ERRATA

To: Shonta Dunston, Chief Clerk
From: Kim Mitchell, Court Reporter
CC:
Date: February 4, 2022
Re: Docket No. EMP-116, Sub 0 – Juno Solar, LLC Transcript Volume 1

The prefiled direct and supplemental testimony of Piper Miller filed on October 15, 2021, was not included in transcript volume 1. Also, Miller Direct Exhibit 3 filed in the docket on October 19, 2021, titled "Statement of Need" was not included with the official exhibits.

To ensure the docket is correct, I am attaching a corrected transcript which includes the direct and supplemental testimony of Piper Miller filed on October 15, 2021, and the Statement of Need filed on October 19, 2021, which has been labeled as Miller Direct Exhibit 3.

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REDACTED

1	PLACE:	Dobbs Building, Raleigh, North Carolina
2	DATE:	Tuesday, November 30, 2021
3	TIME:	10:00 a.m 11:42 a.m.
4	DOCKET NC	: EMP-116, Sub 0
5	BEFORE:	Commissioner Kimberly W. Duffley, Presiding
6		Chair Charlotte A. Mitchell
7		Commissioner Daniel G. Clodfelter
8		
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10		
11		IN THE MATTER OF:
12		Application of Juno Solar, LLC,
13	fo	r a Conditional Certificate of Public
14	Conven	ience and Necessity to Construct a 275-MW
15		Solar Facility in Richmond County,
16		North Carolina
17		
18		VOLUME 1
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    A P P E A R A N C E S:
 2
    FOR JUNO SOLAR, LLC:
 3
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    Ben Snowden, Esq.
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    FOR THE USING AND CONSUMING PUBLIC:
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1	PROCEEDINGS
2	COMMISSIONER DUFFLEY: Good morning. Let's
3	come to order and, please, go on the record. I am
4	Commissioner Kimberly W. Duffley, and with me today
5	are Chair Charlotte A. Mitchell and Commissioner
6	Daniel G. Clodfelter.
7	I now call for hearing Docket Number
8	EMP-116, Sub 0, In the Application of Juno Solar for a
9	Conditional Certificate of Public Convenience and
10	Necessity to Construct a 275-MW Solar Facility in
11	Richmond County, North Carolina.
12	On July 12th, 2021, Juno Solar, Juno or
13	Applicant, filed the Application for a Certificate of
14	Public Convenience and Necessity with confidential
15	exhibits and confidential prefiled testimony of Piper
16	Miller.
17	On July 27th, 2021, the Applicant filed
18	revised prefiled direct testimony of Ms. Miller and a
19	revised site plan as well as other supplemental
20	confidential exhibits.
21	On July 27th, 2021, the Public Staff filed a
22	Notice of Completeness as required by Commission Rule
23	R8-63(d) with respect to the completeness of the
24	Application. The Notice of Completeness also included

1	a Motion to Stay which was denied.
2	On August 31st, 2021, the Commission issued
3	an Order Scheduling Hearings, Filing of Testimony,
4	Establishing Procedural Guidelines and Requiring
5	Public Notice.
6	On September 1st, 2021, the Commission staff
7	sent a letter to the State Clearinghouse requesting
8	comments on the Application. On October 4th 2021,
9	October 11th, 2021, and October 15th, 2021, the
10	Clearinghouse filed comments on the Application.
11	On September 14th, 2021, the Applicant filed
12	supplemental direct testimony of Piper Miller.
13	On October 15th, 2021, the Applicant filed
14	un-redacted copies of both the direct and supplemental
15	testimony of Piper Miller. Finally, on October 19th,
16	2021, the Applicant filed an exhibit entitled
17	"Statement of Need" originally filed as confidential
18	with the Application and testimony in un-redacted
19	form.
20	On October 12th, 2021, Duke Energy Carolinas
21	and Duke Energy Progress jointly filed a Petition to
22	Intervene, which was allowed.
23	On October 28th, 2021, the Public Staff
24	filed a motion to cancel public hearing, which was

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1 granted. 2 On October 26th, 2021, the Public Staff 3 filed the testimony and exhibits of Dustin Metz, 4 Utilities Engineer in the Public Staff's Electric 5 Section. On November 9th, 2021, the Applicant filed 6 7 rebuttal testimony and exhibit of Steven J. Levitas 8 and the rebuttal testimony and confidential attachment A of Piper Miller. 9 10 In compliance with the State Ethics Act, I 11 remind all members of the panel of our duty to avoid 12 conflicts of interest, and inquire at this time as to 13 whether any member has a known conflict of interest 14 with respect to the matter coming before us? 15 (No response) 16 Let the record reflect no conflicts were identified. 17 18 I will now call for appearance of counsel, 19 beginning with the Applicant. 20 MS. KEMERAIT: Good morning, Madam Chair and 21 Members of the Commission. My name is Karen Kemerait. 22 I'm an attorney with Fox Rothschild in Raleigh and I'm 23 here on behalf of the Applicant, Juno Solar, LLC. 24 COMMISSIONER DUFFLEY: Good morning.

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1	MR. SNOWDEN: Good morning, Commissioners.
2	I'm Ben Snowden, also with Fox Rothschild, LLC, here
3	in Raleigh on behalf of the Applicant.
4	COMMISSIONER DUFFLEY: Good morning.
5	MS. CUMMINGS: Layla Cummings and Robert
6	Josey, Public Staff, on behalf of the Using and
7	Consuming Public.
8	COMMISSIONER DUFFLEY: Thank you. Good
9	morning. Do the parties have preliminary matters
10	before we begin?
11	MS. KEMERAIT: Yes, we have just one
12	preliminary matter that I wanted to make the
13	Commission aware of. Steve Levitas we are going to
14	be presenting Mr. Levitas and Ms. Miller as a panel,
15	and they are going to provide their direct and
16	rebuttal testimony at the same time. Mr. Levitas has
17	a flight where he's planning to leave here at 2:00.
18	I've made Ms. Cummings and Mr. Josey aware of that
19	schedule, and we don't think that it's going to be any
20	problem to have him his testimony concluded in time
21	for him to leave for his flight.
22	COMMISSIONER DUFFLEY: Okay. Thank you.
23	Any objection?
24	MS. CUMMINGS: No.

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COMMISSIONER DUFFLEY: So allowed. Any other preliminary matters? MS. KEMERAIT: No. COMMISSIONER DUFFLEY: As with respect to the confidential information --MR. JOSEY: Sorry. I do have some confidential questions that I believe we can save until the end, but just wanted to make the Commission aware of that. COMMISSIONER DUFFLEY: Okay. Thank you. So indicate when you plan to ask your confidential -questions with confidential information. Hearing nothing further, you may call your first witness. MS. KEMERAIT: Okay. I'll begin by calling a panel of Juno Solar's witnesses, and the panel will consist of Piper Miller and Steve Levitas. And I'll begin with Ms. Miller. Ms. Miller, can you state your full name and business address for the record? MS. MILLER: Sure. My name is --COMMISSIONER DUFFLEY: Actually, we need to -- do you want to swear or affirm? Both witnesses,

24 which would you prefer?

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1		MS. KEMERAIT: Do you have a preference,
2	Ms.	Miller?
3		MS. MILLER: No.
4		PIPER MILLER and STEVEN J. LEVITAS,
5		as a Panel;
6		having been duly sworn,
7		testified as follows:
8		MS. KEMERAIT: Thank you.
9	DIRE	CT EXAMINATION BY MS. KEMERAIT:
10	Q	Ms. Miller, I'll ask the question again. Can you
11		state by whom you are employed and in what
12		capacity?
13	A	Sure. My name is Piper Miller. I am the Vice
14		President of Development for Pine Gate
15		Renewables.
16	Q	And can you provide your business address for the
17		record?
18	A	Yes. My business address is 130 Robert Street,
19		Asheville, North Carolina 28801.
20	Q	And did you cause to be prefiled on July the 2nd
21		of 2021, 24 pages of direct testimony in the form
22		of question and answer and exhibits, and
23		specifically Exhibits 2(i) and 2(ii) and
24		Confidential Exhibit 1(iii) and 1(iv)?

1	A	Yes.
2	Q	If I were to ask you the same questions that
3		appear in your direct testimony today, would your
4		answers be the same?
5	A	Yes.
6	Q	And did you also cause to be prefiled on July the
7		26th of 2021, 24 pages of revised direct
8		testimony in the form of question and answer and
9		Exhibit 2(i) and Confidential Exhibit 2(i)(a)?
10	A	Yes.
11	Q	And if I were to ask you the same questions that
12		appear in your revised direct testimony today,
13		would your answers be the same?
14	A	Yes, they would.
15	Q	And did you also cause to be prefiled on
16		September the 14th of 2021, six pages of
17		supplemental direct testimony in the form of
18		question and answer?
19	A	Yes.
20	Q	And if I were to ask you the same questions that
21		appear in your supplemental direct testimony
22		today, would your answers be the same?
23	A	Yes.
24	Q	And then finally did you cause to be prefiled on

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1	November the 9th of 2021, 18 pages of rebuttal
2	testimony in the form of question and answer?
3	A Yes, I did.
4	Q And if I were to ask you the same questions that
5	appear in your rebuttal testimony today, would
6	your answers be the same?
7	A Yes.
8	MS. KEMERAIT: At this time, I would move
9	that Ms. Miller's prefiled direct, revised direct,
10	supplemental direct and rebuttal testimony be copied
11	into the record as if given orally from the stand, and
12	that the exhibits to her testimony be marked for
13	identification and included in the record.
14	COMMISSIONER DUFFLEY: Any objection?
15	(Pause).
16	Hearing no objection, the testimony is
17	allowed.
18	(WHEREUPON, Miller Direct
19	Exhibits 2(i), 2(ii),
20	Confidential Exhibits 1(iii) and
21	1(iv), Revised Direct Exhibit
22	2(i) and Confidential Revised
23	Direct Exhibit 2(i)(a) and Direct
24	Exhibit 3 are marked for

NORTH CAROLINA UTILITIES COMMISSION

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1	identification as prefiled and
2	received into evidence.)
3	(WHEREUPON, the prefiled direct,
4	revised direct, supplemental
5	direct and rebuttal testimony of
6	PIPER MILLER is copied into the
7	record as if given orally from
8	the stand.)
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NORTH CAROLINA UTILITIES COMMISSION

Jeb 03 2022

BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

PRE-FILED DIRECT TESTIMONY

OF

PIPER MILLER

July 12, 2021

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1		INTRODUCTION
2	Q.	PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.
3	.A.	My name is Piper Miller. I am Vice President of Development for Pine Gate
4		Renewables, LLC ("Pine Gate Renewables"), and my business address is 130
5		Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar"
6		or "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch
7		Creek") and operated in collaboration with Pine Gate Renewables, which
8		manages the development of Juno Solar's proposed utility-scale solar
9		photovoltaic ("PV") generating facility.
10		
11	Q.	PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL
12		EXPERIENCE.
13	A.	I obtained a Bachelor of Arts degree in Environmental Science and Policy, Summa
14		Cum Laude, from Florida State University. I have worked with Pine Gate
15		Renewables since 2017 and have held various positions, including: Vice President
16		of Development; Director of Development; Market Lead (where I was responsible
17		for spearheading market-entry and development strategy in the Northeastern United
18		States and overseeing Pine Gate Renewables' pipeline of utility-scale and
19		distributed generation solar projects in the region); Policy Lead (where I worked
20		with Pine Gate Renewables' Vice President of Market Development to analyze and
21		present new market opportunities for solar development with a focus on regulatory

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Testimony of Piper Miller Docket EMP-116, Sub 0 Page 2

1		performed land evaluation for large-scale solar energy project feasibility and
2		analyzed utility infrastructure and environmental and geographical constraints).
3		Prior to joining Pine Gate Renewables, I worked at the Office of Sustainability for
4		Leon County Government, where I collaborated on policy and program
5		development to craft innovative solutions to community sustainability barriers. I
6		was also responsible for the management of education and outreach programs to
7		promote energy and water conservation, waste reduction, and sustainability
8		throughout the County.
9		
10	Q.	PLEASE SUMMARIZE YOUR CURRENT RESPONSIBILITIES WITH
11		PINE GATE RENEWABLES.
12	A.	As Vice President of Development for Pine Gate Renewables, I oversee
13		development strategy and execution for Pine Gate Renewables' portfolio of solar
14		projects in the Southeastern United States. My role is deeply integrated with
15		market strategy, regulatory policy, and project finance in order to identify new
16		opportunities for solar project development and successfully bring existing
17		projects to commercial operation.
18		
19	Q.	HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?
20	A.	No.
21		
22	Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?

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1	Α.	The purpose of my testimony is to demonstrate that Juno Solar's Application for a
2		Conditional Certificate of Public Convenience and Necessity ("CPCN") meets the
3		requirements of N.C. Gen. Stat. § 110.1 and Commission Rule R8-63.
4		
5	Q.	PLEASE DESCRIBE JUNO SOLAR AND THE PARENT COMPANY OF
6		JUNO SOLAR.
7	Α.	Juno Solar is a limited liability company incorporated in the State of North Carolina
8		since October 30, 2020. As mentioned previously, Juno Solar is wholly owned by
9		Birch Creek in collaboration with Pine Gate Renewables, which manages the
10		development of Juno Solar's proposed utility-scale solar PV generating facility.
11		
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13		
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16		BACKGROUND AND PROJECT FINANCE
17	Q.	PLEASE DESCRIBE BIRCH CREEK AND PINE GATE RENEWABLES'
18		PERSONNEL, TECHNICAL EXPERIENCE, AND FINANCIAL
19		CAPABILITY TO OWN AND OPERATE JUNO SOLAR.
20	A.	Birch Creek and Pine Gate Renewables have extensive experience in successfully
21		owning and operating solar PV facilities in North Carolina and across the United
22		States. Birch Creek and Pine Gate Renewables have placed more than 500

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Testimony of Piper Miller Docket EMP-116, Sub 0 Page 4

megawatts ("MW") DC of solar generating capacity into service to date, with
 approximately 440 MW DC of capacity currently in construction. Birch Creek and
 Pine Gate Renewables are currently developing over 8,000 MW DC of solar
 projects across the country.

6 Pine Gate Renewables is developing the Juno Solar project as a partner in Birch 7 Creek, and has extensive experience developing solar generating projects in North 8 Carolina and throughout the United States. Pine Gate Renewables has operating 9 solar projects in five states, but the majority of its operating projects are located in 10 North Carolina. Pine Gate Renewables has sophisticated in-house development 11 operations and project finance capabilities, and has closed on over \$2 billion in total 12 project capital raised in support of its solar project development. Pine Gate 13 Renewables' affiliated engineering, procurement, and construction ("EPC") 14 company, Blue Ridge Power, LLC, is the largest and most experienced EPC firm 15 in the Southeast.

16

5

17 Key personnel involved with the Juno Solar project are as follows:

Piper Miller – Vice President, Development. As Vice President of Development
 for Pine Gate Renewables, Piper leads utility-scale solar project development and
 market entry strategy for the company's solar project footprint in the Southeastern
 U.S. Overseeing a 5 GW pipeline of solar projects, Piper's role is deeply integrated
 with market strategy, regulatory policy, and project finance in order to identify new

opportunities for solar project development and successfully bring existing projects
 to commercial operation. With more than six years in the renewable energy and
 sustainability sector, Piper has spearheaded market and development opportunities,
 analyzed regulatory policies, and advised on siting and off-take strategies for
 portfolios of solar projects across more than ten states on the east coast.

6

7 Sean Andersen - Director, Project Management. Sean has more than six years of 8 experience in the solar industry, where his extensive knowledge of business 9 development and land origination has led teams in the development of utility-scale 10 solar sites. As Director of Project Management at Pine Gate Renewables, Sean 11 conducts due diligence and project analysis for solar PV projects in various states 12 while identifying high-level key project, interconnection, and access constraints. 13 While interfacing with engineering, finance, and construction to ensure effective 14 development of solar projects, he manages consultants, budgets, milestones, and 15 deliverables to ensure the success of projects.

16

17Mak Nagle – Senior Vice President, Development. Mak is responsible for leading18strategic initiatives within the scope of Pine Gate Renewables' solar development19effort. Mak brings more than twenty years of experience in power marketing,20business development, market design, transmission operations, and planning. He21also provides guidance on technical issues and emerging technologies22(e.g., energy storage) while coming up with unique propositions for Pine Gate

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1	Renewables' clients. For the past eight years, Mak has successfully negotiated
2	over 2 GW of purchase power agreements ("PPAs") with multiple utilities and
3	electric cooperatives, as well as with University of Richmond in Virginia. Prior
4	to entering the renewable space, Mak worked at Southwest Power Pool, where he
5	was responsible for developing their Day 2 energy market and running
6	transmission studies and planning groups. He has also spent more than six years
7	as a planning engineer in Entergy's Transmission Group, where he was involved
8	in restoring the electric grid after Hurricanes Katrina and Rita.
9	
10	Steve Levitas - Senior Vice President, Regulatory & Governmental Affairs.
11	Steve leads Pine Gate Renewables' policy, regulatory, and government affairs
12	efforts, including its engagement in energy market reform and the expansion of
13	off-take opportunities for independently owned solar generation resources. He
14	previously served as Senior Vice President of Regulatory Affairs and Strategy for
15	Cypress Creek Renewables, where he led the company's regulatory and
16	government affairs activities and advised the company about the impact of public
17	policy on its commercial strategy. Prior to joining Cypress Creek, Steve served as
18	Vice President for Business Affairs and General Counsel for FLS Energy and
19	spent more than 20 years in private law practice, concentrating on renewable
20	energy project development and environmental regulatory matters. In 2015 he
21	was the recipient of The Charlotte Business Journal's Energy Leaders Award.
22	

1	From 1993 through 1996, Steve served as Deputy Secretary of the North Carolina
2	Department of Environment, Health, and Natural Resources. Prior to his service in
3	state government, Steve was Director and Senior Attorney of the North Carolina
4	office of the Environmental Defense Fund, which he opened in 1988.
5	
6	Tripp McSwain - Senior Vice President, Construction. Tripp has more than nine
7	years of experience as a construction professional in the solar industry. As Senior
8	Vice President of Construction, Tripp is responsible for
9	Pine Gate Renewable's construction planning, execution, and closeout. His
10	duties include overseeing all projects, providing guidance to project teams,
11	developing agreements with contractors, and creating strategies and processes to
12	ensure that budget, safety, and schedule goals are met. Tripp has overseen the
13	installation of numerous projects totaling over 1.5 GW of solar energy. He has a
14	Bachelor of Science degree in Construction Management and Appropriate
15	Technology from Appalachian State University and holds a NABCEP
16	certification.
17	
18	Brian Taddonio - Vice President, Engineering. As the Vice President of
19	Engineering for Pine Gate Renewables, Brian has extensive knowledge of PV
20	engineering standards, NEC and utility regulatory compliance, and
21	project development and construction engineering processes with an emphasis on
22	quality control, maintaining project schedules and budgets, and cost

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1	reduction. With twelve years of experience in solar development and EPC, Brian
2	has designed more than 300 MW of installed PV capacity, and has gained
3	substantial experience in utility scale PV development, engineering, and
4	construction. At Pine Gate Renewables, Brian leads the engineering team by
5	developing engineering standards and specifications, strategic alliances, and
6	initiatives for cost reduction and avoidance.
7	
8	Jason Birn - Senior Vice President, Project Finance. Jason Birn has twenty years
9	of experience as a debt and equity project finance professional in the utility-
10	scale power and infrastructure sector, with a strong foundation in fundamental
11	credit, financial and industry analysis, origination, and commercial
12	execution. As Senior Vice President of Project Finance at Pine Gate Renewables,
13	Jason oversees raising of the requisite capital needed to construct Pine Gate
14	Renewables' entire solar project portfolio. Moreover, he oversees the building
15	and utilization of complex financial models to assess the economic viability of
16	projects, performs front-end valuation and debt sizing analysis, and quantifies all
17	sources of potential third-party capital throughout a project's life cycle.
18	
19	Juno Solar and Birch Creek have the financial capability to own and operate the
20	Juno Solar project. Birch Creek's most recent balance sheet and income statement
21	are provided confidentially and under seal as Confidential Exhibit 1(iii).
22	

1	Q.	WHAT IS THE CONSTRUCTION TIMELINE FOR THE FACILITY?
2	A.	Construction for the Juno Solar facility is expected to begin in the second quarter
3		of 2023, and commercial operation is expected to occur in the third quarter of 2024.
4		
5	Q.	WHAT IS THE EXPECTED SERVICE LIFE OF THE FACILITY?
6	A.	The expected service life of the Juno Solar facility is forty (40) years.
7		
8	Q.	WHAT ARE THE ESTIMATED CONSTRUCTION COSTS FOR THE
9		FACILITY?
10	A.	The estimated construction costs for the Juno Solar facility are approximately
11		\$370,690,000.
12		
13	Q.	DOES JUNO SOLAR, ITS PARENT COMPANY, BIRCH CREEK, OR
14		BIRCH CREEK'S AFFILIATE, PINE GATE RENEWABLES, HAVE
15		OWNERSHIP INTEREST IN AND/OR THE ABILITY TO CONTROL
16		GENERATING FACILITIES IN THE SOUTHEASTERN ELECTRIC
17		RELIABILITY COUNCIL ("SERC") REGION?
18	A.	Yes. Pine Gate Renewables has ownership interest in and/or the ability to control
19		through leases or contracts numerous solar PV generating facilities in the SERC
20		region. A list of solar PV generating facilities that Pine Gate Renewables owns or
21		controls through leases or contracts in the SERC region is provided confidentially
22		and under seal as Confidential Exhibit 1(iv).

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2		SITE AND FACILITY DESCRIPTION
3	Q.	ONCE CONSTRUCTED, WHERE WILL THE JUNO SOLAR FACILITY
4		BE LOCATED?
5	A.	The Juno Solar site consists of twenty-five (25) parcels, or a portion thereof,
6		collectively containing approximately two thousand five hundred eighty-six
7		(2,586) acres of land, located along McFarland Road and Green Chapel Church
8		Road in Marks Creek Township, Richmond County, North Carolina. The project
9		will be in the location described above and as shown in the high-resolution color
10		map attached hereto as Exhibit 2(i).
11		
12	Q.	WHAT IS THE CURRENT LAND USE OF THE SITE AND THE
13		ANTICIPATED USE?
14	A.	The parcels for the project are zoned Agricultural Residential ("A-R") and Rural
15		Residential ("R-R"), and they are currently being used for agricultural purposes.
16		Juno Solar will lease approximately 2,600 acres of the parent parcels (that total
17		approximately 2,586 acres) for the 275-MWAC solar PV facility that will generate
18		solar energy. The area that is not included in the leased area will be able to continue
19		to be used for agricultural purposes. No additional right-of-way is needed for the
20		facility. The facility will have a minimum building setback of fifty (50) feet
21		where abutting residential property, and a minimum setback of sixty-five (65)
22		feet from public rights-of-way.

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1							
2	Q.	WHAT	IS	THE	FACILITY'S	ANTICIPATED	ELECTRICITY
3		PRODUCT	TION	I CAPA	CITY?		
4	Α.	The namep	olate g	generatii	ng capacity of the	Juno Solar facility i	s 275 MWAC. The
5		facility's to	otal de	ependab	le capacity is 68.7	5 MWAC.	
6							
7	Q.	PLEASE I	DESC	CRIBE	THE BASIC CO	MPONENTS OF T	HE FACILITY.
8	A.	Juno Solar	is a 2	275-MW	AC PV array, and	l the source of its po	wer is solar energy.
9		The facility	will	consist	of a single-axis tra	cking solar array that	is DC-coupled with
10		an energy s	torag	e systen	n connected behin	d a single point of in	terconnection to the
11		Duke Energ	gy Pro	ogress (l	DEP) Richmond-I	aurel Hill 230 kV tra	insmission line. The
12		solar array	will	consist	of a maximum D	C output of approxin	nately 385 MWDC.
13		The energy	stora	ge syste	m will have an ag	gregate power capaci	ty of approximately
14		68.75 MW	and	275 MV	Vh (4-hour durati	on) subject to chang	e during the design
15		process. A	colo	or map s	showing the prop	osed site boundary a	and layout, with all
16		major equip	omen	t, roads,	electric facilities,	and the point of inter	connection ("POI")
17		is attached	herete	o as <u>Exh</u>	<u>iibit 2(i)</u> .		
18							
19	Q.	PLEASE 1	DESC	CRIBE	THE TRANSM	ISSION FACILIT	IES TO WHICH
20		THE JUNC	o so	LAR F.	ACILITY WILL	INTERCONNECT	AND HOW THE
21		PROJECT	WII	L BE I	NTERCONNEC	TED TO THE GRI	D.



