PLACE: Dobbs Building
Raleigh, North Carolina
DATE: Wednesday, December 18, 2019
DOCKET NO.: EMP-105, Sub 0
TIME IN SESSION: 1:00 P.M. TO 4:59 P.M.

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

IN THE MATTER OF:

Application of Friesian Holdings, LLC, for a Certificate of Public Convenience and Necessity to Construct a 70-MW Solar Facility in Scotland County, North Carolina

Volume 3

A P P E A R A N C E S:

FOR FRIESIAN HOLDINGS, LLC:

Karen M. Kemerait, Esq.

Fox Rothschild, LLP

434 Fayetteville Street

Suite 2800

Raleigh, North Carolina 27601

Steven J. Levitas, Esq.

Kilpatrick Townsend & Stockton, LLP

4208 Six Forks Road, Suite 1400

Raleigh, North Carolina 27609

FOR DUKE ENERGY PROGRESS:

Jack E. Jirak, Esq.

Associate General Counsel

Duke Energy Corporation

P.O. Box 1551/NCH 20

Raleigh, North Carolina 27602

A P P E A R A N C E S (Cont'd.):

FOR NORTH CAROLINA SUSTAINABLE
ENERGY ASSOCIATION:
Peter Ledford, Esq.
Benjamin Smith, Esq.
North Carolina Sustainable Energy Association
4800 Six Forks Road
Suite 300
Raleigh, North Carolina 27609

FOR NORTH CAROLINA CLEAN
ENERGY ALLIANCE:
Benjamin L. Snowden, Esq.
Kilpatrick Townsend & Stockton, LLP
4208 Six Forks Road, Suite 1400
Raleigh, North Carolina 27609

FOR THE USING AND CONSUMING PUBLIC:
Tim R. Dodge, Esq.
Layla Cummings, Esq.
Public Staff - North Carolina Utilities Commission
4326 Mail Service Center
Raleigh, North Carolina 27699-4300

TABLE OF CONTENTS

EXAMINATIONS

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

E X A M I N A T I O N S (Cont'd.)

E X H I B I T S

IDENTIFIED/ADMITTED

E X H I B I T S (Cont'd.)

P R O C E E D I N G S

CHAIR MITCHELL: All right. Let's go back on the record, please. I think Ms. Cummings, you're up.

MS. CUMMINGS: Yes. Thank you.

BRIAN C. BEDNAR, CHARLES ASKEY, and RACHEL S. WILSON; Having been previously sworn, testified as follows:

CROSS EXAMINATION BY MS. CUMMINGS:

Q My name is Layla Cummings, and my questions will be directed towards Ms. Wilson's testimony. So just to start off, a clarifying question about your exhibits. You have marked as RW-1 your Synapse report The Clean Energy Scenario?

A (Wilson) That's correct.

Q And your RW-2 is your resume. I believe it just said the opposite in your testimony?

A Yes. That's right. Those exhibits are labeled the opposite in the testimony itself.

Q And I would like to just start off by discussing the Synapse Clean Energy Scenario. It was presented in the most recent IRP docket as an alternative IRP to DEC and DEP's IRP?

A It was filed as part of the comments from the North Carolina Sustainable Energy Association, and I

believe that that is how it was presented in that docket, yes.

Q And unlike the Utility IRP, it includes no new gas, it reduces coal, and it relies instead on solar and batteries?

A The Clean Energy Scenario reduces the dispatch of coal generation and retires coal units according to Duke's schedule that was described in the 2018 IRPs.

Q And the Commission accepted the IRPs proposed by DEC and DEP in that docket as adequate for planning purposes?

A They did accept the IRPs, but I believe there was some discussion about potential future IRPs and what those resource plans should consider and should look like.

Q And as part of the IRP dockets did you review the criticisms of the Synapse model made by DEC and DEP in their reply comments?

A I did not see those comments, no.

Q So just generally, Duke said that it would not conform to the Utility's requirement to provide reliable electric utility power, and specifically they mentioned that it relies on 14 percent energy imports from neighboring utilities; is that correct?

A You would have to specify a year that's associated with those imports of energy. It depends on the year.

Q I believe the 14 percent was by 2033, which was your planning horizon.

A That sounds accurate. 2033 is 15 years from now, and it is challenging to forecast with any accuracy what exactly is going to occur in that year. Technology changes can drive a lot of lower cost, clean energy solutions, and grid integration will look remarkably different in 15 years. I haven't seen an analysis that Duke did of my report, and I would be happy to review such a thing, if it exists.

Q Well, specifically -- and I'm just summarizing some comments if you would like to respond to them at this time. Specifically, they said that the reliance on neighboring utilities to meet Carolina's energy and capacity needs is inconsistent with the reality that there is not enough firm transmission available to reliably import that level of energy. Do you have a response to that specific criticism?

A The EnCompass model takes into account existing transmission lines and transmission constraints associated with those lines. I think that my scenario is

primarily an economic one, not a grid integration scenario, so I think that would need to be looked at in more detail before I can say that I agreed with it or not.

Q On your direct testimony, page 2, I'm referencing lines 21 and 22, you say the purpose of your testimony is to demonstrate the least expensive, long-term resource plan for North Carolina ratepayers over a 15-year analysis period. And you further say on page 9, skipping ahead a little, that the Synapse study did not take into account the cost of transmission upgrades.

A That's correct.

Q So any ratepayer savings envisioned by the Synapse Clean Energy Scenario would be reduced by any transmission upgrades needed to interconnect those resources?

A That's correct, yes.

Q Such as these Friesian upgrades that would fall into that category?

A Yes.

Q Also, with regard to Duke's IRP to add new natural gas, you state in your direct testimony, and I'm referencing page 5, that "New renewable additions, in lieu of gas capacity, is the more economic choice for

repairs."

A That's correct, yes.

Q And as we have discussed a little bit this morning with the other witnesses, new natural gas capacity is also in the queue behind Friesian and is also interdependent on those network upgrades. Are you aware of that?

A That's my understanding, yes.

Q And so in the Clean Energy Scenario, in your opinion would customers realize the additional benefits or other benefits of Friesian upgrades or renewable upgrades after the Friesian upgrades, such as reduced air emissions and improved public health that you reference in your testimony?

A Can you repeat that question? There were multiple parts, and I just want to make sure that I understand what you're asking.

Q If, and just a -- sorry -- in a hypothetical scenario those natural gas additions are made as planned later in the queue, would the same benefits that you say in your -- later in your testimony, health and -- public health and emissions benefits, would they be realized if new natural gas was built after Friesian?

A So the magnitude of those benefits depends on

the generation that natural gas is displacing. If it is displacing coal generation, some portion of benefits would, in fact, be realized. Coal plants emit SO2, sulphur dioxide, and particulate matter, which are particularly harmful to human health, so if natural gas generation were displacing some of the coal, a portion of those benefits would certainly be realized, yes. They wouldn't be realized to the same magnitude as what I presented in the Clean Energy Scenario.

Q And to your knowledge, is the Friesian project or any later queued renewable energy project planning to add storage?

A It's my understanding that the Friesian project is not. I do believe there is at least one in the queue that is planning to add storage, but I don't -- I'm not certain of that fact.

MS. CUMMINGS: At this time I'd like to -- I've already passed it out. There's a -- I'd like to introduce a cross exhibit. It's labeled at the top Department of Environment Clean Energy Plan. And Chair Mitchell, I request at this time to introduce the exhibit and ask that it be marked as Public Staff - Friesian Panel Cross Examination Exhibit Number 7.

CHAIR MITCHELL: The document shall be so

marked.

(Whereupon, Public Staff - Friesian Panel Cross Examination Exhibit 7 was marked for identification.)

Q So I would like to turn to your -- your discussion, also in your direct testimony, regarding Governor Cooper's goals under Executive Order 80 in the Clean Energy Plan. As part of the other benefits of the Friesian project you discuss that the Synapse model gets the state closer to Governor Cooper's energy goal; is that correct?

A Do you have a page number that I can reference?

Q I apologize. I'm getting there. Okay. So I'm looking at page 11 of your direct testimony.

A Okay.

Q And referencing the last Q&A, so line 21, "Does the Clean Energy Scenario get North Carolina to its goal under Governor Cooper's Clean Energy Plan?"

A Yeah. I see that.

Q And in summary you say not quite, but it gets us closer than the current IRP.

A That's correct. And I'll just say that Duke's 2018 IRP and my clean energy report don't include explicitly the Clean Energy Plan goals as part of the

constraints that either the IRP scenario or my scenario were intended to meet. Duke, I assume, will be including the Clean Energy Plan constraints in its upcoming 2020 IRP and present a plan that does, in fact, meet these reduction goals.

Q Have you had a chance to look over the Clean Energy Plan, the exhibit that was just passed out?

A I have reviewed it briefly in preparation for this testimony, but I haven't looked at it in depth in any way.

Q Are you familiar with the Executive Order that was passed that started the implementation of this plan?

A Is that Executive Order 80?

Q Yes.

A I'm aware of it, yes. We used Executive Order 80 to come up with the input assumptions around electric vehicles and the load increase that Duke might expect that would go along with that penetration of EVs.

Q And would you agree from your review that the Clean Energy Plan states that the State is on track to meet Executive Order 80's goal of a 40 percent reduction in greenhouse gas emissions from 2005 levels by 2025?

A I haven't seen information that either supports or refutes that statement, so I would assume that the

State is tracking such a thing and that that's factual, yeah.

Q So if I can, I would just point you to page 11 of the Executive Summary which summarizes Executive Order 80, and let you get there.

A Okay.

Q The last sentence of that paragraph, just pointing to what I just said, that a 40 percent reduction is the goal of the Executive Order 80 by 2025. And then if I can direct you to page 56. And I am looking at the -- are you there?

A Yes.

Q I'm looking at the second paragraph, the last sentence, which says "These reductions have been achieved in the absence of explicit carbon policies in the state. DEQ estimates with full implementation of House Bill 589 the GHG or greenhouse gas reduction level from electric power sector will reach roughly 50 percent by 2025 and remain at this level until 2030."

A I see that.

Q One of the key recommendations of the Clean Energy Plan takes it out -- takes the clean energy reduction goal from Executive Order 80 from 40 percent to 70 percent by 2030. In preparing your testimony, did you

conduct any specific analysis or run any additional models that would demonstrate how Friesian and its associated upgrades would help the state meet the 70 percent goal?

A I did not, no.

Q On page 12, lines 12 through 14 of your direct testimony, you state that "In the future, Duke might consider some combination of greater energy efficiency investment, additional coal retirements, or increased investment in renewables to meet the Clean Energy Plan goal."

A That's correct. My analysis puts forth one scenario that Duke might consider. There are undoubtedly several others that would get the Company to its Clean Energy Plan goals, relying on differing mixes of resource types.

Q So would you agree that to reach the goal of a 70 percent reduction in GHG emissions, that that should be accomplished through comprehensive statewide planning, as recommended by the plan and by the Public Staff?

A I think that that's a part of it. There are other sectors beyond the electric sector that need to reduce emissions, and that is a process that is better served by comprehensive state planning. Utilities, in

their Integrated Resource Plan and other company analyses, certainly can put forth plans that would reduce electric sector emissions commensurate with the goals that are laid out in the Clean Energy Plan. I might add also that the Clean Energy Plan goals don't stop in 2030, nor do Duke's stated intentions to reduce emissions, so while 2030 is an important benchmark, certainly, we also have to look beyond 2030 to 2050 when emissions reductions are intended to be net zero, and what are the investments and assets that we need to be investing in today that are long lived and will result in net zero emissions 30 years from now.

Q And you state in your direct testimony that the southeast portion of the state is, for a variety of reasons, the best place to develop solar.

A That's my understanding from reviewing other witnesses' testimonies in this docket, yes.

Q And you were here for the earlier conversation where Mr. Dodge was discussing with Mr. Bednar the operational challenges of siting in that area of the state?

A Yes.

Q And you generally understand that there has been a lot of solar development already in that area of

the state, causing these operational challenges?

A I think that's indicative of the fact that the southeastern part of the state has the best sites, and those are going to be developed first when looking at renewables that are most economic for customers, and areas that don't present such great value for solar development will lag other regions, yeah.

Q And do you have any concerns on whether it is equitable for DEP ratepayers in particular to shoulder more of the cost for the statewide emissions reduction goal than, say, DEC customers or other utility customers?

A I think that we can't say for certain who is going to shoulder more of the cost associated with GHG emissions, given that we don't yet know which investments are going to come online to meet those reductions. Will DEP customers pay a portion of those costs which are those that are associated with the Friesian upgrades? Yes. But they'll also receive savings in terms of lower production costs that are associated with zero variable cost resources like solar and battery storage.

Q And I'd like to turn now to your rebuttal testimony. Specifically, can you turn to the chart on the top of page 4?

A Okay.

Q The purpose of this table is to show the levelized cost of transmission, or LCOT, for projects in addition to Friesian, correct?

A That's correct.

Q And these are projects that are known to be interdependent on the Friesian network upgrades?

A The 1,631 MW value is -- comes from a Duke Energy response to a discovery request made by Friesian and gives that number as the number of projects that would require these same transmission upgrades, yeah.

Q If I could just turn to that discovery request. We discussed it briefly earlier. It was the Askey Exhibit Appendix A to Exhibit B. Do you have a copy of that?

A I don't, no.

Q Maybe one of your co-witnesses has the Discovery Response 2. It is the discovery response of Duke Energy Progress to Friesian Holdings, question 1.

MS. CUMMINGS: If Mr. Dodge can approach. Thank you.

Q Okay. Is this the response from Duke that you based this table off of?

A Yes.

Q And at the end of this response it says it is

-- this is the last sentence of question 1, "However, it is undoubtedly the case that the Friesian upgrades will at least partially facilitate the interconnection of more than 1,000 MW of additional generation."

A Yes.

Q So in the beginning of the first sentence of that question 1, it says "There are 108 interconnection requests totaling 1,561 MW that have been identified as interdependent."

A That's correct.

Q Do you understand this response, this is where you got the 1,561?

A Yes.

Q So it may be 1,561 or it may be 1,000?

A My understanding of this response is that the 1,000 MW refers specifically to additional solar generation and that the 1,561 MW refers to resources that might include things beyond solar generation.

Q Okay. So looking back at the chart on the top of page 4, your third column over is Friesian Plus Queue, which we established is the Friesian Project plus the 1,561 --

A Correct.

Q -- plus future. Can you walk us through what

the future entails?

A That is a generic assumption, and it could be more and it could be less, but the -- in the discovery response that I have in front of me, it also states "In addition to the projects specifically identified to date by DEP as interdependent on the Friesian upgrades, there are likely many additional later queued projects that are also technically interdependent on the Friesian upgrades." So this 2,500 MW number was intended to represent later queued projects that haven't yet been identified by DEP, but that might, in fact, be contingent on the Friesian upgrades.

Q But DEP did not identify an additional 900 system --

A They did not. That was an assumption that I made.

Q Okay. Is it possible and even likely that those projects will, the 1,561 or even the 900 in addition, will incur system upgrade costs of their own?

A It's possible, certainly.

Q Is that factored into your analysis?

A No, it's not.

Q And is there a reason you didn't include those additional costs?

A Simply because I don't know them. If you add additional costs, that would increase your network upgrade cost on a dollars per kW basis, but if you add additional megawatts, that would lower the cost. 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.

Q Thank you. And just one last topic. Talking about the -- this is page 5 and 6 of your rebuttal testimony, talking about the NREL ReEDS model.

A Yes.

Q You discuss the ReEDS model which is a capacity expansion model that considers both generation and transmission costs?

A It does, yes.

Q And NREL, the ReEDS model stands for Regional Energy Deployment System model. It projects generation through the year 2050?

A Correct.

Q And it adds capacity based on least cost scenarios?

A Yes.

Q And on page 5 you state that the model is not

North Carolina specific.

A The model is they run ReEDS for all 50 states, so the scenarios that these numbers come from that I present in my testimony looks at each of the states in the U.S.

Q Does the model include costs for intra-balancing authority transmission upgrade costs like those being required by Friesian?

A I don't know the answer to that.

Q Is it likely if it didn't take into account those costs, that it may choose -- the model itself may choose another generation source, such as wind or natural gas, based on significant upgrades such as these?

A If the model is looking at transmission constraints between balancing authorities, it might find that it is economic for North Carolina to import wind from midwestern states. However, if those costs like are represented by the Friesian upgrades are not considered, then they -- that removes anything that the model could compare to. So we don't know necessarily if the model is not considering transmission within North Carolina that solar, adding solar plus transmission upgrades isn't the more economic choice. We simply don't have enough data to make that comparison.

Q And assuming the model is right, accepting its limitations, are you aware that the CPRE program will likely -- you cite the model adds another 900 MW of solar -- that the CPRE program in North Carolina will likely procure that much solar in the same time period?

A I think that remains to be seen. I think the procurement wasn't fulfilled, if I'm remembering correctly what occurred, and so I think that we can't know that with any certainty.

Q Okay. Are you aware that NREL is currently working on a resource integration study of DEP and DEC systems?

A Yes, but only very generally.

Q Would it be helpful to you to see the results of that integration study?

A There's a difference between the study that I present as Exhibit 1 to my testimony and the type of study that NREL is working on for DEC and DEP. 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.

It's very challenging to say now that in 2030, integration is going to be more costly, impossible. We just don't know yet. But in order to achieve the kind of emissions reductions that are being contemplated by the State of North Carolina, then projects like Friesian need to move forward in order to start accruing those benefits and pave the way for additional projects that are coming down the queue.

Q And just one last question. Are you also aware that the North Carolina DEQ, as part of this Clean Energy Plan, is also holding a carbon reduction stakeholder working group, with the aim of having a report out by the end of 2020 to comprehensively address how to meet a 70 percent GHG emissions reduction target?

A I'm aware that the working group exists, yes.

MS. CUMMINGS: That's all the questions I have. Thank you.

THE WITNESS: Thank you.

CHAIR MITCHELL: Redirect?

MR. LEVITAS: Just a few questions.

REDIRECT EXAMINATION BY MR. LEVITAS:

Q Mr. Bednar, Mr. Dodge asked you about whether the State-jurisdictional affiliates of Friesian and

Friesian had considered the possibility of some contribution by the State-jurisdictional projects to the upgrade costs. Do you recall that question?

A (Bednar) I do.

Q And to your knowledge, under current federal and state law, do State-jurisdictional projects that benefit from FERC-jurisdictional upgrades have any legal obligation to make such a contribution to the cost of those upgrades?

A Not that I'm aware.

Q Nevertheless, is it the case that the Friesian affiliated State-jurisdictional projects have expressed a willingness to make some contribution to the cost of those upgrades?

A Yes. We met with the Staff, Public Staff, several weeks ago.

Q And communicated that willingness at that time?

A Yes.

Q And is it also the case that Friesian and its affiliates have discussed the possibility of supporting regulatory changes in North Carolina that -- under which subsequent State-jurisdictional projects would be required to make contributions to upgrades that came about as a result of a FERC-jurisdictional project?

A Yes. We presented that.

Q All right. Thank you. I want to -- I'm sorry. You presented that to the Public Staff as well?

A Yes, yes.

Q I want to ask you about a statement or a question that Mr. Dodge made about the potential benefits to the ratepayers by deferring the cost of the Friesian upgrades. Do you remember that question?

A I do.

Q Let me ask you a couple things. First of all, am I right in thinking that ratepayers will not incur or be subject to any of the costs of those upgrades until such time as DEP brings a general rate case before the Commission seeking to recover those costs?

A That is my understanding, yes.

Q And so we don't know when that will occur, do we?

A We do not.

Q So --

A Other than it would be after we were placed in service.

Q Right. But it could be many years after Friesian is placed in service --

A Yes.

Q -- before North Carolina ratepayers would begin to bear any of those costs; isn't that right?

A That's correct.

Q In fact, it's at least theoretically possible that that could occur no sooner than ratepayers would be subjected to those costs if they were paying them as a result of Duke's Q399 gas plan; is that fair?

A That is very fair.

Q And let me also ask you, because Mr. Dodge was implying that deferral means a benefit, do you have an opinion as to whether the cost of these upgrades will increase over time if they are not carried out on the schedule that's currently contemplated for Friesian?

A I do. We regularly track cost of interconnections across our portfolio, and we've seen historical increases of 5 to 10 percent regularly, conservatively, and in recent years have seen interconnection transmission high voltage work growing and inflating at well in excess of 10 percent a year. And I would -- I believe that if we defer it, that the costs will only go up and could go up dramatically.

Q And so that could actually result in a significant increase in cost to ratepayers if these upgrades prove to be needed at a future time?

A I believe so.

Q With respect to Mr. Dodge's line of questioning about the Public Staff's exhibit, Cross Exhibit 6, which was the CPRE Program Plan, and you recall he talked about that plan tilts CPRE procurement towards DEC relative to DEP, correct?

A I recall, yes.

Q And he cited some language on page 12, I believe, where the Company described some of the operational constraints that exist with respect to future deployment in the DEP balancing authority area, correct?

A Correct.

Q Now, with respect to DEC, I understand that Duke concluded in this document that those obstacles did not exist to the same extent on the DEC side, but what I want to ask you is beyond the CPRE procurement of let's call it a couple of additional gigawatts, are there significant obstacles to the deployment and development of additional solar in DEC's service territory?

A Significant.

Q Could you describe those, please?

A Sure. Beginning back several years ago we have -- we've been active in the DEC market. We have sophisticated mechanisms to map and track what -- where

potential solar can be developed, and we've actually developed some of the largest projects in the DEC service territory, one being Maiden Creek which was described earlier. Additionally, we did a 120-acre 20-MW site that was awarded under the 2014 RFP that Duke ran in Cleveland County. The overarching issue that you run into in DEC is that you are in a situation where you deal with significant topographical issues that lead to a lot less efficiency for siting of solar. You are in competition directly with both population growth -- the MSA areas of the Triad, Charlotte, the Triangle take up 16 of the 35 counties that are in the DEC service territory. And I use that as a former real estate person as a good proxy for where competition exists with respect to siting of solar and least cost procurement of solar longer term.

Beyond that, amongst the 35 counties that DEC has, of those I would characterize 12 of them as mountainous. I mean, examples being Transylvania, Macon, Wilkes, Caldwell. They're not conducive to utility scale solar for two reasons, one, it's costly to construct. You lose the ability -- because of the topography, you lose the ability to utilize tracking technology which is the most efficient way to generate power from solar. Secondly, you have dramatically larger costs associated

with civil and environmental protections that are necessary when you come to developing a site with topography. You're clearing trees in many, many cases in a lot of these areas. And lastly, you deal with a much higher density of population, where you run into situations where there are more neighbors, more densely populated.

In the case of our project Maiden Creek, we've -- it was a fortunate situation. It was in Catawba County. Our partner in that was the largest landowner in Catawba County. We had a site that was 1,200 acres of contiguous land, where we were able to site 430 acres of land that we felt was appropriate for solar and could respond with setbacks, screening, buffering to protect against in excess of 50 neighbors that had immediate viewshed of the project.

In Cleveland County we faced a situation where we're dealing with 120 acres surrounded by land, again, owned by the same landowner, but found that there was a very contentious rezoning because of topographical changes two and half miles away, because of elevation differences that there was some viewshed of about five acres of our 120-acre project. And it was contested. We had to go to court. Birdseye takes a lot of pride in the

fact that we've been able to site -- we've never -- that was the only adversarial situation we've run into on our zoning. We've zoned over 60 projects. We do that by being mindful of how to take stakeholders into account, and in this particular case we were able to -- you know, we had to work through it.

Broadly, though, when you talk about the I-85 corridor and all of the density and competition for sites and the fact that Duke doesn't allow interconnection into the 230 infrastructure system, which is part of their interconnection standards, which, again, limits the amount of transmission available for siting, it is a challenge to try to find locations to add additional solar.

Q In light of all that, in your professional opinion as an experienced developer in the state, do you believe that there is a meaningful opportunity to add additional solar resources in DEC territory beyond CPRE?

A I think it's going to be extremely challenging to at scale add solar in the DEC territory. And I think that in many cases we will competing for -- be competing for what is the highest and best use for land that would otherwise potentially be utilized for either residential or commercial uses that might be more beneficial for the

county.

Q So as I understand your testimony, on the one hand we have a whole range of challenges on the DEC side which you've just described; on the other hand there are these operational challenges and integration challenges that have been identified on the DEP side. And I'll put a question either to you or to Mr. Askey. With respect to those operational challenges on the DEP side, are those the kinds of things that are capable of being remedied or addressed in a way that would allow additional solar deployment to go forward?

A (Askey) I think so. In terms of, you know, if you look at the peak contributions, which is what counsel brought up regarding the infusion of winter peaking solar, peaks occur at 7:00 in the morning so solar is not online, but it can charge during the day, and battery storage is the solution for that.

But in addition, you've got significant resources in the area supporting the solar. As I mentioned, you've got the Brunswick Nuclear Station, you've got Robeson, you've got Richmond, you've got the Weatherspoon CTs. These are peaking units and they're also units that can track generational load, so they're more dispatchable. The hard spot with solar, the hard

sport with wind, is dispatching to meet load hour to hour. Usually, you can dispatch solar to some extent, but when the sun shines is when it's available, so you have to have resources that support that either through battery storage or some kind of dispatchable resources, but those are overcomeable. You can overcome those.

A (Bednar) May I add one more thing?

Q Yes, please.

A You know, it -- the other challenge that we face that may not be fully apparent yet, but it will be apparent very soon, in my opinion, is that these same constraints that we're seeing in DEP are in the immediate horizon in DEC, regardless. I mean, if you look at the queue currently, we have some active process projects in DEC that have some scale. There are right now 591 MW that are on hold for study because of interdependency. There are currently 515 MW that are in active study. It is my opinion, based upon what I'm starting to see from results of system impact studies for other projects we have, that we're already seeing the same kinds of interdependencies that may not be fully outlined on the maps yet, but they're coming and they'll be here very soon.

