resource planning (IRP) process in a comprehensive fashion, the benefits associated with the construction of the Friesian facility and the Friesian Upgrades are not sufficiently known and measurable to be considered as public benefits in support of the CPCN being granted.

16. The additional capacity that would be able to interconnect because of the Friesian Upgrades without being responsible for any portion of the substantial upgrade costs is inconsistent with cost causation principles and prior

Commission guidance related to the assignment of interconnection costs and network upgrade costs to the interconnection customer.

17. The General Assembly, in enacting House Bill 589, intended to establish a process to identify and support the location of additional renewable generation in the State in a manner that was most cost-effective to ratepayers, and gave authority to the utilities to help determine the timing and location of the procured capacity.

18. The need for queue reform and the clustering of projects for interconnection study purposes is consistent with N.C.G.S.§ 62-110.1(b) and is appropriate to help ensure that interconnection customers are receiving appropriate pricing signals to locate their projects in the most cost-effective interconnection locations, as well as to reduce congestion that otherwise results when significant upgrades are identified.

19. The Commission finds that granting a CPCN for the Facility is not in the public interest.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1-3

These findings of fact are essentially informational, procedural, and jurisdictional in nature and are not in dispute. These findings are supported by the Application and the testimony of Friesian Witness Bednar and Public Staff witnesses Lawrence and Metz.

Public Staff witnesses Lawrence and Metz testified that the Public Staff filed a notice on May 31, 2019, indicating that the Application was submitted in compliance with N.C. G.S. § 62-110.1 and Commission Rule R8-63 and was considered to be complete.

Witness Bednar testified that with regard to regulatory permits and approvals necessary to commence construction of the Facility, the Scotland County Board of Commissioners approved a Conditional Use Permit for the Facility on June 5, 2018. In addition to the Conditional Use Permit, the Facility is required to obtain a building permit and electrical permit from the County. The Facility will also require a driveway permit from the North Carolina Department of Transportation, and approval of an erosion and sedimentation control plan by DEQ. With regard to federal permits and approvals, Friesian has completed a Phase I environmental site assessment for the site, and the U.S. Army Corps of Engineers verified the wetland delineation for the entire site. Friesian has also submitted Form 860 Annual Electric Generator Reports to the Energy Information Administration (EIA) of the U.S. Department of Energy. *Tr. vol. 2, 22-23.*

Public Staff witnesses Lawrence and Metz in their joint testimony noted that the Commission in its June 13 Order directed that the application filed in this docket be submitted to the State Clearinghouse for review, but that the State Clearinghouse had not filed a letter in this docket indicating that no further Clearinghouse review was required. *Tr. vol. 3, 113.* On cross-examination, witness Metz agreed that an application for the same facility had previously been filed in Docket No. SP-8467,

Sub 0 as an application for a small power producer under Commission Rule R8-64, and that the State Clearinghouse had completed the review of the application in that docket. The Public Staff acknowledged that the details about the facility have not changed in any respect from the site plan submitted as part of the prior application in the SP-8467 docket, agreed that it did not believe that further State Clearinghouse review was necessary, and stated that it would not oppose a request waiving the requirement for further Clearinghouse review since the site plan had not changed. *Tr. vol. 4, 13-14.*

Based on an examination of the application, testimony, and exhibits, the Commission concludes that the Applicant has complied with all filing requirements associated with applying for a certificate to construct a merchant plant in North Carolina. In addition, the Commission agrees with the Applicant and the Public Staff that as a result of the completion of the State Clearinghouse review in Docket No. SP-8467, Sub 0, and the site plan for the Facility not having changed since that time, no further Clearinghouse review of the Application is required.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 4

The evidence supporting this finding of fact is found in the Application; the pre-hearing briefs and reply briefs of the Applicant, DEP, and the Public Staff; the October 21, 2019, oral arguments; the supplemental direct testimony of Friesian witness Bednar; and the joint testimony of Public Staff witnesses Lawrence and Metz.

In its August 1, 2019, motion, the Public Staff requested that that parties be given the opportunity to file pre-hearing briefs to address several legal issues, including the appropriate standard of review for the Commission to apply in determining the public convenience and necessity for a certificate to construct a merchant generating facility pursuant to N.C.G.S. § 62-110.1 and Commission Rule R8-63.

> *[Placeholder for the Commission's full discussion and conclusions supporting its finding in the Interlocutory Order that the Commission may consider the costs for future network upgrades that are required to accommodate a proposed electric generating facility when considering an application for a CPCN pursuant to N.C.G.S. § 62-110.1 and Commission Rule R8-63, based on the pre-hearing filings and October 21, 2019, Oral Arguments].*

As stated in the Commission's Interlocutory Order, the Commission agrees with DEP and the Public Staff that the Commission may consider the costs for future network upgrades that are required to accommodate a proposed electric generating facility when considering an application for a CPCN pursuant to N.C.G.S. § 62-110.1 and Commission Rule R8-63. It is therefore appropriate for the Commission in this proceeding to consider whether the Friesian Upgrades and the resulting costs are in the public interest in this CPCN proceeding.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 5-7

The evidence supporting these findings of fact are found in the Application; the testimony of Friesian witnesses Askey, Bednar, and Wilson; and the joint testimony of Public Staff witnesses Lawrence and Metz.

Witness Bednar testified that Friesian entered into a PPA with NCEMC on July 15, 2019, under which NCEMC will purchase all of the output of the facility. In addition, witness Bednar testified that the Facility will provide a significant amount of RECs for use by NCEMC to comply with North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard ("REPS" or "Senate Bill 3"), which, in addition to setting renewable energy procurement requirements for investor-owned utilities, also requires rural electric cooperatives and municipal electric suppliers to meet a 10% REPS requirement. Witness Bednar testified that these plans for the off-take of the facility demonstrated the need for the facility. *Tr. vol. 2, 21-22.*

In their joint testimony, Public Staff witnesses Lawrence and Metz indicated their position that signing a PPA does not in and of itself sufficiently demonstrate a need for a merchant facility to be entitled to a CPCN and that the specific facts and circumstances surrounding the demonstration of need are evaluated on a case-by-case basis. *Tr. vol. 3, 116.* They testified that the Commission had previously held that it is reasonable for the Commission to require substantial evidence of the need for a merchant generating facility, and that a flexible standard for demonstrating need was appropriate, but that an executed PPA or other contractual agreement was not necessary. *Tr. vol. 3, 114.* They further testified that in the past the Public

Staff has recommended approval of CPCN applications in the absence of a signed PPA and that they were not aware of any prior case where the Commission found that a CPCN applicant that had actually executed a signed PPA was not sufficient to demonstrate need. *Tr. vol. 3, 165.*

Public Staff witnesses Lawrence and Metz further testified that in prior merchant facility CPCN applications, the Commission considered whether or not there was a projected need for significant electric load growth in the Carolinas, as indicated in the utility's IRPs. They acknowledged that DEP's IRP indicated a capacity need over the planning period but stated that "one cannot assume that any generation resource can be added to, and complement, the existing system just because reserve margins fall below a particular threshold," noting that the IRP is a capacity expansion model used to solve for multiple constraints and scenarios to help determine the generation resources needed to meet long-term load in the most economical manner. *Tr. vol. 3, 118-19.* They further testified that the DEP system is winter peaking and winter planning, and while its IRP demonstrates a need for dependable capacity to meet winter peak loads, the addition of intermittent, non-dispatchable renewable facilities to produce energy would provide minimal contribution to winter morning peak loads and provided limited value to grid operators. *Id.*