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4 DEP. In its 2020 Integrated Resource Plan ("IRP"), DEP identifies six different 5 planning scenarios for its resource portfolio. All six scenarios result in increased 6 solar and storage capacity on the DEP system. For example, the "Base with Carbon 7 Policy" scenario would add approximately 5 GW of new solar capacity and 8 approximately 2 GW of storage capacity to the DEP system during the planning 9 period, with substantially more solar and storage called for in scenarios that would 10 achieve the objectives of the Governor's Clean Energy Plan, which requires 70% 11 of the state's electric generation to be sourced from clean energy resources by 2030. 12 Solely sourcing this energy from typical sub-100 MWAC solar projects and small 13 storage installations is likely to prove inefficient (if not infeasible). It is therefore 14 in the interest of meeting Duke's and the State's renewable goals to bring on-line 15 large, flexible clean energy-generating resources, like Juno Solar. 16



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1	Q.	PLEASE DESCRIBE THE PERMITS AND APPROVALS YOU
2		ANTICIPATE WILL BE NECESSARY TO COMMENCE
3		CONSTRUCTION OF THE FACILITY.
4	A.	A Special Use Permit is required from Richmond County. In addition to the
5		Special Use Permit, Richmond County will require that Juno Solar obtain a
6		Building Permit from the County.
7		
8		From the State of North Carolina, the facility will require a commercial driveway
9		permit from the North Carolina Department of Transportation, and a stormwater
10		permit and an erosion and sedimentation control plan from the NC Department of
11		Environmental Quality ("NCDEQ").
12		
13		In regard to federal permits and approvals, Environmental Impact Assessment
14		("EIA")-860 and EIA-923 are required. Also, a FAA Section 777.9 Notice has
15		been completed.
16		
17		COMMUNITY
18	Q.	PLEASE DESCRIBE THE ANTICIPATED BENEFITS OF THE
19		FACILITY TO THE LOCAL COMMUNITY.
20	A.	The Juno Solar facility will bring a variety of financial benefits to Richmond
21		County. Juno Solar anticipates that the County will realize property and real
22		estate tax revenues. Also, the site's landowners will receive revenue in the form

1		of lease payments each year for the life of the facility, and this revenue will assist
2		them in maintaining agricultural operations on their land.
3		
4		In addition to these financial benefits, Juno Solar will create community benefits.
5		Local contractors and businesses such as installation, fencing, landscaping, and
6		machine rental companies will receive sales opportunities from the facility's
7		construction and operations. During the construction process, the facility will
8		offer construction jobs.
9		
10	Q.	WHAT ARE THE EXPECTED ENVIRONMENTAL IMPACTS OF THE
11		FACILITY?
12	A.	By design and by its nature as a solar PV facility, the facility will provide clean
13		renewable power with minimal environmental impacts. The facility will create no
14		air emissions and it will not create any noise impacts outside the fence line. The
15		facility will comply with the NCDEQ permits and exceed all state and local
16		requirements including those regulating erosion and sedimentation in the interest
17		of environmental protection. At the end of the facility's useful life, the facility's
18		materials can be recycled or sold for scrap, and the land can be returned to
19		agricultural use.
20		
21		CONDITIONAL CPCN

\$

1	Q.	HAS JUNO SOLAR SUBMITTED AN APPLICATION FOR A CPCN
2		WITH CONDITIONS?
3	A.	Yes.
4		
5	Q.	PLEASE DESCRIBE THE REASONS THAT JUNO SOLAR IS
6		REQUESTING A CONDITIONAL CPCN.
7	A.	As background to Juno Solar's Application for a Conditional CPCN, DEP and
8		Duke Energy Carolinas, LLC's (together, "Duke Energy") filed their proposed
9		revisions to Attachment J (Standard Large Generator Interconnection Procedures
10		("LGIP")) to their Joint Open Access Transmission Tariff with the Federal
11		Energy Regulatory Commission ("FERC") in Docket No. ER-21-1579-000 on
12		April 1, 2021 ("FERC Queue Reform Proposal"). In their filing, Duke Energy
13		requested that FERC approve its FERC Queue Reform Proposal by June 1, 2021
14		so that Duke Energy could immediately "reform" their generator interconnection
15		queueing, study process, and cost allocation process by transitioning to a
16		Definitive Interconnection Study Process, and align the FERC-jurisdictional LGIP
17		with queue reform revisions to the state-jurisdictional generator interconnection
18		procedures recently approved by the North Carolina Utilities Commission and the

1	Public Service Commission of South Carolina. To date, FERC has not yet issued
2	a decision as to Duke Energy's FERC Queue Reform Proposal. ¹
3	
4	Once FERC approves Duke Energy's FERC Queue Reform Proposal and the
5	revised LGIP becomes effective, Juno Solar intends to enter the Transitional
6	Cluster in which Juno Solar and other Interconnection Customers will be grouped
7	together for the Transitional Cluster Study Process and will be able to share any
8	required System Upgrade costs. To be clear, Juno Solar will comply with all
9	applicable provisions and requirements of Duke's FERC Queue Reform Proposal
10	approved by FERC.
11	
12	There are substantial financial security requirements for both "ready" and "non-
13	ready" Interconnection Customers to enter the Transitional Cluster and proceed
14	through the Transitional Cluster study process. The Transitional Cluster study
15	process involves a Phase 1 power flow and voltage study, a Phase 2 stability and
16	short circuit study, and a Facilities Study. To demonstrate readiness (or to
17	establish security in lieu of readiness) for Phase 1 of the Transitional Cluster, an
18	Interconnection Customer must provide one of the following:

¹ On May 26, 2021, FERC issued a deficiency letter to Duke Energy regarding its FERC Queue Reform Proposal. The issues raised in the deficiency letter are not germane to matters before the Commission in this proceeding.

1	a. Executed term sheet (or comparable evidence) related to a contract,
2	binding upon the parties to the contract, for sale of the Generating
3	Facility's energy, or the entire constructed Generating Facility, where the
4	term of sale is not less than five (5) years, or
5	b. Reasonable evidence that the Generating Facility is included in a
6	Resource Planning Entity's Resource Plan or Resource Solicitation
7	Process, or
8	c. An executed Provisional Large Generator Interconnection Agreement
9	filed with FERC that is not in suspension with 1) a commitment to
10	construct the facility, 2) a Commercial Operation Date no later than 2024
11	and 3) a security deposit in addition to amount required under Section
12	4.1.2 where the total security deposit represents a reasonable estimation of
13	the potential costs that could be ultimately allocated to the project in the
14	Transitional Cluster Study, or
15	d. Security equal to three million dollars (\$3,000,000). See Revised LGIP,
16	§ 7.2.1.e.
1 7	
18	There is significant, and increasing, security required for both "ready" and "non-
1 9	ready" Interconnection Customers progressing through Phase 1 and Phase 2 of the
20	Transitional Cluster study process. Duke Energy informed FERC that these
21	"meaningful" financial readiness requirements are intended to incent only ready
22	or near-ready projects to enter the Transitional Cluster. See Duke FERC Queue

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1	Reform Proposal, p. 53. The total security required for the Transitional Cluster
2	study process if readiness is provided is as follows: (1) 1 times the Study Deposit
3	to enter Phase 1, and (2) \$3 million to enter Phase 2. The total security for the
4	study process if readiness is not provided is as follows: (1) 1 times the Study
5	Deposit, plus \$3 million to enter Phase 1, and (2) an additional \$2 million (for a
6	total of \$5 million) to enter Phase 2. See Revised LGIP, § 7.2.3. Therefore,
7	"ready" projects will have to pay in excess of \$3 million to enter the Phase 2
8	study, and "non-ready" projects will have to pay in excess of \$5 million to be
9	studied in Phase 2.
10	
11	If an Interconnection Customer withdraws prior to Phase 2 of the Transitional
12	Cluster study process commencing, no Withdrawal Penalty is imposed and the
13	Interconnection Customer will only be assigned its allocated study costs.
14	However, as noted above, to enter Phase 2 of the Transitional Cluster, an
15	Interconnection Customer is required to either (a) make a significant financial
16	commitment of \$3 million and demonstrate definitive readiness, or (b) provide
17	significant additional security of \$2 million (for a total of \$5 million) if the
18	Interconnection Customer cannot demonstrate definitive readiness prior to Phase
19	2 commencing. If the Interconnection Customer withdraws after entering Phase 2
20	and prior to executing an LGIA, Duke Energy will use the security as payment for
21	(a) the final invoice for study costs and (b) the Withdrawal Penalty, after which
22	any remaining amount of security shall be returned to Interconnection Customer.

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1	Therefore, an Interconnection Customer that enters Phase 2 of the Transition
2	Cluster process will be at significant financial risk in the event that they are
3	required to withdraw from the study process. Among the reasons that an
4	Interconnection Customer might need to withdraw from the study process is if the
5	Commission were to deny a CPCN application or revoke an issued CPCN. As
6	demonstrated by prior Commission decisions, the Commission could decide to
7	deny a CPCN where it believes that the Levelized Cost of Transmission
8	("LCOT") for any required System Upgrades assigned to the Interconnection
9	Customer (which under Duke Energy's FERC-approved Open Access
10	Transmission Tariff and LGIA are reimbursed in part by North Carolina retail
11	customers) are too high. ²
12	
13	This situation creates a "catch 22" for FERC-jurisdictional Interconnection
14	Customers, like Juno Solar, that have to enter the Transitional Cluster (or the
15	eventual DISIS Study process) and, as discussed above, must make substantial
16	financial posting and face multi-million-dollar withdrawal penalties if they exit
17	the study process. If, based on Juno Solar's LCOT, the Commission were to deny
18	or revoke Juno Solar's CPCN after it enters Phase 2 of study, Juno Solar would be

² In the case of Friesian Holdings, LLC, the Commission denied a CPCN application on these grounds. *See* Order Denying Certificate of Public Convenience and Necessity for Merchant Generating Facility, issued on June 11, 2020 in Docket No. EMP-105, Sub 0. The Commission has also considered revoking CPCNs on similar grounds. See Order Requiring Further Testimony, issued on May 7, 2021 in Docket No. EMP-102, Sub 1; Order Granting Motion, Reopening Record, Receiving Additional Evidence into the Record, Requiring Public Staff Recommendation, and Providing Notice of Timeline for Issuance of Final Order issued on August 13, 2020 in Docket No. EMP-107, Sub 0.
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1	required to forfeit millions of dollars. But Juno Solar cannot determine the
2	amount of its System Upgrade costs and its LCOT without first completing the
3	study process. The solution to this patently unfair and unreasonable situation,
4	which Pine Gate Renewables has discussed on multiple occasions with Duke
5	Energy and the Public Staff, is for the Commission to issue a Conditional CPCN
6	that will remain in effect so long as the LCOT for any required System Upgrades
7	assigned to Juno Solar is at or below an acceptable defined amount.
8	
9	While Duke Energy has not yet studied whether any System Upgrades will be
10	required to interconnect Juno Solar and the other projects in the Transitional
11	Cluster, and if so, the System Upgrade costs that will be assigned to Juno Solar,
12	Juno Solar, in conjunction with a third-party engineering firm, has completed a
13	robust injection analysis of the project to identify any transmission overloads and
14	potential System Upgrade costs. The study modeled an array of planning and
15	dispatch scenarios, and found minimal System Upgrades needed under all but the
16	most conservative planning scenarios (e.g., the full volume of the interconnection
17	queue coming into service). As previously stated, Juno Solar intends to enter the
18	Transitional Cluster and will go through the interconnection study process with
19	DEP to identify any specific System Upgrades needed to interconnect the project.
20	Juno Solar believes that the LCOT for any required System Upgrades assigned to
21	the project will be an amount that will be acceptable to the Commission (i.e., no
22	greater than \$4.00 per MWh.) Therefore, Juno Solar is proposing a CPCN with a

1		condition that the LCOT for any assigned System Upgrades be no greater than a
2		specific defined amount of \$4.00 per MWh. With a Conditional CPCN, Juno
3		Solar will be able to enter the Transitional Cluster and incur the associated
4		financial exposure without an unacceptable level of uncertainty about whether the
5		issued CPCN will remain in effect.
6		
7	Q.	WHAT CONDITIONS OF APPROVAL ARE JUNO SOLAR
8		REQUESTING BE MADE PART OF THE CPCN APPROVAL?
9	A.	Juno Solar is requesting that the Commission issue a CPCN with the following
10		conditions: (1) the LCOT for any required System Upgrades assigned to Juno
11		Solar will be no greater than \$4.00 per MWh; (2) if at any point in the study
12		process, Juno Solar is informed by Duke Energy that its allocated System
13		Upgrade costs are such that its LCOT will exceed \$4.00/MWh, Juno Solar shall
14		promptly file with the Commission a report documenting the cost of any assigned
15		System Upgrade costs and the LCOT for the System Upgrades; and (3) if the
16		LCOT for any required System Upgrades assigned to Juno Solar is greater than
17		\$4.00 per MWh, the CPCN will automatically terminate and be of no further force
18		and effect unless Juno Solar requests further proceedings to consider whether the
19		CPCN should not be terminated, in which case the CPCN will not be terminated
20		unless so ordered by the Commission.
21		
22	Q.	DOES THIS CONCLUDE YOUR TESTIMONY?

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1 A. Yes.

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BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

REVISED PUBLIC REDACTED PRE-FILED DIRECT TESTIMONY

OF

PIPER MILLER

July 26, 2021

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OFFICIAL COPY

1 **INTRODUCTION** 2 Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS. 3 .A. My name is Piper Miller. I am Vice President of Development for Pine Gate 4 Renewables, LLC ("Pine Gate Renewables"), and my business address is 130 Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar" 5 6 or "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch 7 Creek") and operated in collaboration with Pine Gate Renewables, which manages the development of Juno Solar's proposed utility-scale solar 8 9 photovoltaic ("PV") generating facility. 10 11 Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL 12 **EXPERIENCE.** 13 A. I obtained a Bachelor of Arts degree in Environmental Science and Policy, Summa 14 Cum Laude, from Florida State University. I have worked with Pine Gate 15 Renewables since 2017 and have held various positions, including: Vice President 16 of Development; Director of Development; Market Lead (where I was responsible 17 for spearheading market-entry and development strategy in the Northeastern United 18 States and overseeing Pine Gate Renewables' pipeline of utility-scale and 19 distributed generation solar projects in the region); Policy Lead (where I worked 20 with Pine Gate Renewables' Vice President of Market Development to analyze and 21 present new market opportunities for solar development with a focus on regulatory 22 policy and power off-take strategy); and Origination Coordinator (where I

Page 2

1 performed land evaluation for large-scale solar energy project feasibility and 2 analyzed utility infrastructure and environmental and geographical constraints). 3 Prior to joining Pine Gate Renewables, I worked at the Office of Sustainability for 4 Leon County Government, where I collaborated on policy and program 5 development to craft innovative solutions to community sustainability barriers. I 6 was also responsible for the management of education and outreach programs to 7 promote energy and water conservation, waste reduction, and sustainability 8 throughout the County. 9 10 PLEASE SUMMARIZE YOUR CURRENT RESPONSIBILITIES WITH **Q**. 11 PINE GATE RENEWABLES. 12 As Vice President of Development for Pine Gate Renewables, I oversee A. 13 development strategy and execution for Pine Gate Renewables' portfolio of solar 14 projects in the Southeastern United States. My role is deeply integrated with

market strategy, regulatory policy, and project finance in order to identify new
opportunities for solar project development and successfully bring existing

17 projects to commercial operation.

18

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?
A. No.

21

22 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

1	A.	The purpose of my testimony is to demonstrate that Juno Solar's Application for a
2		Conditional Certificate of Public Convenience and Necessity ("CPCN") meets the
3		requirements of N.C. Gen. Stat. § 110.1 and Commission Rule R8-63.
4		
5	Q.	PLEASE DESCRIBE JUNO SOLAR AND THE PARENT COMPANY OF
6		JUNO SOLAR.
7	A.	Juno Solar is a limited liability company incorporated in the State of North Carolina
8		since October 30, 2020. As mentioned previously, Juno Solar is wholly owned by
9		Birch Creek in collaboration with Pine Gate Renewables, which manages the
10		development of Juno Solar's proposed utility-scale solar PV generating facility.
11		,
12		
13		
14		
15		
16		BACKGROUND AND PROJECT FINANCE
17	Q.	PLEASE DESCRIBE BIRCH CREEK AND PINE GATE RENEWABLES'
18		PERSONNEL, TECHNICAL EXPERIENCE, AND FINANCIAL
19		CAPABILITY TO OWN AND OPERATE JUNO SOLAR.
20	A.	Birch Creek and Pine Gate Renewables have extensive experience in successfully
21		owning and operating solar PV facilities in North Carolina and across the United
22		States. Birch Creek and Pine Gate Renewables have placed more than 500

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1 megawatts ("MW") DC of solar generating capacity into service to date, with 2 approximately 440 MW DC of capacity currently in construction. Birch Creek and 3 Pine Gate Renewables are currently developing over 8,000 MW DC of solar 4 projects across the country. 5 6 Pine Gate Renewables is developing the Juno Solar project as a partner in Birch 7 Creek, and has extensive experience developing solar generating projects in North 8 Carolina and throughout the United States. Pine Gate Renewables has operating 9 solar projects in five states, but the majority of its operating projects are located in 10 North Carolina. Pine Gate Renewables has sophisticated in-house development 11 operations and project finance capabilities, and has closed on over \$2 billion in total 12 project capital raised in support of its solar project development. Pine Gate 13 Renewables' affiliated engineering, procurement, and construction ("EPC") 14 company, Blue Ridge Power, LLC, is the largest and most experienced EPC firm 15 in the Southeast. 16 17 Key personnel involved with the Juno Solar project are as follows: Piper Miller - Vice President, Development. As Vice President of Development 18 19 for Pine Gate Renewables, Piper leads utility-scale solar project development and 20 market entry strategy for the company's solar project footprint in the Southeastern 21 U.S. Overseeing a 5 GW pipeline of solar projects, Piper's role is deeply integrated 22 with market strategy, regulatory policy, and project finance in order to identify new

opportunities for solar project development and successfully bring existing projects to commercial operation. With more than six years in the renewable energy and sustainability sector, Piper has spearheaded market and development opportunities, analyzed regulatory policies, and advised on siting and off-take strategies for portfolios of solar projects across more than ten states on the east coast.

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7 Sean Andersen – Director, Project Management. Sean has more than six years of 8 experience in the solar industry, where his extensive knowledge of business 9 development and land origination has led teams in the development of utility-scale 10 solar sites. As Director of Project Management at Pine Gate Renewables, Sean 11 conducts due diligence and project analysis for solar PV projects in various states 12 while identifying high-level key project, interconnection, and access constraints. 13 While interfacing with engineering, finance, and construction to ensure effective 14 development of solar projects, he manages consultants, budgets, milestones, and 15 deliverables to ensure the success of projects.

16

Mak Nagle – Senior Vice President, Development. Mak is responsible for leading
strategic initiatives within the scope of Pine Gate Renewables' solar development
effort. Mak brings more than twenty years of experience in power marketing,
business development, market design, transmission operations, and planning. He
also provides guidance on technical issues and emerging technologies
(e.g., energy storage) while coming up with unique propositions for Pine Gate

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1	Renewables' clients. For the past eight years, Mak has successfully negotiated
2	over 2 GW of purchase power agreements ("PPAs") with multiple utilities and
3	electric cooperatives, as well as with University of Richmond in Virginia. Prior
4	to entering the renewable space, Mak worked at Southwest Power Pool, where he
5	was responsible for developing their Day 2 energy market and running
6	transmission studies and planning groups. He has also spent more than six years
7	as a planning engineer in Entergy's Transmission Group, where he was involved
8	in restoring the electric grid after Hurricanes Katrina and Rita.
9	
10	Steve Levitas - Senior Vice President, Regulatory & Governmental Affairs.
11	Steve leads Pine Gate Renewables' policy, regulatory, and government affairs
12	efforts, including its engagement in energy market reform and the expansion of
13	off-take opportunities for independently owned solar generation resources. He
14	previously served as Senior Vice President of Regulatory Affairs and Strategy for
15	Cypress Creek Renewables, where he led the company's regulatory and
16	government affairs activities and advised the company about the impact of public
17	policy on its commercial strategy. Prior to joining Cypress Creek, Steve served as
18	Vice President for Business Affairs and General Counsel for FLS Energy and
19	spent more than 20 years in private law practice, concentrating on renewable
20	energy project development and environmental regulatory matters. In 2015 he
21	was the recipient of The Charlotte Business Journal's Energy Leaders Award.
22	

1	From 1993 through 1996, Steve served as Deputy Secretary of the North Carolina
2	Department of Environment, Health, and Natural Resources. Prior to his service in
3	state government, Steve was Director and Senior Attorney of the North Carolina
4	office of the Environmental Defense Fund, which he opened in 1988.
5	
6	Tripp McSwain - Senior Vice President, Construction. Tripp has more than nine
7	years of experience as a construction professional in the solar industry. As Senior
8	Vice President of Construction, Tripp is responsible for
9	Pine Gate Renewable's construction planning, execution, and closeout. His
10	duties include overseeing all projects, providing guidance to project teams,
11	developing agreements with contractors, and creating strategies and processes to
12	ensure that budget, safety, and schedule goals are met. Tripp has overseen the
13	installation of numerous projects totaling over 1.5 GW of solar energy. He has a
14	Bachelor of Science degree in Construction Management and Appropriate
15	Technology from Appalachian State University and holds a NABCEP
16	certification.
17	
18	Brian Taddonio – Vice President, Engineering. As the Vice President of
19	Engineering for Pine Gate Renewables, Brian has extensive knowledge of PV
20	engineering standards, NEC and utility regulatory compliance, and
21	project development and construction engineering processes with an emphasis on
22	quality control, maintaining project schedules and budgets, and cost

1	reduction. With twelve years of experience in solar development and EPC, Brian
2	has designed more than 300 MW of installed PV capacity, and has gained
3	substantial experience in utility scale PV development, engineering, and
4	construction. At Pine Gate Renewables, Brian leads the engineering team by
5	developing engineering standards and specifications, strategic alliances, and
6	initiatives for cost reduction and avoidance.
7	
8	Jason Birn - Senior Vice President, Project Finance. Jason Birn has twenty years
9	of experience as a debt and equity project finance professional in the utility-
10	scale power and infrastructure sector, with a strong foundation in fundamental
11	credit, financial and industry analysis, origination, and commercial
12	execution. As Senior Vice President of Project Finance at Pine Gate Renewables,
13	Jason oversees raising of the requisite capital needed to construct Pine Gate
14	Renewables' entire solar project portfolio. Moreover, he oversees the building
15	and utilization of complex financial models to assess the economic viability of
16	projects, performs front-end valuation and debt sizing analysis, and quantifies all
17	sources of potential third-party capital throughout a project's life cycle.
18	
19	Juno Solar and Birch Creek have the financial capability to own and operate the
20	Juno Solar project. Birch Creek's most recent balance sheet and income statement
21	are provided confidentially and under seal as Confidential Exhibit 1(iii).
22	

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1	Q.	WHAT IS THE CONSTRUCTION TIMELINE FOR THE FACILITY?
2	A.	Construction for the Juno Solar facility is expected to begin in the second quarter
3		of 2023, and commercial operation is expected to occur in the third quarter of 2024.
4		
5	Q.	WHAT IS THE EXPECTED SERVICE LIFE OF THE FACILITY?
6	A.	The expected service life of the Juno Solar facility is forty (40) years.
7		
8	Q.	WHAT ARE THE ESTIMATED CONSTRUCTION COSTS FOR THE
9		FACILITY?
10	A.	The estimated construction costs for the Juno Solar facility are approximately
11		\$370,690,000.
12		
13	Q.	DOES JUNO SOLAR, ITS PARENT COMPANY, BIRCH CREEK, OR
14		BIRCH CREEK'S AFFILIATE, PINE GATE RENEWABLES, HAVE
15		OWNERSHIP INTEREST IN AND/OR THE ABILITY TO CONTROL
16		GENERATING FACILITIES IN THE SOUTHEASTERN ELECTRIC
17		RELIABILITY COUNCIL ("SERC") REGION?
18	A.	Yes. Pine Gate Renewables has ownership interest in and/or the ability to control
19		through leases or contracts numerous solar PV generating facilities in the SERC
20		region. A list of solar PV generating facilities that Pine Gate Renewables owns or
21		controls through leases or contracts in the SERC region is provided confidentially
22		and under seal as Confidential Exhibit 1(iv).