Q Thank you. Ms. Wilson, I just have a question

or two for you. Ms. Cummings asked you about the extent to which your study and analysis considered the transmission upgrade costs associated with solar in doing your cost analysis. I believe you indicated that you had not evaluated transmission cost, correct?

A (Wilson) That's correct.

Q Is it also the case that in comparing solar to gas you didn't consider or evaluate any transmission upgrade costs for gas, either; is that correct?

A That's correct. There were no transmission upgrade costs included with the gas resources that were built out as part of the Duke IRP scenario.

Q And is it also the case in your testimony that looking at the magnitude of the savings over the planning horizon that you determined for the solar plus storage scenario that the total savings to ratepayers were more than an order of magnitude higher than the transmission costs that we're talking about here?

A They were -- the annual savings in my Clean Energy Scenario were approximately -- well, just over double the transmission costs associated with the Friesian upgrades.

Q Those costs were on a one-time basis, though, correct?

A Annually, yes. If you look at the net present value in revenue requirement savings, it was $8 billion compared to the 223 million associated with the Friesian upgrades.

MR. LEVITAS: That's all we have. Thank you.

CHAIR MITCHELL: All right. Questions by the Commission? All right. I'll go ahead and start.

EXAMINATION BY CHAIR MITCHELL:

Q All right. I have a handful of questions that our Staff needs answers, but I'm going to -- but I'm going to ask my own questions first.

So it's my understanding, just from reviewing the various testimonies and documents that have been filed in this docket, that the projected network upgrade costs for this project have escalated over time -- have escalated fairly significantly over a fairly short period of time. We need to understand that. It's explained in Public Staff testimony that at one point in time projected upgrades were $112 million, and now in your testimony you indicate that they're north of 200, so I think 223. And Public Staff testifies that one of the reasons for this -- one of the reasons for this escalation is scheduling of construction crews to meet the in-service -- the in-service needs for this project,

which as I understand from your testimony is driven by the PPA term. Can you confirm that I'm understanding that correctly and help us understand if that is, in fact, the case, that approximately $100 million of upgrades are being -- have been added to this project so that the project can be placed in service by 2023?

A (Bednar) I disagree with Public Staff's opinion on that. We have -- the upgrades have increased. There has been no -- nothing communicated to us that those were a result of the in-service -- or actually we pushed our in-service back. And at this point we basically, in conversations with Duke, in meetings going back to 2017, and as we approached the actual execution of the LGIA, in preparation of the final LGIA we were presented those cost increase. We know -- yes, sir. Sorry. I'm sorry.

Q Please continue.

A Sorry.

EXAMINATION BY COMMISSIONER CLODFELTER:

Q What's your understanding of the reason for the increase?

A My understanding is that we see it -- I mean, just in the last two weeks I've gotten interconnection results that were dramatically, many multiples higher than what we had been presented in facility studies

shortly there before. I've anecdotally heard through the industry that as a result of the cost increases and the competition for high voltage and transmission construction capacity, that the cost of high voltage transmission substation work has grown dramatically over the last two to three years. And specifically, through our -- I mean, I'm not an expert in that area, but what we do do is obviously check as best we can why these -- is this normal, is this what we would expect, and every conversation that I've had with large EPC folks we know within the industry is that it's pretty typical broadly across the country, but specifically in the southeast, that there is a -- there has been a -- dramatic increases in interconnection costs across the industry.

So did we like it? No. Do we have a lot of transparency in understanding exactly why it happened? No. But from what I understand it's well within the rights that we -- that Duke has -- that's one thing we did check -- as the estimates become more and more refined, they do have within their interconnection guidelines the ability to adjust prices by certain levels of specificity. And so as a result we questioned it. We said why is that happening? But at some point we needed the project to be built, and it's not really our position

to be able to tell Duke -- we did at one point actually discuss the idea could we build those facilities, not in detail, but at a high level, because within the OATT I think there is some language in certain circumstances where that could happen, but that was something that didn't -- wasn't going to work, given the magnitude of these upgrades, the complexity of these upgrades. I mean, 63 miles of upgrades, crossing the Cape Fear River four times.

I'm hopeful, I think Duke is hopeful -- they've been a very -- they've been working hard on this -- that these costs could come down, but I don't think we know at this point. But it is a complex project.

EXAMINATION BY COMMISSIONER DUFFLEY:

Q I have a quick follow-up on that.

A (Bednar) Sure.

Q You say you asked Duke what the -- what the reasons were, but I'm not sure I heard what the reasons were.

A Well, I think it's --

Q What did Duke tell you were the reasons for the increases?

A As they refined -- so when you're talking about -- so there are a couple of issues. One was I think as

they were trying to get -- when you first go through the study process, it's done at a very high level by power flow engineers that are sort of in an office. And particularly when he's talking about the complexity of this project, my understanding is that $115 million were initially generated by folks that were in the estimating group within Duke that had not put any boots on the ground, because they don't at that stage. That was system impact study level, right? But we are unique. I think it was mentioned in one of the letters this is a unique project that the magnitude of the upgrades are what they are, because they're needed. And as a result, once Duke kept going forward -- we've been working on this in earnest since -- I would say earnest being that we were approaching facility study results -- in December of 2017.

So, you know, I don't know -- I think they used their best efforts to try to evaluate what 63 miles of -- of 230 and 115 kV rebuild would look like and how much that will cost. But in the meantime, from 2017 to today, my sources within the EPC community are that it's not unusual for high voltage and transmission costs to have risen 30 to 40 percent broadly, nationwide, based upon tariffs, based upon shortages of general construction

capacity, et cetera, and I think that at that point in time, you know, we have to have some faith because there's no mechanism for us to dig into the cost structure that Duke has when they're making those estimates to us.

Now, as we go forward, I do feel like the team at Duke is trying their best to find ways to value engineer. One of the reasons we funded the $10 million that we funded thus far is to complete the due diligence that's needed on a project of this scale to get accurate numbers. So what did that include? That included having environmental consultants visit all 63 miles of this transmission rebuild. This is geotech for 63 miles of this -- this transmission rebuild. This is wetland delineation and environmental consultants going through and making certain that the foundations for transmission structures that would need to be replaced are not negatively impacting sensitive environmental areas.

So as we've gotten further and Duke has done more work, they came back with a larger number that obviously wasn't good news for us, but at the same time it didn't strike me or I don't think my investors as something that there was any kind of nefarious intent. It's just the reality of something of this scale.

Normally, to date, and this is just the -- we've had, you know, five, 10, maybe $15 million upgrades that are generally very localized. Friesian is the first of many that you'll see going forward that are going to be having significant upgrades. Whether it be in DEP or DEC, I think it's going to happen, and I think this is going to be the -- I don't know that there's a better mechanism to estimate a project of this scale until you actually do that work. So I hope that wasn't too much.

FURTHER EXAMINATION CHAIR MITCHELL:

Q So just -- so you all have funded $10 million so far towards the interconnection of this project?

A (Bednar) We have.

Q And I do have a question for you on that point. You reference an entity in your testimony. It think it's Kayne; is that correct?

A Yes.

Q Who is Kayne?

A So Kayne is the investor. So as we approached the execution of the Interconnection Agreement, throughout the spring of 2019 we had presented this project to a series of different long-term investors to partner with. This is Birdseye's business model. Our business model is not to own and operate projects long

term; our business model is to develop them to the point where they're ready for construction, and then we bring in an investor to own the project long term and fund construction, interconnection, et cetera. So we went to a series of different investors, all of which were sophisticated infrastructure investment firms, and Kayne was the one that we selected as our partner, and Kayne is the investor that has been assisting Birdseye in funding the $10 million upgrade and is prepared to fund the remainder of the upgrades for Friesian, as well as the construction of the Friesian project.

Q Okay. Thank you. That's helpful.

A Through one of their entities. I should say that.

Q Understood. That's helpful information. Notwithstanding the $10 million that's already been provided to Duke towards the interconnection of this project, you don't have any more clarity that you can provide us on why the cost has increased so significantly over a very short period of time?

A I just -- I don't have any more specific clarity on that, other than to say from what I have experienced with other projects and what I've heard from other members of the development community in North

Carolina, it's not unusual for cost to increase by that much or more if you think about it in terms of percentages. And secondly, that broadly, nationwide, there have been significant increases in cost for high voltage transmission and substation work, broadly.

As an example, I went on -- Southwire is one of several, but one of the largest wire manufacturers in the United States. I don't know that it's who Duke is using, but it is one of the largest. And the reason they're interesting is because if you go to their website under pricing, I think they're the largest in the U.S., one of the top five in the world, they have press releases listed on their website that show over the last year -- two and a half years every six months taking 5 to 10 percent increases on cable and wire across their entire product line. So it's a cumulative in two and a half years of 35 percent of increases they've taken.

I don't think that's unusual. I think that's been pretty typical across the industry, and I think it's -- it would align with the experience of many developers within the, you know, North and South Carolina market.

Q In your development work in North Carolina has your company or your companies experienced price increases subsequent to projects being -- let me restate

the question.

A Sure.

Q Have you or your companies experienced cost increases associated with the interconnection of generating facilities that -- of which you were made aware and obligated to fund or --

A Uh-huh.

Q -- pay for subsequent to facilities being placed in service?

A We have three projects currently, two which just are -- went into commercial operation that were 5-MW projects. We have a third which will break ground shortly, and then there's the Maiden Creek. And in my understanding, all four of them -- well, I know -- Maiden Creek is sort of not directly something I have all the details on, but all of them have had price increases. Prior to that, Birdseye, partly because of stiffness in the LVRs and all of the congestion issues, did not have projects that were completed. We had about an 18-month gap between any projects being built. Prior to that we did not have any significant price increases.

But, again, my understanding is in the interim, that now this has become commonplace, and the way that I kind of evaluated this is because we were going through

and preparing a final LGIA and finishing up facility study, would be that Duke was finding that their costs had overrun on many of the other projects that had been built in that 2018 period that I wasn't actually constructing projects, and during that period they took -- reassessed their evaluation and pricing models so that they wouldn't have to go back to folks after the fact.

And I would also point out that the most recent increase, if you look at the LGIA, was an additional contingency line item, partly because of the complexity of the project. I mean, we do cross the Cape Fear River four times. I think from an environmental point of view, you know, there's obviously field conditions on 63 miles that may arise that could cause issues. I hope that helps.

A (Askey) If I may add --

CHAIR MITCHELL: For purposes of the record --

WITNESS ASKEY: Sure.

CHAIR MITCHELL: -- the Commission will take Judicial Notice of the Public Staff Prehearing -- the Prehearing Brief of the Public Staff filed in this docket on August 26, 2019, and all attachments thereto.

Q So is it your expectation that the costs associated with the interconnection of this project are

likely to increase before --

A (Bednar) My hope would be --

Q -- before the construction work commences?

A No. I don't expect that. We have a binding IA at this point. They do have the -- Duke, within the framework of their IA, still has the true-up capabilities that they always have. The one thing that I think is a little unique here is that we did have an increase at the last, you know, the latter stages of preparation of the final IA, which was essentially a 20 percent additional contingency line item that was added. I know that Duke is working hard to find ways to create -- I think the intent was on this scale of project, given the fact you're starting from a desk and working your way out into the field, that we will find ways to cost -- find ways to minimize the cost. And feedback that I've gotten thus far is so far we've had a productive -- the fieldwork has gone very well. But, again, I don't -- haven't been communicated any details on that. And at this point we're working from the assumption that the 223 million is going to be the final number and hope that it will be less.

Q Okay. You got into this some with Mr. Dodge, and I just want to make sure I understood --

A Uh-huh.

Q -- your answer correctly, so I'm going to give you sort of another chance to address this question. But on page 6 of your supplemental direct testimony you state that the Friesian project is the most efficient way for upgrades to DEP's transmission system to be completed. And what do you mean when you say "efficient"? Help me understand that statement.

A The way that I look at efficient is twofold. One is it is the most time efficient -- maybe that's the adjective I should have used -- but time efficient way for these upgrades to occur so that the southeastern part of the state is able to continue to receive investment in solar.

Secondly, we have private capital that's available to do it. There is no other planning process, no other mechanism at this point in time that would allow for these upgrades to be constructed, that I'm aware of. And as a result, my view is that for much of the testimony here that it's in the public interest and it's a need, that we want to integrate more solar and adapt our transmission system so that it can deal with distributed generation more efficiently. And this is the lynchpin for Duke Energy Progress and continued solar

development investment, whether to have storage or not is the lynchpin for this part of the state to receive more investment.

Q We've heard testimony regarding the southeastern portion of the state and the fact that the -- to date, the cost effective solar in DEP's service territory or maybe even in the state has been located in that area of North Carolina. Could you not argue that one of the reasons that solar development has occurred in that part of the state is because of the lack of transmission upgrade costs or network upgrade costs?

A I think that -- I don't -- I think -- I don't think you look at transmission network upgrade costs in a vacuum. Was it helpful in the earliest stages of solar development? Yes. I mean, I was one of the first developers to actually do -- we were successful in 2009 for a 2-MW project under Progress Energy's very first solar RFP. We located in Laurinburg. I didn't really locate it in Laurinburg because I was concerned about network congestion or anything else. I located it in Laurinburg because I was Charlotte based and I wanted to get to the coastal plain and find available land that would be cost effective and where my investment would be welcomed, and that was the reason that we started there,

and that's why we also developed seven or eight projects in Robeson County, Hoke County. That's where we've done business.

Over time, I look at this -- I often joke that this is similar to being a Walmart shopping center development at some level, right? My location, location, location is a combination, though, not just of the intersection you're on, but it's also the -- it's the transmission location, but you also have to have a site that's cost effective, where the local jurisdiction wants you there and you can integrate it into the communities efficiently, and that is southeastern North Carolina.

There are limited places that you're going to be able to put -- especially if we're talking even, you know, 50 percent of 5,100 MW. You know, you're not going to find locations in Catawba County or, frankly, Cleveland County is at the point where it's maxed out. We've done the low hanging fruit. Rutherford, Cleveland, Catawba are really the most constructible nonmetropolitan locations in DEC. Beyond that, you're either in the mountains or you're in either the vicinity of the Triad or Charlotte or potentially the Triangle, and it's going to be there. It's going to be in the southeast or in the eastern part of the state it's going to be built.

And those constraints are still -- are coming to DEC shortly, or they're already here, potentially.

A (Askey) Speaking from experience, they're already in DEC. There's constrained areas, especially in the western part of the state.

Q Mr. Askey, a few questions for you, and these are mostly prepared by members of the Commission Staff, so I'll do my best to get through them. But in your testimony, and specifically it's on page 2 if you want to refer to it, but you state that you've helped clients identify acceptable places to interconnect generators to the transmission system. Is this a location you'd advise a client to interconnect to?

A So the studies that I do mimic the ones that Duke Energy Progress, Duke Energy Carolinas perform. They're contingency studies, using the similar assumptions that they use. I use models that come from the FERC, so they're similar. The dispatch is not exact. Duke Energy Progress and Duke Energy Carolinas both have proprietary dispatch models, so I can only make assumptions that the FERC cases are close to the dispatch model, but yes.

And I have clients that come to me with sites already in hand, they say can you evaluate the site, how

much can I inject into the grid at this location. I have other clients who come to me and say, okay, find us good sites to inject. So I've been involved -- I was involved with not Friesian, but all the projects that led up to Friesian and the ones that Birdseye now owns after Friesian that are behind them in the queue. And, yes, I performed those studies and identified that these locations were good places to inject.

The deliverability study that is performed in Duke Energy Progress' system is just that. It's a deliverability study. You hear people talk about NERC studies. The NERC studies take a set of assumptions, and there's different levels of contingency, and I don't want to get into the weeds too far, but they're -- you know, they call them P1 through P7. P3 through P7 or P4 through P7 are very severe contingencies, loss of a 502 30-kV substation, loss of a double circuit tower outage. The NERC guidelines say as long as you can survive those outages, even if you have to shed load, it's okay.

The studies that Duke Energy Progress does says we want to ensure deliverability of that generation under all scenarios. We don't want to shed load. We want to keep the lights on all the time. So the studies, they do do that. So in performing these studies, you know,

working with Progress, I now understand how they perform these studies and can better suit -- these constraints are real in the deliverability analysis. And, you know, it is -- Friesian is the breaking point. It's the tipping point, but the ones behind it are right there with them.

So, yes, I've advised a lot of clients to locate in this area, but primarily most of those clients came to me with sites already in hand to evaluate.

Q If this were -- if a client came to you and said of a variety of sites that we've identified --

A Uh-huh.

Q -- the Friesian point of interconnection being one of them, would -- under what circumstances would you advise interconnecting at the Friesian point of interconnection?

A I would advise that there is -- there are projects in the queue ahead of you. They are on the hook for paying for upgrades. If those projects drop out of the queue and the upgrades come down, you may be responsible for paying for those upgrades, so you have to go at that at your own risk. In most of the areas that are not in a market, not in PJM, not in SPP, not in MISO, I tell my clients you are in competition with all other

solar developers for a place at the table, and you've got to negotiate a PPA just like they do. So your ability to negotiate is based on all the factors involved, cost of transmission, cost of the land, you know, what you've got to invest in dealing with the community involvement, what your setback requirements are. All of those factors have to come into play when negotiating a PPA and offering a price.

So they come to me and say is this a location where we can compete? Yes, you can compete, but you've got to be advised there are issues associated with transmission in some areas, and in some areas there are not. That gives you a competitive advantage when they're not.

Q Mr. Askey, this is another one for you. You conclude in your testimony that the benefits that result from the transmission system upgrades associated with this project will include enhanced load serving capabilities, reduced power system losses, and improved flexibility to operate the transmission grid. We have a question regarding the absence of load serving substations where it's our understanding that the upgrades called for here don't include load serving substations, so how could your conclusions be true if

that is actually the -- if that's the case?

A You're increasing access to generation. That is the load serving capability.

Q Okay. So the absence of substations isn't concerning to you?

A No. You're -- transmission is just that. It provides the ability to transfer power from one source to another. You've got locations throughout the country that are -- you have generation remote from load. Texas is a great example. West Texas wind and south Texas wind, there's no load in west Texas and south Texas. It's all in Dallas and Fort -- and in Austin and Houston. So you have to have transmission capable of delivering. They've invested in transmission to get those things delivered. It's true in Georgia. You can't have power -- you can't have a lot of generation in Metro Atlanta. All the generation is outside of Atlanta, but you have to have transmission to get it there.

Now, you have North Carolina. You've got a lot of generation on the coast. You've got Brunswick. You've got Robeson. You've got Richmond. Not many load centers there, so you've got to get -- got to get to the load centers. So this helps those load center -- those generations deliver. It also helps renewable generation

deliver to get it to the load centers. And that's why the -- that's why the losses will go down.

Q Okay. Given the -- given what you all know so far about the work that's being done on the interconnection -- the cluster study investigation ongoing in the interconnection docket or interconnection process with Duke, how would costs -- upgrade costs be assigned to this project if the cluster study process were already in place? I recognize that I'm asking you to respond to a hypothetical question.

A (Bednar) Yeah. I have to share, broadly, I have -- I have not spent a lot of time. There's some members of my team that are following it, but I have not been too active in the -- I understand how cluster studies work. My understanding is based on conversations or the letter from Duke and also just my team is that that, at best, it's two to three years down road before it would potentially be implemented. And the thing that's unique about Friesian is we've been actively working towards this point on the interconnection front for almost two years. Well, actually two years.

We kick started this process in December of 2017 with meetings at Progress downtown Raleigh to discuss how this thing could go forward, and it took us

two years to work through all the details of how this gets done, and then we found a funding mechanism and et cetera. And my understanding with the cluster study, if there were to be a cluster study that was resolved, it's not going to -- at the earliest 2027 delivery of these upgrades, between now and then it's going to be very difficult to see who all would be in a cluster. We've noticed just in the last three or four months that the entire queue is -- you know, can only hang on for so long, and at some point you run into situations where people are going to withdraw, et cetera. There's always attrition. We know that. But it's really hard to anticipate exactly what a cluster might look like today, particularly because we don't really know how it's going to work, and we also will then be delivering the first set of upgrades for Friesian, you know, 2027 at best.

Q And where do you get 2027?

A The plan -- well, this came from Duke's letter as well, that it's the possible -- the earliest that it potentially could be done, but we --

Q Okay.

A And there is a timeline that is if by the time it's agreed to, the cluster process, I think the first year of cluster studies will take a year and a half-ish,

and then by the time you would start four years of work, plus getting all the agreements in place, et cetera.

Q Okay. Thank you. That's helpful.

A Yeah.

Q The --

A (Askey) If I may, you know, PJM, they're the best at conducting cluster studies. They do them regular six months at a time. So start to finish, you're 24 months before you get a final answer for what your costs are going to be to interconnect at best. MISO, two and a half years. SPP, three years. It's a long time for a developer to hold on to a project.

Q How many years has PJM been doing cluster studies?

A At least -- we're on -- so they go alphabet wise. Two a year, so they started with A, A1, A2, B1, B2. They're currently on AF1, AF2. AF2 is the current queue.

Q So help me understand --

A All the way through the alphabet, start it over --

Q Okay.

A -- so 32 -- 31, 32.

Q So they've been doing cluster studies for many

years?

A They're really good at it.

Q Okay. Okay. Mr. Bednar, you just made the point about the contraction of the queue and that projects can only wait so long before having to make decisions about go, no-go.

A (Bednar) Yes.

Q We've heard testimony today about the 1,000 plus MW that are in the queue behind the Friesian project. What how do we -- with what certainty can we say that those projects actually will come online and begin delivering output, given that we don't know what their relative queue priority is to other projects in the DEP service territory? Help me understand --

A Sure.

Q -- why you're confident in testifying that this -- these upgrades will enable an additional 1,000 plus MW?

A I think it's hard to identify which 1,000, necessarily, but if we are going to try to achieve the types of goals that we have, both with Duke and also the Governor, there's going to be solar development if there's capacity in this region. It is the most attractive place to develop solar because of friendly

investment environment with the localities, open land, constructible, trackers. I cannot see a scenario why that capacity would not be utilized, not to mention the fact that potentially 399 might utilize it. So I find -- I find it extremely hard to believe that within a very short period of time, so long as there is a mechanism in demand for the energy, that it would be utilized.

But, again, I don't know you can point to specifically which 1,000 because I don't know all of the -- I don't know all the details of every given project, but it will be utilized.

CHAIR MITCHELL: Questions by the Commission? Commissioner Brown-Bland.

EXAMINATION BY COMMISSIONER BROWN-BLAND:

Q Very quick, and this is just -- Mr. Askey, I realized a moment ago when the discussion was about the increase in the upgrade cost, you had a comment you were getting ready to make. If you can remember -- if you're like me, you won't be able to remember, but I think it was in response to something Mr. Bednar had said. You were going to add.

A (Askey) I was going to say that, yeah, I think Duke Energy is taking an approach, and this is just my perspective looking in, I don't have any background

information from Duke, but they're doing revisions to their estimating enterprise wide. I've got actively queued -- I've got clients who have actively queued projects in Duke Energy Midwest and also in Duke Energy Florida, and I have seen the estimates from the system impact studies increase in those areas as well. So I think it may be a template that they're using to do the estimating, and that may be the result because this has happened just recently in studies we received back. So it may not be indicative of the actual pricing they're going to get when the project is actually finished.

CHAIR MITCHELL: Commissioner Clodfelter.

COMMISSIONER CLODFELTER: Thank you, Madam Chair.

FURTHER EXAMINATION BY COMMISSIONER CLODFELTER:

Q I've got -- you've been asked a number of the things that I would have asked, so let me just try to see if I can fill in the blanks, gaps here. Mr. Bednar, when Chair Mitchell asked you a question about how you could say that the earliest date without this upgrade would be 2027, you referred to a Duke letter. Is that in the evidentiary record? If so, I missed it in my reading.

A (Bednar) I believe it --

Q Is it --

A -- it's the Duke -- there were two letters --

Q Yeah. And --

A -- and they --

Q -- you understand we've got a volume of material here, and I may not be --

A No. Understood. So there are two -- yeah. There's two --

Q If your counsel can just tell me which exhibit number it is and I will -- and I'll mark it on my notes.

MR. LEVITAS: It's at the bottom of page 3 of -- I believe this was Mr. Jirak's December 6 letter.

COMMISSIONER CLODFELTER: Okay.

MR. LEVITAS: Bottom of page 3.

MS. KEMERAIT: Yeah. There are two letters --

COMMISSIONER CLODFELTER: The letter itself. Not just a reference to it; the letter itself.

MS. KEMERAIT: Yeah. The two letters were filed by --

COMMISSIONER CLODFELTER: That's what you're referring to?

MS. KEMERAIT: -- by Duke on December the 6th.

COMMISSIONER CLODFELTER: The comment letters is what you're referring to?

MS. KEMERAIT: Correct.

Q Okay. I'm sorry. I should have asked the question you're referring to the comment letters from Duke?

A That's correct, yes.

Q Okay. Thank you. I know where those are. Thank you. Let me stay with you for just a second and on the topic of the increase in the estimates. I just want to be sure I understood where we are at this point --

A Uh-huh.

Q -- in time. You got my attention when you talked about four crossings of the Cape Fear River and wetlands. Have -- has all the environmental assessment work been done at this point or is it -- they're out in the field, I understand, but --

A Right.

Q -- but is it completed? Is the environmental assessment work completed?