Witnesses Lawrence and Metz further testified that DEP had not previously identified the transmission lines in question as needing upgrades due to reliability issues in any of the reports issued by the North Carolina Transmission Planning

Collaborative (NCTPC). Witness Metz acknowledged that the area where the Facility is proposed to be located has been identified as constrained, but that being constrained was not necessarily bad. He noted that constrained systems can occur throughout a utility's system, and the NERC standards are defined to evaluate the risk to target critical areas in the electrical grid for which the utility can make investments. *Tr. vol. 4, 22-23.*

On rebuttal, witness Bednar testified that "DEP's capacity needs have nothing to do with the need for the Friesian facility, which will sell all of its output to NCEMC." *Tr. vol. 2, 41.* Witness Bednar did note, however, that the Friesian Upgrades would facilitate the development of future generation facilities, including additional renewable resources, as well as future natural gas capacity planned by DEP.

Friesian witness Askey also presented the results of the analysis conducted by the Timmons Group of the system impact study utilized by DEP to evaluate the impacts to the system of adding the Friesian capacity at the proposed location. His analysis indicated that, when adding all of the proposed capacity in the interconnection queue up through Friesian, the study results in multiple line segments being loaded over 95% or 100% of their contingency ratings, triggering the need for upgrades. He further noted that even without the additional capacity in the queue being added, the system is within five to ten percent of the contingency loading levels under the scenarios modeled, indicating that the system in that area is at the upper end of its operational range. *Tr. vol. 2, 67-70.*

Witness Askey stated that DEP's system is technically NERC-compliant, but not taking any action would leave DEP's transmission system in southeastern North Carolina in a "maxed-out state" with regard to additional generation and could leave the grid more vulnerable to disruption than it would be if the Friesian Upgrades are constructed. *Tr. vol. 2, 79-83.* Witness Askey further testified that DEP had performed a full study of the transmission options to solve the transmission upgrades that result from the addition of the Friesian facility, and it was his understanding that the identified Network Upgrades represent the lowest cost solution to allow the Facility to interconnect. *Id.*

Furthermore, witness Askey testified that DEP's 2018 and 2019 IRPs indicate that additional generation is needed to support load growth and resource portfolio improvements, stating that DEP's IRP update calls for load growth of 0.9% per year overall, supporting the need for the Friesian Upgrades to support new generation in DEP's transmission system separate and apart from the Friesian project. *Tr. vol 2, 77-78.* In addition, Witness Askey testified that, based on his participation in the NCTPC process, the primary issues considered by the NCTPC are the reliability of the transmission system and the ability to transfer power between systems. He testified that while generation assumptions are included in the studies, they are not designed to ensure the delivery of power from a specific generation location. He stated that "the method most generation resources used to determine transmission access is to either file a generation interconnection request and enter the interconnection queue, or hire a consultant . . . to perform a

confidential study of the transmission system impact prior to submitting the interconnection request." *Tr. vol. 2, 78-79.*

On cross-examination, witness Bednar agreed that the portion of DEP's service territory that is considered constrained has already seen significant solar development, with the top four counties in the State for solar development, including Robeson, Cumberland, Bladen, and Duplin County, being located in that region. He acknowledged that the Facility is located in the DEP East Balancing Area and that DEP was contractually obligated to purchase from approximately 2,800 MW of additional solar capacity. Witness Bednar further acknowledged that DEP stated in the context of their CPRE Program Plan that the continued addition of solar generation in the DEP Balancing Area would "exacerbate existing reliability challenges and increase the potential future risks of NERC noncompliance," and that "DEP's growing experience managing operationally excess energy and increasingly steep ramping requirements as additional unscheduled and uncontrolled solar generation above 2,200 MW comes online will also increase the likelihood of emergency curtailment in DEP." *Tr. vol. 2, 164-68.*

Witness Askey acknowledged on cross-examination that DEP's IRP indicated that it was now a winter planning system, with the need for additional capacity based on the winter peak. He further acknowledged that based on DEP's analysis in its IRP, the highest capacity value assigned to solar was 3.2%, and that value decreased over time as solar penetration increased. *Tr. vol. 2, 178-79.*

On cross-examination, Public Staff witness Metz recognized the comments filed by NCEMC indicating that, in addition to providing energy to NCEMC, the execution of the PPA with Friesian would also advance NCEMC's pursuit of its "Brighter Energy Future" initiative, as well as further its ability to achieve REPS compliance. He noted, however, that a PPA represents a business decision entered into between two entities for a price and a commodity, but does not necessarily demonstrate a need for the facility. *Tr. vol. 3, 165.* Witnesses Lawrence and Metz indicated that they did not question the decision by NCEMC to enter into the PPA, but they noted that it was the Applicant that bore the burden of demonstrating the need for the Facility. *Id. at 172.*

Discussion and Conclusions

Before the Commission can award a CPCN for a generating facility, N.C.G.S. § 62-110.1(d) requires the Commission to consider the "applicant's arrangement with other electric utilities for interchange of power, pooling of plant, purchase of power and other methods for providing reliable, efficient and economical electric service" in order to ensure that an application demonstrates that public convenience and necessity will be met by the facility. In its May 21, 2001, Order Adopting Rule in Docket No. E-100, Sub 85, the Commission adopted Rule R8-63(b)(3), requiring an applicant for a CPCN for a merchant plant to provide "a description of the need for the facility in the state and/or region, with supporting documentation." In adopting that rule, the Commission made it clear that it no longer applied the requirement established in its 1992 Empire Power decision in Docket No. SP-91, Sub 0, in which

it required either a contract or a written commitment between the applicant and a utility as part of a showing of need.

As one prong of the standard for public convenience and necessity, a finding that an applicant has sufficiently demonstrated need for the facility is fundamental in making a determination whether granting a CPCN is in the public interest. The demonstration of need may differ based on whether the CPCN is sought for a generating facility by a regulated utility, a small power producer seeking to sell its output to the utility as a qualifying facility (QF), or a merchant generating facility.[1] The Commission in its consideration of merchant CPCN applications has applied a flexible standard for demonstrating need, including an analysis of the need for the merchant generating facility in the State or region, as well as a demonstration by the applicant of expertise in accurately evaluating wholesale market needs and negotiating with wholesale buyers to meet those needs. The Commission agrees with the Public Staff that a signed PPA is not conclusive of need, and that standard of need and the supporting documentation may vary among individual facilities, based on the facts and circumstances in each case.

[1] For example, an electric public utility under Rule R8-61(b)(1) must, in addition to demonstrating need for a facility in its IRP, submit additional information supporting the need for the facility related to resource and fuel diversity, information on energy and capacity forecasts, and an explanation of how the proposed facility meets the identified energy and capacity needs. For QFs, the Commission has previously stated that federal law has essentially established a "public need" for their construction, based on the obligations established under the Public Utility Regulatory Policies Act of 1978 (PURPA) requiring a utility to purchase the output from a QF at its avoided cost rates. *See* Order on Motion to Dismiss*, Application of Empire Power Company for a Certificate of Public Convenience and Necessity Pursuant to G.S. 62-110.1(a)*, No. SP-91, Sub 0 (N.C.U.C. Apr. 23, 1992).