1 2 SITE AND FACILITY DESCRIPTION 3 0. ONCE CONSTRUCTED, WHERE WILL THE JUNO SOLAR FACILITY 4 **BE LOCATED?** 5 A. The Juno Solar site consists of twenty-five (25) parcels, or a portion thereof, 6 collectively containing approximately two thousand five hundred eighty-six 7 (2,586) acres of land, located along McFarland Road and Green Chapel Church 8 Road in Marks Creek Township, Richmond County, North Carolina. The project 9 will be in the location described above and as shown in the revised high-resolution 10 color maps attached hereto as Exhibits 2(i) and Confidential Exhibit 2(i)(a). 11 12 0. WHAT IS THE CURRENT LAND USE OF THE SITE AND THE 13 **ANTICIPATED USE?** 14 The parcels for the project are zoned Agricultural Residential ("A-R") and Rural A. 15 Residential ("R-R"), and they are currently being used for agricultural purposes. 16 Juno Solar will lease approximately 2,516 acres of the parent parcels (that total 17 approximately 2,586 acres) for the 275-MWAC solar PV facility that will generate 18 solar energy. The area that is not included in the leased area will be able to continue 19 to be used for agricultural purposes. 20 21 A color map showing the proposed site boundary, the proposed point of 22 interconnection, and the proposed substation is attached hereto as Exhibit 2(ii)(a).

1		The color maps attached as Exhibit 2(i) and Confidential Exhibit 2(i)(a) have been
2		revised to eliminate sections of the facility that would require additional rights-of-
3		way. Therefore, no additional right-of-way is needed for the facility. The facility
4		will have a minimum building setback of fifty (50) feet where abutting residential
5		property, and a minimum setback of sixty-five (65) feet from public rights-of-
6		way.
7		
8	Q.	WHAT IS THE FACILITY'S ANTICIPATED ELECTRICITY
9		PRODUCTION CAPACITY?
10	А.	The nameplate generating capacity of the Juno Solar facility is 275 MWAC. The
11		facility's total dependable capacity is 68.75 MWAC.
12		
13	Q.	PLEASE DESCRIBE THE BASIC COMPONENTS OF THE FACILITY.
14	A.	Juno Solar is a 275-MWAC PV array, and the source of its power is solar energy.
15		The facility will consist of a single-axis tracking solar array that is DC-coupled with
16		an energy storage system connected behind a single point of interconnection
17		("POI") to the Duke Energy Progress, LLC ("DEP") Richmond-Laurel Hill 230 kV
18		transmission line. Juno Solar will require two new substations: a new Juno Solar
19		substation constructed by Juno Solar, and a new DEP switchyard constructed by
20		DEP. The facility's substation and DEP switchyard will be located within the parcel
21		boundaries, as shown on Exhibit 2(i). The Juno Solar substation will be located
22		directly adjacent to the POI, and all connections to the substation will be

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1 underground. The solar array will consist of a maximum DC output of 2 approximately 385 MWDC. The energy storage system will have an aggregate 3 power capacity of approximately 68.75 MW and 275 MWh (4-hour duration) 4 subject to change during the design process. Color maps showing the proposed site 5 boundary and layout, with all major equipment, roads, electric facilities, and the 6 POI is attached hereto as Exhibit 2(i) and Confidential Exhibit 2(i)(a). 7 8 Juno Solar plans to deploy Eos Znyth Gen 3.0 battery blocks for its battery storage 9 system, individually rated at 175 kW/700 kWh. The American-made Eos Znyth 10 battery energy storage technology is non-flammable in nature and features better 11 resiliency and longer life than competing battery storage technologies. To ensure 12 optimal performance and thermal stability of the batteries, the Eos Znyth units come 13 equipped with a closed-loop forced ambient-air thermal management system. Juno 14 Solar's battery storage system will be DC-coupled, with the blocks feeding into the 15 individual solar inverters. Annual cycles are not expected to exceed 365 per year 16 and the system will not charge from the grid. The single line diagrams and the EOS 17 Znyth Gen 3.0 battery blocks for the battery storage system are provided 18 confidentially and under seal as Confidential Exhibits 2(ii)(b), 2(ii)(b)(1), (2), and 19 (3). 20 21 Non-adjoining parcels will be connected via underground MV connections. Juno 22 Solar has made the decision to eliminate a non-adjoining section of the parcel



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9 DEP. In its 2020 Integrated Resource Plan ("IRP"), DEP identifies six different 10 planning scenarios for its resource portfolio. All six scenarios result in increased 11 solar and storage capacity on the DEP system. For example, the "Base with Carbon Policy" scenario would add approximately 5 GW of new solar capacity and 12 13 approximately 2 GW of storage capacity to the DEP system during the planning 14 period, with substantially more solar and storage called for in scenarios that would 15 achieve the objectives of the Governor's Clean Energy Plan, which requires 70% 16 of the state's electric generation to be sourced from clean energy resources by 2030. 17 Solely sourcing this energy from typical sub-100 MWAC solar projects and small 18 storage installations is likely to prove inefficient (if not infeasible). It is therefore 19 in the interest of meeting Duke's and the State's renewable goals to bring on-line 20 large, flexible clean energy-generating resources, like Juno Solar.

21

8



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1 2 **REGULATORY APPROVALS AND PERMITS** 3 DOES THE RICHMOND COUNTY ZONING ORDINANCE APPLY TO Q. 4 **THE JUNO SOLAR PROJECT?** 5 A. Yes. 6 7 PLEASE DESCRIBE THE PERMITS AND APPROVALS YOU Q. 8 ANTICIPATE WILL BE NECESSARY TO COMMENCE 9 **CONSTRUCTION OF THE FACILITY.** 10 A. A Special Use Permit is required from Richmond County. In addition to the 11 Special Use Permit, Richmond County will require that Juno Solar obtain a 12 Building Permit from the County. 13 14 From the State of North Carolina, the facility will require a commercial driveway 15 permit from the North Carolina Department of Transportation, and a stormwater 16 permit and an erosion and sedimentation control plan from the NC Department of 17 Environmental Quality ("NCDEQ"). 18 19 In regard to federal permits and approvals, Environmental Impact Assessment 20 ("EIA")-860 and EIA-923 are required. Also, a FAA Section 777.9 Notice has 21 been completed. 22

1		COMMUNITY
2	Q.	PLEASE DESCRIBE THE ANTICIPATED BENEFITS OF THE
3		FACILITY TO THE LOCAL COMMUNITY.
4	A.	The Juno Solar facility will bring a variety of financial benefits to Richmond
5		County. Juno Solar anticipates that the County will realize property and real
6		estate tax revenues. Also, the site's landowners will receive revenue in the form
7		of lease payments each year for the life of the facility, and this revenue will assist
8		them in maintaining agricultural operations on their land.
9		
10		In addition to these financial benefits, Juno Solar will create community benefits.
11		Local contractors and businesses such as installation, fencing, landscaping, and
12		machine rental companies will receive sales opportunities from the facility's
13		construction and operations. During the construction process, the facility will
14		offer construction jobs.
15		
16	Q.	WHAT ARE THE EXPECTED ENVIRONMENTAL IMPACTS OF THE
17		FACILITY?
18	A.	By design and by its nature as a solar PV facility, the facility will provide clean
19		renewable power with minimal environmental impacts. The facility will create no
20		air emissions and it will not create any noise impacts outside the fence line. The
21		facility will comply with the NCDEQ permits and exceed all state and local
22		requirements including those regulating erosion and sedimentation in the interest

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1		of environmental protection. At the end of the facility's useful life, the facility's
2		materials can be recycled or sold for scrap, and the land can be returned to
3		agricultural use.
4		
5		CONDITIONAL CPCN
6	Q.	HAS JUNO SOLAR SUBMITTED AN APPLICATION FOR A CPCN
7		WITH CONDITIONS?
8	A.	Yes.
9		
10	Q.	PLEASE DESCRIBE THE REASONS THAT JUNO SOLAR IS
11		REQUESTING A CONDITIONAL CPCN.
12	Α.	As background to Juno Solar's Application for a Conditional CPCN, DEP and
13		Duke Energy Carolinas, LLC's (together, "Duke Energy") filed their proposed
14		revisions to Attachment J (Standard Large Generator Interconnection Procedures
15		("LGIP")) to their Joint Open Access Transmission Tariff with the Federal
16		Energy Regulatory Commission ("FERC") in Docket No. ER-21-1579-000 on
17		April 1, 2021 ("FERC Queue Reform Proposal"). In their filing, Duke Energy
18		requested that FERC approve its FERC Queue Reform Proposal by June 1, 2021
19		so that Duke Energy could immediately "reform" their generator interconnection
20		queueing, study process, and cost allocation process by transitioning to a
21		Definitive Interconnection Study Process, and align the FERC-jurisdictional LGIP
22		with queue reform revisions to the state-jurisdictional generator interconnection

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1	procedures recently approved by the North Carolina Utilities Commission and the
2	Public Service Commission of South Carolina. To date, FERC has not yet issued
3	a decision as to Duke Energy's FERC Queue Reform Proposal. ¹
4	
5	Once FERC approves Duke Energy's FERC Queue Reform Proposal and the
6	revised LGIP becomes effective, Juno Solar intends to enter the Transitional
7	Cluster in which Juno Solar and other Interconnection Customers will be grouped
8	together for the Transitional Cluster Study Process and will be able to share any
9	required System Upgrade costs. To be clear, Juno Solar will comply with all
10	applicable provisions and requirements of Duke's FERC Queue Reform Proposal
11	approved by FERC.
12	
13	There are substantial financial security requirements for both "ready" and "non-
14	ready" Interconnection Customers to enter the Transitional Cluster and proceed
15	through the Transitional Cluster study process. The Transitional Cluster study
16	process involves a Phase 1 power flow and voltage study, a Phase 2 stability and
17	short circuit study, and a Facilities Study. To demonstrate readiness (or to
18	establish security in lieu of readiness) for Phase 1 of the Transitional Cluster, an
19	Interconnection Customer must provide one of the following:

¹ On May 26, 2021, FERC issued a deficiency letter to Duke Energy regarding its FERC Queue Reform Proposal. The issues raised in the deficiency letter are not germane to matters before the Commission in this proceeding.

1	a. Executed term sheet (or comparable evidence) related to a contract,
2	binding upon the parties to the contract, for sale of the Generating
3	Facility's energy, or the entire constructed Generating Facility, where the
4	term of sale is not less than five (5) years or
5	b Reasonable evidence that the Generating Facility is included in a
5	b. Reasonable evidence mat the Generating I denity is mended in a
6	Resource Planning Entity's Resource Plan or Resource Solicitation
7	Process, or
8	c. An executed Provisional Large Generator Interconnection Agreement
9	filed with FERC that is not in suspension with 1) a commitment to
10	construct the facility, 2) a Commercial Operation Date no later than 2024
11	and 3) a security deposit in addition to amount required under Section
12	4.1.2 where the total security deposit represents a reasonable estimation of
13	the potential costs that could be ultimately allocated to the project in the
14	Transitional Cluster Study, or
15	d. Security equal to three million dollars (\$3,000,000). See Revised LGIP,
16	§ 7.2.1.e.
17	
18	There is significant, and increasing, security required for both "ready" and "non-
19	ready" Interconnection Customers progressing through Phase 1 and Phase 2 of the
20	Transitional Cluster study process. Duke Energy informed FERC that these
21	"meaningful" financial readiness requirements are intended to incent only ready
22	or near-ready projects to enter the Transitional Cluster. See Duke FERC Queue

1	Reform Proposal, p. 53. The total security required for the Transitional Cluster
2	study process if readiness is provided is as follows: (1) 1 times the Study Deposit
3	to enter Phase 1, and (2) \$3 million to enter Phase 2. The total security for the
4	study process if readiness is not provided is as follows: (1) 1 times the Study
5	Deposit, plus \$3 million to enter Phase 1, and (2) an additional \$2 million (for a
6	total of \$5 million) to enter Phase 2. See Revised LGIP, § 7.2.3. Therefore,
7	"ready" projects will have to pay in excess of \$3 million to enter the Phase 2
8	study, and "non-ready" projects will have to pay in excess of \$5 million to be
9	studied in Phase 2.
10	
11	If an Interconnection Customer withdraws prior to Phase 2 of the Transitional
12	Cluster study process commencing, no Withdrawal Penalty is imposed and the
13	Interconnection Customer will only be assigned its allocated study costs.
14	However, as noted above, to enter Phase 2 of the Transitional Cluster, an
15	Interconnection Customer is required to either (a) make a significant financial
16	commitment of \$3 million and demonstrate definitive readiness, or (b) provide
17	significant additional security of \$2 million (for a total of \$5 million) if the
18	Interconnection Customer cannot demonstrate definitive readiness prior to Phase
19	2 commencing. If the Interconnection Customer withdraws after entering Phase 2
20	and prior to executing an LGIA, Duke Energy will use the security as payment for
21	(a) the final invoice for study costs and (b) the Withdrawal Penalty, after which
22	any remaining amount of security shall be returned to Interconnection Customer.

1		Therefore, an Interconnection Customer that enters Phase 2 of the Transition
2		Cluster process will be at significant financial risk in the event that they are
3		required to withdraw from the study process. Among the reasons that an
4		Interconnection Customer might need to withdraw from the study process is if the
5		Commission were to deny a CPCN application or revoke an issued CPCN. As
6	2	demonstrated by prior Commission decisions, the Commission could decide to
7		deny a CPCN where it believes that the Levelized Cost of Transmission
8		("LCOT") for any required System Upgrades assigned to the Interconnection
9		Customer (which under Duke Energy's FERC-approved Open Access
10		Transmission Tariff and LGIA are reimbursed in part by North Carolina retail
11		customers) are too high. ²
12		
13		This situation creates a "catch 22" for FERC-jurisdictional Interconnection
14		Customers, like Juno Solar, that have to enter the Transitional Cluster (or the
15		eventual DISIS Study process) and, as discussed above, must make substantial
16		financial posting and face multi-million-dollar withdrawal penalties if they exit
17		the study process. If, based on Juno Solar's LCOT, the Commission were to deny
18		or revoke Juno Solar's CPCN after it enters Phase 2 of study, Juno Solar would be

² In the case of Friesian Holdings, LLC, the Commission denied a CPCN application on these grounds. See Order Denying Certificate of Public Convenience and Necessity for Merchant Generating Facility, issued on June 11, 2020 in Docket No. EMP-105, Sub 0. The Commission has also considered revoking CPCNs on similar grounds. See Order Requiring Further Testimony, issued on May 7, 2021 in Docket No. EMP-102, Sub 1; Order Granting Motion, Reopening Record, Receiving Additional Evidence into the Record, Requiring Public Staff Recommendation, and Providing Notice of Timeline for Issuance of Final Order issued on August 13, 2020 in Docket No. EMP-107, Sub 0.

1 required to forfeit millions of dollars. But Juno Solar cannot determine the 2 amount of its System Upgrade costs and its LCOT without first completing the 3 study process. The solution to this patently unfair and unreasonable situation, 4 which Pine Gate Renewables has discussed on multiple occasions with Duke 5 Energy and the Public Staff, is for the Commission to issue a Conditional CPCN 6 that will remain in effect so long as the LCOT for any required System Upgrades 7 assigned to Juno Solar is at or below an acceptable defined amount. 8 9 While Duke Energy has not yet studied whether any System Upgrades will be 10 required to interconnect Juno Solar and the other projects in the Transitional 11 Cluster, and if so, the System Upgrade costs that will be assigned to Juno Solar, 12 Juno Solar, in conjunction with a third-party engineering firm, has completed a 13 robust injection analysis of the project to identify any transmission overloads and 14 potential System Upgrade costs. The study modeled an array of planning and 15 dispatch scenarios, and found minimal System Upgrades needed under all but the 16 most conservative planning scenarios (e.g., the full volume of the interconnection 17 queue coming into service). As previously stated, Juno Solar intends to enter the 18 Transitional Cluster and will go through the interconnection study process with 19 DEP to identify any specific System Upgrades needed to interconnect the project. 20 Juno Solar believes that the LCOT for any required System Upgrades assigned to 21 the project will be an amount that will be acceptable to the Commission (*i.e.*, no 22 greater than \$4.00 per MWh.) Therefore, Juno Solar is proposing a CPCN with a

1		condition that the LCOT for any assigned System Upgrades be no greater than a
2		specific defined amount of \$4.00 per MWh. With a Conditional CPCN, Juno
3		Solar will be able to enter the Transitional Cluster and incur the associated
4		financial exposure without an unacceptable level of uncertainty about whether the
5		issued CPCN will remain in effect.
6		
7	Q.	WHAT CONDITIONS OF APPROVAL ARE JUNO SOLAR
8		REQUESTING BE MADE PART OF THE CPCN APPROVAL?
9	А.	Juno Solar is requesting that the Commission issue a CPCN with the following
10		conditions: (1) the LCOT for any required System Upgrades assigned to Juno
11		Solar will be no greater than \$4.00 per MWh; (2) if at any point in the study
12		process, Juno Solar is informed by Duke Energy that its allocated System
13		Upgrade costs are such that its LCOT will exceed \$4.00/MWh, Juno Solar shall
14		promptly file with the Commission a report documenting the cost of any assigned
15		System Upgrade costs and the LCOT for the System Upgrades; and (3) if the
16		LCOT for any required System Upgrades assigned to Juno Solar is greater than
17		\$4.00 per MWh, the CPCN will automatically terminate and be of no further force
18		and effect unless Juno Solar requests further proceedings to consider whether the
19		CPCN should not be terminated, in which case the CPCN will not be terminated
20		unless so ordered by the Commission.
21		
22	Q.	DOES THIS CONCLUDE YOUR TESTIMONY?

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064 Testimony of Piper Miller Docket EMP-116, Sub 0 Page 25

1 A. Yes.

2

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BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

PRE-FILED DIRECT TESTIMONY

OF

PIPER MILLER

October 15, 2021

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INTRODUCTION 1 2 Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS. 3 .A. My name is Piper Miller. I am Vice President of Development for Pine Gate 4 Renewables, LLC ("Pine Gate Renewables"), and my business address is 130 5 Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar" 6 or "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch 7 Creek") and operated in collaboration with Pine Gate Renewables, which 8 manages the development of Juno Solar's proposed utility-scale solar 9 photovoltaic ("PV") generating facility. 10 11 **Q**. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL 12 **EXPERIENCE.** 13 I obtained a Bachelor of Arts degree in Environmental Science and Policy, Summa A. 14 Cum Laude, from Florida State University. I have worked with Pine Gate 15 Renewables since 2017 and have held various positions, including: Vice President 16 of Development; Director of Development; Market Lead (where I was responsible 17 for spearheading market-entry and development strategy in the Northeastern United 18 States and overseeing Pine Gate Renewables' pipeline of utility-scale and 19 distributed generation solar projects in the region); Policy Lead (where I worked 20 with Pine Gate Renewables' Vice President of Market Development to analyze and 21 present new market opportunities for solar development with a focus on regulatory 22 policy and power off-take strategy); and Origination Coordinator (where I

Page 2

1		performed land evaluation for large-scale solar energy project feasibility and
2		analyzed utility infrastructure and environmental and geographical constraints).
3		Prior to joining Pine Gate Renewables, I worked at the Office of Sustainability for
4		Leon County Government, where I collaborated on policy and program
5		development to craft innovative solutions to community sustainability barriers. I
6		was also responsible for the management of education and outreach programs to
7		promote energy and water conservation, waste reduction, and sustainability
8		throughout the County.
9		
10	Q.	PLEASE SUMMARIZE YOUR CURRENT RESPONSIBILITIES WITH
11		PINE GATE RENEWABLES.
12	A.	As Vice President of Development for Pine Gate Renewables, I oversee
13		development strategy and execution for Pine Gate Renewables' portfolio of solar
14		projects in the Southeastern United States. My role is deeply integrated with
15		market strategy, regulatory policy, and project finance in order to identify new
16		opportunities for solar project development and successfully bring existing
17		projects to commercial operation.
18		
19	Q.	HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?
20	A.	No.
21		
22	Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?

1	A.	The purpose of my testimony is to demonstrate that Juno Solar's Application for a
2		Conditional Certificate of Public Convenience and Necessity ("CPCN") meets the
3		requirements of N.C. Gen. Stat. § 110.1 and Commission Rule R8-63.
4		
5	Q.	PLEASE DESCRIBE JUNO SOLAR AND THE PARENT COMPANY OF
6		JUNO SOLAR.
7	A.	Juno Solar is a limited liability company incorporated in the State of North Carolina
8		since October 30, 2020. As mentioned previously, Juno Solar is wholly owned by
9		Birch Creek in collaboration with Pine Gate Renewables, which manages the
10		development of Juno Solar's proposed utility-scale solar PV generating facility.
11		
12		Birch Creek is a joint venture between Pine Gate Renewables, Kayne Andersen
13		Capital Advisors, and the former principals of Cypress Creek Renewables, LLC,
14		one of the largest solar power developers in the United States.
15		
16		BACKGROUND AND PROJECT FINANCE
17	Q.	PLEASE DESCRIBE BIRCH CREEK AND PINE GATE RENEWABLES'
18		PERSONNEL, TECHNICAL EXPERIENCE, AND FINANCIAL
19		CAPABILITY TO OWN AND OPERATE JUNO SOLAR.
20	A.	Birch Creek and Pine Gate Renewables have extensive experience in successfully
21		owning and operating solar PV facilities in North Carolina and across the United
22		States. Birch Creek and Pine Gate Renewables have placed more than 500

1	megawatts ("MW") DC of solar generating capacity into service to date, with
2	approximately 440 MW DC of capacity currently in construction. Birch Creek and
3	Pine Gate Renewables are currently developing over 8,000 MW DC of solar
4	projects across the country.
5	
6	Pine Gate Renewables is developing the Juno Solar project as a partner in Birch
7	Creek, and has extensive experience developing solar generating projects in North
8	Carolina and throughout the United States. Pine Gate Renewables has operating
9	solar projects in five states, but the majority of its operating projects are located in
10	North Carolina. Pine Gate Renewables has sophisticated in-house development
11	operations and project finance capabilities, and has closed on over \$2 billion in total
12	project capital raised in support of its solar project development. Pine Gate
13	Renewables' affiliated engineering, procurement, and construction ("EPC")
14	company, Blue Ridge Power, LLC, is the largest and most experienced EPC firm
15	in the Southeast.
16	
17	Key personnel involved with the Juno Solar project are as follows:
18	<u>Piper Miller – Vice President, Development</u> . As Vice President of Development
19	for Pine Gate Renewables, Piper leads utility-scale solar project development and
20	market entry strategy for the company's solar project footprint in the Southeastern
21	U.S. Overseeing a 5 GW pipeline of solar projects, Piper's role is deeply integrated
22	with market strategy, regulatory policy, and project finance in order to identify new

opportunities for solar project development and successfully bring existing projects
to commercial operation. With more than six years in the renewable energy and
sustainability sector, Piper has spearheaded market and development opportunities,
analyzed regulatory policies, and advised on siting and off-take strategies for
portfolios of solar projects across more than ten states on the east coast.

6

7 Sean Andersen - Director, Project Management. Sean has more than six years of 8 experience in the solar industry, where his extensive knowledge of business 9 development and land origination has led teams in the development of utility-scale 10 solar sites. As Director of Project Management at Pine Gate Renewables, Sean 11 conducts due diligence and project analysis for solar PV projects in various states 12 while identifying high-level key project, interconnection, and access constraints. 13 While interfacing with engineering, finance, and construction to ensure effective 14 development of solar projects, he manages consultants, budgets, milestones, and 15 deliverables to ensure the success of projects.