A I am virtually certain that all -- the bulk of -- I can't say all of it -- and we are on periodic update calls with Duke's team. My understanding is not all, but the bulk of the fieldwork has been completed, and that broadly -- we have not gotten any kind of formal notice of what they found, but broadly and informally it's gone relatively well and that they felt like the impacts could

be minimized.

Q In response to the Chair's questions on this subject, you made a passing reference to cost escalation due to the demand on construction crews.

A Yes.

Q Is that something that could be ameliorated by a change in the project scope?

A My understanding is there's nothing that could be changed in the project scope because they are -- it is a serial process because of outages, and so one -- you know, the idea is that those crews will move their way through the project like they would on any large project and be staged out that way. So nothing has been presented to us that would have -- that we could have changed the project scope and, therefore, saved cost.

Q Well, let me follow on that question really with a question for Mr. Askey. If I understand the materials correctly, most of the upgrades here involve reconductoring lines?

A (Askey) That's correct.

Q And --

A Actually, more likely rebuilding.

Q Rebuilding?

A Rebuilding, because you're -- you're going from

in some cases two conductors to three, some cases one to two, and existing towers can't support that. That's the reason why the costs are higher than they would be if you're just rewiring.

Q Because you're having to rebuild the towers?

A That's correct. You wreck and rebuild.

Q Thank you for that. Is my understanding correct that when you're -- when you're doing the reconductoring, you've got to take the line out of service?

A That's correct.

Q So tell me what that's going to do to the existing -- the loading on the other transmission facilities in the southeastern part of the state.

A Okay. So typically when utilities do these rebuilds like this, they'll do it a section at a time and they'll either -- they'll do it light load periods, so spring, fall.

Q Okay.

A They won't do it during the summer. They won't do it in the winter. So that's the majority of the -- the flexibility they have to get these things done. So they will do the -- you know, do a section every season till they get through.

Q And they'll generally choose the light load seasons so they're not overloading the thermal capacity --

A That's correct.

Q -- of the remaining transmission lines, then.

A That's correct.

Q Have you been -- or I should ask, I know you're the consultant, so I --

A Right.

Q -- should ask Mr. Bednar, have you been advised or have either of you been advised by Duke that there are any risks of service interruptions in -- during the course of the construction process?

A (Bednar) No. We have not been advised of that. And my understanding is that that's been part of their project planning so that they can address those low load periods when the actual construction will happen.

Q Okay.

A And I did -- there was one piece of information that could be interesting, is that they have shared with us that, you know, they have certain periods of time where they don't like to take lines out of service. However, they do monitor weather patterns and so, you know, it's not a hard and fast way, so there might be

some efficiency gained if you have particularly warm periods in the winter or cool periods in the summer where you might actually -- they have the ability to mobilize crews quite quickly to, you know, just to take advantage of opportunities to be efficient.

Q Okay. Let me talk a minute or ask a couple questions about the -- this combined cycle project. My understanding is that that's an undesignated resource, Mr. Askey. That's correct?

A (Askey) It has not --

Q Right. The location has not been selected?

A No. My understanding -- well, the location is identified in the queue.

Q Well, there's a queue position, but, in fact, are there not seven different alternative locations in the queue for -- seven different queue positions are being studied?

A Duke Energy Progress, my understanding is only two.

Q Only two. Are you familiar with the Duke Energy Progress 2019 IRP Update Report?

A I've seen it. I haven't digested it entirely. I'm more in tune with the queue.

Q All right. You've seen it generally, but not

studied it in detail?

A Right.

COMMISSIONER CLODFELTER: Madam Chair, I'd like to ask that the Commission take Judicial Notice of Duke Energy Progress' 2019 IRP Update Report and including the Duke Energy Progress Transmission Queue Report for December 2019 as of December 4, 2019.

CHAIR MITCHELL: The Commission shall so take Judicial Notice.

COMMISSIONER CLODFELTER: Thank you.

Q I want to preface this question with a comment because I'm going to ask you guys to comment as a panel. And I sit here and listen to the testimony you're giving and it's, in some respects, discouraging. In this respect it causes me to wonder whether we made the wrong bet in North Carolina by betting so heavily on grid connected renewable energy rather than taking the California route and putting the load -- putting the resource right where the load is on the rooftop. And that's really something I'll be wrestling with as we go forward from here, is maybe the policy path is the wrong way to go.

But let's go back to the case, and so I want to ask you this question. If I continue to concentrate so

much of my distributed energy resources in one part of the state, folks come in here, including some of the parties in this case, and they come in here and they provide testimony and arguments that the real benefits for distributed resources for North Carolina as a system whole, not from your vantage point --

A (Bednar) Right.

Q -- but from the system vantage point, is that I get my resource closer to the load so that I can provide ancillary services, voltage support, frequency regulation at the distribution level so that I can construct microgrids to help you with reliability and resiliency so that I can avoid expensive investments in distribution system upgrades and transmission upgrades. Are you telling me that I'm not going to be able to achieve those objectives in North Carolina?

A (Askey) Not --

Q Because I'm going to have to locate my renewable resources at a great distance from my load centers.

A I can't give you the exact percentages, but, you know, in the list of counties where I saw solar being listed, the majority of that solar is connected to the distribution system. It's not the transmission.

Q Well --

A It's utility grade solar, but it's connected at 12, 25 kV.

Q That helps me get all those ancillary service support and microgrids and so forth in southeastern North Carolina, but it does nothing for me for my load in Mecklenburg County, and that's really what I'm talking to you about. Is --

A Yeah. You're -- I agree with you there.

A (Bednar) Well, but I can speak to that a little bit. I mean, in my opinion -- well, I'm a developer, right, so I'm obviously driven by understanding where there's opportunities to deploy the asset that I'm trying to do. There's no question that there are opportunities for that, but we're speaking about the equivalent of the baseload generation for renewables, right? We're talking about where do you want to -- if you're going to deploy -- if you're going to deploy 5,100 MW of solar, you -- I mean, I don't -- my math isn't good enough to know how many 7 kV rooftops you've got to do or 30-kV parking decks, right? There is a place for that. These projects, we have -- we have one project in our development that is storage, but you've got to remember this is -- we're in a serial queue process that

eventually will become a cluster. We have the ability to do a lot more with solar.

One of the reasons that was -- I mentioned in my testimony, that when we filed -- there was a question asked, I think, by -- where we were talking about whether or not we could have reconfigured our system to take advantage of some of the other attributes of solar, add storage, et cetera. Well, the mechanism isn't there today. I mean, we know that we're headed towards queue reform or interconnection standards, et cetera. I'm all in support of it because I would love to be able to deploy all the tools that I have in my tool belt that I can't today, but these projects are, you know, three plus years old and defining the way this industry is changing, so I don't want to you to be discouraged because I do think developers like myself would love to find ways to deploy solar at a scale that's not 75 MW and 400 acres in Mecklenburg County.

But in reality, back to my metaphor to real estate development, you've got to -- it's location, location, location. Let's take advantage of the asset we have in this state -- in a part of the -- it's going to require to go from what we started at zero of solar in 2009, basically, to where we are today. We've hit the

tipping point statewide that we're going to have to make some infrastructure investment.

Q I appreciate that. It's very helpful in think --

A Yeah.

Q -- in helping us think through some of the larger --

A Right.

Q -- picture issues on this, because you're exactly right. I mean, when I look at what we're -- what we are heading toward here, it's the equivalent of old central station -- central power station model, at least in terms of the grid architecture. It's -- we're going to have essentially the same grid architecture as we had under the old central station power model.

A Well, I mean, I might disagree with that a little bit.

Q All right. Well, tell me why.

A Yeah. I mean, I would disagree because it's going to be -- well, there's two issues. Solar is flexible. We know that, right? And there are opportunities to do that, and I think you're going to see solar plus storage deployed going forward readily. But the reality is we -- the industry is evolving very, very

quickly, and it has been built -- I recognize this is a large upgrade, but in broad strokes this -- the regulatory path that the State of North Carolina has taken has been least cost solar which means scale.

You know, I was 2 MW when I first did the project in Laurinburg on the first RFP, was second to Davidson County's Duke project. It was a big, big, big project, right? We did the first 20. We worked on Warsaw, which is the first 70. We've seen the change. And the reason we've done that is because we wanted to try to create energy at the least cost. And so there just isn't a real mechanism.

We're going to -- developers are going to go where the opportunity is, and this is -- but reality is deployment of solar has been super successful. We're number two in the country. And here we are faced with some really tough policy decisions and investments that need to be made so that we can then take the next wave and the next step to be more -- add a variety of tools -- take more of our tools out of the tool belt.

A (Askey) Let me add --

Q Please.

A -- a couple of things. Rooftop solar, if you're going to do it, it's really difficult when your

cost is 10 cents a kWh or less.

Q Yes.

A If you're at 29 cents a kWh like you are in California --

Q That's easy. That's easy. Yeah.

A -- that's great. But if you do do it, please, please don't do net billing. I've been involved with -- I've been to Hawaii and worked with HECO and I've been to California and worked with some of those utilities, and they net metered and they're in a death spiral of rates. It's a bad scenario. That being said, I don't think you have to worry about Mecklenburg County. I -- you know, that's where I live. But also I work with Duke. I work with Bill Reinke who is at Duke. He ensured that every right-of-way in -- going into Mecklenburg County has multiple lines, double circuit towers. There's plenty of transmission capacity to get power into Mecklenburg County. You're good there.

Q I understand that. Thank you for that.

A Yeah. Sure.

Q I'm going to leave you guys alone. I think I may have one last question, but let me just thank you for the dialogue on that because, again, I think one of the things that we're grappling with is not just the

specifics of your situation which we will decide, but, you know, how do we put that in a larger context of where we're heading because all three of you have told us you're just the first canary in the coal mine here of what we're going to be seeing more of. And so I think really one of the policy choices we face from a cost standpoint, Mr. Bednar, is do we set a policy course where we're investing an awful lot more in transmission infrastructure or do we try to find ways to lower the cost of locating solar resources nearer to load centers? And that may require a different set of policies altogether, and that's really a policy choice.

A (Bednar) Right. I do think you have some breathing room here, though, with this in the sense that we are the canary, but we are also -- you know, there is going to be -- this is not going to happen tomorrow. There's going to be others coming, but there will be some breathing room to finish queue reform and do some of the things you want to do.

Q Thank you.

A (Askey) And let me contrast one thing, comparing North Carolina to South Carolina. South Carolina central station power is Columbia, Centric, and then dispersed out.

Q Right.

A And so as you get to the coast, you've got smaller and smaller lines. North Carolina did some construction of generation facilities along the coast, so you have decent size lines to get power coming into the load centers. So you do have an advantage in that regard.

Q Thank you for answering questions.

COMMISSIONER CLODFELTER: Madam Chair, I do want to ask that the Commission take Judicial Notice of several things and go ahead and give notice now that we're -- that we would do so. I would propose the Commission take Judicial Notice of the Settlement Agreement filed on February 2nd, 2018, in Docket Number E-100, Sub 101, and the Commission's Order in that same docket dated August 27, 2018.

I would ask that the Commission take Judicial Notice of the 10-year expansion plan reports issued by the North Carolina Transmission Planning Collaborative.

I would ask that the Commission take Judicial Notice of Duke's Preliminary Proposal for Transitioning to Cluster Studies filed in Docket Number E-100, Sub 101, as well as Judicial Notice of Duke's October 15th, 2019 Queue Reform Update filing in that same docket.

I would ask that the Commission take Judicial Notice of the Quarterly Queue Status Reports that Duke Energy Progress has filed in Docket Number E-100, Sub 101A. I would -- we've already taken Judicial Notice of the IRP update.

I would ask that the Commission take Judicial Notice of North Carolina Electric Membership Corporation's REPS Compliance Reports and REPS Compliance Plans. Those reports are filed in Generic Docket E-100, the most current being E-100, Sub 163.

I would ask that the Commission take Judicial Notice of the database in the North Carolina Renewable Energy Tracking System, NCRETS.

And finally, I would ask that the Commission take Judicial Notice of NCSEA Witness R. Thomas Beach's testimony in the Avoided Cost Docket, E-100, Sub 158.

CHAIR MITCHELL: The Commission shall so take Judicial Notice. Commissioner Duffley.

EXAMINATION BY COMMISSIONER DUFFLEY:

Q Good afternoon. So I'd like to switch gears and talk about the need for the project. And in your supplemental testimony, you stated that the PPA with NCEMC, it's on the bottom of page 1 going to page 2 of your rebuttal, you -- in response to "Is the PPA

sufficient to demonstrate the need for the facility," you responded that "NCEMC's express need is, one, to meet the low carbon goals of its Brighter Energy Future and, two, to further its ability to achieve REPS compliance." So I just want to confirm, these are the two drivers for NCEMC entering into the PPA with Friesian?

A (Bednar) That's what I think NCEMC had said in their -- in their testimony, and that's what I was quoting there.

Q Okay. And who reached out to whom first? Did you reach out to NCEMC or did they reach out to you?

A So a consultant for us reached out to NCEMC.

Q Uh-huh.

A So once we determined, you know, kind of got to the point where we had an intent to try to find the right wholesale offtaker, we reached out to several, and NCEMC had expressed the most interest. It was a highly negotiated arrangement based upon a couple of factors. One, were we able to -- you know, initially, I think there was a lot of back and forth related to trying to provide a firm block of power to NCEMC, partly because of some of their other planning needs.

Secondly, there was a lot of discussion around the fact that they had their wholesale contract expiring

in 2032, so how did this dovetail in with that. But it was a highly negotiated arrangement, and our consultant facilitated it. And then the commercial terms were settled upon, and then the final terms and conditions of the PPA were finalized this spring.

Q And when did those discussions begin? When did your consultant reach out to NCEMC?

A So I wasn't leading that initially, but in the end I think it began in 20--- it would have began in 2018.

Q Okay. Thank you. And you mentioned that you have two projects in DEC, two projects, the 591 MW facility. What county?

A Not 591 MW. I have -- so I have two -- I think you're talking about maybe the one that I had mentioned from CPRE potentially, Maiden Creek, or what was the reference?

Q Well, why don't we just back up. How many projects do you have under development or in the queue in the DEC area?

A I'm not -- well, let me think for a second. At present in DEC we have one that's getting ready to break ground, which we sold, which is Maiden Creek. Additionally -- yeah, but this is -- these are existing.

I'm sorry. We have a queue about -- I know of two large -- well, we have -- let me think. We have a 30-MW project in Davie County which is under development in DEC. We have a 70-MW project that's under development in Rowan County in DEC. We have a 70-MW project that's under development in South Carolina DEC just south of the border. I'm drawing a blank right now on the county. But as my memory serves me, that's -- those are the three active projects we have right now in DEC.

Q Okay. Thank you.

COMMISSIONER DUFFLEY: Chair Mitchell, I'd like the Commission to take Judicial Notice of the Queue Reports for DEC that they filed in E-100, Sub 101.

CHAIR MITCHELL: We will so take Judicial Notice.

Q Then a question for Mr. Askey. So you mentioned the cluster studies within PJM and that you're familiar with those cluster studies. Could you just provide me a range of the network upgrades that you've seen within PJM and then how they're allocated? I mean, have you seen network upgrades of this level --

A (Askey) Oh, yeah.

Q -- within PJM?

A (Askey) I think the record so far is 425

million, I believe.

Q Okay. And you mentioned those are allocated amongst the interconnection customers?

A The party that triggers is the, you know, the one that takes it from 99.9 to 100.01. It is tagged with it as part of their interconnection agreement if it plays out. Now, the queues advance, and as they go through the queue, whoever is going to trigger it moves. They can slide up or back.

Q Right.

A Usually only slides further down the queue, or further up the queue. So if a project drops out ahead of the -- if you're the trigger and a project drops out ahead of you, you may go down below the cutting line and you're not triggering the project anymore.

Q Uh-huh.

A Let's say you do trigger it. Then you're -- that's in your IA. Any project that comes after you for a period of five years and signs an IA contributes towards your upgrade costs that you paid.

Q Uh-huh.

A So it's a perpetual thing. And so your -- for the -- during that five-year period, your cost per month to PJM for upgrades is a variable. At the end of the

five years, it's locked in.

Q Okay. But you mentioned cluster studies. Do the interconnection customers not have a general feel as to what other potential projects are behind it that may benefit from these upgrades?

A Oh, yeah. Yeah.

Q Okay.

A Absolutely. But there's no guarantee they're going to -- they're going to go to fruition.

Q Right.

A PJM, the success rate is below 50 percent right now.

Q Below 50 percent.

A Uh-huh.

Q And so how have you seen these network upgrades distributed within this cluster study program, though?

A Well --

Q Has it been successful with like this 425 --

A 425 is not going to take that. It was a solar project.

Q Uh-huh.

A But there are two gas-fired projects that are merchant -- it's my understanding they're merchant facilities -- they're not owned by Dominion Energy or any

other utility -- that have accepted the responsibility for I think it's $125 million of network upgrades to 200. The first one is 125. I think the second one has another 75.

Q Thank you.

A And as projects come behind them, they'll contribute toward.

Q And then could you just explain a little bit about the PJM? You mentioned the different buckets. You know, you have your baseline bucket, network upgrade bucket, and direct cost bucket?

A Yeah.

Q And dealing with the levelized cost, you were, I think, trying to state that the comparison that Public Staff used is incorrect to use against PJM. But my question is -- I'm just trying to understand -- but those are separate buckets, are they not? I mean, they don't all go together. So you're either going to trigger -- you're going to have a baseline project to trigger -- and this is what I'm trying to understand -- so you'll be in baseline --

A So when --

Q -- and within base rates or --

A When the utility -- or when the system impact

study is done by PJM --

Q Uh-huh.

A -- they're given a table, and the table shows direct assignment cost, and then contribution to PIUs, which is previously identified upgrades, and then network upgrades cost that you trigger. So there's three buckets in there. Two of those are related. The network upgrade buckets are related.

Now, through the course of the queue it could be that there is a project that involves -- usually, it's typically related to a tie-line, so there's a -- there's a tie-line between Duke Energy Progress and Dominion, Rocky Mount and Battleboro, and there was a project identified to fix that loading on that line called the Hathaway Substation. At one point the Hathaway Substation was a network upgrade. It was allocated in the cluster. At another point Dominion said we'll just build it because we think it's good for the system for us to own it, so they rate based that project and it pulled it out of the allocation bucket. So that's how the three buckets fit in.

Q Right, but they're three separate buckets --

A Right.

Q -- so if they're looking at a network upgrade

project within PJM, you're not dealing with the other two buckets, so it seems like it is an apples-to-apples comparison.

A No.

Q That's what I'm trying to --

A In terms of -- all right.

Q -- figure out what you were trying to say.

A So when Duke -- when Duke does an IRP as a vertically integrated utility, they have everything associated with what's involved. The direct assignment costs are off the table. They belong to the developer in both scenarios. They're not counted in Duke's projects. They're not counted in the PJM models. The network upgrades and the baseline are the issues.

So baseline in Duke Energy Progress is accounted for in their IRP. Baseline in Dominion's territory is just in Dominion's bucket. PJM doesn't care. All they know is what facilities they have to use when they're doing their system impact studies.

Q Uh-huh.

A So when they're calculating the cost for an interconnection, they don't consider any of the baseline upgrades. They only consider what's in the network upgrades.

Q Okay. Thank you.

A Uh-huh. The other thing I want to comment on in terms of looking at it as a levelized, all these investments, as I've said before, are lumpy. So, you know, if you look at a large generation -- large generator, 1,200, a good example a system away is the V.C. Summer projects that absolutely got mothballed. But there were probably $200 million worth of projects or so supporting that. Those projects went on for three years to develop the lines to come out of V.C. Summer to accommodate three nuclear plants. Well, when they walked away, those lines weren't useful, but they were assigned to that generation. So those were -- you know, that type of dollar per kW is probably comparable a lot less than what we're talking about with Friesian.

Q Okay. Thank you.

A Uh-huh.

CHAIR MITCHELL: Commissioner Hughes.

EXAMINATION BY COMMISSIONER HUGHES:

Q Just to shift gears a little bit for a minute, on page 12 of your supplemental direct testimony there's a chart that implies that this will be the domino that will create almost 4,000 jobs. It's a little table that shows solar capacity, and there's a local construction

job.

A (Bednar) Sure. Yes.

Q That's a big number. Could you just talk a little bit about what that number entails and maybe give a little bit of color on what these jobs will look like both for the transmission upgrades and for the eventual facility? We realize that this is a hard hit part of the state.

A Right. No. Understood. We used an estimating tool -- unfortunately, it wasn't cited here, so I'm drawing a blank on the name of it -- that's pretty commonly used for these types of analyses, but in general, you know, one of the attributes of solar in the southeastern part of the state is it was an opportunity for employment, training, et cetera, that initially started there, but then has branched out. We've had -- I mean, we regularly interact with the local officials in that region and, you know, speaking with people like Robeson Community College that used to have a training program that have completely shut it down now because they no longer have any -- there is no demand for solar work in the region. This is going to facilitate a lot of solar that is no longer being done and no longer being built in this region. But that basis -- that's the basis

of that number.

Q Okay.

CHAIR MITCHELL: Commissioner Clodfelter.

COMMISSIONER CLODFELTER: Madam Chair, I missed an item for Judicial Notice. I would propose that the Commission take Judicial Notice of the REPS Compliance Reports and REPS Compliance Plans in Docket Number M-100 (sic), Sub 159, and the Final Order issued in that docket on August 13, 2019.

CHAIR MITCHELL: Okay. I believe that is Docket Number E-100, Sub 159 --

COMMISSIONER CLODFELTER: Right.

CHAIR MITCHELL: -- for the most recently approved REPS Reports --

COMMISSIONER CLODFELTER: That's right.

CHAIR MITCHELL: -- and Compliance Plans for the munis and co-ops --

COMMISSIONER CLODFELTER: That's right.

CHAIR MITCHELL: -- and the Commission shall so take Judicial Notice. Okay. Questions on the Commission's questions?

MR. LEVITAS: I just have --

CHAIR MITCHELL: Okay. Go ahead.

MR. LEVITAS: -- just one very quick question

for Mr. Askey because Commissioner Clodfelter asked that you take Judicial Notice of the Transmission Planning Collaborative 10-Year Report, I believe. And I believe this may be in your testimony, Mr. Askey, but I just wanted to be sure it was on the record here.

EXAMINATION BY MR. LEVITAS:

Q Is it the case that the Transmission Planning Collaborative deals -- does not deal in its analysis with transmission expansion and upgrades that are needed to accommodate new generation?

A (Askey) Only if there -- a stakeholder would bring it to the table and say we would like to look at an injection of power here. But typically developers don't want to do that because that discloses the location they're trying to develop or they give competitive information out to their fellow developers. So it -- I think in the current scenario there are two such requests, but those requests mimic existing queue projects, so --

Q Okay.

MR. LEVITAS: That's all I have. Thank you.

MR. JIRAK: Just a few questions, if I may.

CHAIR MITCHELL: Mr. Jirak.

MR. JIRAK: Thank you.

EXAMINATION BY MR. JIRAK:

Q Mr. Bednar, you were asked a series of questions regarding the factors driving the cost increase between system impact facility study, and I want to just follow up on a few of the questions from the Commissioners. And as I ask you these, feel free to direct your answers to the Commission. Don't want to strain your neck too much looking over here.

So you walked through at various times a number of factors that, to your understanding, were some of the reasons driving the increase in cost between system impact study and facility study cost estimates. And I just want to make sure we're clear on what those factors were. So one of the factors you stated, I think the first one was the -- your experience in the industry has led you to the belief that there has been actual cost increase for doing this type of work, not only in Duke, but you've gained that information from other sources as well, correct?

A (Bednar) Correct.

Q And, again, you mentioned the fact that this process -- the process of getting to an IA with Duke has taken two years now, correct?

A Correct.

Q So your understanding is that those -- as those costs have increased in the real world, Duke has obviously taken those into account as it's developed a cost throughout this two-year process, correct?

A Correct.

Q On a related note, is it your understanding that Duke, in developing specifically its cost estimate for Friesian, took into account its experience of increased costs for this type of work across its system?

A Yes.

Q Okay. And so that's another factor that probably drove some of the increase between system impact study and facility study?

A That's my understanding.

Q And just to make sure we're all clear on this, it's your understanding that a system impact study cost estimate is a very high-level cost estimate, correct?

A Correct.

Q And it's got -- it's high level because there's not as much engineering and field work that goes into that cost estimate, right?

A Yes.

Q So by design, the interconnection process, that cost estimate has a lot of uncertainty around it and it's

designed just to give some sort of directional indication to interconnection customers about potential upgrade costs?

A Yes. That's my understanding.

Q And so is it also your understanding that the facility study process, by design, is intended to do more detailed engineering to do the type of field work that's needed to assess the specific site conditions and other factors that may drive the cost of a particular project?

A Yes. My understanding is that's the first time that someone actually is generally in the field, is when we get to the facility study process.

Q And is it your understanding that this is a very unique project in terms of the scope, scale, and complexity of this project?

A Yes. I think it's unprecedented, frankly.

Q And so was it surprising to you that once that field engineering, detailed engineering started to happen, that there was going to be factors that were discovered that needed -- to cause the need to increase or adjust the cost estimates?

A Can you repeat that question one more time?

Q Again, given the complexity, scale, and uniqueness of this project, was it surprising to you that

once the parties had the time to do the detailed engineering that occurs during the facility study report process, was it surprising to you that there was factors discovered that necessitated an increase in the cost estimates for this project?

A I might answer it as, as we went through the process of getting to facility study, it became -- the complexity of it became more and more clear to me. So as a result, I don't know that we anticipated the amount of upgrade -- you know, change in cost, but it was not as surprising as it might have been had I not had as much insight into the complexity of this project.