In this proceeding, the Applicant submitted the PPA and REC purchase agreement with NCEMC as evidence supporting the need for the Facility, and the Commission gives significant weight to these documents as support for the need for the Facility. Nonetheless, the Commission agrees with the Public Staff the existence of a PPA or other plans for off-take for the facility must be balanced against other factors that may be considered in determining the overall need for generation in State or region, as called for in Rule R8-63(b)(3). In this analysis, the Commission finds that based on the weight of the evidence, the Applicant has not sufficiently demonstrated a need for the facility.

In this proceeding, the Applicant did not provide substantial, credible evidence to demonstrate the need for the Facility by NCEMC or in DEP's service area over the life of the facility. The Commission recognizes that Friesian plans to sell the output of the Facility to NCEMC, but the fact that it is proposed to be located in DEP's service territory and will be interconnecting in the DEP East Balancing Area makes it appropriate to also consider the need for the Facility, particularly in light of the significant additional solar capacity that the Applicant has indicated will be able to interconnect as a result of the Friesian Upgrades, the output of which will primarily be sold to DEP. In addition, the Commission takes notice that the Application indicates that the facility has an expected useful life of at least 20 years, but the term of the PPA between Friesian and NCEMC is **[BEGIN CONFIDENTIAL]** [redacted]

[redacted] **[END CONFIDENTIAL]**.

The Commission notes that the concept of need is not limited just to finding a potential off-take for capacity and energy. As evidenced by prior Commission orders, the need that may be met in whole or part by granting a CPCN for a generation facility may include addressing compliance with State or federal laws,[2] the provision of lower-cost, economic power alternatives,[3] and to help address reliability and service quality issues.[4] The Applicant testified that the Facility will provide energy and capacity to NCEMC, but the Public Staff raises valid concerns that the Facility will result in increased costs on a system basis, and could also increase or exacerbate existing system reliability and operational issues. The Applicant pointed to no existing reliability concerns necessitating the Facility and the associated upgrades, outside of accommodating additional generation. As noted by the Public Staff, DEP indicated that the upgrades were solely driven by the proposed addition of the Friesian capacity, were not needed to address reliability or service

[2] *See, e.g.,* Application of Atlantic Wind, LLC, for a Certificate of Public Convenience and Necessity in Docket No. EMP-49, Sub 0; Application of Duke Energy Carolinas, LLC, for Approval of a Solar Photovoltaic Distributed Generation Program in Docket No. E-7, Sub 856.

[3] *See* Application of Duke Energy Carolinas, LLC, for a Certificate of Public Convenience and Necessity to Construct a 402-MW Natural Gas-Fired Combustion Turbine Generating Facility in Lincoln County, North Carolina in Docket No. E-7, Sub 1134.

[4] *See, e.g.,* Application of Duke Energy Progress, LLC, for a Certificate of Public Convenience and Necessity to Construct a Microgrid Solar and Battery Storage Facility in Haywood County, North Carolina, in Docket No. E-2, Sub 1127; Application of Duke Energy Progress, LLC for A Certificate of Public Convenience and Necessity to Construct a Microgrid Solar and Battery Storage Facility in Madison County, North Carolina, in Docket No. E-2, Sub 1185.

quality issues, indicating only that the Friesian Upgrades would "allow for additional solar generation to come online in both North Carolina and South Carolina."[5]

The Commission also finds the fact that the NCTPC Transmission Plan had not previously identified a need for any of the Friesian Upgrades to also be informative since the purpose of the NCTPC is "create an integrated long-term transmission expansion plan that will result in a reliable (i.e., meets all applicable reliability criteria) and cost-effective (i.e., lowest overall cost to consumers) transmission system." According to their website, the NCTPC was formed to enhance transmission planning by allowing all stakeholders to participate in shaping the future transmission network in the areas of North Carolina and South Carolina served by the major electric load-serving entities in North Carolina, including Duke Energy Carolinas (DEC), DEP, ElectriCities, and NCEMC.[6]

The Commission understands from the statements of Public Staff and Friesian witnesses that the Friesian Upgrades would likely be included in future transmission plans as a result of the LGIA being executed by Friesian and DEP, but finds that a comprehensive approach should be used in the development of the utility's transmission plans and should appropriately consider planned new generation in a holistic fashion, rather than in the piecemeal approach after a project

[5] *See* July 22, 2019, email responses of Jack Jirak to questions from the Public Staff, included as Public Staff Exhibit No. 2 to the Public Staff's August 26, 2019 Pre-Hearing Brief filed in this docket. The Commission acknowledges that DEP filed statements of position on December 6, 2019, in this proceeding that provide a description of system benefits that should be considered by the Commission, but the Commission views those statements of position as more relevant to the public convenience prong of the CPCN standard, as discussed later in this Order.

[6] North Carolina Transmission Planning Collaborative website, online at: http://www.nctpc.org/nctpc/.

has already committed to an interconnection agreement at a specific location. This is especially problematic under the utility's current Open Access Transmission Tariff (OATT) for FERC-jurisdictional projects, where a lack of insight into the cost-effective locations for generator interconnections can result in the selection of sites where the Network Upgrade costs that are ultimately borne by the utilities' customers (wholesale and retail) may dwarf the value of the energy output from the facility.

The Commission recognizes that the PPA and REC purchase agreement entered into by Friesian and NCEMC provide some evidence of need for the Facility, but when balanced against the limited need for additional uncontrolled solar generation in the region, as well as the potential for the Facility to impact DEP's system in a negative manner, the Commission finds that the Application fails to meet the necessity prong delineated in the CPCN standard of N.C.G.S. § 62-110.1 and Rule R8-63(b).

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 8-12

The evidence supporting these findings of fact is found in the Application and the testimony of Friesian witnesses Bednar and Wilson, and the joint testimony of Public Staff witnesses Lawrence and Metz.

According to the Application, as Friesian witness Bednar testified, the Facility will be constructed on approximately 544 acres in Scotland County, North Carolina, southwest of Laurinburg. A map of the proposed Project Area was included as an exhibit with the Application. Witness Bednar testified that the Facility will

interconnect with the DEP system through a newly constructed 34.5-kV collector station that will be directly adjacent to the DEP Laurinburg-Bennettsville 230-kV transmission line. He further testified that the Facility is expected to have a useful life of approximately 20 years and the estimated construction costs for the Facility were approximately $100 million. *Tr. vol. 2, 19-21.*

Witness Bednar testified that Friesian will be classified as a Distributed Network Resource of NCEMC, and that Friesian entered into a FERC-jurisdictional Interconnection Agreement with DEP, and that the Network Integration Transmission Services Agreement (NITSA) between DEP and the NCEMC will cover the power transfer costs between the two entities. *Id.*

Witness Bednar also described the factors that Birdseye used to identify the lowest cost sites for solar development in the State, including the Friesian project. He indicated that the Southeastern portion of the State has all of the leading attributes for solar generation, including the abundance of open, flat land, low population density, proximity to transmission infrastructure, and favorable geology for the low-cost installation of solar foundations. As a result of these favorable attributes, however, the southeastern portion of the State is now severely constrained, and no new generation resources can be added without substantial upgrades to DEP's transmission system. *Tr. vol. 2, 24-34.*

Public Staff witnesses Lawrence and Metz testified that under the LGIA entered into between DEP and Friesian, the Facility would require approximately $4 million in Interconnection Facilities costs that are directly attributable to the Facility.