16

17Mak Nagle – Senior Vice President, Development. Mak is responsible for leading18strategic initiatives within the scope of Pine Gate Renewables' solar development19effort. Mak brings more than twenty years of experience in power marketing,20business development, market design, transmission operations, and planning. He21also provides guidance on technical issues and emerging technologies22(e.g., energy storage) while coming up with unique propositions for Pine Gate

1	Renewables' clients. For the past eight years, Mak has successfully negotiated
2	over 2 GW of purchase power agreements ("PPAs") with multiple utilities and
3	electric cooperatives, as well as with University of Richmond in Virginia. Prior
4	to entering the renewable space, Mak worked at Southwest Power Pool, where he
5	was responsible for developing their Day 2 energy market and running
6	transmission studies and planning groups. He has also spent more than six years
7	as a planning engineer in Entergy's Transmission Group, where he was involved
8	in restoring the electric grid after Hurricanes Katrina and Rita.
9	
10	Steve Levitas – Senior Vice President, Regulatory & Governmental Affairs.
11	Steve leads Pine Gate Renewables' policy, regulatory, and government affairs
12	efforts, including its engagement in energy market reform and the expansion of
13	off-take opportunities for independently owned solar generation resources. He
14	previously served as Senior Vice President of Regulatory Affairs and Strategy for
15	Cypress Creek Renewables, where he led the company's regulatory and
16	government affairs activities and advised the company about the impact of public
17	policy on its commercial strategy. Prior to joining Cypress Creek, Steve served as
18	Vice President for Business Affairs and General Counsel for FLS Energy and
19	spent more than 20 years in private law practice, concentrating on renewable
20	energy project development and environmental regulatory matters. In 2015 he
21	was the recipient of The Charlotte Business Journal's Energy Leaders Award.
22	
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1	From 1993 through 1996, Steve served as Deputy Secretary of the North Carolina
2	Department of Environment, Health, and Natural Resources. Prior to his service in
3	state government, Steve was Director and Senior Attorney of the North Carolina
4	office of the Environmental Defense Fund, which he opened in 1988.
5	
6	<u>Tripp McSwain – Senior Vice President, Construction</u> . Tripp has more than nine
7	years of experience as a construction professional in the solar industry. As Senior
8	Vice President of Construction, Tripp is responsible for
9	Pine Gate Renewable's construction planning, execution, and closeout. His
10	duties include overseeing all projects, providing guidance to project teams,
11	developing agreements with contractors, and creating strategies and processes to
12	ensure that budget, safety, and schedule goals are met. Tripp has overseen the
13	installation of numerous projects totaling over 1.5 GW of solar energy. He has a
14	Bachelor of Science degree in Construction Management and Appropriate
15	Technology from Appalachian State University and holds a NABCEP
16	certification.
17	
18	Brian Taddonio – Vice President, Engineering. As the Vice President of
19	Engineering for Pine Gate Renewables, Brian has extensive knowledge of PV
20	engineering standards, NEC and utility regulatory compliance, and
21	project development and construction engineering processes with an emphasis on
22	quality control, maintaining project schedules and budgets, and cost

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1	reduction. With twelve years of experience in solar development and EPC, Brian
2	has designed more than 300 MW of installed PV capacity, and has gained
3	substantial experience in utility scale PV development, engineering, and
4	construction. At Pine Gate Renewables, Brian leads the engineering team by
5	developing engineering standards and specifications, strategic alliances, and
6	initiatives for cost reduction and avoidance.
7	
8	Jason Birn – Senior Vice President, Project Finance. Jason Birn has twenty years
9	of experience as a debt and equity project finance professional in the utility-
10	scale power and infrastructure sector, with a strong foundation in fundamental
11	credit, financial and industry analysis, origination, and commercial
12	execution. As Senior Vice President of Project Finance at Pine Gate Renewables,
13	Jason oversees raising of the requisite capital needed to construct Pine Gate
14	Renewables' entire solar project portfolio. Moreover, he oversees the building
15	and utilization of complex financial models to assess the economic viability of
16	projects, performs front-end valuation and debt sizing analysis, and quantifies all
17	sources of potential third-party capital throughout a project's life cycle.
18	
19	Juno Solar and Birch Creek have the financial capability to own and operate the
20	Juno Solar project. Birch Creek's most recent balance sheet and income statement
21	are provided confidentially and under seal as Confidential Exhibit 1(iii).
22	

1	Q.	WHAT IS THE CONSTRUCTION TIMELINE FOR THE FACILITY?
2	A.	Construction for the Juno Solar facility is expected to begin in the second quarter
3		of 2023, and commercial operation is expected to occur in the third quarter of 2024.
4		
5	Q.	WHAT IS THE EXPECTED SERVICE LIFE OF THE FACILITY?
6	A.	The expected service life of the Juno Solar facility is forty (40) years.
7		
8	Q.	WHAT ARE THE ESTIMATED CONSTRUCTION COSTS FOR THE
9		FACILITY?
10	A.	The estimated construction costs for the Juno Solar facility are approximately
11		\$370,690,000.
12		
13	Q.	DOES JUNO SOLAR, ITS PARENT COMPANY, BIRCH CREEK, OR
14		BIRCH CREEK'S AFFILIATE, PINE GATE RENEWABLES, HAVE
15		OWNERSHIP INTEREST IN AND/OR THE ABILITY TO CONTROL
16		GENERATING FACILITIES IN THE SOUTHEASTERN ELECTRIC
17		RELIABILITY COUNCIL ("SERC") REGION?
18	A.	Yes. Pine Gate Renewables has ownership interest in and/or the ability to control
19		through leases or contracts numerous solar PV generating facilities in the SERC
20		region. A list of solar PV generating facilities that Pine Gate Renewables owns or
21		controls through leases or contracts in the SERC region is provided confidentially
22		and under seal as Confidential Exhibit 1(iv).

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1		
2		SITE AND FACILITY DESCRIPTION
3	Q.	ONCE CONSTRUCTED, WHERE WILL THE JUNO SOLAR FACILITY
4		BE LOCATED?
5	A.	The Juno Solar site consists of twenty-five (25) parcels, or a portion thereof,
6		collectively containing approximately two thousand five hundred eighty-six
7		(2,586) acres of land, located along McFarland Road and Green Chapel Church
8		Road in Marks Creek Township, Richmond County, North Carolina. The project
9		will be in the location described above and as shown in the revised high-resolution
10		color maps attached hereto as Exhibits 2(i) and Confidential Exhibit 2(i)(a).
11		
12	Q.	WHAT IS THE CURRENT LAND USE OF THE SITE AND THE
13		ANTICIPATED USE?
14	A.	The parcels for the project are zoned Agricultural Residential ("A-R") and Rural
15		Residential ("R-R"), and they are currently being used for agricultural purposes.
16		Juno Solar will lease approximately 2,516 acres of the parent parcels (that total
17		approximately 2,586 acres) for the 275-MWAC solar PV facility that will generate
18		solar energy. The area that is not included in the leased area will be able to continue
19		to be used for agricultural purposes.
20		
21		A color map showing the proposed site boundary, the proposed point of
22		interconnection, and the proposed substation is attached hereto as Exhibit 2(ii)(a).

1		The color maps attached as Exhibit 2(i) and Confidential Exhibit 2(i)(a) have been
2		revised to eliminate sections of the facility that would require additional rights-of-
3		way. Therefore, no additional right-of-way is needed for the facility. The facility
4		will have a minimum building setback of fifty (50) feet where abutting residential
5		property, and a minimum setback of sixty-five (65) feet from public rights-of-
6		way.
7		
8	Q.	WHAT IS THE FACILITY'S ANTICIPATED ELECTRICITY
9		PRODUCTION CAPACITY?
10	A.	The nameplate generating capacity of the Juno Solar facility is 275 MWAC. The
11		facility's total dependable capacity is 68.75 MWAC.
12		
13	Q.	PLEASE DESCRIBE THE BASIC COMPONENTS OF THE FACILITY.
14	A.	Juno Solar is a 275-MWAC PV array, and the source of its power is solar energy.
15		The facility will consist of a single-axis tracking solar array that is DC-coupled with
16		an energy storage system connected behind a single point of interconnection
17		("POI") to the Duke Energy Progress, LLC ("DEP") Richmond-Laurel Hill 230 kV
18		transmission line. Juno Solar will require two new substations: a new Juno Solar
19		substation constructed by Juno Solar, and a new DEP switchyard constructed by
20		DEP. The facility's substation and DEP switchyard will be located within the parcel
21		boundaries, as shown on Exhibit 2(i). The Juno Solar substation will be located
22		directly adjacent to the POI, and all connections to the substation will be

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1	underground. The solar array will consist of a maximum DC output of
2	approximately 385 MWDC. The energy storage system will have an aggregate
3	power capacity of approximately 68.75 MW and 275 MWh (4-hour duration)
4	subject to change during the design process. Color maps showing the proposed site
5	boundary and layout, with all major equipment, roads, electric facilities, and the
6	POI is attached hereto as Exhibit 2(i) and Confidential Exhibit 2(i)(a).
7	
8	Juno Solar plans to deploy Eos Znyth Gen 3.0 battery blocks for its battery storage
9	system, individually rated at 175 kW/700 kWh. The American-made Eos Znyth
10	battery energy storage technology is non-flammable in nature and features better
11	resiliency and longer life than competing battery storage technologies. To ensure
12	optimal performance and thermal stability of the batteries, the Eos Znyth units come
13	equipped with a closed-loop forced ambient-air thermal management system. Juno
14	Solar's battery storage system will be DC-coupled, with the blocks feeding into the
15	individual solar inverters. Annual cycles are not expected to exceed 365 per year
16	and the system will not charge from the grid. The single line diagrams and the EOS
17	Znyth Gen 3.0 battery blocks for the battery storage system are provided
18	confidentially and under seal as Confidential Exhibits 2(ii)(b), 2(ii)(b)(1), (2), and
19	<u>(3).</u>
20	
21	Non-adjoining parcels will be connected via underground MV connections. Juno
22	Solar has made the decision to eliminate a non-adjoining section of the parcel

1		to the west from the facility in order to avoid having to acquire rights-of-way
2		through non-connected land. To reiterate, the facility will need no additional
3		rights-of-way in order to construct the facility.
4		
5	Q.	PLEASE DESCRIBE THE TRANSMISSION FACILITIES TO WHICH
6		THE JUNO SOLAR FACILITY WILL INTERCONNECT AND HOW THE
7		PROJECT WILL BE INTERCONNECTED TO THE GRID.
8	A.	The Juno Solar facility will connect to the 230 kV 230 kV Richmond – Laurel Hill
9		Duke Energy Progress, LLC transmission line located on-site. As the proposed
10		POI will be on-site, no additional facilities will be necessary beyond the substation
11		within Juno Solar's site control area. A color map showing the proposed site
12		boundary, the proposed POI, and the proposed substation is attached hereto as
13		Exhibit 2(i).
14		
15		NEED FOR THE FACILITY
16	Q.	PLEASE EXPLAIN THE NEED FOR THE JUNO SOLAR FACILITY.
17	A.	There is a need for the Juno Solar facility in the state and the region. Birch Creek
18		is currently engaged in discussions with a large, well-established commercial off-
19		taker, and plans to execute a PPA term sheet for Juno Solar in the near future.
20		The off-taker has expressed a strong desire to contract for Juno Solar's full
21		volume, as renewable energy projects of this size are not presently available to
• •		

1	
2	Additionally, as an interconnection project falling under the Federal Energy
3	Regulatory Commission's ("FERC") jurisdiction, Juno Solar will have the ability
4	to contract for its power output with either the incumbent integrated utility, DEP,
5	or to reserve available transmission capacity and deliver its power to an adjacent
6	balancing authority, including the PJM RTO. Both DEP and PJM have
7	demonstrated the need for new renewable energy and flexible battery storage
8	capacity in the coming years.
9	
10	DEP. In its 2020 Integrated Resource Plan ("IRP"), DEP identifies six different
11	planning scenarios for its resource portfolio. All six scenarios result in increased
12	solar and storage capacity on the DEP system. For example, the "Base with Carbon
13	Policy" scenario would add approximately 5 GW of new solar capacity and
14	approximately 2 GW of storage capacity to the DEP system during the planning
15	period, with substantially more solar and storage called for in scenarios that would
16	achieve the objectives of the Governor's Clean Energy Plan, which requires 70%
17	of the state's electric generation to be sourced from clean energy resources by 2030.
18	Solely sourcing this energy from typical sub-100 MWAC solar projects and small
19	storage installations is likely to prove inefficient (if not infeasible). It is therefore
20	in the interest of meeting Duke's and the State's renewable goals to bring on-line
21	large, flexible clean energy-generating resources, like Juno Solar.

22

1 PJM. Commercial and Industrial ("C&I") demand for clean energy in the PJM 2 market is stronger than ever in the market's history and continues to grow. The year 3 2020 saw yet another increase in C&I demand for renewable energy, despite the 4 challenges of the Covid-19 pandemic. Level Ten Energy, which matches 5 renewable energy buyers and sellers and provides insight into nationwide 6 renewable PPA pricing, noted an increase in solar PPA prices in PJM over the past 7 two years, with a steady escalation in price from Q1 2019 to Q4 2020. "The 8 convergence of more challenging local and state permitting regimes, prohibitively 9 high grid upgrade costs, and a surge in buyer demand has resulted in a PJM market 10 that is short in project supply, which has in turn led to rising PPA prices" observes 11 Rob Collier, Vice President of Developer Relations at LevelTen in its Q4 2020 12 Energy PPA Price Index. The report finds PJM Solar PPA prices to be the highest 13 of any ISO or RTO in the country, with a 25th percentile PPA price of 14 \$37.50/MWh, underscoring the need for large and affordable solar power in the 15 PJM market. The other ISOs and RTOs in the United States range between \$25.10 16 and \$33.70/MWh for 25th percentile solar energy PPA prices.

17

18 Q. HAS JUNO SOLAR ENTERED INTO A LARGE GENERATOR 19 INTERCONNECTION AGREEMENT ("LGIA") WITH DEP?

A. No. The project has submitted an Interconnection Request and is expected to be
studied in the Duke Energy Transitional Cluster Study, which is anticipated to begin
in mid-2021. It is estimated that a LGIA will be executed in January 2023.

1		
2		REGULATORY APPROVALS AND PERMITS
3	Q.	DOES THE RICHMOND COUNTY ZONING ORDINANCE APPLY TO
4		THE JUNO SOLAR PROJECT?
5	A.	Yes.
6		
7	Q.	PLEASE DESCRIBE THE PERMITS AND APPROVALS YOU
8		ANTICIPATE WILL BE NECESSARY TO COMMENCE
9		CONSTRUCTION OF THE FACILITY.
10	A.	A Special Use Permit is required from Richmond County. In addition to the
11		Special Use Permit, Richmond County will require that Juno Solar obtain a
12		Building Permit from the County.
13		
14		From the State of North Carolina, the facility will require a commercial driveway
15		permit from the North Carolina Department of Transportation, and a stormwater
16		permit and an erosion and sedimentation control plan from the NC Department of
17		Environmental Quality ("NCDEQ").
18		
19		In regard to federal permits and approvals, Environmental Impact Assessment
20		("EIA")-860 and EIA-923 are required. Also, a FAA Section 777.9 Notice has
21		been completed.
22		

1		<u>COMMUNITY</u>
2	Q.	PLEASE DESCRIBE THE ANTICIPATED BENEFITS OF THE
3		FACILITY TO THE LOCAL COMMUNITY.
4	A.	The Juno Solar facility will bring a variety of financial benefits to Richmond
5		County. Juno Solar anticipates that the County will realize property and real
6		estate tax revenues. Also, the site's landowners will receive revenue in the form
7		of lease payments each year for the life of the facility, and this revenue will assist
8		them in maintaining agricultural operations on their land.
9		
10		In addition to these financial benefits, Juno Solar will create community benefits.
11		Local contractors and businesses such as installation, fencing, landscaping, and
12		machine rental companies will receive sales opportunities from the facility's
13		construction and operations. During the construction process, the facility will
14		offer construction jobs.
15		
16	Q.	WHAT ARE THE EXPECTED ENVIRONMENTAL IMPACTS OF THE
17		FACILITY?
18	A.	By design and by its nature as a solar PV facility, the facility will provide clean
19		renewable power with minimal environmental impacts. The facility will create no
20		air emissions and it will not create any noise impacts outside the fence line. The
21		facility will comply with the NCDEQ permits and exceed all state and local
22		requirements including those regulating erosion and sedimentation in the interest

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1		of environmental protection. At the end of the facility's useful life, the facility's
2		materials can be recycled or sold for scrap, and the land can be returned to
3		agricultural use.
4		
5		CONDITIONAL CPCN
6	Q.	HAS JUNO SOLAR SUBMITTED AN APPLICATION FOR A CPCN
7		WITH CONDITIONS?
8	A.	Yes.
9		
10	Q.	PLEASE DESCRIBE THE REASONS THAT JUNO SOLAR IS
11		REQUESTING A CONDITIONAL CPCN.
12	А.	As background to Juno Solar's Application for a Conditional CPCN, DEP and
13		Duke Energy Carolinas, LLC's (together, "Duke Energy") filed their proposed
14		revisions to Attachment J (Standard Large Generator Interconnection Procedures
15		("LGIP")) to their Joint Open Access Transmission Tariff with the Federal
16		Energy Regulatory Commission ("FERC") in Docket No. ER-21-1579-000 on
17		April 1, 2021 ("FERC Queue Reform Proposal"). In their filing, Duke Energy
18		requested that FERC approve its FERC Queue Reform Proposal by June 1, 2021
19		so that Duke Energy could immediately "reform" their generator interconnection
20		queueing, study process, and cost allocation process by transitioning to a
21		Definitive Interconnection Study Process, and align the FERC-jurisdictional LGIP
22		with queue reform revisions to the state-jurisdictional generator interconnection

1	procedures recently approved by the North Carolina Utilities Commission and the
2	Public Service Commission of South Carolina. To date, FERC has not yet issued
3	a decision as to Duke Energy's FERC Queue Reform Proposal. ¹
4	
5	Once FERC approves Duke Energy's FERC Queue Reform Proposal and the
6	revised LGIP becomes effective, Juno Solar intends to enter the Transitional
7	Cluster in which Juno Solar and other Interconnection Customers will be grouped
8	together for the Transitional Cluster Study Process and will be able to share any
9	required System Upgrade costs. To be clear, Juno Solar will comply with all
10	applicable provisions and requirements of Duke's FERC Queue Reform Proposal
11	approved by FERC.
12	
13	There are substantial financial security requirements for both "ready" and "non-
14	ready" Interconnection Customers to enter the Transitional Cluster and proceed
15	through the Transitional Cluster study process. The Transitional Cluster study
16	process involves a Phase 1 power flow and voltage study, a Phase 2 stability and
17	short circuit study, and a Facilities Study. To demonstrate readiness (or to
18	establish security in lieu of readiness) for Phase 1 of the Transitional Cluster, an
19	Interconnection Customer must provide one of the following:

¹ On May 26, 2021, FERC issued a deficiency letter to Duke Energy regarding its FERC Queue Reform Proposal. The issues raised in the deficiency letter are not germane to matters before the Commission in this proceeding.

1	a. Executed term sheet (or comparable evidence) related to a contract,
2	binding upon the parties to the contract, for sale of the Generating
3	Facility's energy, or the entire constructed Generating Facility, where the
4	term of sale is not less than five (5) years, or
5	b. Reasonable evidence that the Generating Facility is included in a
6	Resource Planning Entity's Resource Plan or Resource Solicitation
7	Process, or
8	c. An executed Provisional Large Generator Interconnection Agreement
9	filed with FERC that is not in suspension with 1) a commitment to
10	construct the facility, 2) a Commercial Operation Date no later than 2024
11	and 3) a security deposit in addition to amount required under Section
12	4.1.2 where the total security deposit represents a reasonable estimation of
13	the potential costs that could be ultimately allocated to the project in the
14	Transitional Cluster Study, or
15	d. Security equal to three million dollars (\$3,000,000). See Revised LGIP,
16	§ 7.2.1.e.
17	
18	There is significant, and increasing, security required for both "ready" and "non-
19	ready" Interconnection Customers progressing through Phase 1 and Phase 2 of the
20	Transitional Cluster study process. Duke Energy informed FERC that these
21	"meaningful" financial readiness requirements are intended to incent only ready
22	or near-ready projects to enter the Transitional Cluster. See Duke FERC Queue

1	Reform Proposal, p. 53. The total security required for the Transitional Cluster
2	study process if readiness is provided is as follows: (1) 1 times the Study Deposit
3	to enter Phase 1, and (2) \$3 million to enter Phase 2. The total security for the
4	study process if readiness is not provided is as follows: (1) 1 times the Study
5	Deposit, plus \$3 million to enter Phase 1, and (2) an additional \$2 million (for a
6	total of \$5 million) to enter Phase 2. See Revised LGIP, § 7.2.3. Therefore,
7	"ready" projects will have to pay in excess of \$3 million to enter the Phase 2
8	study, and "non-ready" projects will have to pay in excess of \$5 million to be
9	studied in Phase 2.
10	
11	If an Interconnection Customer withdraws prior to Phase 2 of the Transitional
12	Cluster study process commencing, no Withdrawal Penalty is imposed and the
13	Interconnection Customer will only be assigned its allocated study costs.
14	However, as noted above, to enter Phase 2 of the Transitional Cluster, an
15	Interconnection Customer is required to either (a) make a significant financial
16	commitment of \$3 million and demonstrate definitive readiness, or (b) provide
17	significant additional security of \$2 million (for a total of \$5 million) if the
18	Interconnection Customer cannot demonstrate definitive readiness prior to Phase
19	2 commencing. If the Interconnection Customer withdraws after entering Phase 2
20	and prior to executing an LGIA, Duke Energy will use the security as payment for
21	(a) the final invoice for study costs and (b) the Withdrawal Penalty, after which
22	any remaining amount of security shall be returned to Interconnection Customer.

1	Therefore, an Interconnection Customer that enters Phase 2 of the Transition
2	Cluster process will be at significant financial risk in the event that they are
3	required to withdraw from the study process. Among the reasons that an
4	Interconnection Customer might need to withdraw from the study process is if the
5	Commission were to deny a CPCN application or revoke an issued CPCN. As
6	demonstrated by prior Commission decisions, the Commission could decide to
7	deny a CPCN where it believes that the Levelized Cost of Transmission
8	("LCOT") for any required System Upgrades assigned to the Interconnection
9	Customer (which under Duke Energy's FERC-approved Open Access
10	Transmission Tariff and LGIA are reimbursed in part by North Carolina retail
11	customers) are too high. ²
12	
13	This situation creates a "catch 22" for FERC-jurisdictional Interconnection
14	Customers, like Juno Solar, that have to enter the Transitional Cluster (or the
15	eventual DISIS Study process) and, as discussed above, must make substantial
16	financial posting and face multi-million-dollar withdrawal penalties if they exit
17	the study process. If, based on Juno Solar's LCOT, the Commission were to deny
18	or revoke Juno Solar's CPCN after it enters Phase 2 of study, Juno Solar would be

² In the case of Friesian Holdings, LLC, the Commission denied a CPCN application on these grounds. *See Order Denying Certificate of Public Convenience and Necessity for Merchant Generating Facility*, issued on June 11, 2020 in Docket No. EMP-105, Sub 0. The Commission has also considered revoking CPCNs on similar grounds. *See Order Requiring Further Testimony*, issued on May 7, 2021 in Docket No. EMP-102, Sub 1; *Order Granting Motion, Reopening Record, Receiving Additional Evidence into the Record, Requiring Public Staff Recommendation, and Providing Notice of Timeline for Issuance of Final Order* issued on August 13, 2020 in Docket No. EMP-107, Sub 0.

1	required to forfeit millions of dollars. But Juno Solar cannot determine the
2	amount of its System Upgrade costs and its LCOT without first completing the
3	study process. The solution to this patently unfair and unreasonable situation,
4	which Pine Gate Renewables has discussed on multiple occasions with Duke
5	Energy and the Public Staff, is for the Commission to issue a Conditional CPCN
6	that will remain in effect so long as the LCOT for any required System Upgrades
7	assigned to Juno Solar is at or below an acceptable defined amount.
8	
9	While Duke Energy has not yet studied whether any System Upgrades will be
10	required to interconnect Juno Solar and the other projects in the Transitional
11	Cluster, and if so, the System Upgrade costs that will be assigned to Juno Solar,
12	Juno Solar, in conjunction with a third-party engineering firm, has completed a
13	robust injection analysis of the project to identify any transmission overloads and
14	potential System Upgrade costs. The study modeled an array of planning and
15	dispatch scenarios, and found minimal System Upgrades needed under all but the
16	most conservative planning scenarios (e.g., the full volume of the interconnection
17	queue coming into service). As previously stated, Juno Solar intends to enter the
18	Transitional Cluster and will go through the interconnection study process with
19	DEP to identify any specific System Upgrades needed to interconnect the project.
20	Juno Solar believes that the LCOT for any required System Upgrades assigned to
21	the project will be an amount that will be acceptable to the Commission (i.e., no
22	greater than \$4.00 per MWh.) Therefore, Juno Solar is proposing a CPCN with a

1		condition that the LCOT for any assigned System Upgrades be no greater than a
2		specific defined amount of \$4.00 per MWh. With a Conditional CPCN, Juno
3		Solar will be able to enter the Transitional Cluster and incur the associated
4		financial exposure without an unacceptable level of uncertainty about whether the
5		issued CPCN will remain in effect.
6		
7	Q.	WHAT CONDITIONS OF APPROVAL ARE JUNO SOLAR
8		REQUESTING BE MADE PART OF THE CPCN APPROVAL?
9	A.	Juno Solar is requesting that the Commission issue a CPCN with the following
10		conditions: (1) the LCOT for any required System Upgrades assigned to Juno
11		Solar will be no greater than \$4.00 per MWh; (2) if at any point in the study
12		process, Juno Solar is informed by Duke Energy that its allocated System
13		Upgrade costs are such that its LCOT will exceed \$4.00/MWh, Juno Solar shall
14		promptly file with the Commission a report documenting the cost of any assigned
15		System Upgrade costs and the LCOT for the System Upgrades; and (3) if the
16		LCOT for any required System Upgrades assigned to Juno Solar is greater than
17		\$4.00 per MWh, the CPCN will automatically terminate and be of no further force
18		and effect unless Juno Solar requests further proceedings to consider whether the
19		CPCN should not be terminated, in which case the CPCN will not be terminated
20		unless so ordered by the Commission.
21		
22	O .	DOES THIS CONCLUDE YOUR TESTIMONY?