Q Okay. And then lastly, you mentioned contingency, and is it your understanding that there was an amount added to the final cost estimate for contingency for this project?

A There was an itemized -- when the last change was made, there were specifically called out as a contingency line item on the largest components of the LGIA work.

Q And do you -- do you recall what that amount was as a percentage or a dollar?

A My recollection was 20 percent.

Q Okay. So quite significant amount of the cost

estimate is there to account for the contingency giving the -- given the complexity and the long duration of this project?

A Yes.

Q Okay.

MR. JIRAK: That's all the questions I have.

CHAIR MITCHELL: Mr. Snowden.

MR. SNOWDEN: Thank you, Commissioner.

EXAMINATION BY MR. SNOWDEN:

Q Mr. Bednar, I'd like to follow up on a few of the Commissioner's questions about queue reform, and specifically the transition to the cluster study model. And by transition, I mean that before we move to a periodic cluster study for new projects, we have to study the projects in the existing serial queue; is that right?

A (Bednar) Yes. That's my understanding.

Q Okay. And we also have to figure out how to construct the network upgrades that would be identified in that study; is that right?

A That is correct.

Q Okay. It's your understanding that if -- and I'd like to game this out a little bit. It's your understanding that if the Friesian upgrades are not built, then it's likely that the projects that would be

studied in that transition process would trigger the same upgrades as Friesian or some variation of those; is that right?

A My understanding is that virtually any project in the 15-county or 17-county constrained area will trigger those same upgrades.

Q But because it wouldn't be Friesian that's constructing those upgrades, Duke would have to go back to square one when it comes to negotiating agreements with the projects responsible for those upgrades?

A Yes. That's my understanding.

Q And Duke would have to figure out how to work through the allocation of $250 million or so in upgrade costs among all those projects?

A That's my understanding.

Q Has anything like that ever been done before in the state of North Carolina, as far as you know?

A Not that I'm aware.

Q And also the upgrades might potentially have to be redesigned if they were different in scope than the upgrades?

A I think it's highly likely that changes in the operation of the system, as well as the expiration of a lot of the work that's being done under the $10 million,

whether it be environmental studies, wetland studies, geotech said it would have to be reworked.

Q So as you understand it, that's why it might be 2027 or even later before the upgrades could be constructed on that basis?

A That's my understanding, yes.

Q But if on the other hand Friesian moved forward and its upgrades were constructed, then those projects that were studied in the transition process would be clear at least of those upgrades, right?

A Yes, they would.

Q Okay. Although some of them might also trigger --

A Some will have --

Q -- upgrades?

A Some will have additional upgrades that are specific to those projects.

Q Okay. Thank you.

MR. SNOWDEN: That's all my questions.

CHAIR MITCHELL: Mr. Ledford.

EXAMINATION BY MR. LEDFORD:

Q Mr. Bednar, just one question. There -- you were asked a number of questions by the Commissioners about visibility to the increases in the --

A Uh-huh.

Q -- estimated interconnection network upgrade costs. Does the NCIP or the FERC's Large Generator Interconnection Standard, do either of those require Duke to provide details about cost increases and overruns?

A (Bednar) They do at the end of the project, but it is a settlement process.

Q Thank you.

CHAIR MITCHELL: Mr. Dodge.

MR. DODGE: Thank you, Chair Mitchell. Just a couple follow ups.

EXAMINATION BY MR. DODGE:

Q Mr. Bednar, you were in a discussion with Chair Mitchell and also, I believe, Commissioner Clodfelter. You were discussing your understanding of the cost increases that have taken place in recent years, and you also brought up your background in real estate. And looking at real estate, that's a very cyclic market with ups and downs and price increases and basically supply and demand. So to the extent you've seen these increases in cost in recent years associated with a limited supply of high voltage crews and things like that, is that, to some extent, potentially the result of the shortage in those positions as a result of the current demand, and

that that may change and may, in fact, go down over time?

A (Bednar) My understanding broadly is that -- that that market for high voltage is a national or at least regional marketplace, and that broadly, there are shortages of qualified people to work on high voltage transmission work. And given the -- I have not seen anything that -- or any -- have not read anything or heard from any of my EPC contractors that have given me any sense that there would be any declines in the growth or acceleration of those costs, that most folks are telling us to anticipate 5 to 10 percent cost increases on that kind of work going forward into perpetuity or as long as their planning horizon.

Q Okay. And -- excuse me -- there was also some questions about the -- Commissioner Clodfelter asked you about changes in the schedule or the scope --

A Uh-huh.

Q -- of the project, and you indicated, I believe, that the COD date for the project had been moved at one point. Could you elaborate on --

A Sure. Initially, we had requested an in-service date of the end of 2022. And then when we were going through the process of trying to finance this project, there were delays, and so as a result, Duke said

that they would be moving the -- the in-service date would be end of 2023, and we accepted that.

Q Okay.

MR. DODGE: And -- excuse me -- and I know we've had some conversations about the time frame for this as we've also had conversations with Duke, and I would just submit that the Duke personnel that work on this area may be in the best position to really respond to some of these questions that have been asked about the schedule and the time frame. I think our understanding was the time frame did -- was a result of trying to meet that COD date and that's, again, as our witness has indicated. One last question.

MS. KEMERAIT: Just an objection to that statement from counsel.

MR. DODGE: I think there was a question raised about -- excuse me -- that whether the position that we had made about the -- the basis for the increase in cost, and I think it's appropriate to note that we're talking a lot about what Duke has said, and Duke is not here presenting witnesses to respond to this, so I think it's fair for us to also, without a Duke witness here to say the basis for our information is information we received from the Utility.

CHAIR MITCHELL: I'll -- thank you, Mr. Dodge. I'll sustain the objection and note that we have Public Staff witnesses coming up that we'll ask some questions of. Thank you.

MR. DODGE: Thank you.

Q Let's see. The last question. I apologize. Commissioner Hughes asked a question about the solar construction jobs and the economic benefits associated with some of the projects in this part of the state. And you mentioned an estimating tool that you used, Mr. Bednar, to come up with that estimate. Do you know -- I know you couldn't recall the model or the tool itself, but does it consider the rate increase that's associated with the cost of these network upgrades, the half a percent increase for retail customers and the approximately 11 percent increase in wholesale transmission rates?

A I'm not certain if it does.

Q Thank you.

MR. DODGE: That's all I have.

CHAIR MITCHELL: I have one additional question and all questions on my question, assuming that I'm the only one with a question. Okay.

FURTHER EXAMINATION BY CHAIR MITCHELL:

Q Mr. Bednar, hypothetically, if the Commission were to deny the CPCN, what is the path forward for this project?

A (Bednar) Undetermined. We likely -- well, I think there's some questions in our mind about the ruling about whether these were -- you know, the legal question that came up before. Likely, we would be faced with a possibility of suspension or something that would be available to us as FERC jurisdictional. We're hopeful it won't happen. But I'm not sure. I'm not sure if there's a path anytime soon for solar to get developed in this region.

Q Thank you.

CHAIR MITCHELL: Questions on that last question?

MS. KEMERAIT: No, Madam Chair.

CHAIR MITCHELL: Okay. All right. We will -- I will entertain motions, and we will -- as soon as I have taken motions, we'll take a break for 10 or 15 minutes, but are there any motions?

MR. DODGE: Chair Mitchell, we would move that our cross examination exhibits of the Public Staff be moved into evidence.

CHAIR MITCHELL: Without objection, the motion

is allowed.

MR. DODGE: And I would also, there was a -- the Public Staff Cross Examination Exhibit Number 4, the Confidential PPA, the pages were not all clearly marked as confidential. We have reprinted copies of that that we would like to redistribute to the Commission and the court reporter to replace that other version, and I can collect the other version from -- during the break.

CHAIR MITCHELL: Okay. Thank you, Mr. Dodge. Please do so.

(Whereupon, Public Staff - Friesian Panel Cross Examination Exhibits 1 through 7 were admitted into evidence. Confidential Public Staff - Friesian Panel Cross Examination Exhibit 4 was filed under seal.)

CHAIR MITCHELL: Okay. And with that we will adjourn. We'll be back on the record at 10 after 3:00.

(Recess taken from 2:58 p.m. to 3:12 p.m.)

CHAIR MITCHELL: All right. Good afternoon, gentlemen. Let's go ahead and get you sworn in.

MS. KEMERAIT: Madam Chair, before we begin, two preliminary matters. Friesian Witness Rachel Wilson has a baby, and she is asking whether she may be excused

from the hearing for the rest of the day?

CHAIR MITCHELL: You may be excused --

MS. KEMERAIT: And then secondly --

CHAIR MITCHELL: -- yes, but leave the baby.

(Laughter.)

MS. KEMERAIT: And then also I move to admit into the record the premarked exhibits that are attached to the prefiled testimony of the Friesian witnesses, please.

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

MS. KEMERAIT: Thank you.

(Whereupon, Bednar Exhibits 1, 4, 5, 6A, 6B, 6C, and Confidential Bednar Exhibits 2, 3, and 7 were admitted into evidence. Confidential Bednar Exhibits 2, 3, and 7 were filed under seal.)

(Whereupon, Bednar Supplemental Direct Exhibits A and B were admitted into evidence.)

(Whereupon, Bednar Rebuttal Exhibit A was admitted into evidence.)

(Whereupon, Askey Supplemental Direct

Exhibits A and B were admitted into evidence.)

(Whereupon, Exhibits RW-1 and RW-2 and Wilson Rebuttal Exhibit A were admitted into evidence.)

CHAIR MITCHELL: All right, gentlemen, hands on the Bible, raise your right hand.

EVAN D. LAWRENCE and

DUSTIN R. METZ: Having been duly sworn,

Testified as follows:

DIRECT EXAMINATION BY MR. DODGE:

Q Good afternoon, gentlemen. Mr. Lawrence, would you please state your name and address for the record.

A (Lawrence) My name is Evan Lawrence. My --

COMMISSIONER GRAY: Pull up the microphone.

A My name is Evan Lawrence. My address, business address, is 430 North Salisbury Street, Raleigh, North Carolina.

Q And by whom are you employed and in what capacity?

A I am an engineer with the Public Staff's Electric Division.

Q Mr. Metz, would you please state your name and address for the record.

A (Metz) My name is Dustin Metz. My business address is 430 North Salisbury Street, Raleigh, North Carolina.

Q And by whom are you employed and in what capacity?

A I'm an engineer with the Public Staff Electric Division.

Q Did you cause to be prefiled on December 6, 2019 in this docket joint testimony consisting of 35 pages and two appendices, as well as four exhibits?

A Yes, we did.

Q Do you have any changes or corrections to your testimony at this time?

A I have two corrections.

Q Please share those corrections.

A On page 8, line 18, there is an errant parentheses before the word "has." All right. And the second correction is on page 33, and we have passed out with a summary of our testimony that correction. Footnote 37 was errantly left out of the testimony.

MR. DODGE: And that -- Chair Mitchell, that corrected page 33 has been distributed with the summaries.

CHAIR MITCHELL: Thank you, Mr. Dodge.

Q Other than those changes, if I asked you the same questions today, would your answers be the same?

A Yes, they would.

Q Thank you.

MR. DODGE: Chair Mitchell, at this time I move that the prefiled testimony and appendices of -- joint testimony and appendices of Dustin Metz and Evan Lawrence be entered into the record as if given orally from the stand, and that their four exhibits be premarked as filed.

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

MR. DODGE: And I would note for the court reporter that Public Staff Exhibit 1 is Confidential and is marked as such.

(Whereupon, the prefiled joint testimony of Evan D. Lawrence and Dustin R. Metz, as corrected, was copied into the record as if given orally from the stand.)

(Whereupon, Confidential Lawrentz/ Metz Exhibit 1 and Lawrentz/Metz Exhibits 2, 3, and 4 were identified as premarked.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. EMP-105, SUB 0

Testimony of Evan D. Lawrence and
Dustin R. Metz
On Behalf of the Public Staff
North Carolina Utilities Commission

December 6, 2019

Q. MR. LAWRENCE, PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

A. My name is Evan D. Lawrence. My business address is 430 North Salisbury Street, Raleigh, North Carolina.

Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?

A. I am an engineer in the Electric Division of the Public Staff.

Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND EXPERIENCE?

A. Yes. My education and experience are summarized in Appendix A to my testimony.

Q. MR. METZ, PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

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

Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?

A. I am an engineer in the Electric Division of the Public Staff.

Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND EXPERIENCE?

A. Yes. My education and experience are summarized in Appendix B to my testimony.

Q. WHAT IS THE PURPOSE OF YOUR JOINT TESTIMONY?

A. The purpose of our testimony is to make recommendations to the Commission on the request for a Certificate of Public Convenience and Necessity (CPCN) filed by Friesian Holdings, LLC (Applicant, or Friesian), on May 15, 2019, to construct a 70 megawatt AC (MW_{AC}) solar photovoltaic (PV) merchant electric generating facility in Scotland County, North Carolina (the Facility).

The purpose of our testimony is as follows:

1. To discuss the compliance of the application with N.C. Gen. Stat. § 62-110.1 and Commission Rule R8-63;
2. To discuss any concerns raised by the application; and
3. To make a recommendation regarding whether the Commission should grant the requested certificate.

Q. PLEASE BRIEFLY DESCRIBE THE GENERATION FACILITY PROPOSED TO BE CONSTRUCTED BY THE APPLICANT.

A. The Applicant proposes to construct a 70 MW_{AC} solar PV electric generating facility in Scotland County, North Carolina. The Facility will utilize single axis tracking, ground mounted, solar PV modules.

Approximately 290,000 solar PV modules will be installed along with thirty 2.5 MW inverters. A 34.5 kV collector substation will be constructed adjacent to an existing Duke Energy Progress (DEP) 230 kV transmission line. The Applicant will lease approximately 544 acres for the Facility. The point of interconnection (POI) will be located at a substation to be owned by the Applicant.

In its initial application, the Applicant indicated that the anticipated construction cost of the Facility is approximately $100 million, not inclusive of Network Upgrades. The Network Upgrades for this Facility are estimated to cost approximately $223.5 million. The expected life of the Facility is a minimum of twenty years with an expected commercial operation date (COD) of December 2023.

Q. HAS THE APPLICANT COMPLIED WITH THE COMMISSION'S FILING REQUIREMENTS?

A. Yes. The application for the Facility was filed on May 15, 2019 along with the accompanying exhibits and testimony of Brian C. Bednar. On May 30, 2019, the Applicant filed enlarged, high resolution maps showing additional details not included in the original map.

On May 31, 2019, the Public Staff notified the Commission that it considered the application to be complete and requested that the Commission issue a procedural order setting it for hearing. On June 13, 2019, the Commission issued an Order requiring public notice,

scheduling a public hearing on August 15, 2019, for the purpose of receiving public witness testimony, an evidentiary hearing on August 27, 2019, for the purpose of receiving expert witness testimony, and addressing other necessary procedural matters.

On July 23, 2019, the Applicant filed an Affidavit of Publication, stating the publication was completed on July 17, 2019. No complaints by members of the public have been received.

Q. WHAT ADDITIONAL PROCEDURAL MATTERS HAVE BEEN TAKEN SINCE THAT TIME?

A. On August 5, 2019, in response to a motion by the Public Staff, the Commission issued an *Order Suspending Procedural Deadlines and Allowing Filing of Pre-Hearing Briefs,* suspending the procedural schedule established pursuant to the Commission's June 13 Order and allowing the parties to file briefs addressing certain issues.

On August 26, 2019, the Applicant, DEP, the Public Staff, and the North Carolina Clean Energy Business Alliance (NCCEBA) filed briefs; on September 9, 2019, the Applicant, DEP, the Public Staff, and NCCEBA, jointly with the North Carolina Sustainable Energy Association (NCSEA), filed reply briefs.

On October 3, 2019, the Commission issued an *Order Scheduling Oral Arguments* in this proceeding for the purpose of receiving arguments from the parties addressing the issues noted in the

Commission's August 5 Order, and, additionally, the questions of whether and, if so, how the July 14, 2017 decision of the U.S. Court of Appeals for the D.C. Circuit in Orangeburg v. FERC, 862 F.3d 1071 (2017), applies to the issues noted in the Commission's August 5 Order.

On October 21, 2019, this matter came before the Commission for oral argument as scheduled.

On October 25, 2019, the Commission issued an *Interlocutory Order on Legal Issues, Scheduling Hearing, Allowing Filing of testimony, and Establishing Discovery Guidelines (Interlocutory Order),* in which the Commission stated its agreement with the arguments of 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 .Gen. Stat. § 62-110.1 and Commission Rule R8-63." In the Interlocutory Order, the Commission also directed the Applicant to file Supplemental testimony on or before November 26, 2019, the Public Staff and other intervenors to file testimony on or before December 6, 2019, the filing of rebuttal testimony by the Applicant on or before December 13, 2019, and to set the matter for evidentiary hearing on December 18, 2019.

On November 26, 2019, the Applicant filed the supplemental direct testimony of Rachel Wilson, Brian Bednar, and Charles Askey.

Q. HAS THE STATE CLEARINGHOUSE COMPLETED ITS APPLICATION REVIEW?

A. No. At this time, the State Clearinghouse has not filed a letter in this docket in response to the Commission's June 13, 2019 Order.

Q. HAS THE APPLICANT PREVIOUSLY BEEN GRANTED A CPCN?

A. Yes. On November 7, 2016, the Commission granted a CPCN to Friesian Holdings, LLC, for a 75 MW solar PV project in Docket No. SP-8467, Sub 0. On August 2, 2018, the Applicant requested to amend the CPCN and alter the footprint of the site. The footprint and location for the CPCN granted on November 7 is substantially similar to the footprint and location for this project. The previous CPCN was granted under Commission Rule R8-64, which is for facilities seeking the benefits provided to a qualifying small power producer, or qualifying facility (QF). The CPCN in Docket No. SP-8467, Sub 0, was relinquished by the Applicant, however, with the filing of the CPCN application as a merchant plant under Commission Rule R8-63 in this docket.

PUBLIC CONVENIENCE AND NECESSITY

Q. PLEASE BRIEFLY SUMMARIZE YOUR UNDERSTANDING OF WHAT SHOULD BE CONSIDERED IN DETERMINING WHETHER

AN APPLICANT FOR A MERCHANT FACILITY HAS SUFFICIENTLY DEMONSTRATED A NEED FOR ITS PROPOSED FACILITY?

A. In Docket No. EMP-92, Sub 0, the Commission held that it is reasonable for the Commission to require substantial evidence of the need for a merchant generating facility in the State and/or region, as required by Commission Rule R8-63(b)(3). The Commission discussed its prior holdings in Docket No. E-100, Sub 85, in which it found that a flexible standard for demonstrating need was appropriate, but that a Power Purchase Agreement (PPA) or other contractual agreement was not necessary.[1]

The Commission further weighed the following factors regarding the need for the proposed facility:

> (1) the standard of need for a merchant plant is different from the standard of need for a public utility electric generation facility; (2) DEC's and DEP's IRPs project the need for significant electric load growth in the Carolinas; and (3) [the Applicant] has demonstrated expertise in accurately evaluating wholesale market needs and negotiating with wholesale buyers to meet those needs.[2]

Q. WHAT STEPS HAS THE APPLICANT TAKEN TO DEMONSTRATE A NEED FOR THE PROPOSED FACILITY?

---

[1] In the Matter of Investigation of Certification Requirements for New Generating Capacity in North Carolina, Docket No. E-100, Sub 85, *Order Adopting Rule*, at pp. 6-7 (May 21, 2001).

[2] In the Matter of Application of NTE Carolinas II, LLC, for a Certificate of Public Convenience and Necessity to Construct a 500-MW Natural Gas-Fueled Merchant Power

A. The Applicant has entered into a PPA for the sale of energy and renewable energy certificates (RECs), with the North Carolina Electric Membership Corporation (NCEMC). The Applicant cites the need of RECs for compliance with the state's renewable energy goals and states that "[t]he Facility will provide a significant amount of RECs for use by the NCEMC to demonstrate compliance with Senate Bill 3."

On July 18, 2019, NCEMC filed comments expressing its support for issuance of the CPCN for the Facility, and indicating that the Facility will help achieve multiple goals. These goals include supplying members with affordable, reliable, and safe power, assisting with REPS compliance, and "strategic business objectives under an initiative it christened 'A Brighter Energy Future' ("BEF"), which entails supplying power that is not only affordable, reliable, and safe, but also increasingly low carbon."

Q. DO YOU AGREE THAT SIGNING A PPA SUFFICIENTLY DEMONSTRATES A NEED FOR THE FACILITY?

A. Not necessarily. Execution of a PPA demonstrates that a facility (has found an off-take for the production (energy generation and, in this case, RECs) that satisfies a monetary return on investment to investors, while also striking a balance of the delivered commodity

Plant in Rockingham County, North Carolina, Docket No. EMP-92, Sub 0, *Order Approving Certificate with Conditions*, at pp. 16-17 (January 19, 2017).

(energy or capacity) cost ($/MWh or $/MW) to the purchaser. An executed PPA does demonstrate at least in part the potential viability of the project, but having an executed PPA is not, in and of itself, a sufficient criterion on which to base a recommendation for approval or disapproval of a CPCN. For example, in Docket No. EMP-92, Sub 0, Mr. Metz testified and recommended approval of a merchant plant that did not have a signed PPA in place at the time of the review of the application.[3] The specific facts and circumstances surrounding the demonstration of need are evaluated on a case-by-case basis.

Q. DID THE APPLICANT ALSO PRESENT ADDITONAL INFORMATION REGARDING NEED FOR THE FACILITY IN THE STATE AND/OR REGION?

A. Yes. Friesian witness Wilson presented the analysis that she conducted on behalf of NCSEA in reviewing the 2018 Integrated Resource Plans (IRPs) filed by Duke Energy Carolinas, LLC (DEC) and DEP in Docket No. E-100, Sub 157. Relying on the report entitled "North Carolina's Clean Energy Future: An Alternative to Duke's Integrated Resource Plan," Ms. Wilson testified that "that the least expensive long-term resource plan for North Carolina ratepayers is one that adds increasing amounts of solar and storage resources over the 15-year analysis period from 2019 to 2033."[4] She

[3] See discussion of PPA negotiations in Initial Testimony of Michael C. Green, p. 8 lines 27-30, July 29, 2016.

[4] Testimony of Rachel Wilson at 2.

further testified that even including the likely long-term transmission investments necessary to incorporate higher penetrations of solar, ratepayers will realize substantial savings relative to the IRPs proposed by DEC and DEP that rely heavily on new natural gas generation.

Q. DOES THAT FACT THAT DEP'S IRP INDICATES A CAPACITY NEED ON ITS SYSTEM SUFFICIENTLY DEMONSTRATE A NEED FOR THE FACILITY?

A. No, utilization of an IRP as a sole determination for establishing the need for any individual capacity addition is an incorrect usage and interpretation of the IRP process. In other words, 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. The IRP is a capacity expansion model used to solve for system objectives subject to multiple constraints, and stressed through different sensitivities to meet long-term load in the most economical manner.[5]

The DEP system, where the Facility is proposed to be constructed, is currently winter peaking and planning. As a preliminary matter, the Facility is a merchant facility that proposes to sell its output to NCEMC, so its output is not proposed to meet any of DEP's future

[5] N. C. Gen Stat. § 62-2(a)(3a).

capacity needs. New capacity needs identified in the IRP are not absolute, and are subject to change in one or more of the following categories: (i) generation type, (ii) total MW of generation, and (iii) year of need. The need for generation set forth in DEP's IRP is largely a result of the winter planning scenario.

This reality is best illustrated by the most recent DEP IRP update filed on October 29, 2019, in Docket No. E-100, Sub 157, Load, Capacity, and Reserve Table 9-A (Winter) and Table 9-B (Summer). As seen on line 21 of both Tables, it is the winter planning scenario that is requiring new generation to be added to DEP's system. As new generation is added to meet winter demand, the reserve margins in the summer are nearly double those found in the winter (17.1% - 22.4% winter vs. 25.2% - 37.1% summer throughout the planning horizon). This misalignment of reserve margins is driven, at least in part, by the historical interconnection of significant renewable generation on DEP's system.[6] This issue has been discussed extensively in numerous other dockets, including the IRPs, avoided cost proceedings, and interconnection dockets.

One of the limitations noted by the Public Staff and other parties in past IRP proceedings is the inability of intermittent, non-dispatchable

[6] DEP's expected winter peak load in 2020 is 14,522 MW, combined with an estimated 3,005 MW of solar nameplate capacity. This results in 21% solar penetration albeit not coincident to the peak hour. The summer peak load is slightly less than the winter peak in the same year and results in a 23% solar penetration. See DEC and DEP 2019 IRP Update Reports in Docket No. E-100, Sub 157, Table 8 (DEC), and Table 9 (DEP).

renewable facilities to produce energy when needed during winter peak hours. Historically, solar facilities in North Carolina are able to produce only 3% of their total nameplate rating at the time of the winter coincident peak load.[7] DEP's IRP shows a need for dependable capacity to meet winter peak loads. A generation resource such as that proposed by Friesian in this case is able only to minimally contribute to winter morning peak loads and provide limited value to grid operators.

Q. THE APPLICANT HAS CITED OTHER PLANNED GENERATION IN DEP'S IRP AS JUSTIFICATION FOR THE NEED FOR CAPACITY ADDITIONS. DOES IDENTIFIED GENERATION IN THE IRP ALWAYS MATERIALIZE?