In addition, the Facility will also trigger Network Upgrades estimated to cost approximately $223.5 million, which includes the costs of a new 230kV breaker station, reconductoring 63 miles of DEP transmission lines, and uprating 10 miles of DEP transmission lines. *Tr. vol. 3, 122.*

Witnesses Lawrence and Metz further testified that the LGIA obligates Friesian to pay for the Interconnection Facilities, to provide DEP with security for the Network Upgrades, and to pay DEP's invoices for costs incurred to construct the Upgrades. Upon commercial operation, Friesian would be entitled under Duke's OATT to receive repayment from DEP of all its Network Upgrade costs plus interest at the monthly interest rates posted by FERC. Under that framework, DEP must repay Friesian via lump sum cash repayment by the earlier of either DEP's next general rate case in North Carolina or by December 31, 2027, with interest. Duke then would seek to include the costs in its FERC formula rates, which are allocated to its retail and wholesale customers. Under the OATT, 30% of the costs will be included in the wholesale portion of DEP's OATT formula rate, resulting in an increase in transmission rates of approximately 8% above the average annual rate increase per year on a pro-rata basis across all of DEP's wholesale transmission customers. At the retail level, the remaining 70% will be recovered through base rates, with 60% being recovered through North Carolina base rates and 10% recovered through South Carolina base rates. Based on calculations completed by DEP, this cost recovery will result in an order of magnitude increase in retail rates for DEP customers of approximately 0.5% per year on a pro-rata basis in North Carolina. *Id. at 124-26.*

Public Staff witnesses Lawrence and Metz stated the Public Staff has generally evaluated interconnection and system upgrade costs in other merchant and utility CPCN proceedings, and had raised concerns related to certain transmission-related costs, but had not recommended denial of the CPCNs in those instances. The Public Staff noted that for a number of the merchant facilities it reviewed that are proposed to be sited in the service territory of Dominion Energy North Carolina (DENC) and subject to the PJM OATT, the cost responsibility for Network Upgrades are borne by the interconnection customer, and are generally not eligible for reimbursement by either PJM or DENC. In the current proceeding, however, based on their review of the significant costs associated with interconnecting the facility, the Public Staff does not believe that the Facility meets the statutory requirement expressed in N.C.G.S. § 62-110.1(d) to provide for the provision of "reliable, efficient, and economical electric service." *Id. at 126-28.*

Evaluating the transmission upgrade costs, Public Staff witnesses Lawrence and Metz indicated that they believe a levelized cost of transmission (LCOT) analysis may provide a tool to evaluate the reasonableness of the upgrade costs associated with certain generating technologies. Citing a 2019 study by Lawrence Berkeley National Laboratory (LBNL Study) that reviewed interconnection cost studies for renewable energy facilities on a nationwide basis,[7] they indicated that an LCOT value is calculated by dividing the annualized cost of

[7] Gorman, W., Mills, A., & Wiser, R. (2019). Improving estimates of transmission capital costs for utility-scale wind and solar projects to inform renewable energy policy. *Energy Policy, 135.* DOI: Preprint version accessed at: https://eta-publications.lbl.gov/sites/default/files/td_costs_formatted_final.pdf.

the transmission assets over the typical transmission asset lifetime by the expected annual generator output in MWh, with the outputs presented in a $/MWh value. Using this analysis and information from the Application, they indicated that the LCOT for the Friesian project was approximately $62.94, which was significantly above the LCOT ranges for solar projects calculated in MISO, PJM, or more broadly by EIA. The Public Staff also compared the LCOT for Friesian with other merchant generators in North Carolina for which the Commission had issued CPCNs, and found the LCOT for the NTE Kings Mountain (Docket No. EMP-76, Sub 0) and NTE Reidsville (Docket No. EMP-92, Sub 0) were significantly lower than the LCOT projected for Friesian. *Tr. vol. 3, 130-33.*

In rebuttal testimony, Friesian witness Wilson stated that the LCOT analysis conducted by the Public Staff compared an individual project to average values presented by total volumes of renewable generation derived from large data sets. She further indicates that the Public Staff's calculation of LCOT for Friesian should be adjusted to include all of the projects that are behind Friesian and summed the total number of MW associated with those projects into its analysis, as well as the transmission costs associated with those projects. Witness Wilson indicates that if an additional 1,561 MW of projects that are interdependent on the Friesian Upgrades were included in the calculation, the price of the Friesian Upgrades would fall within the range of the LBNL Study. *Tr. vol. 2, 113-16.*

Witness Wilson also indicated that the Regional Energy Deployment System (ReEDS), developed by the National Renewable Energy Laboratory

(NREL) considers generation and transmission capacity costs in its capacity-expansion model in order to minimize busbar and system-level costs for electric-sector planning purposes. Based on the 2018 Standard Scenarios presented by the ReEDS model, North Carolina in an optimized scenario would add another 900 MW of solar above current levels and associated transmission necessary for integration by 2022. *Id.*

Friesian witness Askey similarly stated that the Public Staff failed in its LCOT analysis to consider the additional generation that would utilize and benefit from the Friesian Upgrades. Witness Askey also indicated that there are significant differences in LCOT calculations for Friesian compared to those for regional transmission organizations (RTOs) like MISO and PJM, which are regulated by FERC and outside of any state regulatory compact. In the context of RTOs, costs associated with transmission upgrades to accommodate new generation may be evaluated as part of system-wide baseline upgrades, as network improvements, and as directly assigned costs, and the cost allocation may vary as a result of the different assignment of costs. Therefore, it would be difficult for any entity other than the RTO itself to determine the LCOT for a generating facility connecting in the RTO. Witness Askey, therefore, stated that calculating the LCOT for the Friesian Upgrades does not provide any discernable value regarding the public benefits of the upgrades. *Tr. vol. 2, 91-92.*

On cross-examination, witness Askey acknowledged that data responses from Duke identified approximately 1,561 MW that was currently interdependent

on the Friesian Upgrades, and that DEP stated that the "Friesian upgrades will at least partially facilitate the interconnection of more than 1,000 MW of additional generation." *Tr. vol. 2, 171-72.* He also noted, however, that there may be additional upgrades associated with those projects beyond the Friesian Upgrades that would be required in order for them to interconnect. In addition, witness Askey testified that DEP had identified significant additional generating capacity in southeastern North Carolina that could be interconnected without being interdependent on the Friesian Upgrades. *Id.*

Discussion and Conclusions

There is no dispute that the southeastern portion of North Carolina exhibits many attributes favorable for solar development, and those factors have led to significant solar development in that region, consuming much of the available transmission capacity in that portion of DEP's system. As a result, the transmission infrastructure in that portion of the DEP system is approaching a tipping point where additional generation in certain portions of the system will require significant upgrades. The Commission finds that all of the costs associated with a generating facility, including the interconnection and network upgrade costs, are appropriate for consideration in determining whether granting a certificate for a proposed generating facility is in the public interest.