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Testimony of Piper Miller Docket EMP-116, Sub 0 Page 25

1 A. Yes.

2

Sep 04 2022

BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

PUBLIC / REDACTED PRE-FILED SUPPLEMENTAL DIRECT TESTIMONY

OF

PIPER MILLER

September 14, 2021

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1

Q. Please state your name, title, and business address.

A. My name is Piper Miller. I am Vice President of Development for Pine Gate
Renewables, LLC ("Pine Gate Renewables"), and my business address is 130
Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar"
or "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch
Creek") and operated in collaboration with Pine Gate Renewables, which
manages the development of Juno Solar's proposed utility-scale solar
photovoltaic ("PV") generating facility.

- 9
- 10 Q. Are there any network upgrades to DEP's or any affected system's 11 transmission system required to accommodate the operation of the 12 Applicant's proposed facility? If so, provide the amount of network upgrades 13 on DEP's or any affected system's transmission system, if any, required to 14 accommodate the operation of the Applicant's proposed facility. 15 A. Juno Solar's Interconnection Request is currently on-hold due to interdependency 16 in Duke's Transmission Interconnection Queue. Juno Solar will participate in the 17 Transitional Cluster Study process approved by the Federal Energy Regulatory 18 Commission ("FERC") on August 16th, 2021. Because Juno Solar is not 19 expecting to receive study results from Duke until March 2022, Birch Creek
- 20 performed a steady-state load flow study utilizing a Summer Peak 2024 system
- 21 representation as provided by Duke Energy Progress, LLC ("DEP") and Duke
- 22 Energy Carolinas, LLC ("DEC") (together, "Duke") to determine the network

	1	upgrades that would be required to accommodate the full output of the
2	2	interconnection request in DEP's transmission system. All Interconnection
	3	Requests and Transmission Projects with firm transmission commitments were
Z	4	subsequently modeled in the system representation, as well as active queue
4	5	projects currently in DEP's Transmission Interconnection Queue that could
e	5	potentially participate in the Transitional Cluster, were modeled and dispatched at
7	7	their respective nameplate capacity. Study results suggest that in order for the 275
8	3	MW Interconnection Request to reliably interconnect to Duke's transmission
9)	system, it is estimated that approximately 17.56 miles of Duke's transmission
10)	facilities would have to be upgraded to accommodate the full output of the
11	l	Interconnection Request amounting to approximately \$16.84M. The
12	2	Interconnection Request would only be allocated a portion of the total cost based
13	3	on its individual impact on the identified limiting elements. The rest of the
14	ŀ	upgrade costs is going to be distributed amongst all the projects in the
15	5	Transitional Cluster that meet cost allocation criteria based on their individual
16	5	impact on the identified limiting elements. At this point it is still unknown which
17	1	projects will participate in the Transitional Cluster.
18	5	
19	Q.	Provide any information and supporting documentation regarding the
20)	proposed Levelized Cost of Transmission (LCOT) of \$4.00/MWh upon which
21		you ask the Commission to condition any CPCN granted in this case.

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1	A.	A Levelized Cost of Transmission ("LCOT") of \$4.00/MWh represents the
2		amount that Birch Creek believes to be a just and reasonable threshold which will
3		serve to facilitate the state and Duke's renewable energy goals while not
4		burdening ratepayers with reimbursement of unduly high network upgrade costs.
5		
6		In the Friesian Holdings, LLC ("Friesian") CPCN hearing (Docket No. EMP-105,
7		Sub 0), Public Staff witnesses Evan Lawrence and Dustin Metz testified that a
8		2019 Lawrence Berkeley National Laboratory (LBNL) study examining solar
9		network upgrade costs found a \$1.56/MWh LCOT in MISO, a \$3.22 LCOT value
10		in PJM, and a \$2.21/MWh LCOT in the other locations studied, which are
11		presumably appropriate LCOT values for new solar projects at the time of the
12		study, which were contrasted with a \$62.94/MWh LCOT finding for Friesian.
13		Subsequent to the Friesian CPCN proceeding, transmission costs have generally
14		risen, due to 1) increasing materials and labor costs, and 2) the tendency of these
15		costs to increase with increased solar penetration on the system.
16		
17		In line with these ranges and trends, Birch Creek believes that a \$4.00/MWh
18		LCOT cap is appropriate to allow for just and reasonable network upgrade costs.
19		
20	Q.	Is there any interconnection study available for the proposed facility? If so,
21		provide any interconnection study received for the proposed facility. If the

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1		Applicant has not received a study, provide a date by when the study is
2		expected to be completed.
3	A.	Juno Solar is currently being studied in Duke's transition cluster study, with
4		Phase I study results expected in March 2022, Phase II results expected in
5		September 2022, and Facilities Study results expected in the first quarter of 2023.
6		
7		In lieu of interconnection study results from Duke, Birch Creek has conducted its
8		own injection studies seeking to replicate Duke's internal study methodology, as
9		detailed in responses to questions 1 and 4.
10		
11	Q.	Is the Applicant aware of any system other than the studied system that is or
12		will be affected by the interconnection? If yes, explain the impact and basis.
13	A.	Due to the proximity of the interconnection facilities to PJM's service territory
14		that ties DEP with Dominion Virginia Power, PJM is likely to be notified as a
15		potential affected system during the study process. Once PJM is notified, the
16		potential Transmission Owner in coordination with PJM will determine if further
17		affected system studies are required.
18		
19	Q.	Is the Applicant proposing to sell energy and capacity from the facility to a
20		distribution facility regulated by the Commission? If so, provide a discussion
21		of how the facility's output conforms to or varies from the regulated utility's
22		most recent integrated resource plan (IRP).

1	Α.	Birch Creek has no plans at this time to sell energy or capacity from the Juno
2		Solar facility to a distribution facility regulated by the Commission.
3		
4	Q.	Is the Applicant proposing to sell energy and capacity from the proposed
5		facility to a purchaser who is subject to a statutory or regulatory mandate
6		with respect to its energy sourcing (e.g., a REPS requirement or Virginia's
7		new statutory mandate for renewables)? If so, explain how, if at all, the
8		proposed facility will assist or enable compliance with that mandate. In
9		addition, provide any contracts that support that compliance.
10	А.	Birch Creek has no plans at this time to sell energy or capacity from the Juno
11		Solar facility to a purchaser who is subject to a statutory or regulatory renewable
12		energy mandate.
13		·
14	Q.	Does the Applicant have a Power Purchase Agreement (PPA), REC sale
15		contracts or contracts for compensation for environmental attributes for the
16		output of the proposed facility? If so, provide any PPA agreements, REC sale
17		contracts, or contracts for compensation for environmental attributes for the
18		output of the facility.
19	A.	Juno Solar does not have a PPA, REC sale contract, or any such contract for
20		compensation for the output of the facility at this time in its development
21		lifecycle.
2.2		



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BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

PRE-FILED SUPPLEMENTAL DIRECT TESTIMONY

OF

PIPER MILLER

October 15, 2021

Balt 04 2023

1 Q. Please state your name, title, and business address.

A. My name is Piper Miller. I am Vice President of Development for Pine Gate
Renewables, LLC ("Pine Gate Renewables"), and my business address is 130
Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar"
or "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch
Creek") and operated in collaboration with Pine Gate Renewables, which
manages the development of Juno Solar's proposed utility-scale solar
photovoltaic ("PV") generating facility.

9

10	Q.	Are there any network upgrades to DEP's or any affected system's
11		transmission system required to accommodate the operation of the
12		Applicant's proposed facility? If so, provide the amount of network upgrades
13		on DEP's or any affected system's transmission system, if any, required to
14		accommodate the operation of the Applicant's proposed facility.
15	А.	Juno Solar's Interconnection Request is currently on-hold due to interdependency
16		in Duke's Transmission Interconnection Queue. Juno Solar will participate in the
17		Transitional Cluster Study process approved by the Federal Energy Regulatory

18	Commission ("FERC") on August 16th, 2021. Because Juno Solar is not
19	expecting to receive study results from Duke until March 2022, Birch Creek
20	performed a steady-state load flow study utilizing a Summer Peak 2024 system
21	representation as provided by Duke Energy Progress, LLC ("DEP") and Duke

22 Energy Carolinas, LLC ("DEC") (together, "Duke") to determine the network

1		upgrades that would be required to accommodate the full output of the
2		interconnection request in DEP's transmission system. All Interconnection
3		Requests and Transmission Projects with firm transmission commitments were
4		subsequently modeled in the system representation, as well as active queue
5		projects currently in DEP's Transmission Interconnection Queue that could
6		potentially participate in the Transitional Cluster, were modeled and dispatched at
7		their respective nameplate capacity. Study results suggest that in order for the 275
8		MW Interconnection Request to reliably interconnect to Duke's transmission
9		system, it is estimated that approximately 17.56 miles of Duke's transmission
10		facilities would have to be upgraded to accommodate the full output of the
11		Interconnection Request amounting to approximately \$16.84M. The
12		Interconnection Request would only be allocated a portion of the total cost based
13		on its individual impact on the identified limiting elements. The rest of the
14		upgrade costs is going to be distributed amongst all the projects in the
15		Transitional Cluster that meet cost allocation criteria based on their individual
16		impact on the identified limiting elements. At this point it is still unknown which
17		projects will participate in the Transitional Cluster.
18		
19	Q.	Provide any information and supporting documentation regarding the
20		proposed Levelized Cost of Transmission (LCOT) of \$4.00/MWh upon which
21		you ask the Commission to condition any CPCN granted in this case.

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1	A.	A Levelized Cost of Transmission ("LCOT") of \$4.00/MWh represents the
2		amount that Birch Creek believes to be a just and reasonable threshold which will
3		serve to facilitate the state and Duke's renewable energy goals while not
4		burdening ratepayers with reimbursement of unduly high network upgrade costs.
5		
6		In the Friesian Holdings, LLC ("Friesian") CPCN hearing (Docket No. EMP-105,
7		Sub 0), Public Staff witnesses Evan Lawrence and Dustin Metz testified that a
8		2019 Lawrence Berkeley National Laboratory (LBNL) study examining solar
9		network upgrade costs found a \$1.56/MWh LCOT in MISO, a \$3.22 LCOT value
10		in PJM, and a \$2.21/MWh LCOT in the other locations studied, which are
11		presumably appropriate LCOT values for new solar projects at the time of the
12		study, which were contrasted with a \$62.94/MWh LCOT finding for Friesian.
13		Subsequent to the Friesian CPCN proceeding, transmission costs have generally
14		risen, due to 1) increasing materials and labor costs, and 2) the tendency of these
15		costs to increase with increased solar penetration on the system.
16		
17		In line with these ranges and trends, Birch Creek believes that a \$4.00/MWh
18		LCOT cap is appropriate to allow for just and reasonable network upgrade costs.
19		
20	Q.	Is there any interconnection study available for the proposed facility? If so,
21		provide any interconnection study received for the proposed facility. If the

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1		Applicant has not received a study, provide a date by when the study is
2		expected to be completed.
3	A.	Juno Solar is currently being studied in Duke's transition cluster study, with
4		Phase I study results expected in March 2022, Phase II results expected in
5		September 2022, and Facilities Study results expected in the first quarter of 2023.
6		
7		In lieu of interconnection study results from Duke, Birch Creek has conducted its
8		own injection studies seeking to replicate Duke's internal study methodology, as
9		detailed in responses to questions 1 and 4.
10		
11	Q.	Is the Applicant aware of any system other than the studied system that is or
12		will be affected by the interconnection? If yes, explain the impact and basis.
13	A.	Due to the proximity of the interconnection facilities to PJM's service territory
14		that ties DEP with Dominion Virginia Power, PJM is likely to be notified as a
15		potential affected system during the study process. Once PJM is notified, the
16		potential Transmission Owner in coordination with PJM will determine if further
17		affected system studies are required.
18		
19	Q.	Is the Applicant proposing to sell energy and capacity from the facility to a
20		distribution facility regulated by the Commission? If so, provide a discussion
21		of how the facility's output conforms to or varies from the regulated utility's
22		most recent integrated resource plan (IRP).

1	А.	Birch Creek has no plans at this time to sell energy or capacity from the Juno
2		Solar facility to a distribution facility regulated by the Commission.
3		
4	Q.	Is the Applicant proposing to sell energy and capacity from the proposed
5		facility to a purchaser who is subject to a statutory or regulatory mandate
6		with respect to its energy sourcing (e.g., a REPS requirement or Virginia's
7		new statutory mandate for renewables)? If so, explain how, if at all, the
8		proposed facility will assist or enable compliance with that mandate. In
9		addition, provide any contracts that support that compliance.
10	A.	Birch Creek has no plans at this time to sell energy or capacity from the Juno
11		Solar facility to a purchaser who is subject to a statutory or regulatory renewable
12		energy mandate.
13		
14	Q.	Does the Applicant have a Power Purchase Agreement (PPA), REC sale
15		contracts or contracts for compensation for environmental attributes for the
16		output of the proposed facility? If so, provide any PPA agreements, REC sale
17		contracts, or contracts for compensation for environmental attributes for the
18		output of the facility.
19	A.	Juno Solar does not have a PPA, REC sale contract, or any such contract for
20		compensation for the output of the facility at this time in its development
21		lifecycle. The Juno facility will, however, seek to contract with a commercial or
22		industrial counterparty in PJM for the sale of energy and RECs. Juno Solar is

1		currently finalizing a PPA term sheet with an investment-grade counterparty with
2		extensive experience contracting in the PJM market.
3		
4	Q.	Does this conclude your testimony?
5	A.	Yes, at this time.
6		

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BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

PRE-FILED REBUTTAL TESTIMONY

OF

PIPER MILLER

November 9, 2021

Teb 04 2022

1 Q. Please state your name, title, and business address. 2 .A. My name is Piper Miller. I am Vice President of Development for Pine Gate 3 Renewables, LLC ("Pine Gate Renewables"), and my business address is 130 4 Roberts Street, Asheville, North Carolina 28801. Juno Solar, LLC ("Juno Solar" or 5 "Applicant") is wholly owned by Birch Creek Development, LLC ("Birch 6 Creek") and operated in collaboration with Pine Gate Renewables, which 7 manages the development of Juno Solar's proposed utility-scale solar 8 photovoltaic ("PV") generating facility. 9 Have you previously filed testimony in this docket? Q. 10 Yes. I filed direct testimony on July 12, 2021, revised direct testimony on July 26, A. 11 2021, and supplemental direct testimony on September 14, 2021 in this docket. 12 Q. What is the purpose of your rebuttal testimony? 13 A. The purposes of my rebuttal testimony are to respond to testimony of Public Staff 14 Witness Dustin R. Metz filed in this docket on October 26, 2021 and to support the 15 requested Conditional Certificate of Public Convenience and Necessity ("CPCN"). 16 Q. As a preliminary matter, in the Public Staff's testimony, the Public Staff has 17 chosen not to acknowledge any benefits that North Carolina customers will 18 receive as a result of the Juno Solar facility. Please describe any such benefits 19 to the North Carolina customers. 20 A. Importantly, Juno Solar provides a substantial benefit to Duke Energy Progress, 21 LLC ("DEP" or "Duke") ratepayers that distinguishes it from the number of 22 merchant solar projects interconnecting in the Dominion PJM region of North

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Rebuttal Testimony of Piper Miller Docket EMP-116, Sub 0 Page 2

1	Carolina about which the Commission has recently expressed concern. In order to
2	"wheel" its output from its location in DEP territory to PJM, Juno Solar will have
3	to procure point-to-point transmission service across the DEP system. This
4	process is known and transparent, with current and forecasted rates being
5	published by Duke periodically. The current rate for firm point-to-point
6	transmission service across the DEP system is \$1,738 per MW-month. Reserving
7	transmission capacity of 250 MW would result in approximately \$5.2 million per
8	year in new point-to-point transmission revenues to DEP. These revenues
9	contribute towards DEP's Annual Transmission Revenue Requirement
10	("ATRR"), and are used by DEP to operate, maintain, and upgrade its
11	transmission system. By contributing substantial revenues toward the ATRR,
12	Juno Solar can be expected to reduce the burden for transmission spending that
13	would otherwise ultimately fall on DEP's various load customers.
14	These transmission rates are forecasted by Duke to rise substantially in the
15	coming years, and Birch Creek projects Juno Solar to spend over \$275 million on
16	point-to-point transmission over the life of the project. This is the only means by
17	which Juno can deliver power to the PJM marketplace. These costs, not in any
18	way reimbursable by ratepayers, will, under any reasonable assumptions, far
19	exceed the costs of network upgrades to which ratepayers might be subject. Even
20	at the high end of a \$4/MWh LCOT, Juno Solar's projected contribution of
21	point-to-point transmission revenues to DEP still exceeds its reimbursable
22	network upgrade costs by roughly a factor of five. In Birch Creek's view, the
	magnitude of these new transmission revenues for DEP is a benefit entirely
----	--
	sufficient to allay concerns over ratepayer exposure to interconnection and
	affected system costs, and it is puzzling that the Public Staff chose to entirely
	ignore this customer benefit in its testimony.
Q.	Public Staff Witness Metz states that Juno Solar's request that the
	Commission issue a Conditional CPCN to the project will not solve the "Catch
	22" problem noted in your Direct Testimony. (Public Staff Witness Metz
	Testimony, pp. 5-6) Is the Public Staff's statement correct?
A.	No. While it would not eliminate all risk associated with interconnection, the
	Commission's issuance of a CPCN to Juno Solar would appropriately mitigate the
	substantial financial risk that Juno Solar would face if it had to withdraw from the
	Transition Cluster Study if the Commission were to deny its CPCN Application.
	Thus, with a Conditional CPCN, Juno Solar will be able to enter the Transitional
	Cluster and incur the associated financial exposure without an unacceptable level
	of uncertainty about whether the Commission will issue a CPCN for the facility.
Q.	Do you agree with the Public Staff's claim that Juno Solar would still be
	subject to the same financial risk of withdrawal from the Transitional Cluster
	Study even if the Commission issued a Conditional CPCN? (Public Staff
	Witness Metz Testimony, pp. 5-6)
А.	No. DEP has not yet studied whether any Network Upgrades will be required to
	interconnect Juno Solar and the other projects in the Transitional Cluster, and if so,
	the Network Upgrade costs that will be assigned to Juno Solar. However, Juno Solar
	Q. Q.

1 has completed a detailed injection analysis of the project to identify any anticipated 2 transmission overloads and potential Network Upgrade costs. The study modeled 3 an array of planning and dispatch scenarios, and found modest Network Upgrades 4 needed under all but the most conservative planning scenarios (e.g., the full volume 5 of the interconnection queue coming into service). Juno Solar has entered the 6 Transitional Cluster and will go through the interconnection study process with 7 DEP to identify any specific Network Upgrades needed to interconnect the project. 8 By way of Juno Solar's injection analysis of the project, Juno Solar believes that 9 the Levelized Cost of Transmission ("LCOT") for any required Network Upgrades 10 and Affected System Upgrades assigned to the project will be no greater than \$4.00 11 per MWh, and in all likelihood substantially lower than that value. With a CPCN 12 that is conditioned on the LCOT for any assigned Network Upgrades being no 13 greater than the specific defined amount of \$4.00 per MWh, Juno Solar will have 14 adequate assurance that it will not need to withdraw from the Transitional Cluster 15 Study and forfeit substantial sums as a withdrawal penalty.

Q. The Public Staff also states that Juno Solar is attempting to "shift" the risk
from Juno Solar to the North Carolina ratepayers through the Conditional
CPCN Application. (Public Staff Witness Metz Testimony, p. 5) Is the Public
Staff's concern valid?

A. No. Contrary to the Public Staff's assertion, the Commission's issuance of a
Conditional CPCN to Juno Solar would provide an appropriate solution for the
"Catch 22" problem that would in no way "shift" risk from Juno Solar to the North

1 Carolina ratepayers. Juno Solar has proposed a reasonable condition to the CPCN 2 to ensure that that the ratepayers will not have to provide reimbursement for 3 Network Upgrade costs and Affected System costs that are too high. Juno Solar's 4 proposed condition will ensure that the LCOT for any assigned Network Upgrade 5 costs and Affected System costs from the study processes will be no greater than 6 \$4.00 per MWh. The conditions to Juno Solar's CPCN Application are designed 7 to provide ample protection for the ratepayers from unreasonably high Network 8 Upgrade.

9 Q. Do you believe that FERC-jurisdictional Interconnection Customers might be
10 dissuaded from entering Phase 2 of Duke's Cluster Study if they will face
11 million dollar withdrawal penalties if they exit the study process because their
12 CPCN is denied?

13 Yes. I believe that the uncertainty of whether the Commission will grant a CPCN Α. 14 to a merchant plant facility might dissuade FERC-jurisdictional Interconnection 15 Customers from entering Phase 2 of the Cluster Study due to the magnitude of the 16 withdrawal penalties. The Public Staff does not disagree. In response to Juno 17 Solar's Data Request No. 1 to the Public Staff, the Public Staff stated that "[t]he 18 Public Staff does not dispute the uncertainty regarding whether a CPCN would be 19 granted may lead a potential Interconnection Customer to decide not to enter the 20 Transitional Cluster Study." I believe that any policy that would discourage 21 merchant plants from even entering the Transitional Cluster Study-when there are

Rebuttal Testimony of Piper Miller Docket EMP-116, Sub 0 Page 6

1		solutions to mitigate the financial risk, such as Juno Solar's proposed Conditional
2		CPCN—would be both inappropriate and unfair to merchant plant applicants.
3	Q.	Do you agree with the Public Staff's position that the Commission cannot
4		make a "fully informed" decision on Juno Solar's CPCN Application until
5		the interconnection studies have been completed? (Public Staff Witness Metz
6		Testimony, p. 6)
7	А.	No, the Public Staff's position is incorrect. The Commission will be able to make
8		a fully informed decision on Juno Solar's Conditional CPCN Application because
9		Juno Solar has proposed a binding and enforceable condition that the LCOT for
10		any assigned Network Upgrade costs and Affected System costs from the study
11		processes will be no greater than \$4.00 per MWh. Juno Solar's power flow
12		analysis shows that the Network Upgrade costs will most likely be around \$13
13		million, and would be closer to \$16.84 million in the worst-case scenario. The
14		worst-case scenario assumes that 100% of the Network Upgrade costs would be
15		assigned to Juno Solar and that none of those costs would be assigned to any other
16		project in the Transitional Cluster. Under both the likely scenario and the worst-
17		case scenario, Public Staff Witness Metz agrees that the costs are reasonable in
18		both magnitude and in LCOT. Therefore, the Public Staff's claim that the
19		Commission cannot make a "fully informed" decision about Juno Solar's CPCN
20		Application and impact to ratepayers is both misleading and incorrect.
21	Q.	The Public Staff notes that the Department of Natural and Cultural
22		Resources has recommended a comprehensive archaeological assessment of

1		the property. (Public Staff Witness Metz Testimony, pp. 9-10) Has the
2		archaeological assessment of the property been performed?
3	А.	Juno Solar has executed a proposal for the completion of an archaeological survey
4		as recommended by the Department of Natural and Cultural Resources. The
5		results of the study are expected within three to four months (February to March
6		2022).
7	Q.	The Public Staff expresses concern that the nameplate capacity for Juno
8		Solar might ultimately be reduced due to potential site constraints, and
9		therefore requested a more detailed site plan. (Public Staff Witness Metz
10		Testimony, pp. 8-9) Is the Public Staff's concern valid?
11	А.	No. Public Staff Witness Metz notes that "given my experience with the Public
12		Staff reviewing CPCN applications for solar facilities, it is not uncommon for
13		sites to have numerous modifications to the site layout and boundaries, and even
14		changes in nameplate capacity prior to project completion." (Public Staff Witness
15		Metz, p. 8) We agree with the Public Staff that solar developers frequently make
16		modifications to the site layout and boundaries and sometimes revise the facility's
17		nameplate capacity prior to project completion. However, prior to the Public
18		Staff's testimony in this docket, the Public Staff had never suggested that the
19		Commission should not issue a CPCN simply because the project might undergo
20		site changes prior to project completion. Thus, the Public Staff's position is not
21		only a novel position, but the Public Staff has singled out Juno Solar for its newly
22		expressed position.