No. Identified new capacity additions in the IRP frequently move due to the dynamics of changing conditions, including load forecast uncertainty. The 2016 IRP identified 1,221 MW (winter rating) of combined cycle (CC) generation in December of 2021, as well as a subsequent combustion turbine (CT) the following year. By the time of the 2018 IRP, the need for the CC plant had shifted out four years to 2025 and the CT had shifted out six years. In addition, the 2016 IRP assumed retirement of the Robinson Nuclear Station, but by the filing of the 2018 IRP, it was no longer scheduled for retirement.

[7] See March 7, 2019, Comments of the Public Staff on DEC/DEP IRPs in Docket No. E-100, Sub 157, at 88.

Similar trends also are observable between the 2014 IRP and the 2018 IRP. In 2014, a smaller CC with a winter nameplate rating of 907 MW was identified for a 2021 in-service date, versus the 2018 IRP which called for a CC with a winter nameplate rating of 1,341 MW in 2025.

The IRP is a planning tool and as with any plan, or projection, there is increasing uncertainty with each year in the future the model attempts to predict based on changes in load growth, technologies, policies, electric and natural gas transmission constraints, and other variables. The generation resource, the needed capacity, and the year in which the need is identified is dynamic, and only when the utility seeks to construct new generation capacity and is required to obtain a CPCN from the Commission under N.C. Gen. Stat. § 62-110.1 do the timing and characteristics of the facility definitively take shape. It is also our understanding that the CC plants identified in DEP's IRP are dependent upon completion of the Atlantic Coast Pipeline (ACP), the timing and status of which is still the subject of litigation.[8]

[8] "U.S. Supreme Court will weigh in on a key Atlantic Coast Pipeline permit." Raleigh News & Observer, October 4, 2019. Online at: https://www.newsobserver.com/news/politics-government/article235795832.html.

NETWORK UPGRADES

Q. PLEASE EXPLAIN WHAT IS CONSIDERED A NETWORK UPGRADE.

A. Network Upgrades generally include any additions to the capacity of the Company's distribution or transmission network to accommodate new load demands or the interconnection of a generating facility. For purposes of this testimony, we will use the term "Network Upgrades" to encompass both "Network Upgrades" as defined in the Federal Energy Regulatory Commission (FERC) Joint Open Access Transmission Tariff, or FERC OATT, and "Upgrades" as defined under the North Carolina Interconnection Procedures ("NCIP").

Q. HAS DEP PREVIOUSLY INDICATED THAT NETWORK UPGRADES ARE NECESSARY IN ORDER TO INTERCONNECT ADDITIONAL GENERATION TO THE ELECTRIC GRID IN THE GENERAL AREA WHERE FRIESIAN IS PROPOSED TO BE CONSTRUCTED?

A. Yes. In his November 19, 2018, testimony in Docket No. E-100, Sub 101, DEP witness Gary Freeman stated that:

> DEP has determined that significant transmission network upgrades will be needed to interconnect additional generation in the southeastern North Carolina area of DEP East. These upgrades have been triggered by the cumulative amount of generation located in southeastern North Carolina, where the need for the increased generation to flow northwest toward the large load centers, such as Wake County, has caused several transmission

> line segments to now reach their power flow limits. This congested area in DEP East has over 100 in-service or under construction solar generating facilities totaling 1,347 MW. This includes 16 transmission-connected projects totaling 898 MW and 99 distribution-connected solar projects totaling 449 MW. Notably, there are over 3,500 of MW of additional generating facilities in the queue that are seeking to interconnect in this congested area.[9]

Witness Freeman identified transmission upgrades on five specific lines needed to support the interconnection of additional solar resources, including re-conductoring of over 63 miles of transmission lines to increase capacity. Mr. Freeman indicated in 2018 that these upgrades would cost in excess of $200 million dollars.

Q. PLEASE PROVIDE A SUMMARY OF THE NETWORK UPGRADE ESTIMATES PRODUCED BY DEP.

A. DEP's initial Facilities Study[10] report to the Applicant, dated October 17, 2017, identified upgrades to six separate transmission lines totaling approximately 73 miles, with an estimated Network Upgrade cost of $112 million. Friesian and DEP executed a Large Generator Interconnection Agreement (LGIA) on June 21, 2019, and while the scope of work did not change, the estimated cost of the Network Upgrades increased to approximately $223.5 million due to continued revisions to the estimate and steps, such as scheduling

[9] Direct Testimony of Gary R. Freeman in Docket No. E-100, Sub 101, at 20; November 19, 2018.

[10] NCIP Section 4.4.4 states "The Facilities Study Report shall specify and estimate the cost of the equipment, engineering, procurement, and construction work (including overheads) needed to implement the System Impact Studies and to allow the Generating Facility to be interconnected and operated safely and reliably."

multiple crews during the truncated timeline to ensure that the requested December 2023 in-service date can be met.

Q. HAVE ANY OF THESE TRANSMISSION LINE UPGRADES BEEN PROPOSED AS A RELIABILITY PROJECT THROUGH THE NORTH CAROLINA TRANSMISSION PLANNING COLLABORATIVE?

A. No. These transmission lines were not previously identified as needing upgrades due to reliability issues in any of the reports issued by the North Carolina Transmission Planning Collaborative (NCTPC) because the LGIA had not been executed at the time of study evaluations. It is our understanding, however, that because the LGIA between Friesian and DEP has now been executed, the Network Upgrades associated with the Friesian project will be added to the NCTPC 2020 Transmission Plan, consistent with its treatment of other generation being added to the systems of the NCTPC participants.

Q. DID THE PROJECTED COMPLETION DATE FOR FRIESIAN CHANGE BETWEEN THE FACILITIES STUDY AND THE EXECUTION OF THE LGIA?

A. No. The Applicant initially built contingencies into its own construction timeline, and requested an in service date that would have accommodated the timeline DEP needed to complete the system upgrades. DEP also removed some contingencies from its own timeline to help accommodate the schedule. Because much of

the work required to upgrade the transmission system can only occur during 12 weeks in the spring and fall, a single weather event, such as a hurricane or late snow or ice storm, has the potential to delay this project for several months.

Q. DID FRIESIAN'S RECLASSIFICATION FROM A QUALIFYING FACILITY TO A MERCHANT PLANT CHANGE ANY OF THE REQUIRED UPGRADES?

A. No, but as a QF, the facility would be subject to the cost allocation rules under the NCIP, and as such, would be responsible for payment of interconnection costs and all network upgrade costs it imposes on the utility. As a merchant plant, it is subject to FERC–jurisdictional interconnection procedures and cost allocation rules under Duke's FERC OATT.

Q. ARE RETAIL RATEPAYERS RESPONSIBLE FOR ANY NETWORK UPGRADE COSTS FOR INTERCONNECTION REQUESTS UNDER THE NCIP?

A. No. Pursuant to Section 5.2 of the standard North Carolina Interconnection Agreement for State-Jurisdictional Generator Interconnections, included as Appendix A to the NCIP "[u]nless the Utility elects to pay for Network Upgrades, the actual cost of the Network Upgrades, including overheads, on-going operations, maintenance, repair, and replacement shall be borne by the Interconnection Customer."

Q. AS A MERCHANT PLANT, HOW WILL THE TRANSMISSION NETWORK UPGRADE COSTS BE PAID?

A. The Applicant is required to pay for the cost of the Interconnection Facilities and Network Upgrades assigned to it under the terms of the Friesian LGIA. However, once the Facility achieves commercial operation, DEP is obligated to refund to Friesian the cost of the Network Upgrades (currently estimated at approximately $223.5 million) plus interest at the FERC interest rate (approximately $25 million). Pursuant to Appendix A of the LGIA, these refunds would be made "either in the year immediately preceding the Transmission Provider's North Carolina retail rate case next occurring after the achievement by Interconnection Customer of the Commercial Operation Date or by 12/31/2023."[11]

Q. WHAT POTENTIAL IMPACT WILL THIS REPAYMENT HAVE ON DEP'S RETAIL RATEPAYERS?

A. Under Commission Rule R8-63(a)(2), the construction costs of the merchant plant do not qualify for inclusion in the rate base of a public utility. However, the costs associated with Network Upgrades to DEP's transmission system to accommodate the merchant plant Network Upgrade costs required are related to DEP transmission system, and as such, when Friesian is repaid, the cost of the Friesian

[11] See Amendment 1 to the Standard Large Generation Interconnection Agreement between Friesian and DEP dated June 21, 2019.

Network Upgrades (and interest) will become a capital asset in rate base. Consistent with the cost allocation mechanisms in Duke's OATT, the resulting revenue requirement (including the depreciation expense, O&M costs, a calculation rate of return on plant-in-service and interest charges) will be recovered from North Carolina retail customers through base rates (approximately 60%), South Carolina retail customers through base rates (approximately 10%) and wholesale customers through the FERC transmission formula rate (approximately 30%).[12] Assuming the $223.5 million in estimated network upgrade costs is correct, DEP projects an estimated 0.5% increase on North Carolina retail rates and an estimated 11% increase on wholesale transmission rates.[13]

Q. DOES THE PUBLIC STAFF BELIEVE THAT INCURRING SUCH A SIGNIFICANT COST ASSOCIATED WITH INTERCONNECTING THE FACILITY IS IN THE PUBLIC INTEREST?

A. N.C. Gen. Stat. § 62-110.1(d) states: "In acting upon any petition for the construction of any facility for the generation of electricity, the Commission shall take into account the applicant's arrangements 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." The Public Staff does not believe

[12] Initial Pre-Hearing Brief of DEP in Docket No. EMP-105, Sub 0, at pp. 6-7. (August 26, 2019)

[13] Id. at 7.

that this facility meets the statutory requirement for economical electric service.

Q. HAS THE PUBLIC STAFF EVALUATED UPGRADE COSTS IN PREVIOUS CPCNS?

A. Yes, we have.

Q. PLEASE PROVIDE EXAMPLES OF PREVIOUSLY EVALUATED UPGRADE COSTS?

A. Looking at utility and merchant CPCNs reviewed over the past five years, the Pubic Staff reviewed system upgrade costs for proposed generation facilities in Docket No. EMP-92, Sub 0 (NTE Reidsville), Docket No. E-2, Sub 1089 (Asheville CC), Docket No. E-7, Sub 1134 (Lincoln County CT), Docket No. EMP-93, Sub 0 (Wilkinson Solar), Docket No. EMP-101, Sub 0 (Edgecombe Solar), Docket No. EMP-103, Sub 0 (Albemarle Beach Solar), and Docket No. EMP-104, Sub 0 (Fern Solar). The relevant discovery from the NTE Reidsville case is appended to this testimony as **Lawrence/Metz Confidential Exhibit 1**. In addition, the testimony filed in the Lincoln County CT case identified Public Staff concerns with specific transmission related costs.[14] In the cases of Wilkinson Solar, Edgecombe Solar, Albemarle Beach Solar, and Fern Solar, these projects were proposed to be sited in Dominion Energy North

[14] E-7 Sub 1134, Testimony of Dustin R. Metz, p. 8 and 12-13.

Carolina's service territory and subject to the PJM Open Access Transmission Tariff, under which cost responsibility for Network Upgrades are borne by the interconnection customer, and are generally not eligible for reimbursement by either PJM or DENC.[15]

Q. WHAT IS THE APPROPRIATE WAY TO EVALUATE TRANSMISSION UPGRADE COSTS?

A. We believe an appropriate way to evaluate the reasonableness of such costs is on the basis of levelized cost of transmission (LCOT). These costs are presented in terms of $/MWh and calculated by dividing the annualized cost of the transmission assets over the typical transmission asset lifetime by the expected annual generator output in MWh. The LCOT is a useful analytical tool to evaluate network upgrade costs across and within generation technologies. It does not include operations and maintenance costs or revenue requirements. It is also important to note that these costs are based on historical projects, many of which were likely connected to available capacity and may have required relatively minimal system upgrades. Thus, they are a guide for historical LCOT; varying assumptions can be made regarding where the LCOT will be for solar projects or any generation type in the future.

[15] PJM OATT Section 217: Cost Responsibility for Necessary Facilities and Upgrades. Online at: https://pjm.com/directory/merged-tariffs/oatt.pdf, last accessed December 5, 2019.

Q. ARE THE NETWORK UPGRADE COSTS ASSOCIATED WITH THE FRIESIAN PROJECT EXCESSIVE COMPARED TO OTHER SOLAR PROJECTS ACROSS THE COUNTRY?

A. Based on the Public Staff's investigation, it appears so. A 2019 study[16] by Lawrence Berkeley National Laboratory (LBNL Study) reviewed interconnection cost studies to place them in perspective nationwide. The LBNL Study, attached as **Lawrence/Metz Exhibit 2,** compiled transmission upgrade costs associated with 303 generation projects reported in MISO's interconnection queue as of 2019,[17] amounting to 49 GW, and 338 generation projects reported in PJM's interconnection queue as of 2019,[18] amounting to 64 GW. They also reviewed 2,399 constructed projects, amounting to 148 GW, that were recorded by EIA Form 860 from 2005-2012. The LBNL Study uses publicly available interconnection studies to calculate the costs associated with bulk transmission upgrades (similar to the term "Network Upgrades" as used in this testimony)

[16] 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: https://doi.org/10.1016/j.enpol.2019.110994. Preprint version accessed at http://eta-publications.lbl.gov/sites/default/files/td_costs_formatted_final.pdf.

The Public Staff also attended a webinar discussing the study on November 13, 2019.

[17] The MISO dataset originally contained 2,209 projects; 1,255 withdrawn projects were removed, and of the remaining 954 projects, 303 had public reports of interconnection costs.

[18] The PJM dataset originally contained 4,152 projects; 2,467 withdrawn projects were removed, and of the remaining projects, 338 had "reliable" public reports of interconnection costs.

and point of interconnection (POI) upgrades necessary to connect these resources.

Table 1 below shows the results for the solar projects studied in each jurisdiction, alongside the Friesian project. While individual projects within the MISO, PJM, and EIA dataset may have been assigned upgrade costs higher than the average, it is clear that the Friesian project upgrades are significantly higher than those projects reviewed in the LBNL Study. The Public Staff emphasizes that the upgrade costs found in the LBNL Study are being used here as a guide to help put the Friesian network upgrade costs in context.

Table 1

Project	Friesian[19] (a)	MISO (Solar) (b)	PJM (Solar) (c)	EIA (Solar) (d)
Nameplate (MW_{AC})	70	3,277	10,057	2,187
Network Upgrades ($M)	$ 223	$ 180	$ 1,170	$ 220
Network Upgrades ($/kW)	$ 3,186	$ 56	$ 116	$ 103
LCOT ($/MWh)	$ 62.94	$ 1.56	$ 3.22	$ 2.21

Notes

(a) For Friesian, Network Upgrades represent estimated costs from LGIA. Projected capacity factor is from the CPCN application, and 0.4% annual degradation is assumed. To ensure parity with the study results, we assume a 4.4% discount rate and a 60-year transmission asset life for the LCOT calculation.

(b) From Table 2 of the LBNL Study, representing 33 solar projects totaling 3,277 MW.

(c) From Table 3 of the LBNL Study, representing 134 solar projects totaling 10,057 MW.

(d) From Table 4 of the LBNL Study, representing 304 solar projects totaling 2,187 MW.

[19] Friesian has estimated a 28% annual capacity factor for a single axis tracking system. Any decrease in the capacity factor will increase the LCOT.

Q. ARE THE NETWORK UPGRADE COSTS ASSOCIATED WITH THE FRIESIAN PROJECT HIGH COMPARED TO OTHER PROJECTS IN NORTH CAROLINA?

A. Yes. Table 2 below compares the Friesian project with two merchant plant projects for which the Commission issued CPCNs in the past five years (NTE Kings Mountain[20] and NTE Reidsville,[21] both natural gas-fired combined cycle plants), along with the estimated upgrade costs associated with Q398, a projected future combined cycle plant in DEP's FERC Interconnection Queue.[22] Q398 is not dependent upon any of the upgrades assigned to Friesian. The results of the LBNL Study specific to natural gas generators in PJM are also presented; the LCOT of combined cycle plants is generally lower than a solar plant due to differences in capacity factors. However, the difference in upgrade costs on a $/kW basis of recently investigated merchant plants and the Friesian project is also a cause for concern.

[20] Docket No. EMP-76, Sub 0.

[21] Docket No. EMP-92, Sub 0.

[22] Q398 and Q399 are two, 1235 MW combined cycle plants DEP is evaluating in the Interconnection Study Process. DEP's 2019 IRP calls for separate combined cycle units to come online in 2025 and 2027. See Docket No. E-100, Sub 157.

Table 2

Project	Friesian	NTE Kings Mtn (a)	NTE Reidsville (b)	Q398 (c)	PJM (Natural Gas) (d)
Nameplate (MW_{AC})	70	480	500	1,235	38,733
Network Upgrades ($M)	$ 223	$ 20	$ 59	$ 256	-
Network Upgrades ($/kW)	$ 3,186	$ 43	$ 118	$ 197	$ 37
LCOT ($/MWh)	$ 62.94	$ 0.33	$ 0.92	$ 1.53	$ 0.34

Notes

(a) A 70% capacity factor is assumed, and a 4.4% discount rate is used to maintain parity with the LBNL Study results.

(b) Includes $3.5 M in interconnection costs. A 70% capacity factor is assumed, and a 4.4% discount rate is used to maintain parity with the LBNL Study results. Network Upgrade cost information derived from August 26, 2019, Initial Pre-Hearing Brief of DEP in Docket No. EMP-105, Sub 0, footnote 11.

(c) Facility characteristics and upgrade size found in the System Impact Report for Q398.

(d) From Table 3 of the LBNL Study, representing 98 natural gas projects totaling 38,733 MW.

Q399, the second proposed DEP combined cycle plant is dependent upon a significant portion of Friesian's Network Upgrades.[23] The Public Staff agrees with Friesian Witness Askey that without the Friesian upgrades, future generation resources seeking to interconnect in this part of the DEP system will be assigned substantial upgrade costs. However, the likelihood of new generation such as Q399 being built in this part of DEP's system is too

[23] The April 11, 2019 System Impact Study for the DEP Q399 project, attached as **Lawrence/Metz Exhibit 3**, indicates that it is interdependent on $256 million of upgrades assigned to Q398 project, $209 million assigned to Friesian, and would trigger approximately $38.5 million of its own upgrade costs.

speculative at this time to provide support for the Friesian CPCN application, since it is heavily dependent upon future IRPs showing a continued need for additional capacity, contingencies such as the completion of the ACP, as well as DEP demonstrating that Q399 is in the public interest in a CPCN application, as opposed to other resource alternatives.

Due to the uncertainty surrounding these potential future resources, and the fact that DEP has not filed any CPCN applications for the future capacity needs, it is not appropriate at this time to assume that the Network Upgrades in question will be built regardless of the outcome of this proceeding. The Public Staff has advocated in multiple other proceedings to not grant certain CPCNs due to the uncertainty related to the need for a new generation resource.[24]

EMISSIONS REDUCTIONS UNDER EXECUTIVE ORDER 80

Q. PLEASE DESCRIBE EXECUTIVE ORDER 80.

A. Governor Cooper signed Executive Order 80 (EO80) on October 29, 2018. The Executive Order states that North Carolina will strive to reduce statewide greenhouse gas emissions to 40% below 2005 levels by 2025. The Executive Order further requires the Department of Environmental Quality (DEQ) to develop a North Carolina Clean

[24] In Docket No. E-7, Sub 1134, Public Staff recommended that the Commission deny the CPCN for the Lincoln County CT, and in Docket No. E-2, Sub 1089, the Public Staff recommended that the Commission deny the CPCN for the supplemental CT that the Company was requesting along with the Asheville combined cycle units.

Energy Plan (Clean Energy Plan) that "fosters and encourages the utilization of clean energy resources." The Plan was submitted to the Governor on September 27, 2019. With regard to current emissions, it 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.[25]

In addition to the goals set out in EO80, the Clean Energy Plan states the following three goals:

- Reduce electric power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.
- Foster long-term energy affordability and price stability for North Carolina's residents and businesses by modernizing regulatory and planning processes.
- Accelerate clean energy innovation, development, and deployment to create economic opportunities for both rural and urban areas of the state.[26]

[25] Clean Energy Plan at 56.
[26] Id. at 12.

In achieving a 70% reduction in GHG emissions relative to 2005 levels by 2030, the Clean Energy Plan states that "NC's values such as electricity affordability, equity, and reliability should be fully considered."[27]

The Clean Energy Plan details a number of recommendations to achieve these goals including decarbonizing the power sector, requiring integrated resource plans that incorporate the cost of carbon, and "[c]onsider ways to provide greater transparency of system constraints and optimal locations for distributed resources."[28]

The Clean Energy Plan further details ways to increase interconnection of distributed energy resources (DERs) by grouping studies or the issuance of more detailed maps for the Competitive Procurement of Renewable Energy (CPRE) Program that will facilitate the interconnection of cost effective projects. It specifically states, that if CPRE and grouping studies cannot improve the economics of a project "the legislature could provide guidance to the NCUC to establish a process for utilities to build out clean energy transmission solutions, which could ultimately be put into rates for all customers while expanding the delivery of clean energy within the state."[29]

[27] Id. at 58.
[28] Id. at 14-15.
[29] Id. at 105.

Q. DO YOU AGREE WITH WITNESS WILSON THAT THE FRIESIAN NETWORK UPGRADES ARE IMPORTANT TO ACHIEVING THE EMISSIONS REDUCTION GOALS IN THE CLEAN ENERGY PLAN?

A. Witness Wilson claims that achieving the emissions reductions stated in the Clean Energy Plan will require solar and other clean energy additions. Witness Wilson states that the level of penetration shown in the Synapse model will be challenging to achieve without the Network Upgrades required by Friesian if additional solar cannot be interconnected that are dependent on the Friesian Network Upgrades.[30]

Furthermore, witness Bednar states Birdseye's analysis of the DEP queue shows that 3,898 MW are proposed in the constrained area.[31] In addition, in response to a Friesian data request, Duke has stated that the Friesian Network Upgrades could partially facilitate the interconnection of more than 1,000 MW of additional solar generation.[32]

The Public Staff does not dispute that achieving the emissions reductions stated in the Clean Energy Plan will require solar and other clean energy additions, but finds the remaining assertions to

[30] Testimony of Rachel Wilson, at 13.
[31] Testimony of Brian C. Bednar, at 4.
[32] Testimony of Charles Askey, Exhibit A to Exhibit B, Response to Question 1.

be speculative. The later queued solar projects in the region have not been fully studied and may require additional upgrades, over and beyond the Friesian upgrades that may render them economically unviable. In addition, due to technological changes, there also may be other alternatives identified that help to avoid or defer costly transmission upgrades.

The Public Staff recognizes that solar, as well as other low-carbon resources, play an important role in reducing carbon emissions in the State, and has consistently supported QF development in North Carolina, including solar QFs. North Carolina has the second most solar capacity of any state in the country, and hundreds of solar projects have interconnected. In particular, the Public Staff notes that as of November 2018, there were already over 100 in-service or under construction solar generating facilities totaling 1,348 MW in the DEP East area where the Friesian facility is triggering substantial upgrades.[33]

The Clean Energy Plan states that a comprehensive approach to system planning is the preferred policy option. The Plan states in its detailed policy and action recommendations that "[t]hese goals will not be achieved overnight, nor through implementation of *one or two actions*; rather it will require a collection of actions to set us on a path

[33] See November 9, 2018, Duke Energy presentation entitled "Stakeholder Discussion: Network Congestion Next Steps." at Slide 4. Attached as **Lawrence/Metz Exhibit 4**.

of modernization that prepares our residents, governments, and businesses to be competitive, proactive, and responsible stewards of our environment."[34] (emphasis added).

The Public Staff agrees that costly investments in the siting of new transmission and generation should be evaluated and decided through comprehensive system planning, utilizing processes such as the IRP, ISOP, distribution system planning, and competitive bidding processes like the CPRE Program or short-term market solicitations, rather than by individual CPCN applications. With ever-growing rate pressures on electric customers, comprehensive system planning will produce more efficient, cost-effective results for customers than piece-meal planning and construction.

Q. WILL THE FRIESIAN UPGRADES RESULT IN LOWERED EMISSIONS IN NORTH CAROLINA?

A. We definitely do not know. Friesian has provided no specific analysis showing the upgrades required for this project will lower emissions in the State or lead to better health outcomes. Rather, witness Wilson relies on the Synapse alternative IRP Report (Wilson Exhibit RW-2) to support the assertion that significant emissions reductions, ratepayer savings, and better health outcomes will be accomplished

[34] Clean Energy Plan at 51.

through the addition of 14 GW of solar capacity and almost 6 GW of battery capacity in the DEP and DEC service territories.[35]

Q. DOES THE PUBLIC STAFF SUPPORT COMPREHENSIVE UTILITY PLANNING TO MEET CLEAN ENERGY GOALS?

A. Yes. The Public Staff strongly agrees that major infrastructure upgrades will most likely be needed to incorporate new technology and additional clean energy from distributed energy resources (DERs). The Public Staff believes, however, that holistic planning and decision-making frameworks, such as the IRP and the complementary Integrated Systems Operation Planning (ISOP), are the appropriate forum for planning to meet the emissions goals of both the Clean Energy Plan and any other major environmental goals, such as Duke's stated goal to be net carbon neutral by 2050.[36] This is consistent with the Clean Energy Report, which recommends the use of such tools to achieve emissions reductions goals in a cost effective manner.

[35] Wilson at 5. Witness Wilson did not run a specific scenario in the Synapse model that shows that the Friesian upgrades will defer the need for new fossil fuel plants or lead to the early retirement of existing emitting sources. Furthermore, the Synapse study eliminates the addition of any new natural gas plants.