The Commission shares the concerns of the Public Staff regarding the significant costs associated with the Friesian Upgrades. The LCOT analysis provided by the Public Staff provides guidance as to the reasonableness of the

network upgrade costs and clearly illustrates how the upgrade costs in this proceeding are unprecedented and not in alignment with other interconnection costs realized on a national basis. The Commission notes that the LBNL Study specifically states that the cost information in the report is generalized and should be used to inform high-level decisions and directions. LBNL Study at 27. The Commission considers the information provided in the LBNL Study in this light: as a benchmark of the reasonableness of the Friesian Upgrades relative to other transmission investments made to interconnect distributed generation. Even considering the uncertain potential for significant additional generation to be able to interconnect and utilize the additional capacity, the costs that would ultimately be borne by DEP's retail and wholesale customers remain substantial.

The Commission disagrees with witness Wilson's analysis that additional transmission should be included in consideration of the LCOT cost since the LCOT is being used to provide a comparison of actual incurred costs with the proposed transmission upgrade costs associated with specific generation resources. The LCOT analysis does not evaluate the loading of existing lines and whether they are fully subscribed, but instead provides a high-level comparison of costs that have been incurred around the nation to interconnect solar facilities. To make assumptions that those lines can or cannot accommodate additional generation resources, as proposed by witness Wilson, goes beyond the scope of the LBNL Study.

In addition, the Commission agrees with the Public Staff that DEP's estimate of the number of interdependent projects that would be able to interconnect as a result of the Friesian Upgrades does not rule out the possibility that the interdependent projects would not potentially trigger significant additional upgrades, as well. For example, as discussed in Public Staff Friesian Panel Cross-Examination Exhibit No. 2, the Homer and Fair Bluff facilities are both proposed 75-MW solar facilities that are also owned by Birdseye and are interdependent on the Friesian Upgrades, but they would also trigger an additional $9.6 million in upgrades. The uncertainty of the additional upgrade costs associated with the interdependent projects that are partially facilitated by the Friesian Upgrades weighs against using that additional capacity to lower the LCOT value that would otherwise be calculated for the Friesian facility. Without studying those projects in a more comprehensive fashion as part of a group or cluster, it is difficult, if not impossible to estimate how much of the additional capacity would be able to interconnect, and how the additional upgrade costs could impact the LCOT calculations.

No party challenged or took issue with the estimated Network Upgrade costs associated with the Facility in this proceeding, but the Commission notes that DEP's Late-Filed Exhibit describes the basis for the almost doubling of costs from the Initial Estimate to the current estimate (IA Estimate). DEP indicates that the IA Estimate "was based on a more detailed understanding of the scope and was developed using the Company's updated cost and scheduling systems," which DEP recently updated. In addition to more detailed scoping of the project, DEP

indicates that it has experienced increases in labor costs and costs associated with environmental compliance that it factored into the IA estimate. In addition, a contingency of approximately $39.5 million was included in the estimate. Late-Filed Exhibit of DEP, at 1. The Commission has concerns about the potential for the costs to increase further, particularly considering the scale and complexity of the upgrades in question, which, according to witness Bednar, include crossing the Cape Fear River four times, as well as the work being limited to short timeframes each year when the transmission lines in question can be taken out of service.

The Commission recognizes the jurisdiction of FERC with respect to allocating the costs of interconnecting a merchant plant to the grid. Nonetheless, the sheer scale of the Friesian Upgrades dwarf the actual construction costs of the Facility and call into question the viability of the project and the risk to customers of approving the CPCN. Indeed, as noted by witness Bednar in discussing the Homer and Fair Bluff projects, those similarly sized projects would be non-viable if they were responsible for paying for the Network Upgrades. Costs of this magnitude raise questions about the cost-effective siting of any additional generation in the region unless the costs are known with greater certainty, the generating facilities that will utilize the Network Upgrades are significant, or the upgrades provide increased reliability and other system operations benefits. As such, the Commission finds that the significant costs associated with the Friesian Upgrades are not consistent with the requirements in N.C.G.S. § 62-110.1(d) for the provision of “reliable, efficient, and economical electric service,” and therefore weighs against a finding of public convenience and necessity for the Facility.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 13

The evidence supporting this finding of fact is found in the Application, the DEP 2018 and 2019 DEP IRPs, the testimony of Friesian witnesses Askey and Bednar, and the joint testimony of Public Staff witnesses Lawrence and Metz.

Witness Bednar testified that the Friesian Upgrades are in the public interest because the upgrades represent the only "immediately-actionable" proposal to address transmission constraints in the region. *Tr. vol. 2, 43-44.* He also testified that the Upgrades are important to the development of additional generation described in the Statements of Position filed by Duke in this docket. Witness Bednar testified that it was his belief that "it is inevitable that these upgrades will be required, and that they will be paid for by ratepayers." He further testified that delaying their construction will only "delay DEP's ability to add new generation and to increase the cost of the upgrades to ratepayers." *Id. at 43-44.*

Witness Askey testified that, based on information provided by DEP, substantial Network Upgrades will be needed to accommodate additional solar and other new grid resources that are planned in the region. He stated that one of DEP's two 1235-MW combined cycle plants that are being evaluated for siting in Cumberland County is interdependent on the Friesian Upgrades. *Id. at 66.* He further noted that even if the DEP facilities being studied are not built, the Friesian Upgrades are required to connect new generation resources in the State. *Id. at 75.*

In their joint testimony, Public Staff witnesses Lawrence and Metz acknowledged the interdependence of Q399, the second proposed combined-cycle plant being studied by DEP, on a significant portion of the Friesian Upgrades, as well as other significant transmission upgrades that may be required. The Public Staff declined to assign significant weight to the potential for the Friesian Upgrades to reduce the upgrade costs associated with future planned generation, stating that such an analysis is "heavily dependent upon future IRPs showing a continued need for additional capacity, contingencies such as the completion of the [Atlantic Coast Pipeline], as well as DEP demonstrating that Q399 is in the public interest in a CPCN application, as opposed to other resource alternatives." *Tr. vol. 3, 132-33.*

Discussion and Conclusions

The Commission agrees with the Public Staff that minimal weight should be assigned to the evidence presented by Friesian that the Network Upgrades it triggers will offset or reduce future Network Upgrade costs associated with new proposed generation being studied by DEP. While the Load, Capacity, and Reserves Tables in DEP's 2018 IRP and 2019 IRP Update both indicate the addition of approximately 1,300 MW of combined cycle capacity in 2025 and 2027, these resources are undesignated at this time and DEP has not taken any affirmative steps to determine resource alternatives to meet the undesignated need shown in the IRP, such as issuing a request for proposals (RFP) for resources to meet the capacity need or filing a CPCN application for the facilities. The Commission also recognizes that the combined cycle facilities discussed extensively by the Applicant are

contingent on the completion of the Atlantic Coast Pipeline, the status and timing of which is remains uncertain. Lastly, DEP has determined that the first of the two facilities, identified as Q398, is not dependent on the Friesian Upgrades, but triggers its own substantial Network Upgrade costs, and the second facility, Q399, is not only dependent on the Friesian Upgrades and the Q398 upgrades, but it also triggers additional substantial upgrades of its own. Therefore, it is premature at this time to consider or assign and weight to the benefits associated with those generation resources being able to share or utilize the Friesian Upgrades as part of the Commission's consideration of the Friesian Application. The Commission also notes that, as discussed later in this Order, other comprehensive plans being developed to comply with EO80 and DEQ's Clean Energy Plan may result in changes to DEP's future resource needs, including the resource type, location, and timeframe for those resources.