1	In response to the Public Staff's request for a more detailed site plan, I
2	want to make it clear that Juno Solar filed a revised detailed site plan that shows
3	all significant site features, including the wetlands, on the property on July 26,
4	2021. On July 27, 2021, the Public Staff filed notice that Juno Solar's Conditional
5	CPCN Application, that includes the revised detailed site plan, is complete and
6	meets the requirements of Rule R8-63. Even though the Public Staff has
7	acknowledged that Juno Solar's Conditional CPCN Application is complete and
8	in compliance with Rule R8-63, Juno Solar is willing to file an even more detailed
9	site plan in the docket if material changes are made upon further refinement.
10	However, the Public Staff's suggestion that any possible modifications to
11	the site might make the site "incapable of supporting a facility that can produce
12	the total energy utilized in the initial calculation of the LCOT [and that] the true
13	LCOT may be substantially greater than what is being relied upon in determining
14	whether to grant the CPCN" is a flawed risk assessment. (Public Staff Witness
15	Metz Testimony, pp. 8-9) By the same token, a downsizing of the Juno Solar
16	facility could alleviate constraints on the system and materially reduce its
17	Network Upgrade costs (effectively the "numerator" in the LCOT calculation) as
18	readily as a reduction in generation (effectively the "denominator" of LCOT)
19	might materially increase LCOT. Indeed, preliminary internal analysis has
20	suggested this could be the case with a downsizing of the facility. This analysis is
21	inconclusive without knowing the composition of the Transitional Cluster, but

Birch Creek will once again study this dynamic once the full set of cluster
 projects is known.

Q. The Public Staff claims that Juno Solar cannot provide an accurate or useful
power flow analysis. (Public Staff Witness Metz Testimony, p. 13) Is the
Public Staff's opinion correct?

- 6 Birch Creek's power flow analysis provides useful guidance and insight into the A. 7 potential costs and risks of Network Upgrade requirements associated with the 8 Juno Solar facility, and should be viewed as such. The study was performed with 9 conservative assumptions and the best information Birch Creek had available at 10 the time. As discussed in response to the previous question, Birch Creek 11 acknowledges that this study is not fully conclusive without knowing the 12 composition of the Transitional Cluster. This study will be updated as that 13 composition is determined, and Birch Creek is willing to brief the Public Staff on 14 any substantial changes to its findings. In any case, Birch Creek's results do not 15 hinder the Commission in issuing a CPCN conditional upon ultimate costs, and 16 Birch Creek's preliminary Network Upgrade cost findings reflect ample 17 headroom below what it believes are just and reasonable levels.
- Q. The Public Staff states that Juno Solar's power flow analysis should have
 included a winter study and possibly a shoulder season study. (Public Staff
 Witness Metz Testimony, p. 13) Do you agree with the Public Staff's opinion?
 A. The primary study hour for generation interconnection requests is 1 p.m. on a
 summer peak day with customer load at 90% of peak and solar generation at

1		100%, due largely to significant solar generation in DEP. For projects that have
2		solar plus storage, DEP will perform a winter peak analysis in addition to the
3		summer peak analysis. Juno Solar is a closed loop solar plus storage project which
4		means that it is DC coupled and will not charge from the transmission grid. That
5		being said, Birch Creek performed a winter peak screening in addition to the
6		summer peak study to model the discharge of the interconnection request during
7		winter peak hour. Birch Creek did not identify new constraints during winter
8		peak. DEP does not outline or mention the use of shoulder season studies for
9		generation interconnection requests in their base case data dictionaries, nor there
10		are FERC 845 shoulder season cases available.
11	0	Please response to the Public Staff's concerns about the Affected System
	Y.	Theuse response to the rubble stuff 5 concerns about the rubbette system
12	¥,	studies and the Transitional Cluster Study. (Public Staff Witness Metz
12 13	×.	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25)
12 13 14	А .	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected
12 13 14 15	ч. А.	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes
12 13 14 15 16	<u>А</u> .	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes the Public Staff's source of concern around the Affected System evaluation
12 13 14 15 16 17	<u>А</u> .	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes the Public Staff's source of concern around the Affected System evaluation process, both from a study timing perspective and a ratepayer cost risk
12 13 14 15 16 17 18	А .	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes the Public Staff's source of concern around the Affected System evaluation process, both from a study timing perspective and a ratepayer cost risk perspective.
12 13 14 15 16 17 18 19	А . Q.	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes the Public Staff's source of concern around the Affected System evaluation process, both from a study timing perspective and a ratepayer cost risk perspective. Does the Public Staff agree that PJM has identified a need for new
12 13 14 15 16 17 18 19 20	Q.	studies and the Transitional Cluster Study. (Public Staff Witness Metz Testimony, pp. 23-25) Juno Solar will agree not to seek reimbursement for any Duke Energy Affected System Upgrade costs that may be incurred. Juno Solar's agreement thus removes the Public Staff's source of concern around the Affected System evaluation process, both from a study timing perspective and a ratepayer cost risk perspective. Does the Public Staff agree that PJM has identified a need for new generation in terms of both energy and capacity? (Public Staff Witness Metz

1	А.	Yes. The Public Staff clearly states that PJM has identified the need for new
2		generation and capacity. (Public Staff Witness Metz Testimony, p. 28)
3	Q.	Please summarize PJM's most recent (2021) Load Forecast Report.
4	А.	The Public Staff agrees with Juno Solar that PJM's 2021 Load Forecast Report
5		demonstrates the need for new generation for energy and capacity. As noted in my
6		initial testimony, Commercial and Industrial ("C&I") demand for clean energy in
7		the PJM market is stronger than ever in the market's history and continues to grow.
8		The year 2020 saw yet another increase in C&I demand for renewable energy,
9		despite the challenges of the Covid-19 pandemic. LevelTen Energy, which matches
10		renewable energy buyers and sellers and provides insight into nationwide
11		renewable PPA pricing, noted an increase in solar PPA prices in PJM over the past
12		two years, with a steady escalation in price from Q1 2019 to Q4 2020. As Birch
13		Creek cited previously in this docket, "The convergence of more challenging local
14		and state permitting regimes, prohibitively high grid upgrade costs, and a surge in
15		buyer demand has resulted in a PJM market that is short in project supply, which
16		has in turn led to rising PPA prices" observed Rob Collier, Vice President of
17		Developer Relations at LevelTen, in its Q4 2020 Energy PPA Price Index. The
18		report found PJM Solar PPA prices to be the highest of any ISO or RTO in the
19		country. This finding has held in subsequent reports, with the most recent (released
20		in October 2021) finding the highest 25 th percentile price at \$37.50/MWh, and
21		noting that even this price was depressed by a clustering of projects in AEP-Dayton

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Hub region, and that PJM's Dominion Hub is almost certainly experiencing higher
 pricing.

3		Furthermore, the Public Staff reports that PJM is expecting peak load
4		growth of 0.3% for the next 10 years and 0.2% over the next 15 years, with a
5		summer forecasted peak of 153,759 MW in 2031 and winter forecasted peak of
6		135,568 MW in 2030/2031. Thus, the information and reports about future energy
7		needs in PJM relied upon by both Juno Solar and the Public Staff clearly
8		demonstrates the need for the Juno Solar facility.
9	Q.	Even though the Public Staff recognizes that PJM has a need for new
10		generation, does the Public Staff nonetheless conclude that Juno Solar has
11		not demonstrated a need for the facility? (Public Staff Witness Metz
12		Testimony, p. 28)
13	A.	Yes, the Public Staff makes a convoluted argument that there might not be a need
14		for the Juno Solar facility because the Public Staff finds it "doubtful" that PJM's
15		energy and capacity needs are solely dependent on the Juno Solar facility. (Public

Staff Witness Metz Testimony, p. 28) Juno Solar's burden to show the need for

the generating facility is not a complicated one. A merchant plant does not need

to show-and a merchant plant has never been required to show-that an

electric public utility's need for energy must be met solely by the proposed

merchant plant generating facility.

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1	Q.	Other than the Friesian Holdings, LLC CPCN application and Juno Solar's
2		Conditional CPCN Application, has the Public Staff ever taken the position
3		that a merchant plant applicant has not demonstrated a need for the facility?
4		A. No. Juno Solar has performed an analysis of merchant plant CPCN
5		dockets after the Commission adopted Rule R8-63 in the wake of its 1992
6		decision regarding Empire Power Company's merchant plant CPCN application.
7		See Order on Motion to Dismiss, issued on April 23, 1992 in Docket No. SP-
8		91. With the exception of the Public Staff's position in Friesian Holdings, LLC's
9		("Friesian") CPCN application in Docket No. EMP-105, Sub 0 that Friesian had
10		not demonstrated a need for the generating facility, Juno Solar's analysis of
11		merchant plant CPCN dockets demonstrates that the Public Staff has taken the
12		position that the merchant plant CPCN applicant had not shown the need for the
13		facility in only two merchant plant CPCN proceedings. Those two merchant plant
14		dockets are Friesian's CPCN docket and now Juno Solar's Conditional CPCN
15		docket.
16		The Public Staff has confirmed Juno Solar's analysis. The Public Staff
17		responded to Juno Solar's Data Request No. 1 as follows:
18		Question No. 29. Has the Public Staff ever previously found that a
19		merchant plant has not demonstrated the need for the facility when PJM
20		has demonstrated the need for new generation, both energy and capacity?
21		If so, please provide the docket number for all merchant plant CPCN
22		applications in which the Public Staff has taken that position.

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Rebuttal Testimony of Piper Miller Docket EMP-116, Sub 0 Page 14

1		Response: See the response to Question No. 28 above. The Public Staff
2		has not taken that position in any recent docket other than the Friesian
3		CPCN application and given the time allowed to respond to this data
4		request, is not able to research the question beyond the last 24 months (as
5		provided in chart in response to Question No. 21). However, the Public
6		Staff has taken various positions in EMP dockets based upon
7		circumstances at the time it filed testimony in these dockets. These
8		positions have ranged from recommendations for approval with conditions
9		addressing updated networking upgrade costs to recommendations to hold
10		the application in abeyance until study costs are known. The Public
11		Staff's recommendation for the need for a generating facility is based on
12		many factors to include location, generating capacity, generation
13		technology, and commercial operation date.
14	Q.	In earlier testimony, you stated that Juno Solar was in the process of
15		attaining a PPA term sheet, which would serve to demonstrate the need for
16		the project. Has any progress been made?
17	А.	Yes. Juno Solar has executed a term sheet from a large, investment-grade retail
18		and wholesale energy provider in PJM, corroborating the need for renewable
19		energy in the Dominion region of PJM noted in the previously cited LevelTen
20		report and demonstrating need for this project. This PPA term sheet is provided as
21		Confidential Attachment A – PPA Term Sheet.

1		In Birch Creek's view, this term sheet represents an equal or greater
2		burden of proof than met in the course of recently approved CPCN documents,
3		including those of Fern Solar, LLC (Docket No. EMP-104, Sub 0), Halifax Solar,
4		LLC (Docket No. EMP-107, Sub 0), American Beech Solar, LLC (Docket No.
5		EMP-108, Sub 0), Sumac Solar, LLC (Docket No. EMP-110, Sub 0), and
6		Shawboro Solar, LLC (Docket No. EMP-117, Sub 0).
7	Q.	In light of the recent enactment of S.L. 2021-165 ("H.B. 951"), will there be
8		further need in North Carolina for non-carbon emitting generation on the
9		Duke Energy system to serve load to reduce emissions by 70% over 2005
10		levels by 2030?
11	А.	Yes. There will certainly be a substantial need for new non-carbon emitting
12		generation on the Duke Energy system both in the short-term and in the long-term
13		to serve load and reduce CO2 emissions.
14	Q.	Does the passage of H.B. 951 add a new dimension to the need for the Juno
15		Solar facility?
16	A .	Yes, it does. The 70% decarbonization by 2030 mandate established by the
17		General Assembly means that a massive amount of solar energy resources will
18		have to be added to Duke's system over the next nine years. Duke's Integrated
19		Resource Plan ("IRP") pending before the Commission shows that amount to be
20		at least 9 GW, although intervenors have put on evidence that would support a
21		much higher number. Duke's modified IRP filed in South Carolina suggests,
22		by Duke's own analysis, that the amount of required solar energy resources could

1		be closer to 11 GW. Thus, while the exact amount of solar additions will be
2		determined in the carbon reduction plan to be developed by the Commission next
3		year, it is highly likely that Duke will be adding a minimum of 1 GW, and
4		perhaps as much as 1.5 GW, of solar per year throughout the next decade. Under
5		H.B. 951, 55% of that amount will be owned by Duke and procured through
6		facility purchases from third parties or by self-development. In addition, there is
7		no size cap on Duke-owned solar, which means that the least-cost mandate of
8		H.B. 951 will almost certainly drive the procurement of larger facilities with
9		greater economies of scale. There are currently only five solar facilities in DEP
10		and DEC's combined interconnection queues with a capacity greater than 150
11		MW. In light of transmission and other development constraints, it is very likely
12		that Juno Solar would be one of the most cost-effective options for Duke to
13		achieve compliance with H.B. 951.
13 14	Q.	achieve compliance with H.B. 951. But should the Commission wait to grant a CPCN to Juno Solar until it is
13 14 15	Q.	achieve compliance with H.B. 951. But should the Commission wait to grant a CPCN to Juno Solar until it is determined whether Duke will in fact purchase the Juno Solar facility?
13 14 15 16	Q. A.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of the
 13 14 15 16 17 	Q. A.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recently
 13 14 15 16 17 18 	Q. A.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recentlyadopted Transitional Cluster Study rules. There is absolutely no harm to
 13 14 15 16 17 18 19 	Q.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recentlyadopted Transitional Cluster Study rules. There is absolutely no harm toratepayers in issuing the conditional CPCN. Juno Solar is willing to accept an
 13 14 15 16 17 18 19 20 	Q.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recentlyadopted Transitional Cluster Study rules. There is absolutely no harm toratepayers in issuing the conditional CPCN. Juno Solar is willing to accept anadditional condition to the CPCN that its CPCN will automatically terminate if
 13 14 15 16 17 18 19 20 21 	Q.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recentlyadopted Transitional Cluster Study rules. There is absolutely no harm toratepayers in issuing the conditional CPCN. Juno Solar is willing to accept anadditional condition to the CPCN that its CPCN will automatically terminate ifJuno Solar does not either contract for the sale of energy or the sale of the facility
 13 14 15 16 17 18 19 20 21 22 	Q.	achieve compliance with H.B. 951.But should the Commission wait to grant a CPCN to Juno Solar until it isdetermined whether Duke will in fact purchase the Juno Solar facility?No. As we have explained, the need for the immediate issuance of theConditional CPCN is to solve the Catch 22 problem presented by the recentlyadopted Transitional Cluster Study rules. There is absolutely no harm toratepayers in issuing the conditional CPCN. Juno Solar is willing to accept anadditional condition to the CPCN that its CPCN will automatically terminate ifJuno Solar does not either contract for the sale of energy or the sale of the facilityduring the life of the CPCN. As an aside, there is no risk that Juno Solar would

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1		never construct the facility if it did not have a contact for the sale of the energy or
2		the sale of the facility. Juno Solar will not be able to obtain financing to construct
3		the facility unless it has either a contract for the off-take of the facility or a
4		contract to sell the facility to Duke.
5	Q.	Despite the enactment of HB 951, the Public Staff questions whether Juno
6		Solar will displace existing CO2-emitting resources in PJM territory. (Public
7		Staff Witness Metz Testimony, pp. 25-26) Please describe how Juno Solar
8		will displace CO2-emitting resources.
9	А.	The Public Staff's implication that Juno may not displace CO ₂ -emitting resources
10		in PJM, or must demonstrate through independent study that it will do so, is
11		puzzling. A basic understanding of economic dispatch in power markets and the
12		resource mix of PJM conveys it to be effectively impossible that Juno would not
13		displace a substantial amount of CO ₂ -emitting generation.
14		In PJM, broadly speaking, hours with locational marginal prices ("LMPs")
15		substantially greater than zero can be characterized as having gas- or coal-fired
16		generation setting the marginal clearing price, given its significant variable cost
17		per megawatt-hour (unlike zero- or low-marginal cost solar and wind
18		generation) ¹ . Adding solar generation onto the system will, by definition, displace
19		marginal generation, which in solar-generating hours overwhelmingly comes
20		from CO ₂ -emitting resources. Birch Creek finds a solar generation-weighted

¹ Nuclear generation typically carries a low variable cost, and is dispatched well before the marginal unit (base load) in the case of Juno Solar's projected operating hours in PJM.

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8	Q.	Does this conclude your testimony?
7		Solar's forecasted 8,760 operating profile.
6		cost resource setting the margin) during a solar-generating hour, based on Juno
5		no instances of a \$0 LMP (which would indicate a renewable or zero marginal
4		clearing price in the extreme majority of these solar-generating hours ² , and found
3		result of CO ₂ -emitting natural gas and coal generation setting the marginal
2		approximately three years at its applicable SOUTH import point in PJM, the
1		average LMP for the Juno Solar facility of \$29.69/MWh for the past

9 A. Yes.

²In PJM's 2021 State of the Market Report, PJM's Independent Market Monitor found that natural gas generating units set the marginal clearing price in 68.7% of hours and coal units set the marginal clearing price in 16.8% of hours for the real-time market. The remaining marginal clearing prices are primarily set by wind and fall outside of Juno Solar's hours of operation.

BY MS. KEMERAIT: 1

2	Q	And Ms. Miller, do you have a summary of your
3		testimony that you would like to present to the
4		Commission at this time.
5	A	Yes, I do.
6	Q	Please go ahead and read it.
7	A	My name is Piper Miller and I am the Vice
8		President of Development for Pine Gate
9		Renewables. Juno Solar is wholly owned by Birch
10		Creek Development and operated in collaboration
11		with Pine Gate Renewables, which is managing the
12		development of Juno Solar's proposed
13		utility-scale solar photovoltaic generating
14		facility.
15		I filed direct testimony and
16		exhibits in this docket on July 12th and 13th,
17		2021, revised direct testimony and exhibits on
18		July 26th and 27th, 2021, supplemental direct
19		testimony on September 14th, 2021, and rebuttal
20		testimony and exhibits on November 9th, 2021.
21		The purpose of the summary of my
22		testimony is to demonstrate that Juno Solar's
23		Conditional CPCN Application meets all
24		requirements of North Carolina General Statute
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1	§ 62-110.1 and Commission Rule R8-63, and to
2	explain why the Commission should grant the CPCN
3	with the proposed conditions.
4	In my testimony, I provide
5	information about the 275-MW Juno Solar facility
6	in Richmond County, North Carolina, and explain
7	(1) the need for the Juno Solar facility; (2) how
8	the Juno Solar facility with the associated
9	network upgrades will serve the public
10	convenience and necessity; (3) why a Conditional
11	CPCN is needed for the facility; and (4) how the
12	conditions to Juno Solar's CPCN Application will
13	provide ample protection for the North Carolina
14	ratepayers from unreasonably high network upgrade
15	costs.
16	In my testimony, I emphasize the
17	importance of the Juno Solar Application for the
18	State, especially in light of the recent
19	enactment of House Bill 951. Due to the mandate
20	in House Bill 951, there will be a substantial
21	need in North Carolina for new non-carbon
22	emitting generation on the Duke Energy Progress
23	and Duke Energy Carolinas system. I also explain
24	how the requested Conditional CPCN provides an

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1 appropriate solution for an unintended problem 2 that the Duke Energy FERC Queue Reform Study 3 process created for Juno Solar, a FERC-jurisdictional Interconnection Customer. 4 5 The Juno Solar site consists of 25 6 parcels, collectively containing approximately 7 2,586 acres of land, located along McFarland Road 8 and Green Chapel Church Road in Richmond County. In both my supplemental direct and rebuttal 9 10 testimony, I provide substantial evidence of the 11 need for the Juno Solar facility. Juno Solar has 12 executed a preliminary term sheet from a large, 13 investment-grade retail and wholesale energy 14 supplier in PJM that demonstrates the need for 15 the renewable energy from the facility in the Dominion region of PJM. 16 This term sheet 17 represents equal or greater evidence of need than 18 was deemed sufficient for CPCN approval in 19 several recent proceedings, including those of 20 Fern Solar, Halifax Solar, American Beech Solar, 21 and Sumac Solar. 22 In addition to the executed term 23 sheet with the retail and wholesale energy 24 supplier in PJM, I provide information about the

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1need for the Juno Solar facility in the State and2the region. Commercial and Industrial demand for3clean energy in the PJM market is stronger than4ever in the market's history and continues to5grow. The year 2020 once again saw strongly6increasing C&I demand for renewable energy,7despite the challenges of the Covid-19 pandemic.8Level Ten Energy, which matches renewable energy9buyers and sellers and provides insight into10nationwide renewable PPA pricing, noted11increasing solar PPA prices in PJM over the past12two years in its energy PPA Price Index, which13has continued into 2021. PJM exhibits the14highest solar PPA prices of any organized market15in the country, with Level Ten finding a 25th16percentile PPA price of \$37.50 - a price likely17driven downward by clustering of PPAs at the18discounted AEP-Dayton Hub and higher at the19Dominion Hub at which Juno will settle,20underscoring the need for renewable energy in the21region. Level Ten Vice President of Developer22Relations Rob Collier stated in the company's Q4232020 report "The convergence of more challenging24local and state permitting regimes, prohibitively		
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22 Relations Rob Collier stated in the company's Q4 23 2020 report "The convergence of more challenging 24 local and state permitting regimes, prohibitively	21	region. Level Ten Vice President of Developer
23 2020 report "The convergence of more challenging 24 local and state permitting regimes, prohibitively	22	Relations Rob Collier stated in the company's Q4
24 local and state permitting regimes, prohibitively	23	2020 report "The convergence of more challenging
	24	local and state permitting regimes, prohibitively

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1 high grid upgrade costs, and a surge in buyer 2 demand has resulted in a PJM market that is short 3 in project supply, which has in turn led to rising PPA prices". Is expecting peak load 4 5 growth of .3 percent for the next 10 years and .2 6 percent over the next 15 years, with a summer 7 forecasted peak of 153,759 MW in 2031 and a 8 winter forecasted peak of 135,568 MW in 2030 and 9 '21 -- 2031. 10 In my rebuttal testimony, I 11 provide further information about the need for the facility in light of enactment of House Bill 12 13 951. Due to the mandate in House Bill 951, there 14 will be a substantial need in North Carolina for 15 non-carbon emitting generation on the Duke Energy 16 system to serve load to reduce emissions by 17 70 percent over 2005 levels by 2030. The 18 70 percent decarbonization by 2030 mandate means 19 that a massive amount of solar energy resources 20 will have to be added to Duke Energy's system 21 over the next nine years. 22 In the Commission's recent Order 23 in the Integrated Resource Plan proceeding issued 24 on November 19th, 2021, the Commission found Duke

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1	Energy's 2020 IRPs, that show the amount of solar
2	additions to be at least 9 GW, to be adequate for
3	short-term planning purposes. Thus, while the
4	exact amount of solar additions will be
5	determined in the carbon reduction plan to be
6	developed by the Commission next year, it is
7	highly likely that Duke Energy will be adding a
8	minimum of 1 GW of solar per year throughout the
9	next decade. Under House Bill 951, 55 percent of
10	that amount will be owned by Duke Energy and
11	procured through facility purchases from third
12	parties or by self-development. In addition,
13	there is no size cap on the Duke Energy-owned
14	solar, which means that the least cost mandate of
15	H.B. 951 will almost certainly drive the
16	procurement of larger facilities with greater
17	economies of scale. There are currently only
18	five solar facilities in DEP and DEC's combined
19	interconnection queues with a capacity greater
20	than 150 MW. In light of transmission and other
21	development constraints, it is very likely that
22	Juno Solar would be one of the most
23	cost-effective options for Duke Energy to achieve
24	compliance with House Bill 951.