[36] On September 17, 2019, Duke Energy announced an updated climate strategy See press release at: https://news.duke-energy.com/releases/duke-energy-aims-to-achieve-net-zero-carbon-emissions-by-2050. In addition, Duke Energy North Carolina President Stephen De May said the 2019 IRP Updates don't reflect the new goal, and that the 2020 IRPs will reflect the proposed changes: https://www.wral.com/duke-energy-net-zero-carbon-emissions-by-2050/18640706/.

RESPONSE TO WITNESS BEDNAR

Q. PLEASE RESPOND TO WITNESS BEDNAR'S DISCUSSION OF THE COMPETITIVE PROCUREMENT OF RENEWABLE ENERGY (CPRE) PROGRAM TRANCHE 1 RESULTS.

A. On page 11 of witness Bednar's testimony, he states that because CPRE Tranche 1 did not meet its procurement goals "with projects that trigger no network upgrades, it is reasonable to assume that even a small portion of the Duke de-carbonization goals of 5,100 MW will trigger wide-ranging network upgrades...." The Public Staff disputes this characterization of Tranche 1 as not meeting its target due to Network Upgrades.

As discussed in the Tranche 1 CPRE Final Report, there were a number of factors that resulted in large numbers of the projects withdrawing or being removed from consideration. For example, in DEC's territory, 60% of third-party proposals that were initially selected in the Primary Competitive Tier declined to post proposal security, effectively withdrawing their bid. When an additional 18 third-party proposals were called up from the Competitive Tier Reserve, 12 declined to post proposal security.[37] It is not clear why these projects chose to withdraw even after being selected for Step 2 evaluation, as none of them would have been required to pay their

[37] Docket No. E-7, Sub 1156, CPRE Tranche 1 Final Independent Administrator Report, at 33, https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=310d32ad-4c50-4a6b-b428-3bb89f6302cd

Network Upgrade costs had they been selected. Because the applicants (all of which were solar facilities) withdrew their bids, it is impossible to say if any of these projects would have been assigned significant Network Upgrades that would have caused them to be disqualified for exceeding avoided cost. As such, the final Tranche 1 Report does not appear to support witness Bednar's conclusion.

Q. CAN YOU SPEAK TO THE 1,561 MW OF ADDITIONAL SOLAR GENERATION FOR WHICH, ACCORDING TO WITNESS BEDNAR THE FRIESIAN PROJECT WILL FACILITATE INTERCONNECTION?

A. Yes. These 108 projects are currently behind Friesian in the interconnection queue and have been identified as directly interdependent on the system upgrades that are required for Friesian to interconnect. While we do not dispute this claim, it is important to mention that each of the 108 projects may require their own upgrades in addition to those contemplated in this proceeding. It is also unreasonable to expect that all of these projects will be built. The reasons given by Witness Bednar that makes southeast North Carolina an ideal area to develop a solar facility are the very reasons why there are so many projects already built in the area, so many more projects wanting to build in the area, and why these upgrades are required at all. The solar generation in this region is the driving force behind the need for the upgrades.

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

A. The Public Staff recommends that the Commission deny the requested CPCN. We do, however, encourage the Applicant to continue to work with DEP and evaluate the possibility of lower cost interconnection options, such as changes to the capacity, design, or operational characteristics of the facility to allow it to interconnect at that location without triggering upgrades, or to evaluate other locations that can accommodate the facility without requiring such substantial upgrade costs.

Q. DOES THIS CONCLUDE YOUR JOINT TESTIMONY?

A. Yes, it does.

APPENDIX A

QUALIFICATIONS AND EXPERIENCE

EVAN D. LAWRENCE

I graduated from East Carolina University in Greenville, North Carolina in May of 2016 earning a Bachelor of Science degree in Engineering and a concentration in Electrical Engineering. I started my current position with the Public Staff in September of 2016. Since that time my duties and responsibilities have focused around the review of renewable energy projects, rate design, and renewable energy portfolio standards compliance. I have filed affidavits in Dominion Energy North Carolina's 2017 and 2018 REPS cost recovery proceeding, testimony in DEP's 2019 REPS cost recovery proceeding, an affidavit in DEC's 2019 REPS cost recovery proceeding, testimony in New River Light and Power's (NRLP) most recent rate case proceeding, and testimony in proceedings for applications for Certificates of Public Convenience and Necessity (CPCNs) by merchant electric generating facilities (EMPs). Additionally, I am currently serving as a co-chairman of the National Association of State Utility and Consumer Advocates (NASUCA) DER and EE committee.

APPENDIX B

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 Associate of Applied Science degrees in Electronics and Electrical Technology (Magna Cum Laude) in 2011 and 2012 respectively, and an Associate 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 am currently enrolled at North Carolina State University, working toward a Masters of Engineering degree.

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. My general construction experience includes six years of employment with Framatome, where I provided onsite technical support, craft oversight, and engineer design change packages, as well as participated in root cause analysis teams at commercial nuclear power plants, including plants owned by both Duke and Dominion and an additional six years of employment with an industrial and commercial construction company, where I provided field fabrication and installation of electrical components that ranged from low voltage controls to medium voltage equipment, project planning and coordination with multiple work groups, craft oversight, and safety inspections.

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), avoided costs and PURPA, interconnection procedures, integrated resource planning, and power plant performance evaluations. I have also participated in multiple technical working groups and been involved in other aspects of utility regulation.

Q Mr. Lawrence and Mr. Metz, did you prepare a summary of your testimony?

A (Metz) Yes, we did.

Q Would you please provide it at this time?

A Good afternoon, Chair Mitchell, members of the Commission. My name is Dustin Metz, and with me is Evan Lawrence, and each of us are engineers with the Public Staff's Electric Division. The purpose of our testimony is, one, to discuss the application of Friesian Holdings for a Certificate of Public Convenience and Necessity, CPCN, pursuant to the North Carolina General Statutes 62-110.1 and Commission Rule R8-63; two, to discuss the concerns raised during our review of the application; and three, to recommend that the Commission deny the requested certificate at this time.

The Applicant proposes to build a 75-MW AC solar PV electric generating facility in Scotland County, North Carolina. The Applicant was issued a CPCN previously in Docket SP-8467, Sub 0, but relinquished the original CPCN upon filing its application in this docket for a certificate as a merchant facility.

Commission Rule R8-63(b)(3) requires that an applicant requesting a CPCN for a merchant generating facility must demonstrate a need for the proposed

facility in the state and/or region, with supporting documentation. In Docket Number EMP-92, Sub 0, the Commission found that a flexible standard for demonstrating need was appropriate, but that a Power Purchase Agreement, PPA, or other contractual agreement was not necessary.

Additionally, the Commission stated, "(1) The standard of need for a merchant plant is different from the standard of need for a public utility electric generation facility; (2) DEC's and DEP's IRPs project a need for significant electrical load growth in the Carolinas; and (3) the Applicant has demonstrated expertise in accurately evaluating wholesale market needs and negotiating with wholesale buyers to meet those needs."

To demonstrate the need for the facility in this case, the Applicant submitted the PPA that is entered into for the sale of energy and RECs with North Carolina Electric Membership Corporation, or NCEMC. The Applicant also cites NCEMC's ability to use the RECs for compliance with the State's renewable energy goals.

In its supplemental testimony, Friesian also presented the following additional information supporting its application: (1) a report detailing an alternative

to Duke Energy Carolinas' and Duke Energy Progress' most recent IRPs that calls for significant additional solar to be constructed in the state; (2) a power flow analysis showing the limits on the transmission facilities in the subject area to accommodate additional generation; (3) information on planned or pending QF and merchant generation in the constrained area; and (4) information describing the need for the transmission system upgrades for new future, undesignated utility-owned generation to be interconnected in the constrained area. In addition, the Applicant provided testimony supporting its position that southeastern North Carolina is the ideal location for additional solar generation to be added in the state.

In our testimony, we acknowledge that the transmission upgrades will help facilitate the interconnection of new generation in this general region of the DEP system, but we challenge the Applicant's assertions about the type and amount of generation relative to DEP's overall system operations and future needs in that part of the state or region. In addition, we note that there is no guarantee that any of the generation will come to fruition or that the upgrades proposed will accommodate all of the interdependent projects without triggering additional upgrades or

increases in the costs that may make those projects nonviable. In addition, the details around the proposed future natural gas facilities in the region are too speculative to help justify the hundreds of millions of dollars of upgrades required to accommodate the Friesian project.

In our testimony we discussed a comparative analysis of the levelized cost of the transmission as a reasonableness guideline. In looking at similar projects across the nation or region, this project requires substantially higher transmission upgrade costs than what we have previously observed, indicating that the capacity of the grid has been reached, its capacity in this part of the state without significant additional upgrades being made.

We also respond to the Applicant's testimony that Executive Order 80 and the resulting Clean Energy Plan support the need for the transmission upgrades in order to accommodate additional low carbon resources in that part of the state. We recognize that solar, as well as other low carbon resources, play an important role -- role in reducing carbon emissions in the state, and that significant amounts of solar generation have been added and will continue to be added in a cost-effective manner

through measures such as the Competitive Procurement of Renewable Energy, CPRE, Program established by the General Assembly. Public Staff agrees with the Clean Energy Plan that a comprehensive approach to system planning is the preferred policy option and that these goals will not be achieved overnight nor through implementation of one or two actions. We also testify regarding the Public Staff's support of holistic planning and decision making frameworks, such as IRP and the complementary Integrated System Operations Planning for planning to meet the mission goals of both the Clean Energy Plan and any other major environmental goals, such as Duke's stated goal to be net carbon neutral by 2050.

North Carolina General Statute 62-110.1(d) states "In acting upon any petition for the construction of any facility for the generation of electricity, the Commission shall 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." We do not believe this facility meets the statutory requirements for economical electric service.

We recommend that the Commission deny the

requested CPCN; however, we do encourage the Applicant to continue work with DEP and evaluate other alternatives that do not require such substantial upgrade costs.

Thank you. This concludes our summary.

MR. DODGE: Thank you. The witnesses are available for cross examination.

MR. LEVITAS: Thank you.

CROSS EXAMINATION BY MR. LEVITAS:

Q Gentlemen, I'm Steve Levitas representing Friesian Holdings with my co-counsel Karen Kemerait. I'm going to ask some questions. She's going to ask some questions after I finish. Given the nature of your joint testimony, I guess I'm just going to throw my questions out there and whichever one of you wishes to respond is fine with me. Does that work?

A (Metz) Yes, sir.

Q Great. Well, let me start, then, talking about the need prong of the CPCN test, the need for this generation facility. In your testimony you devote several pages to discussing the need for the Friesian generation facility; isn't that right?

A Yes. Our testimony discussed the general need of the facility or stated need of the facility.

Q Thank you. But I don't see anywhere in your

testimony that you actually state the Public Staff's position or a position on behalf of the Public Staff that the Friesian facility isn't needed to advance the State's energy policy. Am I right about that?

A So to try to characterize the question, at least my understanding, that you're asking our overall position of how we think this facility will help meet policy decisions similar to Executive Order 80?

Q No, not at all. I'm sorry if my question wasn't clear. I'm trying to focus very specifically. And we have a certificate of public convenience and necessity, so there's a necessity or need prong of that test and a public convenience test, and you break those out in your testimony, so I want to focus on the need issue first.

A Okay.

Q And so my question is you talk about it, but I didn't see anywhere in your testimony that you actually stated it's the position of the Public Staff that this facility does not satisfy the need component of the test that's before the Commission. Am I right about that?

A So the need component, how I reviewed overall application, was looking at NCEMC's statement of need, and we go through the testimony -- give me one second to

get to that page -- so, yeah, starting on page 7, the question "What steps has the Applicant taken to demonstrate a need for the proposed facility?" I'm not going to read verbatim the testimony that was filed, but the Applicant cites that the need for RECs compliance with the State's renewable energy goals and that the facility will provide a significant amount of RECs for use by NCEMC to demonstrate compliance with Senate Bill 3. To go on further, paraphrasing here, NCEMC filed a business objective under an initiative it christened as A Brighter Energy Future, which entails applying powder that -- power that is not only affordable, reliable, and safe, but also increasingly low carbon.

Those two statements in themselves, at least in our opinion, is not a statement of need. That is a business objective that NCEMC is seeking, and through the PPA is a business agreement for a commodity under a mutual agreed-upon price.

Q Well, let me ask you the question this way. Is it -- as you sit here today, is it or is it not the position of the Public Staff that the Friesian facility is needed within the meaning of the General Statutes?

A (Lawrence) I'm sorry. Could you repeat the question?

Q My question is, is it your position, as you sit here today, that the Friesian facility is needed or is not needed within the meaning of the General Statutes for the purposes of CPCN decision?

A Our position is that at this time, Friesian has not fully demonstrated a need for the facility. It's demonstrated many goals that it would be used to facilitate and many goals that are, quite frankly, just goals at this point, so we haven't seen anything that Friesian has demonstrated to date.

Q Okay. So if I understand you correctly, you're not saying that -- affirmatively that it's your position that it's not needed; I just heard you say that your position is that Friesian hasn't sufficiently demonstrated the need. Would that be fair?

A For the facility -- for us to say that it is not needed would mean that we have analyzed every scenario that is there, so, of course, we haven't done that, so you -- I believe that would be a correct characterization, that we have not -- your latter statement is correct.

Q Okay. Well, isn't it the case that in the Reply Brief filed by the Public Staff on September 9th in this docket, that the Public Staff stated at page 3, and

I quote, "The Public Staff does not take issue with the need for the generating capacity demonstrated by Friesian"?

A (Metz) Do you have that document where I can review it? The only thing I'm trying to gain out of there is the context of how it was being paraphrased, the statement of need. Whether or not we take the position of need isn't an establishment of need. It could be just the overall argument that has the need been established.

MR. LEVITAS: May I approach the witness?

CHAIR MITCHELL: You may.

A One minute while I read. So just, again, in general context this is a Prehearing Reply Brief for the Public Staff, so some of this is also a legal interpretation, and we are not lawyers. Just trying to characterize what's being presented before us.

COMMISSIONER CLODFELTER: Mr. Levitas, what page were you reading from?

MR. LEVITAS: It's page 3 from the Public Staff's Reply Brief filed on September 9th.

A So, yeah, on page 3, "While the Public Staff does not take issue with the need for the generating capacity demonstrated by Friesian," it goes on further to -- again, from the context of a legal brief, again, that

sentence I just read has an extensive footnote that takes in multiple considerations of what we're calling generation capacity need. But then it goes on further to finish that paragraph, so I did not write this paragraph, so I don't know the intent of the writer, but ultimately this paraphrases what costs can the Commission appropriately consider in its review of a merchant plant.

Q I understand that, and as you point out there, the brief goes on to discuss cost considerations, which I would submit relate to the pubic convenience prong of the test as opposed to the need. So we'll talk about that in a moment. I'll move on.

A But if you want to focus potentially, then, on the need, so looking at the need of the -- so in context of Friesian, we look at whom will be paying the cost for this project. So I guess I would like to turn for a minute to one of the previous handouts that Mr. Dodge had handed out. I believe it's Cross Examination Number 6. And turning to the figure on page 7, 2016 Winter Peak Demand -- I'll give a minute to stop here on the page and just look.

Q I'm sorry. Which page?

A Page 7. It's the top graph. So Friesian, being a merchant plant, is, through the agreements with

LGIA, LGIP, FERC, who ultimately is going to be paying the cost? So Friesian will be paying the money to Duke. Duke will refund that money through the contract terms that we've all talked about extensively. And then ultimately, that number, dollar value is going to be rate based.

So when looking at Duke Energy Progress, that who is going to be paying for these upgrades, Duke Energy Progress in its whole is going to be paying for the upgrades. How is -- what does Duke Energy Progress' electrical system need? We are winter peaking in DEP and we are winter planning. So taking in context, again, for the legal brief that I did not write what's taking in the generation capacity demonstrated in that context, Friesian is a solar PV facility, is just what it is. It's not contributing to the winter peak of how DEP is building out its overall system.

So when I look at this overall graph, I look at NCEMC, who is going to be in the green part of the NC wholesale. NCEMC is going to be a portion of the green. I don't know the exact number value. Let's say we approximate it at 25 percent, because NCEMC is a significant offtaker through the wholesale market through DEP. So I have $250 million approximately, 223 million

at the current estimate, going to a slither of the green part, but I'm asking for all the rest of the cost to be distributed to everyone else below that line. That is a component of the need evaluation.

MR. LEVITAS: Well, with all due respect, Mr. Metz, I think you're confusing apples and oranges because this is not a proceeding that addresses the need for the upgrade facilities. This is a proceeding dealing with the need for a generation facility. Public Staff has introduced the issue of the cost of the network upgrades, which I would acknowledge is a relevant consideration as to whether the public convenience is served, but has nothing to do with the generation facility need which is the subject matter of this proceeding. This is not a proceeding about the need for upgrades.

MR. DODGE: Objection, Chair Mitchell. I think -- is there a question coming, Mr. Levitas?

MR. LEVITAS: Yeah. I'm going to -- I'll move on to my questions, but the witness just made a long speech that had nothing to do with the need for the facility that's in front of the Commission.

Q So gentlemen, is it safe to say that you're familiar with the Commission's Rule R8-63 which governs CPCNs for merchant plants such as the Friesian facility?

A Yes.

Q And Section (b)(3) of that rule requires the Applicant to -- I'm quoting -- "to provide a description of the need for the facility in the state or region" -- "the need for the facility in the state or region with supporting documentation," does it not?

A I don't have the General Statute in front of me or Rule in front of me, but subject to check, yes.

Q Subject to check. I'm quoting from the --

A Yeah, but I believe that's also in our summary.

Q Now, I think you referenced in your testimony rulemaking docket for Rule R8-63 which was E-100, Sub 85, and that was on page 7 of your testimony, correct?

A So page 7, "The Commission discussed its prior holdings in Docket Number E-100, Sub 85, in which it found a flexible standard for demonstrating need was appropriate, but that a Power Purchase Agreement or other contractual agreement was not necessary."

Q Right. Thank you. And so you're aware that in adopt -- in adopting that rule in Docket E-100, Sub 85, the Commission rejected additional language proposed by the Public Staff relating to the demonstration of need, didn't they?

A Are you stating an adoption of the rule?

Q Yes, sir. In adoption of that Rule R8-63, the Public Staff proposed additional language in terms of the showing of need that had to be made, which was rejected by the Commission; isn't that correct?

A I'm unfamiliar with the background information on the specifics, because if I'm looking at the footnote, that was in May 21st, 2001.

Q Well, do you have any basis for disputing -- I'm reading from the Order in which it says that the Public Staff proposed language which would have required "either (1), contracts or preliminary agreements for the output of the facility; or (2) information demonstrating that there's a need for the Applicant's power in the intended market." That's the Public Staff's language I quoted that was rejected by the Commission in that docket. Do you have any basis for disputing that?

A I don't have any basis to dispute that.

Q And --

MR. DODGE: Madam Chair, just to -- Mr. Levitas is talking extensively about the discussion from the Sub 85 proceeding, and I'll stipulate -- I think we could stipulate to what was said or take Judicial Notice of what was included in that docket. I think there's more than -- I think that the entire record from that

proceeding needs to be taken a look at, not just that select portion.

MR. LEVITAS: We'll be happy to mark this as a cross exhibit. I don't know that I need to ask a lot more questions about it, but we'll have it in the record so that the full text of the Order is part of the record.

MS. KEMERAIT: This is the Order Adopting Rule that was provided in E-100, Sub 85, will be Cross Exhibit Number 1.

Q Gentlemen, are you familiar with the 1993 decision by the North Carolina Court of Appeals in the Empire Power case?

CHAIR MITCHELL: Hang on, Mr. Levitas. Let me just review the document.

MR. LEVITAS: Okay.

CHAIR MITCHELL: Make sure it is what -- all right. The document will be marked as Applicant Cross Exhibit Number 1.

MR. LEVITAS: Thank you.

(Whereupon, Applicant Cross Examination Exhibit 1 was marked for identification.)

Q So gentlemen, are you familiar with the North Carolina Court of Appeals decision, 1993 decision, in the

Empire Power case?

A Am I referencing the handout you just provided --

Q No, no.

A -- or you're just asking another question?

Q I'm just asking if you're familiar -- no. I'm sorry. It's a new question. Are you familiar with that case?

A I'm not intimately familiar with it, no.

Q So would you agree, subject to check, that in that case the North Carolina Court of Appeals rejected a CPCN because a merchant applicant did not have a signed Power Purchase Agreement at the time of -- of its application?

A Subject to check. Requires too much speculation of what went into the overall record and what decisions were reached by whoever made that decision at the time.

Q Okay. Are you aware that a primary purpose of the -- this Commission's rulemaking in the E-100, Sub 85 proceeding in which it adopted Rule R8-63 was to reverse or relax the Empire Power requirement of a signed Power Purchase Agreement as a condition of a merchant plant CPCN?

A Again, as we stated before, we are not intimately aware of the background information of this proposed rule change and the facts and circumstances that the Commission weighted in ultimately making their recommendation.

A (Lawrence) It could very likely be that the Commission decided that having a PPA was not justification for or against a need, and as it said in E-100, Sub 185, there is a flexible standard, so --

Q Right. But you don't have any basis, then, for disputing that the major purpose of that proceeding was to eliminate the absolute requirement that a PPA be executed as a condition of granting a CPCN for a merchant plant?

A (Metz) At this time I'm not going to speculate on what E-100, Sub 85 is and what considerations were taken in weighting of the overall evidence. I'm just -- this was just presented, and I'm just now reviewing the overall material. Mr. Dodge says you need to take a look at a lot of the case file that had background information of the arguments being made back and forth between the different parties.

Q All right. Well, let's talk about the Commission's Order granting the CPCN in the NTE

proceeding, EMP-92, Sub 0. That's also referenced in your testimony.

A Yes.

Q You're aware that that -- in that case the Commission granted a CPCN for an NTE natural gas merchant plant in Rockingham County, correct?

A Yes. I believe I filed testimony in that case.

Q That's right. And isn't it the case that both the Public Staff and the Commission found that the Applicant had demonstrated need even though it didn't have an executed offtake contract?

A So the Commission has to weight the overall evidence presented in that particular case. I can only talk about of how I made my recommendations specific to Reidsville for approval. Part of the Reidsville specific projects and components that went into that overall approval was NTE's track record of NTE in Kings Mountain that they successfully built and was nearly fully subscribed. I can't remember the exact percentage mark, but I believe it was in, what, the 70 -- 70 to 80 percent of fully subscribed because they wanted to reserve some headroom for potential future contracts or potential growth or peaking capabilities.

So that was one component of saying, okay, we

have a merchant power plant that has not only came in and sought a certificate of public convenience and necessity, but also has constructed and was operating the overall facility and had executed PPAs with that facility.

Now, taking into consideration of Reidsville and the multiple conversations and interviews and data responses with Reidsville NTE staff personnel, we reviewed that to understand the component of speculation of when the potential PPAs could come in place while also -- with the dynamics of natural gas and the commodity price. Given the overall cost of the project, the network upgrade costs, the proven track record of NTE being able to construct and build a new facility, we -- I recommended approval for that CPCN.

Q Understood. And what I'm really trying to get at is that the requirements with respect to the need prong for a merchant plant have evolved over time, have they not?

A Yes. I would say --

Q And they -- and it's fair to say that they've evolved in a way that has made them more relaxed, and in the Commission's words in the Order approving the Rule, the Commission's intent has been to facilitate, not to frustrate, merchant plant development. Do you agree with

that?

A If that's what the Commission language is, then that's what the Commission language is.

Q And so in the past there was an absolute requirement that there be an executed PPA. That is no longer a requirement today. You've supported the issuance of CPCNs in the absence of a signed PPA; isn't that correct?

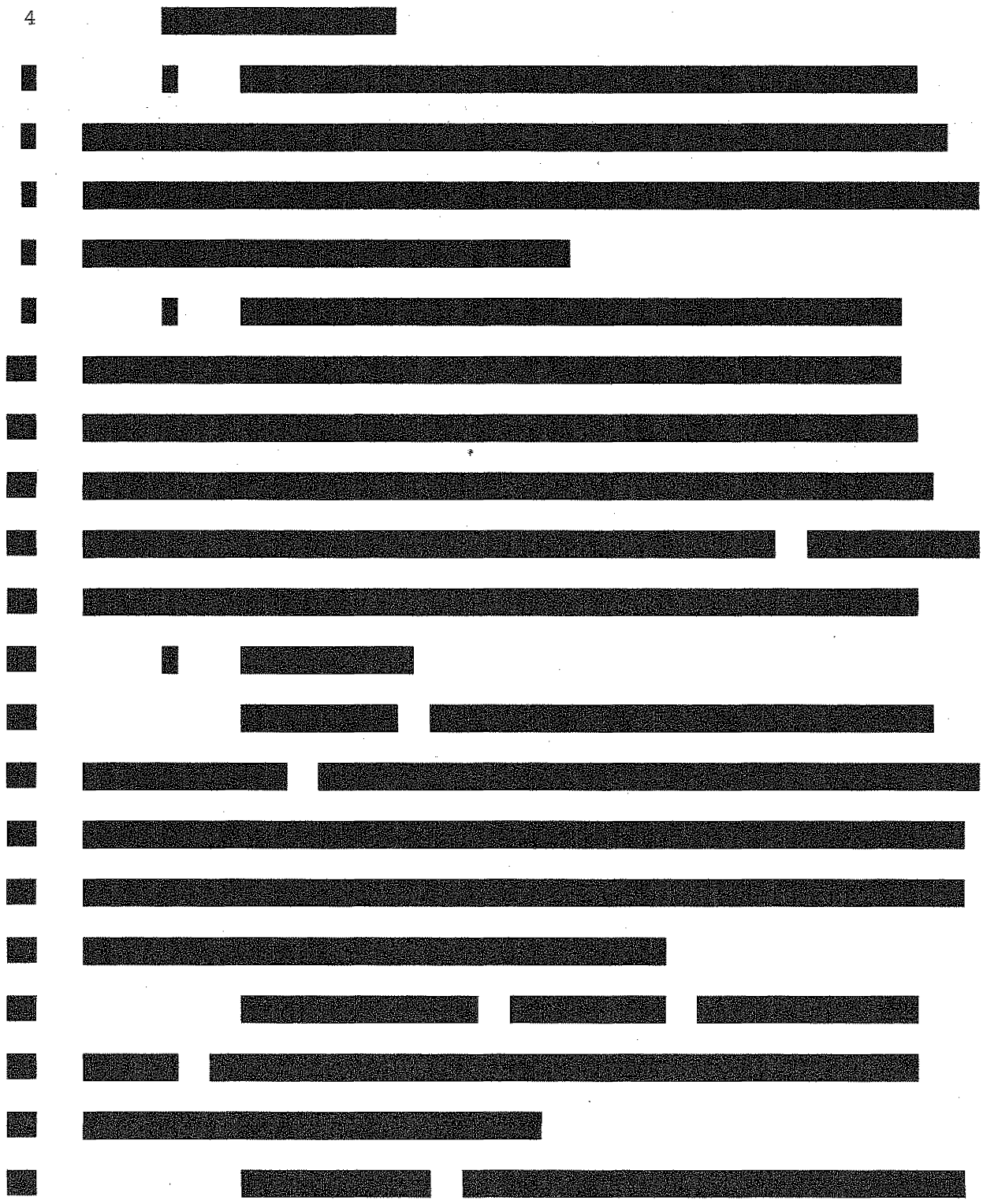
A That's correct.