In addition, the Commission disagrees with witness Bednar that the Friesian Upgrades are inevitable and that any delay in their construction will only result in increased costs to customers. As stated by Public Staff witnesses Metz and Lawrence, the potential to defer costs may provide benefits to customers, depending on the carrying cost of capital, changes in commodity prices, and labor rates. *Tr. vol. 3, 216-20*. In conclusion, the Commission agrees with the Public Staff that due to the uncertainty surrounding DEP's future resource needs, minimal weight should be assigned to the benefits the Friesian Upgrades may provide to reduce future Network Upgrade costs that would otherwise be incurred by customers.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 14-15

The evidence supporting these findings of fact is found in the testimony and exhibits of Friesian witnesses Askey and Wilson, and the joint testimony and exhibits of Public Staff witnesses Lawrence and Metz

Friesian witness Wilson testified that a substantial buildout of new renewable energy resources is in the public interest for North Carolina ratepayers, notwithstanding the inclusion of $223 million in Network Upgrades needed to support the facility. In her direct testimony, witness Wilson cites a study in which she was a primary author entitled *North Carolina's Clean Energy Future: An Alternative to Duke's Integrated Resource Plan* (Synapse Report), included in her testimony as Exhibit RW-1. In support of her argument, witness Wilson states that the type of resource generating portfolio recommended by the Synapse Report results in least cost energy and has additional benefits in the form of reduced air emissions and improved public health. *Tr. vol. 2, 98.* The Synapse Report was previously presented in Docket No. E-100, Sub 157, in response to comments solicited by the Commission on Duke's 2018 IRPs. The Synapse Report is an alternative to the IRPs submitted by DEC and DEP (collectively, Duke) and presents a "Clean Energy scenario" that models a significant addition of solar and storage resources to the Duke portfolio over the 15-year IRP planning horizon. *Id. at 99-100*. In the Clean Energy scenario, by 2033, there are 14 gigawatts (GW) of solar capacity and almost 6 GW of battery capacity added in the Duke service territories. *Id. at 120.*

Witness Wilson further stated that the Clean Energy scenario represents a savings of almost $8 billion in terms of the net present value of revenue requirements over the duration of the 15-year planning period. Witness Wilson calculated that the health benefits savings of the Clean Energy scenario range from $195 to $440 million by 2024 due to avoided emissions of sulfur dioxide, oxides of nitrogen, and particulate matter. *Id.*

In direct testimony, witness Wilson admitted that the Synapse Clean Energy scenario does not include the costs of any new transmission or upgrades to existing transmission required to connect renewables. *Id. at 104, 120.* On cross-examination, witness Wilson testified:

> My study is an economic one, and it looks at the least cost resource alternative to a comparison portfolio, which in this case is Duke's 2018 IRP, and determines that additional solar and storage resources are to the benefit of ratepayers. *It doesn't look at where those renewables are sited, costs that it might take to integrate them*, and those costs are going to change over time, certainly.

(Tr. Vol. 3, at 25-26, emphasis added).

Witness Wilson stated that the public benefits of constructing the Friesian Upgrades and allowing other solar project development in southeastern North Carolina to move forward will likely exceed the cost of the upgrades by a wide margin. *Tr. Vol. 2, 110.* On cross-examination, witness Wilson acknowledged that the Clean Energy scenario was not specific to the Friesian project and did not consider the impacts of the Friesian Upgrades. Additionally, witness Wilson also stated, "I haven't seen, in preparing my testimony, any analysis of the total number

of megawatts that the Friesian upgrades could support, and that might be a useful benchmark to have, but we don't have that today." *Tr. vol. 3, 23.*

Included in the direct testimony of Friesian witness Askey, Duke stated in response to a data request that the Friesian Upgrades could partially facilitate the interconnection of more than 1,000 MW of additional solar generation. *Id. at 136*.[8] The Duke data response also stated '[b]ased on the assessment completed by DEP for interconnection requests received through September 30. 2017, there are 108 interconnection requests totaling 1,561 MW that have been identified as being interdependent on the upgrades assigned to Friesian." Witness Wilson stated she understood the difference between the two numbers to include non-solar generation interdependent on the Friesian Upgrades. *Id. at 21*. Witness Wilson testified that she would also include an additional 900 MW in "future generation." The additional future generation is a generic assumption and not based on any data provided by Duke. *Id. at 22.*

In direct testimony, Public Staff witnesses Lawrence and Metz explained that Governor Cooper's EO80 states that North Carolina will strive to reduce greenhouse gas emissions (GHG) by 40% below 2005 levels by 2025. *Id. at 133*. EO80 further required DEQ to develop a Clean Energy Plan for the State. The Clean Energy Plan set a goal to reduce electric sector GHG emissions by 70% below 2005 levels by 2030 and obtain carbon neutrality by 2050. The Plan states

[8] *See also* Friesian witness Askey Supplemental Direct testimony, Appendix A to Exhibit B, includes the response to the Friesian Data Request. No. 2, Tr. Vol. 3, Official Exhibits, 58.

that "NC's values such as electricity affordability, equity, and reliability should be fully considered." *Id. at 134-35.*

Furthermore, witnesses Lawrence and Metz noted that the Clean Energy Plan states that the State is already on track to meet the goals of EO80. With regard to the current trend in the State's emissions, the report states:

> NC has already reduced significant amounts of GHG emissions from the electric power sector. The State's Clean Smokestacks Act, REPS, PURPA and market drivers have decarbonized the electric power sector at a faster pace than many other states. According to the most recent statewide inventory, GHG emissions from the electric power sector have declined 34% relative to 2005 levels. These reductions have been achieved in the absence of explicit carbon policies in the State. DEQ estimates that with full implementation of HB589, the GHG reduction level from the electric power sector will reach roughly 50% by 2025 and remain at this level out to 2030.

Id. at 134.[9]

Public Staff witnesses Lawrence and Metz testified that the Clean Energy Plan states that a comprehensive approach to system planning is the preferred policy option to achieve further emissions reduction goals. The Public Staff believes that with increasing pressure on rates, comprehensive system planning will produce more efficient, cost-effective results for customers. *Id. at 137-38.*

At the hearing, witness Metz testified that DEP is working with the National Renewable Energy Laboratory (NREL) to determine the quantity of renewables

[9] *See also* Vol.3, Official Exhibits, Public-Staff Frisian Panel Cross Examination Exhibit 7, DEQ Clean Energy Plan, at 267.

that can interconnect to the system. *Tr. vol. 4, 83*. Witness Metz explained that there are two phases of the study:

> Phase 1 scope quantify the amount of carbon free electricity, estimate a curtailment wrapping and system flexibility limits, evaluate its shifts, and daily seasonal net load timing supply. There's another phase coming because Phase 1 did not consider unit commitment and economic dispatch system stability cost or transmission impacts. Phase 2 will address those concerns.