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1	Also, in my rebuttal testimony, I
2	provide information that the Juno Solar facility,
3	along with the associated network upgrades, are
4	in the public convenience and necessity. I
5	discuss the substantial benefits that the
6	development of the Juno Solar facility will
7	provide to DEP ratepayers. These benefits
8	distinguish Juno solar from the other merchant
9	solar projects interconnecting in the Dominion
10	PJM region of North Carolina about which the
11	Commission has recently expressed concern. In
12	order to wheel its output from its location in
13	DEP territory to PJM, Juno Solar will have to
14	procure point-to-point transmission service
15	across the DEP system. This process is known and
16	transparent with current and forecasted rates
17	being published by Duke Energy periodically. The
18	current rate for firm point-to-point transmission
19	service across the DEP system is \$1,738 per
20	megawatt per month. Reserving transmission
21	capacity of 250 megawatts would result in
22	approximately \$5.2 million per year in new
23	point-to-point transmission revenues to DEP at
24	current rates. These revenues contribute

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1	toward these revenues contribute towards DEP's
2	Annual Transmission Revenue Requirement, or ATRR,
3	and are used by DEP to operate, maintain, and
4	upgrade its transmission system. By contributing
5	substantial revenues towards the ATRR, Juno Solar
6	can be expected to reduce the burden for
7	transmission spending that would otherwise
8	ultimately fall on DEP's various load customers.
9	These transmission rates are
10	forecasted by Duke Energy to rise substantially
11	in the coming years. In my rebuttal testimony, I
12	projected that Juno Solar will spend over
13	\$275 million on point-to-point transmission over
14	the life of the project. This is the only means
15	by which Juno Solar can deliver power to the PJM
16	marketplace. These costs, not in any way
17	reimbursable by ratepayers, will, under any
18	reasonable assumptions, far exceed the costs of
19	network upgrades which ratepayers might be
20	subject to. Even at the end of a \$4.00 even
21	at the high end of a \$4.00/MWh Levelized Cost of
22	Transmission, Juno Solar's projected contribution
23	of point-to-point transmission revenues to DEP
24	still exceeds its reimbursable network upgrade

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1	costs by roughly a factor of five. The magnitude
2	of these new transmission revenues for DEP is a
3	benefit entirely sufficient to allay any concerns
4	over ratepayer exposure to interconnection costs.
5	In addition, in my direct
6	testimony and rebuttal testimony, I explain the
7	reasons why the Commission should issue a
8	conditional CPCN to Juno Solar. As background,
9	the Federal Energy Regulatory Commission has
10	approved revisions to Duke Energy's Attachment J,
11	Standard Large Generator Interconnection
12	Procedures, to their Joint Open Access
13	Transmission Tariff. With FERC Queue Reform,
14	Duke Energy has reformed their generator
15	interconnection queuing, study process, and cost
16	allocation process by transitioning to a
17	Definitive Interconnection Study process. Juno
18	Solar has recently entered the Transitional
19	Cluster in which Juno Solar and other
20	interconnection customers will be grouped
21	together for the Transitional Cluster Study
22	process and will be able to share any required
23	network upgrade costs.
24	There are substantial and

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1 increasing financial security requirements 2 required for both ready and non-ready 3 interconnection customers to enter the Transitional Cluster and proceed through the 4 5 Transitional Cluster Study process. The total 6 security required for the Transitional Cluster 7 Study process if readiness is provided is as 8 follows: One times the study deposit to enter Phase 1 and \$3 million to enter Phase 2. 9 The 10 total security for the study process if readiness 11 is not provided is as follows: One times the 12 study deposit plus \$3 million to enter Phase 1, 13 and an additional \$2 million for a total of \$5 14 million to enter Phase 2. Therefore, ready projects will have to pay in excess of \$3 million 15 16 to enter Phase 2 study, and non-ready projects 17 will have to pay in excess of \$5 million to be studied in Phase 2. 18 If an interconnection customer 19 20 withdraws prior to Phase 2 of the Transition 21 (sic) Cluster Study process commencing, no 22 withdrawal penalty is imposed and the

interconnection customer will only be assigned its allocated study costs. However, after the

23

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1 commencement of Phase 2, the interconnection 2 customer runs the risk of having to pay a 3 withdrawal penalty equal to nine times its study costs, which is likely to be \$1 to \$2 million or 4 5 potentially greater, in addition to losing the 6 study costs already paid. Among the reasons that 7 an interconnection customer might need to 8 withdraw from the study process is if the Commission were to deny a CPCN Application. 9 The 10 Commission could decide to deny a CPCN where it 11 believes that the LCOT for any network upgrades 12 are too high. 13 This situation creates a catch 22 14 for FERC-jurisdictional Interconnection 15 Customers, like Juno Solar, that have to enter 16 the Transitional Cluster and must make 17 substantial financial posting and face 18 substantial withdrawal penalties if they exit the 19 study process because the Commission were to deny 20 But Juno Solar cannot determine the the CPCN. 21 amount of its network upgrade costs and its LCOT 22 without first completing the study process. The solution to this unfair situation is for the 23 24 Commission to issue a Conditional CPCN that will

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1 remain in effect so long as the LCOT for any 2 required network upgrades assigned to Juno Solar 3 is at or below an acceptable defined amount. 4 Juno Solar has conducted a detailed injection 5 analysis of the project to identify anticipated 6 transmission overloads and potential network 7 upgrade costs. The study found that minimal 8 network upgrades will be required, and Juno Solar 9 believes that the LCOT for any required network 10 upgrades assigned to the project will be no 11 greater than \$4.00/MWh. 12 Finally, I explained in my direct 13 and rebuttal testimony that the Conditional CPCN 14 will ensure that the ratepayers are not subjected to unreasonably high network upgrade costs. 15 Juno Solar has proposed a Conditional CPCN that will 16 17 both provide protection to the ratepayers and 18 allow Juno Solar to enter the Transitional 19 Cluster and incur the associated financial 20 exposure without an unacceptable level of 21 uncertainty about whether the CPCN will be issued 22 and whether the issued CPCN will remain in 23 effect. 24 Juno Solar has proposed the

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1	following conditions to the CPCN to ensure that
2	there will be no unreasonable harm or risk to the
3	ratepayers: (1) the LCOT for any required
4	network upgrades associate assigned to Juno
5	Solar will be no greater than \$4.00 per megawatt
6	hour; (2) the Conditional CPCN will automatically
7	terminate if the LCOT for any required network
8	upgrades is greater than \$4.00 per megawatt hour;
9	(3) Juno Solar will agree not seek to
10	reimbursement for any Duke Energy Affected System
11	upgrade costs that may be incurred; and (4) Juno
12	Solar's CPCN will automatically terminate if Juno
13	Solar does not either contract for the sale of
14	energy or the sale of the facility during the
15	life of the CPCN.
16	This information concludes the
17	summary of my testimony.
18	BY MS. KEMERAIT:
19	Q Thank you, Ms. Miller.
20	MS. KEMERAIT: I'll now move on to Juno
21	Solar's second witness, which is Steve Levitas.
22	BY MS. KEMERAIT:
23	Q Mr. Levitas, can you state your full name and
24	business address for the record, please?

1	A	I'm Steve Levitas. My business address is 130
2		Robert Street in Asheville.
3	Q	By whom are you employed and in what capacity?
4	A	I work for Pine Gate Renewables. I am the Senior
5		Vice President for Regulatory and Government
6		Affairs.
7	Q	And Mr. Levitas, did you cause to be prefiled on
8		November the 9th of 2021, 18 pages of rebuttal
9		testimony in the form of question and answer and
10		one exhibit?
11	A	I did.
12	Q	And if I were to ask you the same questions that
13		appear in your rebuttal testimony today, would
14		your answers be the same?
15	A	They would.
16		MS. KEMERAIT: At this time, I would move
17	that	Mr. Levitas' prefiled rebuttal testimony be
18	copie	ed into the record as if given orally from the
19	stan	d, and that the exhibit to his testimony be marked
20	for	identification and included in the record?
21		COMMISSIONER DUFFLEY: Any objection?
22		(Pause).
23		The motion is allowed.
24		(WHEREUPON, Exhibit SJL-1 is

1	marked for identification as
2	prefiled and received into
3	evidence.)
4	(WHEREUPON, the prefiled rebuttal
5	testimony of STEVEN J. LEVITAS is
6	copied into the record as if
7	given orally from the stand.)
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BEFORE THE

NORTH CAROLINA UTILITIES COMMISSION

JUNO SOLAR, LLC

DOCKET NO. EMP-116, SUB 0

REBUTTAL TESTIMONY

OF

STEVEN J. LEVITAS

November 9, 2021

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1.

1 0. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS. 2 Α. My name is Steven J. Levitas. My business address is 130 Roberts Street, 3 Asheville, North Carolina 28801. 4 Q. WHAT IS YOUR OCCUPATION? 5 Α. I am the Senior Vice President for Regulatory and Government Affairs at Pine Gate 6 Renewables, LLC ("Pine Gate"). 7 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND 8 **EXPERIENCE.** 9 A. I received a B.A. from the University of North Carolina at Chapel Hill in 1976 and 10 a J.D. with Honors from Harvard Law School in 1982. After clerking for a federal 11 district court judge, I spent four and one-half years as a commercial litigator before 12 becoming Director and Senior Attorney in the North Carolina office of the 13 Environmental Defense Fund, a national public interest advocacy organization. In 14 1993, North Carolina Governor Jim Hunt appointed me to serve as Deputy 15 Secretary of the North Carolina Department of Environment, Health, and Natural 16 Resources. Following my four-year tenure in that position, I spent the next twenty 17 years as a partner in two private law firms where my practice was focused on 18 environmental and energy matters. During the last six of those years, a particular 19 emphasis of my practice was representing renewable energy companies. 20 In January of 2016, I became Vice President for Business Affairs and 21 General Counsel for FLS Energy, Inc. ("FLS"), a North Carolina-based utility scale 22 solar developer. At FLS, I was responsible for all legal, regulatory, and business

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development activities of the company, including the negotiation of a wide variety
of contracts relating to our business. In January of 2017, following the acquisition
of FLS by Cypress Creek Renewables ("Cypress Creek"), I was appointed to the
position of Senior Vice President for Regulatory Affairs and Strategy at Cypress
Creek, a position I held until joining Pine Gate in September of 2019. At Cypress
Creek, I was responsible for and managed all aspects of policy, regulatory, and
government affairs activity.

8

Q. PLEASE DESCRIBE PINE GATE.

9 A. Pine Gate is a utility-scale solar development company headquartered in Asheville, 10 North Carolina, with experience developing and building solar projects throughout 11 the United States. We are currently developing projects in more than 20 states, but 12 the Carolinas remain our largest and most important market. We currently have 43 13 projects in operation in the Carolinas totaling 470 megawatts ("MW") AC, 25 of 14 which totaling 172 MW AC are in North Carolina. Our national development pipeline is over 10 gigawatts ("GW"), of which 3.2 GW are projects in the 15 16 Carolinas, including over 2.4 GW in North Carolina. Our past and currently 17 planned investment in North Carolina is in excess of \$4.8 billion.

18 Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING? 19 A. I am testifying on behalf of Juno Solar, LLC ("Juno Solar").

- 20 O. WHAT IS THE PURPOSE OF YOUR TESTIMONY
- 20 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS 21 PROCEEDING?

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1	А.	The primary purposes of my testimony are to explain the importance of finding a
2		solution to the "Catch 22" problem for merchant plant projects described in Juno
3		Solar's Conditional Certificate of Public Convenience and Necessity ("CPCN")
4		application, and to rebut the Public Staff's new position that the levelized cost of
5		transmission ("LCOT") test might not be the appropriate test for determining the
6		reasonableness of network upgrade costs for merchant plant facilities.

- 7 Q. ARE YOU SPONSORING ANY EXHIBITS?
- 8 A. Yes. I am sponsoring Exhibit SJL-1.
- 9 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND

10 **RECOMMENDATIONS.**

11 A. As previously recommended by the Public Staff and approved by the Commission, 12 the Commission should apply the LCOT test to Juno Solar's Conditional CPCN 13 application to determine the reasonableness of the network upgrade costs and any 14 affected system costs. The Commission should also approve Juno Solar's CPCN 15 with enforceable conditions that will ensure that North Carolina ratepayers will not 16 be subject to reimbursement for unreasonable network upgrade and affected system 17 costs, while at the same time not subjecting Juno Solar to enormous financial 18 penalties in the event of the denial of a CPCN application in the future.

19 Q. PLEASE DESCRIBE YOUR INVOLVEMENT IN THE STAKEHOLDER

20 PROCESS FOR DUKE'S FERC QUEUE REFORM PROPOSAL.

A. I was extensively involved in Duke Energy Progress, LLC's and Duke Energy
Carolinas, LLC's (together, "Duke") FERC-jurisdictional queue reform

1 stakeholder process, as well as Duke's North Carolina-jurisdictional queue reform 2 process, as one of the primary spokespersons and drafters on behalf of the 3 Carolinas Clean Energy Business Association ("CCEBA"). I attended almost all of the stakeholder meetings, I was intricately involved in developing and 4 5 negotiating solutions for issues that arose with respect to Duke's queue reform 6 proposal, and I drafted detailed comments on and revisions to the various 7 iterations of Duke's proposed modifications to the state and federal Interconnection Procedures. 8

9 Q. DURING THE STAKEHOLDER PROCESS, DID YOU IDENTIFY THE 10 **PROBLEM "CATCH-22"** PRESENTED BY THE PROPOSED 11 PROCEDURES FOR FERC-JURISDICTIONAL INTERCONNECTION 12 **CUSTOMERS AS A RESULT OF THE COMMISSION'S PRECEDENTS** 13 **ON CPCN APPLICATIONS BY SUCH CUSTOMERS?**

14 A. Yes. During multiple stakeholder teleconferences, all of which I believe were 15 attended by representatives of the Public Staff, I explained the "Catch 22" 16 problem. I pointed out that a FERC-jurisdictional Interconnection Customer that 17 enters Phase 2 of the Transitional Cluster Study must make substantial 18 performance security payment and faces a withdrawal penalty well in excess of \$1 19 million if it exits the study process. Among the reasons that an Interconnection 20 Customer might need to withdraw from the study process is if the Commission 21 were to deny a CPCN application or revoke a CPCN. As demonstrated by the 22 Commission's decision for Friesian Holdings, LLC's ("Friesian") CPCN
application in Docket No. EMP-105, Sub 0,¹ the Commission could decide to 1 deny a CPCN where it believes that the LCOT for required network upgrades 2 3 assigned to the Interconnection Customer (which under Duke Energy's FERCapproved OATT and Large Generator Interconnection Agreement are reimbursed 4 5 in part by North Carolina retail customers) are too high. However, the 6 Interconnection Customer cannot know its network upgrade costs and thus its 7 LCOT until it has been through the Transitional Cluster Study, and will not even 8 have an estimate of those costs from Duke until the end of Phase 1 of the study 9 process. Thus the "Catch 22."

10 Q. WHY DOES THAT SITUATION PRESENT A PROBLEM FOR

11 INTERCONNECTION CUSTOMERS?

12 A. In the Friesian CPCN application proceeding and in other proceedings, the 13 Commission has made it clear that it will deny a CPCN to a FERC-jurisdictional 14 Interconnection Customer based solely on the fact that FERC's crediting policy 15 requires the utility and its ratepayers to reimburse the customer for network 16 upgrade costs. In Friesian, the Commission adopted the position advanced by the 17 Public Staff—the Commission ruled that where it deems such reimbursable costs 18 to be unreasonable, it will find that the proposed project does not satisfy the 19 "public convenience" prong of the CPCN statute, N.C. Gen. Stat. § 62-110.1. In

¹ See Order Denying Certificate of Public Convenience and Necessity for Merchant Generating Facility issued on June 11, 2020 in Docket No. EMP-105, Sub 0.

1 other merchant plant dockets, the Public Staff and the Commission have 2 suggested that it might be appropriate to revoke a previously issued CPCN to a 3 merchant plant where reimbursable costs deemed unreasonable by the 4 Commission are identified after the issuance of the CPCN. Therefore, the Catch-5 22 is as follows: (i) Duke cannot provide the finalized network upgrade costs of a 6 FERC-jurisdictional project in the Transitional Cluster Study until after 7 completion of the Phase 2 study, but (ii) if the Commission's CPCN decision for 8 the project is not made until after those costs have been determined in Phase 2 9 study (and the remainder of the study process) and the Commission denies the 10 CPCN because it deems such costs to be unreasonable, the customer runs the risk 11 of having to pay a withdrawal penalty equal to nine times its study costs, which is 12 likely to be \$1 to \$2 million.

13 That result would be manifestly unjust and would likely discourage 14 FERC-jurisdictional Interconnection Customers from participating in the Transitional Cluster Study (or the Definitive Interconnection System Impact 15 16 Study), thereby reducing the potential to spread the very large cost of resolving 17 Duke Energy's significant transmission system constraints and to remove a major 18 impediment to achieving the goals of S.L. 2021-165 ("H.B. 951"). This 19 unacceptable outcome can be avoided with the Conditional CPCN approach 20 proposed by Juno Solar.

21 Q. DID YOU PROPOSE ANY POTENTIAL SOLUTIONS TO THIS

22 **PROBLEM DURING THE STAKEHOLDER PROCESS?**

2 two potential solutions. The first solution was to modify the Interconnection 3 Procedures to allow a FERC-jurisdictional Interconnection Customer to withdraw 4 from the study process without penalty if the Commission were to deny its CPCN 5 application based on the network upgrade costs assigned to the project. Duke 6 made it clear that it would not support this approach because any such 7 withdrawal might require restudy of the remaining projects in the study, which 8 would adversely affect those customers. My alternative proposed solution was 9 the one presented in Juno's CPCN application—that the Commission issue a 10 CPCN conditioned on its reimbursable network upgrade costs coming below a 11 specific and reasonable LCOT value. 12 DID DUKE, THE PUBLIC STAFF, OR ANY OTHER STAKEHOLDER Q. 13 **OBJECT TO YOUR ALTERNATIVE PROPOSAL?** 14 A. No. No stakeholder, including the Public Staff, raised any objection or concern 15 about this proposed solution to the "Catch 22" problem. In fact, even though the 16 Public Staff was well aware of CCEBA's significant concern about this issue, at 17 no time during any stakeholder meeting or in any separate communication did any 18 representative of the Public Staff express an objection to my proposal. 19 0. DO YOU AGREE WITH WITNESS METZ'S STATEMENT AT PAGES 5-20 **6 OF HIS TESTIMONY THAT THE CONDITIONAL CPCN SOUGHT BY** 21 JUNO SOLAR DOES NOT SOLVE THE "CATCH-22" PROBLEM?

Yes. On several occasions, I explained the problem in detail and then proposed

1

Α.

1 A. No, I do not. Mr. Metz incorrectly states that even with a conditional CPCN, 2 Juno Solar would be subject to the same withdrawal penalty if its network 3 upgrade costs as determined in the Transitional Cluster Study exceed an LCOT of 4 \$4.00/MWh, resulting in termination of its CPCN. Like other participants in the Transitional Cluster Study, Juno Solar will receive an initial estimate of its 5 6 allocated network upgrade costs after Phase 1 of the study process. If at this point 7 those costs result in an LCOT for Juno Solar that is greater than \$4.00/MWh, the 8 CPCN will terminate and Juno Solar can withdraw from the queue without 9 penalty. In addition, if in subsequent phases of study Juno Solar's network upgrade costs as identified in Phase 1 increase by more than 25%, it can also 10 11 withdraw from the queue without penalty. If an increase of less than 25% in 12 Juno Solar's Phase 1 allocated network upgrade costs would cause its LCOT to 13 exceed \$4.00/MWh, Juno Solar will likely withdraw from the queue at that point 14 without penalty rather than risk the possibility that a subsequent increase in its network upgrade costs could cause its CPCN to terminate. 15

Q. DO YOU AGREE WITH WITNESS METZ'S STATEMENT AT PAGE 33 OF HIS TESTIMONY THAT THE POTENTIAL WITHDRAWAL OF JUNO SOLAR FROM THE QUEUE IN THE CASE OF HIGH UPGRADE COSTS HAS THE POTENTIAL TO UNDERMINE THE TRANSITIONAL CLUSTER STUDY PROCESS?

A. No, I do not. As I just explained, Juno Solar will make the decision whether to
 remain in the Transitional Cluster Study process at the end of Phase 1, just like all

1 other participants in the study. Duke has repeatedly stated that many participants 2 may withdraw at this stage in the process and has designed the Transitional 3 Cluster Study to accommodate that eventuality. Juno Solar is certainly not unique 4 in this regard. I should also note that if Juno Solar were to participate in the 5 Transitional Cluster Study without a conditional CPCN-and accept the 6 unreasonable burden of a massive withdrawal penalty in the event of CPCN 7 denial-the disruption to the study process from its subsequent withdrawal would be far greater. 8

9

Q. PLEASE EXPLAIN LCOT.

REASONABLE LCOT VALUE?

A. LCOT is a metric utilized in the utility industry for evaluating the network
 upgrade costs of a generation project in light of the expected output of the project
 over its anticipated useful life. LCOT is calculated by dividing the project's
 network upgrade costs in dollars by its presumed lifetime production in megawatt
 hours.