Q But there's not any authority precedent or suggestion anywhere in the Commission's proceedings that meeting the original Empire Power test and actually having a signed PPA was not sufficient to demonstrate need. Is there any precedent for that proposition?

A I'm not aware of one.

(Because of the proprietary nature of the testimony found on pages 166 and 167, it was filed under seal.)

(Because of the proprietary nature of the following testimony, it was filed under seal.)



[redacted]

(Testimony on the open record resumed.)

MR. LEVITAS: Madam Chair, we'd like to get a second exhibit marked for cross.

Q Mr. Metz, there's a version of that exhibit that I highlighted a piece of text on. I want to be sure you got the right copy. It had some yellow highlighting on it.

A Someone has a highlighted text.

MR. LEVITAS: Madam Chair, I'd like to ask that this exhibit, which is the NCEMC's Initial Comments in this proceeding, filed on July 18th, 2019, be marked as Applicant Cross Exhibit 2.

CHAIR MITCHELL: All right. We'll mark the document as Applicant's Cross Exhibit Number 2.

(Whereupon, Applicant Cross Examination Exhibit 2 was marked for identification.)

MR. LEVITAS: And if I may approach the witness, I'd just like to show him this exhibit.

CHAIR MITCHELL: You may approach.

Q Mr. Metz, you now have in front of you Applicant's Cross Exhibit 2, which is NCEMC's Initial Comments in this proceeding. I believe you're previously familiar with this document. I highlighted the last sentence of the last full paragraph on page 2. Would you

mind reading that into the record?

A Yes. So, again, this is NCEMC's Initial Comments with a date stamped July 18th, 2019.

Q And would you just read the highlighted sentence, please?

A "Once constructed, the project, specifically the parties' execution of the project PPA, will simultaneously advance NCEMC's pursuit of the BEF and further its abilities to achieve REPS compliance." And I'd just like to characterize what BEF is as it's before. "More recently, NCEMC developed and began to pursue a strategic business objective under its initiative it christened A Brighter Energy Future, BEF." I just wanted to give context to what we're talking about, BEF.

Q Thank you. You don't contend, do you, that the North Carolina Electric Membership Corporation entered into a Power Purchase Agreement to purchase energy from Friesian that it doesn't need to serve its member cooperatives, do you?

A (Lawrence) We can't speculate to what NCEMC has done. We've seen no evidence presented by Friesian that NCEMC has analyzed those goals. I believe there is some allusion that -- allusion may not be the correct word -- in one of the witnesses' -- Friesian witnesses' rebuttal

testimony they do state what NCEMC likely did, but, you know, we're not in a position to debate what NCEMC might do. We don't know what their risk analyses are. We don't know how aggressive of a goal that the BEF is.

A (Metz) And to add context, if that is -- I mean, as we learned today, I mean, we just -- NCEMC has some of its contracts rolling off in 2032. I don't -- I don't know what the quantify of that number is. I don't know the business objective between the Applicant and NCEMC in selectively picking the dates that they picked.

Q I understand you may not be familiar with all the details of the operations of NCEMC, but as a general matter, would you assert that NCEMC, a statutorily created body with fiduciary obligations to its members, would enter into contracts to purchase product that it doesn't need to serve those members? Are you -- is that what you're suggesting?

A No. It's nothing -- nothing sort of the suggestion that we're making. I'm saying to take the entire thing into context you would need to review each one of the Power Purchase Agreements, look at NCEMC's overall goals and objectives, which was not part of the review. Again, this was an application by the Applicant. And looking at what contracts are a must take or a firm,

is there a potential for resale where NCEMC could sell back into the overall market and make money off this overall transaction? That's too much speculation of our part and it was not review of the application by the Applicant who is Friesian.

A (Lawrence) And I --

Q So when NCEMC -- I'm sorry.

A And I would also like to point out that in this -- the document you handed out, these comments by NCEMC, the sentence that you had highlighted and asked Mr. Metz to read even reads that it will simultaneously advance the pursuit of the BEF and further its ability to achieve. It doesn't say in there that its -- this project is required to do so. It doesn't say that it is necessary. It's just going to further its ability. It doesn't say that it -- that it has the inability to do so at this time. So like I had said before, we're not in a position to speculate as to what NCEMC may or may not do.

Q So you simply don't know -- you don't have any basis for determining whether NCEMC needs the output of the Friesian facility or not; is that what you're saying?

A We have not been presented evidence by Friesian to beyond the PPA and this business objective, so we're not aware.

Q Okay.

A I believe that's correct.

A (Metz) But I believe when you initially asked the question and I said it was the latter, I believe that still holds true.

Q Yeah. But you don't have any basis for contending or suggesting or implying that NCEMC is in the business of entering into contracts for buying product that it doesn't need, do you?

A (Lawrence) Again, I've said twice already, we're not in a position to speculate what NCEMC is going to do.

Q You just don't know. Okay.

A This is Friesian's application. They're the ones applying for the CPCN. It's their duty to prove that the things that are in the Commission's rule, to prove the need, to prove that this facility is necessary, and at this time I don't believe that that proof has been made.

Q And so your position is that the presentation by the Applicant of a signed offtake agreement with a wholesale power customer, and in this case particularly one that operates under the requirements of state law, is not sufficient to demonstrate that that wholesale

customer needs the product that it contracted to purchase; is that your testimony?

A (Metz) Restate that last part.

Q I'm asking whether -- because Mr. Lawrence just said that he did not believe Friesian had presented sufficient evidence of need.

A I believe we stated that three times already, but yes.

Q Right. Well, and what Friesian has presented is a signed contract by a wholesale customer to purchase the off -- the output of its facility, and my question is, are you contending that's not sufficient to demonstrate that that offtaker needs the product?

A I believe what we had in our testimony is that a PPA, a business decision entered between two entities for a price and a commodity, is not demonstration of a need.

Q To your knowledge, has the Public Staff ever taken the position in a prior proceeding that a merchant facility that has entered into a PPA with a wholesale customer was not needed within the meaning of the General Statutes?

A (Lawrence) We're not taking the position in this case that it is not needed. We're taking the

position that Friesian has not demonstrated the need.

Q Well, you're taking the position, as I understand what your response is to my question, that the contract itself is not a sufficient demonstration of need, and I'm asking you --

A Correct.

Q -- have you ever taken that position in a prior proceeding?

A (Metz) I'm not immediately aware of one, no.

Q To your --

A I can't say that one has or has not. I mean, we just have not had that many merchant power plants, again, in my time with Public Staff, and I've also talked with other members of Public Staff who have been here longer. We just typically do not have that many merchant power plants. I mean, this isn't -- we're not reviewing merchant power plants once a month, once a quarter. It's just here lately within the last five years that we've had approximately three to four merchant power plants, subject to check on that number, and each one has their own facts and circumstances that are unique in performing an overall evaluation of the project.

Q Well, to your knowledge, has this Commission ever found that a merchant facility that entered into a

PPA with a wholesale customer was not needed within the meaning of the General Statutes? Has the Commission ever made such a finding, to your knowledge?

A Again, I'm not immediately aware if one has or has not.

Q Okay. And do you have an opinion as to whether the Commission has the authority to make such a finding?

A I don't have an opinion of what the Commission should or should not do on this matter.

Q Do you think it's appropriate for this Commission to second guess a decision by a wholesale customer as to its --

A Speculation.

Q -- generation needs? You don't have a position on that?

A Speculation.

Q All right. Thank you for those answers. Let me turn now to the public convenience prong of the statutory test. Am I right that neither General Statutes nor the Commission's rules define the phrase "public convenience"?

A Subject to check, if it's not defined, it's not defined.

Q And is it also the case that the Commission's

Rule R8-63 doesn't specifically require the Applicant to provide any information regarding public convenience?

A Yes. And it also says that's the due diligence of the Public Staff to do its review of the overall application and make its review to the Commission.

Q I understand, but my point is there's no specified requirement that says here's what you've got to do to show public convenience, is there?

A I don't know you can do a specification, again, looking at the time of how the rules are written. So you say a 1970's written rule, how does it apply to how we're looking at here in 2019? What facts and circumstances on the overall electrical system in 1970, 1980, 1990, how can it apply through time? I mean, the overall rules are general guidelines to try to do a framework for consistency, but it also allows some lateral movement in making its determination, I believe.

Q Well --

A (Lawrence) Similar to the need, the public convenience is a flexible standard that depends on the case at hand.

Q Right. And you're citing the North Carolina or referring to the North Carolina Supreme Court case to that effect. I believe it's the Casey decision.

A I'm not referring to any case.

Q Okay. Well, subject to check, would you agree that the North Carolina Supreme Court has said exactly what you said, that public convenience is -- I believe their word is an elastic test, meaning, just as you're saying, it's flexible and determined on a case-by-case basis?

A (Metz) That's my understanding, yes.

Q Are you aware that the principal judicial guidance on the meaning of the phrase "public convenience" was provided by the North Carolina Court of Appeals in the Empire Power case that I mentioned?

A Are you asking for a legal interpretation of a --

Q Not an -- not an interpretation. I just wondered if you're aware that in that case -- and as far as I know it's the only case in which the North Carolina courts have provided any specific guidance on the meaning of "public convenience." Are you familiar with that?

A Not --

MR. DODGE: Chair Mitchell, I'd like to object. Mr. Levitas is asking a series of legal questions about the public convenience and necessity standard, and we had two filings -- a prefiling brief -- a Prehearing Brief

and a Reply Brief, and we had oral arguments on this standard, and we have an Interlocutory Order from the Commission that said it's appropriate to consider the network upgrade costs. I just -- I think if Mr. Levitas wants to make another legal argument, that maybe a briefing is more appropriate than cross examining our technical witnesses on the legal standard.

MR. LEVITAS: If I may?

CHAIR MITCHELL: You may.

MR. LEVITAS: I'm not trying to revisit the Commission's prior Order which dealt with a very specific issue of what was appropriate for consideration in this proceeding. So we're now in an evidentiary proceeding in which the Commission is charged with determining whether the public convenience and necessity standard is met. These witnesses have testified that they do not think it has been met and that they recommend that the certificate be denied on that basis, and so I think I'm entitled to ask them about their understanding of the standard and specifically what they have done to make a determination as to whether the standard has been met. I absolutely do not intend and have not revisited any issues in the prior legal briefing in this case.

CHAIR MITCHELL: All right. You may proceed,

Mr. Levitas, and please keep in mind, these gentlemen are not attorneys, so --

MR. LEVITAS: Understood.

CHAIR MITCHELL: -- tailor or your questions appropriately.

MR. LEVITAS: And I'll try to keep the rest of these questions fairly short.

Q So getting back -- I was asking about the Empire Power case, and you may not be familiar with it, but we can -- I can ask you subject to check, are you aware that in that case what the Court ruled was that in determining whether a project meets public convenience and necessity standard, that should be determined in reference to the State Energy Policy -- State Energy Policy set forth in G.S. 62-2?

A (Metz) Again, subject to check. I'm not intimately aware of the -- that particular court case. I'd just like to put that it needs to be reviewed in its entire context of what the background information was on the overall issue.

Q So would you agree with this two-prong test, that if a facility demonstrates need, that in also having to show the public convenience -- the public convenience prong is served, that the Commission needs to find that

the facility meets that need in a way that is cost effective and consistent with other elements of the State Energy Policy? I think that's what you all have talked about, the cost effectiveness of the project as a whole.

A Right. And the same correlation that you're making in the statement of need of whether or not it's in the economic interest, that is a component of the overall evaluation of this application.

Q Understood.

A (Lawrence) I do believe that you alluded to -- what you alluded to is correct, that we believe that the planning should be done in a more holistic manner, not haphazardly with -- when we reach this kind of situation, working on a larger manner to reach our goals. And even with the State Energy Policy, Executive Order 80 says that it's going to -- it takes time and it takes the whole state. This isn't -- Executive Order 80, nor any other initiative that I have seen, is relying on southeastern North Carolina to reach these goals.

Q I understand, and I don't mean to cut you off, but Ms. Kemerait will ask some more questions related specifically to that, so maybe I'll let you respond to those because I have a narrower question.

A (Metz) I believe your overall question, though,

had a state implementation of overall policy and what the Commission can or cannot take into consideration.

Q Yeah. I was really just trying to get to the issue of cost implications, and so let me phrase it this way and see if you agree, ask if you agree. So if you had a facility and the need was established, recognize we -- we need the capacity, but meeting that need, the cost of the facility, including possibly the network upgrades, were deemed to be excessively high or, for that matter, if there were other considerations like environmental impacts or other public welfare problems, then in that scenario it might be appropriate for the Commission to say, yes, there's need, but the public convenience is not served because of these other considerations, including cost. Is that a fair account of how the analysis should go?

A Well, I'm trying to understand your hypothetical. So when you say the statement of need has been satisfied, under what context are you saying the need has been satisfied --

Q Well --

A -- or are you saying the Commission has made a determination of need? I'm just trying to -- what do you mean by "need" because that just keeps getting brought up

here a lot?

Q Well, we've talked about need a good bit. I'm not trying to revisit that. I'm just saying that where need is met, the CPCN -- where it's met, however -- however that happens --

A What is "need," though? I'm still trying to understand.

Q Well, I'm -- I don't propose to revisit my prior lines of questions about need. They speak for themselves, but I just -- the question I'm asking you is just to understand how the analysis works, where need is met, a CPCN may still be denied because public convenience is not served, and I was suggesting, I think consistent with your testimony, that one reason for that would be the cost. So it might be needed, but if it cost an excessive amount relative to the benefits, then you might determine, the Commission might find that public convenience is not served by that application; isn't that fair?

A (Lawrence) I do agree that the public convenience and the need both must be satisfied, and just because one is doesn't mean that both would be satisfied.

Q No. That's my -- that's my point. Now, isn't it fair to say that your principal objection to the CPCN

in this case is the cost of the network upgrades that are required to interconnect the facility and the fact that under federal law, a significant portion of those upgrades would be borne by North Carolina retail ratepayers?

A (Metz) Principal objection, no; overall evaluation of the case. And, again, it is our opinion that the Applicant has not presented the statement of need. Not going through all of that again. And then the second component is, yes, it's the overall cost being requested to be passed on to the DEP system which is, again, the winter planning and winter peaking system.

Q Okay. Well, I don't want to lose ground, but you're going back into the issue of the need for the generation and -- or suggesting that there's an issue about the need for the upgrades, and I want to talk to you about the cost of the upgrades because I do believe that's your principal objection, as stated. It's not that the upgrades aren't needed; it's that you all think they cost too much and those costs shouldn't be borne by ratepayers; isn't that fair?

A That is one component of it, yes.

A (Lawrence) And --

Q So my question -- I'm sorry.

A -- we do agree that these upgrades are needed on the system to accommodate additional generation. I don't -- I think there was a mischaracterization of that statement at some point, but we're not disagreeing that these upgrades are required to alleviate generational concerns on the lines.

A (Metz) But just to add on to Mr. Lawrence a little bit, is let's say it was Duke or let's say it was a different merchant plant. When they come in for the CPCN, at that time we evaluate the facts and circumstances of that particular case. Depending on what your definition of how you want to define need, if you look at when the overall -- this is, again, another hypothetical saying it's Duke, if the overall Duke system needs "x" amount of capacity and/or energy to meet a certain criteria, whether it be for reliability, whether it be for peak, whether it be for ramp rates, we have to look out to say when is the intersect of -- when do we need that particular build? And we have to look at the overall costs and the assumptions used in that model for the estimate.

I believe that we've filed here in testimony of these are some of the same considerations that we hashed out during the Lincoln County CT, and I'm not going down

that route again, but it's -- those are some of the analytics that we apply in when we look at approving potential generation when they asked a comment for it at that particular time.

Q Well, are you suggesting that in order to carry the day on its application, that Friesian has to demonstrate a need for its facility on the DEP system, even though it's selling all of its output to NCEMC?

A I don't agree with your characterization by the end of the day that it has to carry all weight. What I'm evaluating here is one component of the evaluation is looking at the business arrangement between the Applicant NCEMC, so NCEMC is receiving the dollar per MW output of the overall facility, but asking essentially everyone using the DEP system, which only a fraction of that is NCEMC, to pick up the bill. And then the back-end component of that is sort of a field of dreams analogy that if we build it, they will come. I can't say we support that. We're going to build a quarter billion dollar in upgrades for speculative projects that may come in that particular area, but whether or not we potentially start setting a precedent where we start having other quarter billion dollar upgrades scattered all throughout the system. That gets into sort of a

holistic planning approach, and maybe we need better policy goals to help get that oriented.

Q All right. Well, I don't want to rehash the same territory, but I would just remind you again, Mr. Metz, that this is not a proceeding about the need for the network upgrades. I'm not saying they're not relevant in the context of this hearing, but this is not a proceeding about the need for those upgrades. Let me move on.

So would you agree that in determining whether the Friesian upgrades serve the public convenience, that it's necessary to consider not only the cost of those upgrades, but the benefits of the upgrades to the public?

A The latter part of that conversation is how one evaluates the overall benefits -- benefits to whom and to when, and the speculative nature, and the assumptions, and those costs that we've heard many times through avoided cost integrated resource planning are hard to pin down and assign a dollar value to, but we're welcome to hear them if anyone wants to present them and evaluate them.

Q Well, we've presented considerable testimony on that subject, and I understand you --

A Well, I believe the testimony that was

presented was the potential of 4,000 jobs and the Synapse Model Report on the potential savings which has not been reviewed by the Public Staff. And, again, we would have to go down the same grounds that we did through the avoided cost and review the peer review of the independent analysis of those reports and studies.

Q Well, let me go back to my original question. My question is not whether there's sufficient evidence of benefits or whether you agree with the particular benefits. My question is, is it or is it not appropriate to consider benefits as well as costs in deciding whether the public convenience is served by a particular project?

A Yes.

Q Thank you. And at the time that the Public Staff filed -- made its initial filing expressing concern about the Friesian CPCN, had it performed any analysis of the benefits to the public of the Friesian upgrades?

A Are you talking about our direct testimony or are you talking about the legal briefs? There's been many Public Staff documentation filed in here, so just help me out here.

Q Well, let me reframe my question. Has the Public Staff performed any independent analysis of the potential benefits to ratepayers and the general public

of the Friesian upgrades?

A Quantifications of some of those intangible benefits I just got done speaking to are hard to quantify and so, therefore, if I can't quantify it, then I cannot -- I will not have it in part of the cost benefit analysis or cost justification.

Q Well, my question is did you make any independent effort to consider, irrespective of any testimony that may have been filed by Friesian, in forming your position about whether the public convenience is served here, did you, the Public Staff, the two of you, make any effort to say what benefits might be served by this project and to do any independent analysis of those benefits?

A On evaluating some of the benefits, then yes. So a component is always sort of the carbon and the cost of carbon. We try to review white papers. We try to be part of different stakeholder groups, and at least from my opinion is always come out of there of, well, this person said that it exists and I read a different white paper over here that says that it doesn't exist. I try to stay in my lanes and what I can quantify and what's in front of me.

Q Well, is it your position that there are no

benefits associated with the Friesian upgrades to the public? I know you've used the word speculative, but is it your position that there are no benefits that you can identify with respect to the Friesian upgrades?

A I can't quantify the benefits, is what I'm stating.

Q Well, I understand you've got an issue with quantification. How about qualitatively? Can you identify any class or category or type of benefit that might accrue to the public as a result of these upgrades being built?

A (Lawrence) I believe that speaks to exactly what a benefit is considered and who is being affected by it. You know, what may be beneficial to one party may not be to another, and so, you know -- and we reviewed the application and the evidence presented to us in large part and many -- excuse me -- many of the benefits presented that Friesian presents to us are these goals and the wants and the cleaner -- clean energy futures that we haven't taken into consideration in other planning purposes. And we need holistic planning to see how the grid needs to operate, what's best for the people of North Carolina, not these lumpy upgrades like this, and so --

A (Metz) I mean, it's -- it's a sharing of cost. We need to equitably share the cost amongst the users of the grid.

A (Lawrence) So these upgrades may very well be beneficial to solar developers. They're able to get projects through their queue more quickly at lower upgrade costs, but that doesn't mean that the costs aren't going to all go back on ratepayers who would then not benefit.

Q No. I was asking you specifically about benefits to ratepayers in the general public, not to solar developers.

A (Metz) But -- then the secondary component of that is not also the cost benefits, but also the cost decrements. Again, this facility is going to have impact in the rates and to everyone across the system. How -- I do not know how to evaluate that percentage increase to this consumer over here, this large industrial consumer over here, or this low income individual over here.

Q So you don't know how to perform a cost benefit analysis to determine whether on balance, these upgrades provide more benefits than cost for the ratepayers?

A I'm not saying I don't know how to perform a cost benefit analysis. I'm saying is you start talking

about benefits, and some of those components are intangible or spongy. A benefit to one is a decrement to the other.

Q Let me ask you about one thing specifically, and Ms. Kemerait is going to ask you more about the details, but you filed your testimony on December 6, did you not?

A Yes.

Q And I believe on that same day the two Duke letters that have been referred to were filed. And my understanding is that the Public Staff had an opportun--- received those letters or drafts of those letters in advance of December 6; is that correct?

A (Lawrence) I don't believe we're in a position to disagree. I'm not saying that we didn't --

A (Metz) I can't remember the exact date that we reviewed those letters.

Q All right. Well, let me ask you, did you consider the content of those letters in the preparation of your testimony filed on December 6?

A Yes, I did. Yes, we did.

Q Did you discuss it in your testimony?

A Discuss it explicitly in our testimony, no, but it was overall discussed internally and whether or not --

how it would change the testimony written.

Q All right. Well, I'm going to let Ms. Kemerait ask you -- follow up with you on that. I just want to ask you a few more questions. In developing your recommendation that the CPCN should be denied which, as I've said, relates to whether it serves the goals of the State Energy Policy under Empire Power, did you consider any of the specific elements of the State Energy Policy and whether the CPCN and including the upgrades would advance any of those policy goals?

A So, again, the State Power (sic) that you're referencing, are you trying to make a correlation to that ruling as in Executive Order 80 clean policy?

Q Not specifically. It might be helpful --

A Okay. What policy are you referencing, then? You're trying to turn me back in time to a policy that I'm not intimately aware of --

Q Well --

A -- but yet you're jumping forward to Executive Order 80.

Q No. I didn't say a word about Executive Order 80. I'm referring to G.S. 62-2, so let us introduce -- let us get an exhibit marked.

CHAIR MITCHELL: All right, Mr. Levitas. Let's

get this exhibit marked.

MR. LEVITAS: Okay. I think we're at Applicant 3?

MS. KEMERAIT: Applicant's Cross Exhibit 3.

MR. LEVITAS: Madam Chair, if I could mark one more cross exhibit Applicant 4. This is a copy of the North Carolina Court of Appeals 1993 decision in the Empire Power case. And I'm going to be very quick in my reference here.

CHAIR MITCHELL: All right. So we'll mark the statute Applicant's Cross Exhibit Number 3. All right. We'll mark this document Applicant's Cross Exhibit Number 4.

(Whereupon, Applicant Cross Examination Exhibits 3 and 4 were marked for identification.)

Q So I understand, gentlemen, that you're not lawyers, but I just want to direct your attention to -- it's page 5 of the -- of Exhibit -- the Empire Power case. And if you see at the -- what's marked page 274 on the right column of that page, do you see where the Court said "With regard to electric generating facilities, the General Assembly set forth a specific standard for the Commission" -- this is referring to CPCN -- "whether

public convenience and necessity requires the construction of the proposed facility." And the Court said "We read this standard in pari materia" -- Latin phrase meaning reading it as part of sort of whole cloth -- "with N.C.G.S. 62-2, which contains 10 specific policies," and it lists some of those.

So the guidance from the Court was that in deciding whether to issue a CPCN, the Commission should consider whether State Energy Policy, as set forth in 62-2, would be served by the proposed project; is that fair?