Id. at 104.

Friesian witness Wilson stated that achieving the goals of the DEQ Clean Energy Plan to reduce carbon emissions by 70% from 2005 levels by 2030 will be difficult if no additional solar resources can be interconnected in the areas dependent on the Friesian Upgrades. *Tr. vol. 2, 108*. At the hearing, witness Wilson testified that in order to achieve the types of emissions reductions that are being contemplated by the State of North Carolina, projects like Friesian need to move forward. *Tr. vol. 3, 26.*

At the hearing, witness Wilson acknowledged that she was aware of the ongoing DEQ Carbon Reduction Stakeholder Group and its plan to have a report by the end of 2020 to comprehensively address how to meet the DEQ 70% GHG emissions reductions goal. *Id.* Witness Wilson also acknowledged that she was aware of the ongoing NREL study to quantify the amount of renewable energy resources that can be integrated onto the DEP and DEC systems. *Id. at 25.*

Discussion and Conclusions

The Commission has carefully weighed the evidence and does not find that the Synapse Report provides sufficient evidence that the Friesian Upgrades are in the public interest. Consistent with the Commission's Order in the IRP docket, the Commission continues to accept the 2018 Duke IRPs as sufficient for planning purposes. The Commission gives little weight to the recommendations of Friesian witness Wilson based on the Synapse alternative IRP for the following reasons.

First, the Synapse Clean Energy scenario does not specifically model the Friesian project or the Friesian Upgrades. Instead, Friesian witness Wilson recommends that the Commission find that the Friesian project and its associated upgrades are in the public interest simply because such upgrades will allow the interconnection of additional renewable energy resources in the Southeastern region of the State.

The Clean Energy scenario specifically calls for the addition of over 14 GW of solar and almost 6 GW of battery capacity in the DEP and DEC territories over the next 15 years. Duke provided information in this proceeding that the Friesian project and its associated upgrades could *partially* facilitate the interconnection of over 1,000 MW of solar energy resources, only a small fraction of the amount of solar needed according to the Synapse analysis to achieve the stated ratepayer benefits.

Second, the Synapse Clean Energy scenario did not include the cost of transmission upgrades in its model, which is one of the major factors weighing

against the public interest for the Friesian facility. If the upgrades had been taken into account, the model likely would have produced different and less favorable results regarding ratepayer benefits.

The Commission further finds that Friesian has provided no specific analysis or other evidence showing the upgrades for this project will lower emissions in North Carolina. Thus, the Commission gives limited weight to the evidence of quantified benefits of emissions reductions and associated public health benefits that Friesian witness Wilson attributes to the project.

Friesian witness Wilson further argued that the Friesian Upgrades are in the public interest because they will assist the State to meet its emissions reduction goals as stated in the DEQ Clean Energy Plan. The Commission does not find this argument persuasive. As the Public Staff has noted, the Clean Energy Plan contains several recommendations to utilize stakeholder processes and comprehensive planning tools to achieve the carbon emissions reduction goals and prioritizes policies that will ensure the addition of reliable and affordable energy resources. These goals are Statewide goals, and it would be inappropriate at this time to assign substantial upgrade costs solely to DEP customers until this comprehensive analysis of the most cost-effective compliance options is fully considered.

In addition, the Clean Energy Plan directed the formation of a new stakeholder group to deliver a report in December of 2020, with stakeholder involvement, to model the integration of clean energy goals to meet the State's carbon policy goals. Specifically, the report recommendation states:

> DEQ will enlist assistance from academic institutions to deliver a report to the Governor by December 31, 2020, that recommends carbon reduction policies and the specific design of those policies to best advance core values—including a significant and timely decline in greenhouse gas emissions, affordable electricity rates, expanded clean energy resources, compliance flexibility, equity, and grid reliability. The report will evaluate policy designs for the following: (1) accelerated coal retirements, (2) a market-based carbon reduction program, (3) clean energy policies such as an updated REPS, an EERS Short term and clean energy standard, and a (4) a combination of these policy options.

Tr. vol. 3, Official Exhibits, Clean Energy Plan, Public Staff-Friesian Panel Cross-Examination Exhibit No. 7, 213. Furthermore, as the Public Staff explained, Duke is currently working with NREL to develop a Carbon-free Resource Integration Study to quantify and analyze the impact of new renewables on the DEP and DEC systems. *See* Public Staff Late-Filed Exhibit No. 1.

According to the DEQ Clean Energy Plan, the State's electricity sector is currently on pace to meet the Governor's E080 emissions reduction goal in 2025. The Commission determines that the prudent course of action, prior to considering the emissions reductions benefits associated with individual CPCN applications, is to wait for the results of both the DEQ Carbon Reduction Stakeholder Group and Phase 2 of the NREL Carbon-Free Resources Integration Study and to consider the evidence from those studies in the context of the utility IRP planning process. The IRP process, in combination with information provided on the adequacy of the utility's transmission system under Commission Rule R8-60(i)(5), is the appropriate forum on a Statewide basis to consider whether the benefits associated with large transmission upgrade costs are considered along with electricity affordability, equity to ratepayers, and reliability of the grid.

In agreement with the Public Staff, the Commission recognizes solar, as well as other low-carbon resources, play an important role in reducing carbon emissions in the State and that major infrastructure upgrades will likely be needed to incorporate clean energy from distributed energy resources and to achieve the State's carbon reduction policy goals. To determine the benefits of new transmission upgrades, the Commission finds that comprehensive system planning is the preferable approach to mapping a path to the State's carbon emission reductions. Piece-meal planning and construction for single facilities like the Friesian facility outside of a comprehensive planning framework cannot achieve efficient, cost-effective results for customers.

The Commission concludes that until such time as compliance with EO80 and the policy recommendations in the Clean Energy Plan, as well as Duke's corporate sustainability goals, are fully investigated and considered in the context of the utility's IRP process in a comprehensive fashion, the benefits associated with the construction of the Friesian facility and the associated upgrades are not sufficiently known and measurable to be considered as public benefits in support of the CPCN being granted.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 16-18

The evidence supporting these findings of fact is found in the pre-hearing briefs and reply briefs of DEP and the Public Staff; the testimony and exhibits of Friesian witnesses Askey and Bednar; and the joint testimony of Public Staff witnesses Lawrence and Metz.