A So yes. So a component, as you alluded -- noted on bullet 274 after N.C. General Statute 62 contains 10 specific policies, among which are promoting the inherent advantages of regulated public utilities and adequate, reliable, and economic utility service, including the entire spectrum.

Q That's right. There are a bunch of -- then the 10 items that are at issue, that's what I want to ask you about. But my point is that what the Court of Appeals said is that in deciding whether to issue a CPCN, that the Commission, as well as parties coming before the Commission, need to consider whether a project advances these 10 elements of the State Energy Policy. And so I

just wanted to ask you -- -- I'm getting close to ending my questions -- if you look at what's Applicant's Exhibit 3, let me direct your attention to item (5) on the first page. See where it says "to encourage and promote harmony between public utilities, their users, and the environment"? Do you see that?

A (Lawrence) I'm sorry. Which document is this?

A (Metz) What document? You've got --

Q This is Exhibit 3, the Statute 62-2 which --

A Okay. Not the Applicant, but your Exhibit 3?

Q Our Exhibit 3.

A Okay. So reviewing 62-2 --

Q Item (5).

A -- item (5) is one component --

Q That's right.

A -- out of the 10.

Q Yeah. They need to be considered. I'm asking you about that one.

A Right, but I'd like to just put it in context of everything that is before me. (1) To provide fair regulation of public utilities and interest of the public; To promote the inherent advantages of regulated public utilities; (3) Promote adequate, reliable, and economic utility service to all citizens and residents of

the state. Not just NCEMC, not just DEP, all residents of the state. Moving on?

Q I don't think I've asked -

A Number (3a) --

Q I don't think I've asked you a question.

A -- entire spectrum and demand-side. You asked me to review it.

Q I just asked you if you had it in front of you and did you see Section (5).

A Well, you're asking me to read -- I thought you asked me to read Section (5). I'm not going to read --

Q I have question for you about Section (5).

A Go ahead.

Q My question for you about Section (5) is did the Public Staff consider whether the Friesian project will encourage and promote harmony between public utilities, their users, and the environment under that section of the statute? Did you consider that in making your recommendation?

A Yes.

Q You did?

A Yes.

Q In what way did you consider it?

A To encourage and promote the harmony between

public utilities, I guess we have a different interpretation of what we mean by "harmony". A component of harmony is also looking at the economics of the overall project. The harmony should not be cost -- looking at it from a cost causation standpoint, in order to interconnect this facility we're asking DEP users to pay -- to pick up the entire tab. In my consideration, I don't believe that to be harmonic. I believe that to be disruptive.

Q Well, there are other provisions of this that deal with economics, but this provision deals with harmony with the environment --

A That's my -- that's my interpretation of harmony in the context of this.

Q So let me ask the question this way. Did you consider in making your recommendation environmental benefits that might result from the development of the Friesian project and the associated network upgrades? Did you give any considerations to those environmental benefits?

A We are not the regulators for evaluation of environmental benefits. I believe that's best left up to Department of Environmental Quality.

Q Okay. I'll take that as a no. I have just a

few more questions. Has the Public Staff ever objected to the issuance of a CPCN based on the cost of the networks -- network upgrades associated with the facility?

A (Lawrence) I'm not aware, but I'm also not aware of a time when there has been this substantial of an upgrade required for a facility. We're in a unique time, and this is an unprecedented case, I believe as Mr. Bednar said earlier while testifying. So this is a unique circumstance, so what may or may not have been done in the past, you have to look at the whole case. We can't pick and choose. Just like here we -- to number (5) of this exhibit, you know, we can't just look at number (5). We have to look at the full statute of --

Q Understood.

A -- 62-2. We have to look at 62-110.1, and 62-110.1 is the governing statute for certificates of public convenience and necessity for this type of generator.

A (Metz) And just a note on that, sir, I mean, bullet number (6), To foster the continued service of public utilities on a well-planned and coordinated, I think we've already stated multiple times that this particular project on this particular point in the system, in order to move forward we need to have a

better, well-planned system to do this -- I keep using the word holistic -- you all are probably tired of hearing about it -- but we need to do something more than just putting a Band-Aid on the overall system. We need a bigger policy decision or take more things into consideration.

Q And I just have one more line of quick questions. We had some conversation earlier about the fact that there are State-jurisdictional projects, including some associated with the Friesian project, that would benefit from these network upgrades and be able to -- the need to utilize them, would utilize them, yet would not have to contribute to their cost. Do you recall that discussion?

A I recall that discussion, yes.

Q Is that fact an issue of concern to you and the Public Staff, that there are -- that the approval of this CPCN would create the possibility that certain State-jurisdictional projects would be able to get the benefit of network upgrades that they wouldn't have to pay for?

A (Lawrence) That has already happened, and that's why we're in this situation in large part because the capacity that ratepayers have previously paid for or are paying for, I'm not sure exactly what the cost

recovery of these upgrades currently or these -- the lines that would be upgraded, I'm not sure of the status of the cost recovery of that to this point, but at some point ratepayers are paying for it, and that capacity has already been taken, so --

A (Metz) It's the next incremental amount, then flexion point of where we're at in the overall system and how -- you have the state queue, you have the federal queue. The rules are defined, and people play by the rules. There's no accusation of gaming, nothing to that extent, to a merchant plant that triggers the overall upgrade, and then systemic plants that come in behind it, that is this evolutionary nature of how it may progress. So am I -- does Public Staff have an issue with or making the assumption that, oh, they're getting a free ride, that we don't like it? No. That is not our position or opinion.

Q All right. Thank you.

MR. LEVITAS: I'm going to turn things over to Ms. Kemerait.

MS. KEMERAIT: May I approach with a first exhibit? This will be the Applicant's Cross Exhibit Number 5.

(Whereupon, Applicant Cross

Examination Exhibit 5 was marked for identification.)

CROSS EXAMINATION BY MS. KEMERAIT:

Q Mr. Lawrence and Mr. Metz, again, I'm Karen Kemerait. I'm going to be asking you some questions on behalf of the Applicant.

A (Metz) Good afternoon.

Q And I'm going to start with the letters from Duke that were filed on December the 6th of 2019, and those letters -- so I'm just going to provide some information so we can move this along pretty quickly since it's already 4:30 in the afternoon. But I'm sure you understand that the letters are from Steven DeMay, who is Duke's North Carolina President, and Duke's attorney that were filed in the docket on December the 6th; is that your understanding?

A That is correct.

Q Okay. And I believe that you testified a few minutes ago in response to Mr. Levitas' questions that you did review the letters before filing your testimony on December the 6th; is that right?

A Yes.

Q Okay. And are you aware that Duke President Mr. DeMay stated in the letter that the Friesian CPCN

application involves a unique set of circumstances?

A (Lawrence) Could you point to where it is?

Q So that would be on -- I think he mentioned it twice, but it would be on the first page of his letter, second paragraph, and he states "The decision facing the Commission in this proceeding presents a unique and complex set of circumstances."

A (Metz) And go on further, it says it may or "will have a ripple effect on many other broader policy issues," and part of our consideration of this letter is saying, okay, what is the ripple effect? We pull that string. How far does this go?

Q Okay. So I think my question was, is do you agree with Mr. DeMay that there is -- that this case does involve a unique set of circumstances?

A Correct. To Mr. Lawrence's point earlier, that the success of solar generation within the state of North Carolina has utilized the capacity on the overall system. We're at a unique position that in a good way, that we have a significant upgrade needed because there's no more available capacity in the southeast.

Q Uh-huh. And further down in that paragraph, Mr. DeMay talks about the benefits of the Friesian upgrades. And do you think that when he talks about a

unique -- a unique and complex set of circumstances, that he also means that there -- that this situation involves some important benefits for the Friesian upgrades?

A Well, and benefits to whom? I mean, because in part of at least my review of looking at this, and we've all talked about Q398 and Q399, that there are intangible benefits also for potentially Duke Energy Progress to build new facilities. So, again, I have to take this letter and review in its whole and understand that there is a potential bias in looking at who and what are we actually saying benefits, because Mr. DeMay, I cannot read where he actually quantified the benefits.

Q Okay. Well, let me refer you -- and I'll just read the benefits that he's provided to keep things moving along, but on, again, on page 1, paragraph 2, Mr. DeMay has three enumerated benefits, and he states that the benefits are: (1) allowing for the interconnection of a substantial amount of renewable resources in the southeastern portion of DEP's territory; (2) avoiding queue paralysis and substantial delays in interconnection for certain projects; and (3) minimizing" -- "short-term challenges associated with Duke's queue reform efforts." So those are three specific benefits that Mr. DeMay articulated. Is that your understanding?

A Correct.

Q Okay. And those benefits, you did not include any of those benefits in your prefiled testimony; is that correct?

A That is correct.

Q Okay. But in your prefiled testimony you also provided a quote -- and this is on page 14 of your prefiled testimony -- from former DEP Witness Gary Freeman, in which he provided testimony on November the 19th of 2018. And Mr. -- you provided information from Mr. Freeman's testimony that DEP has determined that significant transmission upgrades are needed to interconnect any new type of generation in southeastern North Carolina. Is that a fair assessment of the quote that you provided in your testimony?

A Correct. And, again, this -- these upgrades have been triggered by the cumulative amount of generation located in southeast North Carolina and need for increased generation to flow northwest towards load up large load centers.

Q Okay. And that -- and what you stated is a further portion of the quote from Mr. Freeman; is that right?

A That's correct.

Q Okay. And then along with the letter from Steven DeMay, Duke's attorney also provided a letter that was filed in the docket on December the 6th as well, and that --

MR. DODGE: Chair Mitchell, I'd like to object. These were -- these statements of position were filed. We could stipulate that the word, the documents say what they state, but I think this -- reading those in, these witnesses aren't here -- or these statements of position, the witnesses aren't here for us to cross examine, so these are -- these should just be viewed as a statement of position and not testimony here before the Commission.

MS. KEMERAIT: Well, I'll move on. I will move on, but Mr. Jirak is -- he was the author of one of the letters, and he is sitting at counsel table.

MR. DODGE: But he has not filed testimony in this proceeding.

MS. KEMERAIT: Okay. That is correct. So I'll move on since it is getting a little bit later.

Q But it is your understanding that the letters that were provided from the President -- North Carolina President of Duke and Duke's attorney did describe specific benefits of the Friesian network upgrades; is that correct?

A Yes. That is correct. I look at it as a statement letter, and there was no discovery served on trying to quantify some of the assertions that they made.

Q Okay. And so is it your testimony, though, that you disagree with the statements that Mr. DeMay and Duke's attorney provided in the two letters that were filed in this docket?

A I don't believe our testimony covered anything on these two letters.

Q I'm talking about your testimony at this time. Are you stating that you disagree with the statements that have been provided by Mr. DeMay and Duke's attorney about the benefits that the Friesian network upgrades will provide?

A I'm not going to opine on what their underlying circumstances and facts and assertions are. That's -- again, that's their letters. I'm not going to opinionate on what they meant by them.

Q And you reviewed, certainly, the supplemental and rebuttal testimony that was filed in the proceeding by the Friesian Witnesses Mr. Bednar, Mr. Askey, and Ms. Wilson; is that right?

A Yes, we did.

Q And you are also -- I saw you in the room, so

you were present for their examination earlier today?

A Yes, we were.

Q And so I believe that their -- I want to state what -- just to keep this moving along, what their -- their responses to the Public Staff's objection to the Friesian CPCN on the basis of the network upgrade costs is that, first, they responded that the costs are going to have to be incurred to improve the transmission system in this part of southeastern North Carolina, regardless of whether Friesian is built or not. That's number 1. And then number 2 is that the costs to improve the transmission system are going to be recovered from the ratepayers to improve the transmission system, even if Friesian is not constructed, and that the upgrades -- number 3 is that the upgrades are needed to allow for a significant amount of additional solar generation and additional non-renewable generation in the state, and that the renewable generation is necessary to meet the Governor's and Duke's carbon reduction goals. Is that a fair summary of their testimony?

A Their testimony can speak for itself. Are you asking me to opine on what arguments or positions that I take with each one of those bullet points you read off?

Q Okay. So I'll be asking you some additional

questions. That is a summary of their response to the Public Staff's recommendation that the CPCN be denied.

A That is their summary, correct.

Q Okay. And so has the Public Staff performed any type of analysis or made any type of determination of the additional generation that's needed on the DEP system over the next decade?

A When evaluating the overall Duke Energy Progress needs, we feel that Duke Energy Progress is the best ones to evaluate what the system needs or reacts as they have multiple standards of what they need to comply to. As part of our review is when the Company comes and presents their Integrated Resource Plan, is we sort of -- not sort of -- we take a deeper dive into the analytics behind those overall studies and process.

And as we stated in multiple dockets, that we have -- starting to and through meetings with Duke, that we're becoming more and more aware of potential reliability concerns occurring on the overall system. This can be the least reliability operating limit as we increase non-dependable renewable generation during particularly the shoulder seasons and we have to start cycling down some of the nuclear power plants, the existing generation asset mix that we have in the system.

We also have to evaluate the peaks of the system in the morning and be able to call online in an economically manner to have the assets in place and many other considerations.

Q Okay. And so I think it's fair to say, then, that you have not performed, you know, an independent analysis, but that you do review Duke's 2016/2018 IRPs and the 2019 Updates to determine what Duke believes the additional generation is needed over the coming years; is that a fair statement?

A That is correct.

Q Okay. And have you performed any type of independent analysis of the additional generation facilities that will be able to be constructed as a result of the Friesian upgrades, assuming that the Friesian upgrades are, in fact, constructed?

A The speculative projects behind Q380 and what may or may not interconnect?

Q Correct.

A No.

Q So you have not performed any type of analysis to consider the amount of additional solar or the addition of the natural gas plant that we're referring to as Q399?

A Well, also, we have to talk about Q398. I believe it's already been discussed extensively in the record of the interdependencies of those particular projects and the speculative nature of what projects can or could come online.

Q Yeah. And I was referring -- just to clarify, I was referring to the Natural Gas Plant 3, Q399, because at this point Duke's information about the natural gas plant Q398 is it is not interdependent on the Friesian network upgrades, but Q399 is. So that is why I was referring to just Q399 rather than Q398.

A But then in context you're asking is about how we look or what we look at in terms of Integrated Resource Plan. I believe we filed in testimony that, yes, we look at when the next generation asset will be coming online as -- again, as we talked about in testimony, that it's unique that the one gas plant that has been in the planning horizon continues to move out. I believe it was approximately -- it was less than a 1,000 MW facility and now, just due to the planning criteria, it's now an approximately 1,200 MW facility.

The need based upon State Energy Policy, State Energy Goals, increase in renewable penetration, reserve margin changes, EE efficiencies, DSM efficiencies, all

are contributing factors of looking at when the statement of -- not the statement of need -- of when the identification of need for the overall project comes in. So as that is a moving target, it's been the Public Staff's position that we do not approve -- we do not recommend approval for a CPCN prior to the date of what they need for that overall facility. So that's in reference to Q398 and 399 because neither of those have been -- have been presented for CPCN, and they're merely placeholders in the IRP to give a horizon point of, hey, we think we need it here and this is how we're planning the overall system.

A (Lawrence) And then additionally, for the solar generation or even smaller generators besides the two gas facilities that are in the queue behind this project, that Friesian will help facilitate interconnection for that -- helping facilitate interconnection for those facilities, as we understand it, does not mean that that is interconnection without upgrades and additional cost.

And so we're not in a position to evaluate each project and each developer's needs and how serious they are about a project, and then what the upgrade costs for those projects would likely be. I mean, the two projects presented earlier, Homer and Fair Bu--- excuse me --

Homer and Fair Bluff Solar each required upgrades and are interdependent on the Friesian upgrade. So this isn't the final -- even if these upgrades were completed, it's not the final step. There -- it's just the next step, and there's going to be additional upgrades required and then, you know, the more solar that comes on or the more generators, the more capacity that gets taken up, we get back to the same point we're at here. And it would be an iterative process, and at what point do you stop? At what point is it too much? And we have that limit, and right now --

Q So I guess my -- I guess my question is just to -- so because it's getting late, I just want to be able to keep moving along, but do you disagree with the information that Duke has provided and that the Friesian witnesses have provided that the Q399, the natural gas plant, if it is constructed, will be able to utilize the Friesian network upgrades, and that the Friesian network upgrades will allow for the connection of a substantial amount of solar? We're not specifying which specific solar projects, but well in excess of 1,000 MW of solar.

A It's too many "ifs" in that statement for us to make an agreement with or make a recommendation on.

Q Okay. I will move along pretty quickly, but

Q399, from information provided by Duke, is interdependent on the Friesian network upgrades, correct?

A (Lawrence) But it also has other substantial upgrades of its own --

Q Uh-huh.

A -- and is also interdependent of 398 as well.

A (Metz) And will be evaluated when they come in for a CPCN. I'm going down a hypothetical here. It's dependent upon ACP. Let's say we introduce a carbon tax and let's say some type of regulation happens on natural gas. I mean, your guess is as good as mine at what the commodity price would be and how the dynamics will unfold on whether or not one would make a recommendation for approval of Q399. So I'm not coming -- I'm not going to present, saying, hey, we should build this because Q399 is coming. It's like I don't know if Q399 is coming. We'll evaluate Q399 when the time is more right for it. To get less -- the further you go out in time, the more uncertainty exists, and right now that's too much uncertainty.

Q So you do not at this time know the proposed cost of the network upgrades that would be needed to support Q399 if the Friesian upgrades are not constructed?

A Well, we also have to evaluate the other projects between Q380 and Q399 as well.

Q Okay. Well, I guess you do not know what the cost of the network upgrades for --

A (Lawrence) The network upgrades are part of what the eventual process will be, but even without any network upgrades, the facility would not be a given. We're yet to evaluate. We're yet to be at a time where we can say with any certainty with a zero dollar cost for network upgrades what's going to be needed then. So the network upgrades aren't the only issue there.

Q And if Q--- if the Friesian project does not move forward and the natural gas plant Q399 is constructed and the network upgrades are constructed through the Q399, those network upgrades at that point would be rate based; is that correct?

A (Metz) Any utility-owned asset constructed would be rate based regardless of queue position, so maybe that's where were just getting hung on up Q398, 399. 398 is presumed to come before 399. Again, that's a 1,200 MW plant. How far does that push it out into the future? Can we continue to make short-term market purchases like we are now in DEP to help alleviate some of the lumpiness? It's a possibility, and we'll evaluate

that when the CPCN comes at that particular time.

Q Okay.

A (Lawrence) But I believe it is a safe assumption right now that Duke would ask for cost recovery of those costs if they were to be incurred.

Q So at this point you're not able to provide any opinion about whether the ratepayers would be better off or worse off if the network upgrades that are needed in the southeastern portion of the state are constructed by Friesian or by Q399 in the future?

A (Metz) Well, the facts and circumstances before us is going back to the cost causation principle that Friesian is here before us and they are causing the network upgrades, therefore, it's under that evaluation. All the other components require -- or too much speculation in nature to say when and when not they would come into the overall system.

A (Lawrence) Right. The needs I believe that you referenced are needs to upgrade the capacity on the lines to accommodate additional generation, and many of those generators would be QFs, admittedly, and we don't know how many of those would connect. I'm not -- and even at what cost.

Q Okay.

A Those are two big questions that would have to be --

Q So --

A -- answered that we don't have a way to evaluate right now.

Q Okay. So Friesian is not constructed. Do you anticipate any of the QF solar facilities that are behind Friesian in the queue are going to be able to absorb the substantial triggering network upgrade costs? And you heard testimony earlier today that there will be a queue paralysis because projects will continue to drop out of the queue because they will not be able to absorb that cost.

A (Metz) Well, I mean, one can opinionate on the queue paralysis that we -- developers went and tried to produce too much generation in an area that has load. I mean, that is -- that's not necessarily Duke's fault, that's not necessarily the Public Staff's fault on the queue paralysis; it's that you try to go build too much generation in an area where load didn't match. I mean, those are just basic fundamentals. You -- load goes where generation goes.

We're also looking to see how the outcome of CPRE is going to result. We're trying to utilize the

transmission system to the most efficient way that we can and utilize the headroom or left over room to continue to integrate renewables.

Q Okay. So if Friesian is not constructed and the QFs behind Friesian in the queue also drop out of the queue, then it becomes the natural gas plant Q399. And at that point the network upgrades will be constructed by Q399, assuming that the -- for planning purposes that what Duke is planning in its IRPs to meet its generation load growth.

A But, again, we're not agreeing that Q399 will ever be built.

A (Lawrence) Right.

A (Metz) It's too much speculation out into the future of what is going to manifest itself.

A (Lawrence) And this amount of -- the amount of upgrades that would be triggered for the gas plant, still, even with that much larger generation are still substantial and still concerning even regardless of the generator size.

Q So is it the Public Staff's position, then, that the transmission upgrades in the southeastern portion of the state that are contemplated by either Friesian or Q399 are not needed and are not going to be

constructed at some point in the near future? Is that the Public Staff's position?

A (Metz) It gets into an argument of what you're calling need. The need is because we've already utilized, maximized, leaned on the transmission system with generation on the system in order to meet expected load which, again, looking at the planning horizon, it's like we just -- we're not going to go grant a CPCN before the time of need is. It just -- it's too much guesswork to say, okay, now is the time to build. So, again, we don't know when or where on the system it's going to be built because the planning horizon is too far out into the future.

Q So I find it somewhat difficult that the Public Staff, that your testimony is, is that you don't think that these transmission network upgrades are required in the southeastern portion of the state when you have two natural gas plants --

A (Lawrence) Where does that say that in our testimony? Can you point to that in our testimony?

Q That is what you're stating now. It's all speculative and that you don't see that it's needed. Is --

A The generation --

Q Let me --

A -- is speculative and the upgrades to the grid that are being talked about and referred to in this case is the Friesian upgrades. Those upgrades are required to accommodate additional generation. There -- the need for that is the -- is needed to -- like I just said, for additional generation, not to serve load, not as for reliability constraints and those requirements. It's needed for the solar generation.

A (Metz) Absent a generation, let's say hypothetically that that area of the transmission line, absent new generation, and we just had excess load growth going in that particular are of the region, my assumption would be it would be presented at the Transmission Planning Committee and continue to be vetted up, dependent upon of what the overall upgrade would be. It could be the potential that the Utility says we need to build a new line, so they would be coming in for a CPCN or a CPECN -- thank you -- for that particular transmission line, and then we'll evaluate the facts and circumstances and sit down with Duke transmission folks and review the NERC standards which are triggering it.

Q Okay. I'll go ahead and move on. And you -- there was some testimony about increased costs, and have

you done any analysis about the expected increase in utility construction cost over the next decade?

A (Lawrence) I'm sorry. Where is that referring to in our testimony?

Q There was --

A Which page?

Q There was some testimony earlier about increase in utility construction costs. Have you -- do you have any estimate of the impact on ratepayers over, say, a four-year delay in constructing the network upgrades that would be associated with the Friesian facility?

A (Metz) No. We did not perform any analysis to that, but let's talk a little bit about my construction background. So when looking at an overall project, well, we can do the upgrades now or we can defer the upgrades. You have to balance those costs with, all right, what's the carrying cost of capital to spend it now or what is going to be the future element of pricing. I believe they were talking a little bit earlier about labor rate increases and as well as the wire increases through Southwest Wire or Southwire.

Where I did design on busbars, transformers, and other components, looking at elements dealing heavy with the copper commodity, it depends of when you're

coming into the overall market when you're looking at a commodity price. Well, if you're coming down into -- in the bottom, well, it's nothing but up. Every year the commodity price is going to come up. But there are certain times where you come into it that, say, copper is $2 a pound, I lock into that price. Well, the contract agreement will have an escalator to say, okay, you're going to pay me at the end of your project whatever today's copper price is because they need to replace it on their shelf for machine stock, but that's a hedge. The copper price can go down to $1.95, but it didn't matter. I got stuck with it at $2. That was part of the business decision that I was making in looking at the commodity price and making the business decision at that time.

A (Lawrence) And there's also, I believe, two other points that are appropriate to make here, that, one, if Friesian pays for these upgrades, they're also reimbursed at the -- I believe the FERC interest rate. They will be reimbursed with interest, so there's additional cost there, so that 223 million will increase. And so I'm not sure -- we have no way to know how that would compare to what might happen in the future about any cost increases that it would take to build these

upgrades in the future. And additionally, there's also the fact that these upgrades may never be needed beyond -- if the Duke plants are never built or the Q399 is not built, then there's also the possibility that these upgrades aren't done, and then it's a zero cost to ratepayers in that situation for the upgrades.

A (Metz) It would be equivalent to not necessarily a stranded asset is the incorrect word, but it would exacerbate the lumpiness issue if Q399 came along or the speculative nature of the 1,000 or 1,651, 1,561 MW coming behind it, at what point are they plugging into an asset life that is 60 years?

Q So --

CHAIR MITCHELL: We're going to end there for today. Let's go off the record, please. Counsel approach.

(The hearing was recessed, to be reconvened on December 19, 2019, at 1:30 p.m.)

STATE OF NORTH CAROLINA

COUNTY OF WAKE

C E R T I F I C A T E

I, Linda S. Garrett, Notary Public/Court Reporter, do hereby certify that the foregoing hearing before the North Carolina Utilities Commission in Docket No. EMP-105, Sub 0, was taken and transcribed under my supervision; and that the foregoing pages constitute a true and accurate transcript of said Hearing.

I do further certify that I am not of counsel for, or in the employment of either of the parties to this action, nor am I interested in the results of this action.

IN WITNESS WHEREOF, I have hereunto subscribed my name this 7th day of January, 2020.

Linda S. Garrett

Linda S. Garrett
Notary Public No. 19971700150