In its pre-hearing brief, the Public Staff noted that in its June 14, 2019, Order Approving Revised Interconnection Standard and Requiring Reports and Testimony, in Docket No. E-100, Sub 101 (2019 Sub 101 Order), the Commission directed the utilities, "to the greatest extent possible, to continue to seek to recover from Interconnection Customers all expenses (including reasonable overhead expenses) associated with supporting the generator interconnection process under the NC Interconnection Standard." *Pre-hearing brief at 11-12, quoting from 2019 Sub 101 Order at 18*. The Public Staff noted the Commission's recognition of the arguments raised Duke and others that the current serial study process was not sustainable, and comprehensive queue reform was necessary to better align the NC Interconnection Standard and Duke's FERC OATT with regard to studying projects, assigning upgrade costs, and collecting the costs of those projects. As such, the Commission found that the commitment by Duke to implement a stakeholder process to develop a group study proposal was reasonable and appropriate. *Id.*

The Public Staff further noted that a significant portion of the additional capacity that would benefit from the Friesian Upgrades would not be responsible for any of the upgrade costs and that this situation highlighted the need for the queue reform measures proposed by Duke. *Id.*

DEP in its pre-hearing brief stated that the vast majority of interconnections to date have consumed transmission and distribution capacity paid for by others and that the upgrades triggered by Friesian would provide additional transmission

capacity to allow the interconnection of additional generating facilities (both FERC- and State- jurisdictional) without those projects bearing any portion of the costs of the Friesian upgrade. DEP indicated that this outcome is consistent with past practice, and is the inevitable result of a serial study process in which projects consume pre-existing transmission and distribution capacity until the need for new capacity is triggered. DEP *Pre-Hearing Brief at 4-5.*

Public Staff witnesses Lawrence and Metz testified regarding the need for comprehensive system planning, including IRP process, the integrated systems operation planning (ISOP) process being developed by the utilities, distribution system planning, and competitive bidding processes like the CPRE Program or short-term market solicitations, rather than by individual CPCN applications. The Public Staff stated that as rate pressures on electric customers continue to increase, comprehensive system planning will produce more efficient, cost-effective results for customers than the piece-meal planning and construction approach currently being used. *Tr. vol. 3, 137-38.*

Friesian witness Bednar testified that he recognized the benefits of comprehensive system planning, but he believed that the deferral of the upgrades is “ill-advised,” noting that the timing of the IRP and ISOP process creates risks of bringing new generation online, will result in additional study costs and increase the cost for upgrades when they are ultimately constructed. *Tr. vol. 2, 43-44.* He cited the statements of position filed by Duke Energy, in which Duke stated that the need for the upgrades would not go away, and that “if the Friesian Network

Upgrades are not constructed at this time, there will be a further substantial delay of any additional generating facilities in this area of DEP." *Id., quoting from December 6, 2019, letter from Jack Jirak on behalf of DEP*. Witness Bednar further questioned the ability of comprehensive planning to evaluate the significant amount of solar generation that is proposed under various future development targets.

Witness Bednar stated that the Friesian Application involves unique circumstances, and the construction of the upgrades will provide substantial benefits to the DEP transmission system and the State as a whole. With regard to the potential impacts of the Friesian Upgrades on the current queue reform efforts underway by Duke, witness Bednar further indicated that the upgrades would minimize short-term challenges associated with Duke's queue reform plans, as well as allow for the interconnection of a substantial amount of renewable resources in the region. *Tr. vol. 2, 46-47.*

On cross-examination, Public Staff witness Metz indicated that the Public Staff was generally supportive of a transition from the current serial queue to a grouping study model, and stated that on a going-forward basis, the grouping study approach would help to address some of the concerns raised in this proceeding, particularly with the allocation of upgrade costs. He further indicated that he did not dispute the statements made by Duke that the transition process will be complex and that such a transition could be further delayed if the Friesian Upgrades were not approved. Witness Metz acknowledged that there may be a

delay, but he further noted that the upgrades caused by the Friesian project were substantial and represented a tipping point, but that the queue reform efforts did not have to address the upgrades in the context of Friesian specifically. *Tr. vol. 4, 42-47.*

Discussion and Conclusions

The Friesian project brings together several significant policy issues related to the continued development of renewable energy in North Carolina, and the Commission has carefully weighed the evidence by the parties. As previously discussed in the Commission's 2019 E-100, Sub 101 Order, North Carolina has achieved nation-leading success in the siting and development of renewable energy resources over the past decade, and the majority of the capacity added utilized existing transmission and distribution capacity on the DEP, DEC, and DENC systems. In addition, much of the capacity additions were not in proximity to load, and as a result, constraints on the system to transmit that power have been identified and will continue to develop. This approach has also raised challenges from a system operations perspective, and the Commission through changes in its Interconnection Standard and contract terms for renewable energy facilities has sought to address some of these challenges. In addition, the General Assembly recognized the challenges that were being created by the continued installation of uncontrolled solar and enacted H589 to provide a market-based mechanism to encourage the cost-effective siting of renewable energy resources in areas where the utility's grid could most efficiently accommodate new resources.

Pursuant to N.C.G.S. § 62-110.1(d), it is imperative that the Commission "take into account the applicant's arrangements with other electric utilities for the interchange of power, pooling of plant, purchase of power and other methods for providing reliable, efficient, and economical electric service." The Commission recognizes the myriad of planning activities that are underway and considering these issues, including the utilities' IRPs, the ISOP process that is under development, the NCTPC, and importantly, the queue reform efforts by Duke to align the process in its State and FERC-jurisdictional interconnection processes. This information can inform and support the policy options being evaluated as part of EO80, and provide a framework to identify the most cost-effective resource needs for customers.

Some parties have described the upgrades triggered by Friesian as unique, but as recognized by Friesian witnesses Askey and Bednar, other constrained areas on the DEP system have been identified, and similar constraints are also developing on the DEC system, The Commission agrees with the Public Staff that the Friesian facility represents a tipping point, and while it may be the first time upgrades of this scale and magnitude have been identified, we are likely to see continued challenges and constraints elsewhere in the system develop. The Commission agrees with the Public Staff that rather than approving the Friesian project and incurring substantial costs in order to alleviate constraints in the interconnection queue, the Friesian Upgrades instead represent an appropriate starting point for DEP to holistically evaluate the transmission and distribution resource needs and investments necessary.

In its October 23, 2019 Order Granting Motion to Delay in Docket No. E-100, Sub 101 (October 23 Order), the Commission specifically directed Duke to (1) file an updated version of their queue reform proposal as modified based on feedback from stakeholders, along with a redline version of the North Carolina Interconnection Procedures, or (2) notify the Commission that no modifications are needed. The Commission recognizes the significance of the transition period in this process, and directs Duke to specifically address the queue reform transition process and include a clear delineation of how the Friesian Upgrades will be considered under the proposal. The October 23 Order also established a further procedural schedule requiring parties to file comments on Duke's proposal no later than March 27, 2020, and for Duke to file reply comments no later than April 17, 2020.

As stated in the Commission's August 27, 2019 Order Requiring Queue Reform Proposal and Comments, the Commission urges the parties to recognize the need for compromise in working through any disputed issues as quickly as possible.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 19

Based upon the entirety of the evidence provided in this Order, the Commission finds that the construction of the Facility is not in the public interest and is not justified by the public convenience and necessity as required by N.C.G.S. § 62-110.1.

IT IS, THEREFORE, ORDERED that the Applicant's request for a certificate of public convenience and necessity is denied.

ISSUED BY ORDER OF THE COMMISSION.

This the _____ day of Month, Year.

NORTH CAROLINA UTILITIES COMMISSION

Kimberley A. Campbell, Chief Clerk