15

16

Q. WHY HAS JUNO SOLAR PROPOSED A CPCN CONDITIONED ON A

A. Both the Public Staff and the Commission have identified LCOT as the test for
evaluating the reasonableness of reimbursable network upgrade costs for FERCjurisdictional Interconnection Customers. Specifically, in the Friesian Order
issued on June 11, 2020, the Commission noted: "Public Staff witnesses
Lawrence and Metz argued that a levelized cost of transmission (LCOT)
analysis provides a tool to evaluate the reasonableness of the upgrade costs

associated with certain generating technologies. They cited to a 2019 study by 1 2 Lawrence Berkeley National Laboratory (LBNL Study) that reviewed interconnection cost studies for renewable energy facilities on a nationwide 3 basis, doing so by calculating LCOT value." (Friesian Order, p. 15) The 4 Commission proceeded to state that "the Commission views the LCOT 5 analysis performed by the Public Staff as a benchmark of the reasonableness 6 7 of the network upgrades relative to other similar transmission investments 8 made to interconnect generating facilities in North Carolina." (Friesian Order, 9 p. 23)

10 In addition, in the Commission's November 13, 2020 Order granting a 11 CPCN to the proposed Edgecombe Solar, LLC merchant plant in Docket No. 12 EMP-101, Sub 0, the Commission again used the LCOT metric to assess the 13 reasonableness of upgrades required to the DEP system by the project. The 14 Commission concluded that an LCOT of \$6.00 per MWh for such upgrades (plus 15 the cost of unreimbursed upgrades in PJM) was "not unreasonably out of line with 16 the 2019 Lawrence Berkeley National Laboratory interconnection cost study 17 (LBNL Study), on which the Commission has relied to place LCOT calculations 18 in perspective with data from other balancing authorities." The Commission 19 further concluded that "[i]n view of the total cost of the Facility, ... the siting of 20 the Applicant's facility in this area is not inconsistent with the Commission's 21 obligation under N.C. Gen. Stat. § 62-110.1(d) for the provisions of 'reliable, 22 efficient and economical service' in the state." (See Order Issuing Certificate for

1		Merchant Generating Facility, Docket No. EMP-101, Sub 0 (Nov. 13,
2		2020).) The Commission also relied on an LCOT analysis to determine the
3		reasonableness of upgrade costs in orders granting a merchant CPCN in Docket
4		No. EMP-114, Sub 0 (Order Issuing Certificate for Merchant Generating Facility
5		(Oct. 8, 2021)) and renewing a merchant plant CPCN in Docket No. EMP-92, Sub
6		0 (Aug. 3, 2021). In none of these instances did the Commission consider the cost
7		of upgrades that might be associated with other proposed projects, except to note
8		where upgrade costs might be shared with such projects.
9	Q.	HAVE YOU PERSONALLY BEEN INVOLVED IN CONVERSATIONS
10		WITH THE PUBLIC STAFF REGARDING THE REASONABLENESS OF
11		FERC-JURISDICTIONAL NETWORK UPGRADE COSTS?
12	А.	Yes. On multiple occasions prior to this proceeding, I asked the Public Staff to
13		confirm their position about the reasonableness test for FERC-jurisdictional
14		network upgrade costs. On all of those occasions, the Public Staff confirmed the
15		position that they took in the Friesian proceeding-that reasonableness should be
16		determined based on a comparison of the project's LCOT to industry benchmarks.
17		Exhibit SJL-1 is a true copy of one such communication on this subject that I
18		received from Layla Cummings, attorney for the Public Staff.
19	Q.	IS THE PUBLIC STAFF SEEKING IN THIS PROCEEDING TO MODIFY
20		ITS PRIOR POSITION ON THE REASONABLENESS TEST?
21	A.	It appears that the Public Staff is attempting to fundamentally change its position

22 in this proceeding. The primary basis for the Public Staff's objection Juno to

1 Solar's Conditional CPCN application is that it would enable the Commission to 2 accept a specific LCOT value as being reasonable for this particular project. The 3 Public Staff seeks to prevent the Commission from determining a reasonable 4 LCOT value for Juno Solar by arguing for the first time that even if the LCOT for 5 a FERC-jurisdictional customer's reimbursable network upgrade costs are reasonable by industry standards, it might nevertheless be appropriate for the 6 7 Commission to deny a CPCN for the project. Specifically, the Public Staff is 8 suggesting that it might be appropriate to deny Juno's CPCN application if either 9 (i) the total cost of its assigned network upgrades or (ii) the total cost of 10 reimbursable network upgrades for all FERC-jurisdictional projects in the 11 Transitional Cluster are deemed to be unreasonably high (by some undefined 12 standard). (See Public Staff Witness Metz Testimony, pp. 6, 18, 20)

13 Q. DO YOU AGREE WITH THE PUBLIC STAFF'S POSITION ON THIS

14 ISSUE?

15 Α. No. In addition to being a complete reversal of the position it has repeatedly 16 taken in the past, I question whether the Public Staff's position can be legally 17 justified. The Public Staff has repeatedly acknowledged that the Commission 18 may not, consistent with FERC's crediting policy, deny CPCNs to all FERC-19 jurisdictional projects simply because any reimbursement of network upgrade 20 costs by ratepayers would be required. Rather, the Public Staff has advocated that 21 the Commission must apply some rational and reasonable test (*i.e.*, LCOT) in 22 making such decisions. The effect of the Public Staff's new position would be

1 that the Commission could arbitrarily deny CPCNs to larger merchant plant 2 projects relative to smaller projects, even if the required upgrade costs were 3 reasonable by industry standards, or the Commission could impose an arbitrary limit on the number of permissible FERC-jurisdictional projects because of their 4 5 aggregate impact. In my opinion, neither outcome is constitutionally permissible. 6 APART FROM THE PUBLIC STAFF'S ATTEMPT TO CHANGE THE Q. 7 **REASONABLENESS TEST, HAS THE PUBLIC STAFF ARTICULATED** 8 A RATIONAL BASIS FOR DENIAL OF THE CONDITIONAL CPCN 9 **REQUESTED BY JUNO SOLAR?**

10 No, they have not. As a procedural matter, the Public Staff seems to have some Α. 11 vague concern about whether Juno Solar can be held to the agreed-upon 12 conditions of the CPCN, even though Juno Solar has expressly proposed and 13 agreed to them. But the Public Staff has failed to articulate any legal basis to 14 substantiate their concern that the conditions might not be enforceable. More 15 substantively, the Public Staff seems to be concerned that the issuance of a 16 Conditional CPCN based on an LCOT cap could effectively establish a bright-line 17 LCOT value. However, given the unique nature of each merchant plant project, 18 the Commission could certainly make it clear, as it has done in other contexts, that 19 the acceptance of a particular LCOT cap in this case has no precedential value for 20 other merchant plant CPCN applications.

21 Q. DO YOU AGREE WITH THE PUBLIC STAFF THAT THE ISSUANCE

22 OF A CONDITIONAL CPCN SHIFTS RISK TO THE RATEPAYERS?

1 A. No, I do not. As an initial matter, I would note that the Public Staff uses the 2 concept of risk shifting in an ambiguous and inconsistent way. At page 5 of Mr. 3 Metz's testimony, he asserts that "the Applicant is seeking to shift risk from itself 4 to ratepayers," but does not explain what that risk is or how it is being shifted. 5 Because of this lack of clarity, Juno Solar tendered a data request to the Public 6 Staff asking for an explanation of the allegation of risk shifting. The Public 7 Staff's primary response did not address risk shifting at all but referred to the *cost* 8 shifting that necessarily results from FERC's crediting policy. As previously 9 noted, and as the Public Staff itself has acknowledged, the Commission may not 10 lawfully refuse to certificate all FERC jurisdictional projects to which the 11 crediting policy would apply. So the mere fact of the cost allocation resulting 12 from the crediting policy without more cannot be the basis for denying Juno 13 Solar's CPCN. The Public Staff then offers a second explanation: the risk to 14 ratepayers is that the total cost of upgrades for all FERC-jurisdictional projects in 15 the Transitional Cluster Study could be a high number. But that is not a risk 16 caused by Juno Solar or its Conditional CPCN application or one for which Juno 17 Solar can be held accountable. Finally, at pages 8-9 and 33 of his testimony, Mr. 18 Metz suggests another form of risk—that due to changes in project design, Juno 19 Solar's LCOT could increase during the design or construction process.

However, that issue is a red herring: under the CPCN that Juno seeks, if its calculated LCOT ever exceeds \$4.00/MWh at any time before execution of an interconnection agreement, the CPCN would automatically terminate. (It is unclear whether the Public Staff is suggesting that a CPCN for a FERCjurisdictional project should be revocable after construction on the project begins or after the project has commenced commercial operation due to changes in LCOT, but such a policy would be unprecedented and unreasonable in the extreme.)

Contrary to the Public Staff's assertion, Juno Solar has proposed a 6 7 reasonable condition to the CPCN to ensure that the ratepayers will not have to 8 provide reimbursement for unreasonably high network upgrade costs and affected 9 system costs. Juno Solar's proposed condition will ensure that the LCOT for any 10 assigned network upgrades and affected system costs from the study processes 11 will be no greater than \$4.00 per MWh. Thus, with a Conditional CPCN, Juno 12 Solar will be able to enter the Transitional Cluster and incur the associated 13 financial exposure without an unacceptable level of uncertainty about whether the 14 issued CPCN will remain in effect, and the conditions to Juno Solar's CPCN 15 application will provide ample protection for the ratepayers from unreasonable 16 network upgrade and affected system costs being passed onto them.

17 Q. DOES PUBLIC STAFF WITNESS METZ IMPLY THAT THE JUNO

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SOLAR PROJECT HAS BEEN IMPRUDENTLY SITED?

A. It appears so. At page 33 of his testimony, Mr. Metz states, with apparent
 criticism, that the Juno Solar project has been sited "in a known transmission
 constrained area of the DEP system, and high network upgrade costs are likely."

22 Q. HOW DO YOU RESPOND TO THAT STATEMENT?

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6, Sub 0 Page 16

1 A. Juno Solar was sited at its proposed location for the express purpose of seeking to 2 help solve what is arguably the biggest impediment to large-scale solar 3 development in the state and, in my opinion, the biggest obstacle to achieving the 4 carbon-reduction mandate of H.B. 951. The need for significant network 5 upgrades to the DEP system in Southeastern North Carolina has been well 6 documented, and Duke has confirmed the importance of these upgrades to its 7 overall system planning. In the wake of the Commission's denial of the Friesian 8 CPCN application, I had numerous conversations with representatives of the 9 Public Staff and Duke about an alternative approach for solving this problem. All 10 parties agreed that the most promising solution was to try to get as many 11 megawatts as possible from projects dependent on these upgrades into the 12 Transitional Cluster Study process so that the cost could be spread as broadly as 13 possible. While it was understood that this would likely involve a mix of state-14 jurisdictional and FERC-jurisdictional projects, such that FERC's crediting policy 15 would still come into play, the hope was, and remains, that, as a result of the cost 16 spreading and absorption of costs by state-jurisdictional projects, the LCOT for 17 the FERC-jurisdictional projects would be reasonable. Based on these 18 conversations, Pine Gate and its development partners have actively sought to 19 identify and develop projects like Juno Solar that could participate in this cost 20 sharing.

21 Q. DO YOU AGREE WITH PUBLIC STAFF WITNESS METZ'S 22 STATEMENT AT PAGES 14-15 OF HIS TESTIMONY THAT THE

3 COSTLY OVERBUILDING AND INEFFICIENT PLANNING OF THE 4 **TRANSMISSION SYSTEM"?** 5 A. No, I do not. The Public Staff's position in that case was that FERC's crediting 6 policy would result in an unacceptably high cost to North Carolina retail 7 ratepayers. While the Public Staff argued that the applicant, even with supporting 8 statements from Duke, had not met its burden of proving the network upgrades in 9 question were essential to advancing the public interest objectives claimed by the 10 applicant, the Public Staff did not argue, let alone put on any supporting evidence, 11 that the network upgrades at issue there were unneeded or inefficient. WHAT IS THE PUBLIC STAFF'S FINAL RECOMMENDATION TO THE 12 0. 13 **COMMISSION?** 14 A. The Public Staff's final recommendation is that the Commission should deny 15 Juno Solar's Conditional CPCN, without prejudice, and allow Juno Solar to refile 16 its application once the interconnection studies have been completed. (Public 17 Staff Testimony, p. 35) 18 0. **DO YOU AGREE WITH THE PUBLIC STAFF'S FINAL** 19 **RECOMMENDATION?** 20 No. As I have explained, Juno Solar would face extreme prejudice and hardship A.

PUBLIC STAFF'S POSITION IN THE FRIESIAN PROCEEDING WAS

THAT ISSUANCE OF THE CPCN IN THAT CASE "WOULD RESULT IN

A. No. As I have explained, Juno Solar would face extreme prejudice and hardship
 if it were required to withdraw from the queue due to denial of its CPCN
 application after becoming subject to a withdrawal penalty well in excess of \$1

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1	million. Even with the payment of that penalty, Juno's withdrawal would be
2	disruptive to the Transitional Cluster Study process and other Interconnection
3	Customers. Juno Solar has proposed a reasonable solution that presents
4	absolutely no risk to ratepayers. What is really going on in this proceeding is that
5	the Public Staff is seeking to advance a new onerous and unlawful test for CPCN
6	issuance for FERC-jurisdictional Interconnection Customers. Rather than
7	accepting the LCOT test previously advanced by the Public Staff and adopted by
8	the Commission—and that the Public Staff has repeatedly stated is the applicable
9	testit now contends that the Commission can and should deny a CPCN to a
10	single FERC-jurisdictional project where the aggregate costs of multiple FERC-
11	jurisdictional projects is deemed to be excessive. I urge the Commission not to
12	adopt that unreasonable and unlawful policy.

13 **Q**.

- **DOES THIS CONCLUDE YOUR TESTIMONY?**
- 14 A. Yes.

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1 MS. KEMERAIT: So, Ms. Miller and 2 Mr. Levitas are now available for cross examination. 3 THE WITNESS: (MR. LEVITAS) I do have a 4 summary. 5 MS. KEMERAIT: Oh, excuse me. Let me 6 back-up. 7 BY MS. KEMERAIT: 8 Mr. Levitas, do you have a summary that you would 0 9 like to read to the Commission? 10 As a matter of fact, I do. Α 11 Okay. Thank you. Q 12 Α Good morning, Commissioners. My name is Steve 13 Levitas. I'm Senior Vice President for 14 Regulatory and Government Affairs at Pine Gate 15 Renewables. Filed rebuttal testimony and an 16 exhibit in this docket on November 9th, 2021. 17 The purpose of my -- of the 18 summary of my testimony is first to explain the 19 importance of finding a solution to the catch 22 20 problem for merchant plant projects seeking a 21 Certificate of Public Convenience and Necessity, 22 such as Juno Solar; second, to provide information that the Commission should follow its 23 24 precedent by applying the Levelized Cost of

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1	Transmission, or LCOT, test to Juno Solar's
2	Conditional CPCN Application to determine the
3	reasonableness of the network upgrade costs;
4	third, to explain that the Public Staff is
5	fundamentally changing its position in this
6	proceeding about the appropriate tests of
7	determining the reasonableness of network upgrade
8	costs; and fourth, to demonstrate that the
9	proposed conditions to Juno Solar's CPCN
10	Application will provide ample protection for the
11	North Carolina ratepayers from unreasonably high
12	network upgrade costs, while at the same time not
13	subjecting Juno Solar to huge financial penalties
14	in the event of the denial of the CPCN
15	Application in the future.
16	In my testimony, I first discuss
17	the catch 22 problem for FERC's Jurisdictional
18	Interconnection Customers, such as Juno Solar
19	that wish to enter into the Transitional Cluster
20	Study process but must make substantial financial
21	postings and face substantial withdrawal
22	penalties if they are required to exit the study
23	process solely because the Commission denies a
24	CPCN for the facility. I explain that I was

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1	extensively involved in Duke Energy Progress and
2	Duke Energy Carolinas FERC-jurisdictional Queue
3	Reform Stakeholder process as one of the primary
4	spokespersons and drafters on behalf of Carolinas
5	Clean Energy Business Association. I attended
6	almost all of the stakeholder meetings, I was
7	intimately involved in developing and negotiating
8	solutions for issues that arose with respect to
9	Duke's Queue Reform proposal, and I drafted
10	detailed comments on and revisions to the various
11	iterations of Duke's proposed modifications to
12	the State and Federal Interconnection Procedures.
13	During multiple stakeholder
13 14	During multiple stakeholder conferences, these were mostly teleconferences,
13 14 15	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by
13 14 15 16	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained
13 14 15 16 17	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional
13 14 15 16 17 18	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a
13 14 15 16 17 18 19	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a FERC-jurisdictional Interconnection Customer that
13 14 15 16 17 18 19 20	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a FERC-jurisdictional Interconnection Customer that enters Phase 2 of the Transitional Cluster Study
13 14 15 16 17 18 19 20 21	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a FERC-jurisdictional Interconnection Customer that enters Phase 2 of the Transitional Cluster Study must make a substantial performance security
13 14 15 16 17 18 19 20 21 22	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a FERC-jurisdictional Interconnection Customer that enters Phase 2 of the Transitional Cluster Study must make a substantial performance security payment and subject itself to a substantial
13 14 15 16 17 18 19 20 21 22 23	During multiple stakeholder conferences, these were mostly teleconferences, all of which I believe were attended by representatives of the Public Staff, I explained the catch 22 problem for FERC-jurisdictional Interconnection Customers. I pointed out that a FERC-jurisdictional Interconnection Customer that enters Phase 2 of the Transitional Cluster Study must make a substantial performance security payment and subject itself to a substantial withdrawal penalty well in excess of a million

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1	exits the study process. Among the reasons the
2	interconnection customer might need to withdraw
3	from the study process is if the Commission were
4	to deny a CPCN Application or revoke a CPCN.
5	In the Friesian Holdings CPCN,
6	that was Docket Number EMP-105, Sub 0, the
7	Commission made clear that it will in some
8	circumstances deny a CPCN for a
9	FERC-jurisdictional Interconnection Customer
10	where it believes that the LCOT for required
11	network upgrades assigned to that interconnection
12	customer, which under Duke's FERC-approved OATT
13	and Large Generator Interconnection Agreement are
14	reimbursed in part by North Carolina retail
15	customers, are deemed to be too high. However,
16	the interconnection customer cannot know its
17	network upgrade costs and thus its LCOT until it
18	has been through the Transitional Cluster Study,
19	and will not even have an estimate of those costs
20	from Duke until the end of Phase 1 of the study
21	process.
22	Thus, the catch-22 is as follows:
23	Duke cannot provide the finalized network upgrade
24	costs of a FERC-jurisdictional project in the

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Transitional Cluster Study until after completion of the Phase 2 study, but if the Commission's CPCN decision for the project is not made until after those costs have been determined in Phase 2 study, and the remaining phases of the study process, and the Commission then denies the CPCN because it deems such costs to be unreasonable, the customer runs the risk of having to pay a withdrawal penalty equal to nine times its study costs, which is likely to be, I believe I said in my testimony \$1 to \$2 million, I think it's likely to exceed \$2 million. That result would be unjust and would likely discourage FERC-jurisdictional Interconnection Customers from participating in the Transitional Cluster Study, thereby reducing the potential to spread the very large cost of resolving Duke's significant transmission system constraints and removing a major impediment to achieving the

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20 goals of House Bill 951.
21 On several occasions during the
22 stakeholder process, I explained the problem and
23 then proposed two solutions. The first solution
24 was to modify the Interconnection Procedures to

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1 allow a FERC-juridictional Interconnection 2 Customer to withdraw from the study process 3 without penalty if the Commission were to deny it's CPCN Application based on the network 4 5 upgrade costs assigned to the project. Duke made it very clear they it would not support this 6 7 approach, understandably, because any such 8 withdrawal might require restudy of the remaining projects in the cluster study, which would 9 10 adversely affect those customers. My alternative 11 proposed solution was the one presented in Juno's 12 CPCN Application, that the Commission issue a 13 CPCN conditioned on its reimbursable network 14 upgrade costs coming below a specific and 15 reasonable LCOT value. No stakeholder, including 16 the Public Staff, at any time raised any 17 objection or concern about the Conditional CPCN 18 solution that I proposed. In my testimony, I explained that 19 20 both the Public Staff and the Commission have 21 identified LCOT as the test for evaluating the 22 reasonableness of reimbursable network upgrade 23 costs for FERC-jurisdictional Interconnection 24 Specifically, in the Friesian Order Customers.

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1 issued on June 11th, 2020, the Commission noted, 2 I'm quoting: "Public Staff witnesses Lawrence 3 and Metz argued that a Levelized Cost of Transmission analysis provides a tool to evaluate 4 5 the reasonableness of the upgrade costs 6 associated with certain generating technologies. 7 They cited to a 2019 study by Lawrence Berkeley 8 National Laboratory that reviewed interconnection 9 cost studies for renewable energy facilities on a 10 nationwide basis, doing so by calculating an LCOT 11 value". The Commission proceeded to state that, and I quote again, "the Commission views the LCOT 12 13 analysis performed by the Public Staff as a 14 benchmark of the reasonableness of the network 15 upgrades relative to other similar transmission 16 investments made to interconnect generating 17 facilities in North Carolina". 18 In addition, in the Commission's 19 November 13th, 2020 Order granting a CPCN to the 20 proposed Edgecombe Solar merchant plant, Docket 21 Number EMP-101, Sub 0, the Commission again used 22 the LCOT metric to assess the reasonableness of 23 upgrades required to the DEP system by the 24 project. The Commission concluded that an LCOT

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1	of \$6.00 per megawatt hour for such upgrades,
2	plus the cost of unreimbursed upgrades in PJM,
3	was not unreasonably sorry, quoting here, "not
4	unreasonably out of line with the 2019 Lawrence
5	Berkeley National Laboratory Interconnection Cost
6	Study, on which the Commission has relied to
7	place LCOT calculations in perspective with data
8	from other balancing authorities". The
9	Commission further concluded that "in view of the
10	total cost of the Facility the siting of the
11	Applicant's facility in this area is not
12	consistent with the Commission's obligation under
13	N.C. General Statute § 62-110.1(d) for the
14	provisions of reliable, efficient and economical
15	service in the state". The Commission also
16	relied on an LCOT analysis to determine the
17	reasonableness of upgrade costs in order granting
18	a merchant CPCN in Docket Number EMP-114, Sub 0,
19	and renewing merchant plant CPCN a merchant
20	plant CPCN in Docket Number EMP-92, Sub 0. In
21	none of these instances did the Commission
22	consider the cost of upgrades that might be
23	associated with other proposed projects, except
24	to note where upgrade costs might be shared with

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such projects.

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2 Furthermore, during several 3 conversations I have had with the Public Staff, I have asked them directly what their test is for 4 5 CPCN issuance to FERC-jurisdictional projects, 6 and they have repeatedly confirmed the position 7 that they took in the Friesian proceeding - that 8 reasonableness of network upgrade costs should be 9 determined based on a comparison of the project's 10 LCOT to industry benchmarks. Exhibit 1 to my 11 testimony is an April 22nd, 2021, email from the Public Staff that states "As we have discussed 12 13 before and stated in testimony, we consider the 14 LCOT a benchmark for reasonableness of network 15 upgrade costs." 16 In my testimony, I note that the 17 Public Staff is attempting to fundamentally 18 change its position and the Commission's position 19 in this proceeding. The Public Staff seeks to 20 prevent the Commission from determining a 21 reasonable LCOT value for Juno Solar by arguing for the first time that even if the LCOT for a 22 FERC-jurisdictional customer's reimbursable 23 24 network upgrade costs are reasonable by industry

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1standards, it might nevertheless be appropriate2for the Commission to deny a CPCN for the3project. Specifically, the Public Staff is4suggesting that it might be appropriate to deny5such an application if either the total cost of6the project's assigned network upgrades or the7total cost of reimbursable network upgrades for8all FERC-jurisdictional projects in the9Transitional Cluster are deemed to be10unreasonably high by some undefined standard.11The Public Staff's position is a12complete reversal of the position it has13repeatedly taken in the past. The Public Staff14has repeatedly acknowledged that the Commission15may not, consistent with FERC's crediting police	
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has repeatedly acknowledged that the Commission may not, consistent with FERC's crediting police	
15 may not, consistent with FERC's crediting polic	
	у,
16 deny CPCNs to all FERC-jurisdictional projects	
17 simply because any reimbursement of network	
18 upgrade costs by ratepayers would be required.	
19 Rather, the Public Staff has advocated that the	
20 Commission must apply some rational and	
21 reasonable tests such as LCOT in making such	
22 decisions. The effect of the Public Staff's ne	W
23 position would be that the Commission could	
24 arbitrarily deny CPCNs to large merchant plants	

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1	relative to smaller projects, even if the
2	required upgrade costs were reasonable
3	by industry standards, or the Commission could
4	impose an arbitrary limit on the number of
5	permissible FERC-jurisdictional projects because
6	of their aggregate impact. In my opinion,
7	neither outcome is constitutionally permissible.
8	In my testimony, I emphasize that
9	Juno Solar has proposed reasonable conditions to
10	the CPCN to ensure that the ratepayers will not
11	have to provide reimbursement for unreasonably
12	high network upgrade costs and any affected
13	system costs. Juno Solar's proposed condition
14	will ensure that the LCOT for any assigned
15	network upgrades from the study process will be
16	no greater than \$4.00/MWh. Thus, with a
17	Conditional CPCN, Juno Solar will be able to
18	enter the Transitional Cluster Study process and
19	incur the associated financial exposure without
20	an unacceptable level of uncertainty about
21	whether the issued CPCN will remain in effect,
22	and the conditions to Juno Solar's CPCN
23	Application will provide ample protection for
24	ratepayers from unreasonable network upgrade and

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1 affected system costs being passed onto them. 2 This is a reasonable solution that presents 3 absolutely no risk to ratepayers. This concludes the summary of my 4 testimony. 5 6 Thank you, Mr. Levitas. 0 7 MS. KEMERAIT: Ms. Miller and Mr. Levitas 8 are now available for cross examination. 9 MS. CUMMINGS: Thank you. Good morning, 10 Mr. Levitas, Ms. Miller. My name is Layla Cummings. 11 I'm an attorney with the Public Staff. Today, Robert 12 Josey and I, my colleague, both plan on asking you 13 both questions. I'm mainly going to direct my 14 questions at Mr. Levitas though, and Mr. Josey will 15 direct his questions to Ms. Miller. And I'm going to 16 go ahead and start off, knowing the time limits we 17 have for Mr. Levitas -- with Mr. Levitas. Before we start though, I think it might be 18 19 easiest, we passed out a packet of cross exhibits 20 everyone should have, if I can go ahead and mark those 21 cross exhibits for identification. On top of the 22 packet is Attachment J to the Duke OATT. This is the 23 Standard Large Generator Interconnection Procedures. 24 I would request that this be marked for identification

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as Public Staff Levitas Cross Exhibit Number 1. 1 2 COMMISSIONER DUFFLEY: So marked. 3 (WHEREUPON, Public Staff Levitas Cross Exhibit 1 is marked for 4 5 identification.) 6 MS. CUMMINGS: The second one in the packet 7 should be Duke's filing in FERC Docket ER21-1579 filed 8 on April 1st, 2021. This is the Interconnection Queue Reform filing at FERC. I would ask that this be 9 10 marked as Public Staff Levitas Cross Exhibit Number 2. 11 COMMISSIONER DUFFLEY: So marked. (WHEREUPON, Public Staff Levitas 12 13 Cross Exhibit 2 is marked for 14 identification.) 15 MS. CUMMINGS: The next document is the 16 direct testimony of Kenneth J. Jennings, which is from 17 the same FERC Docket ER21-1579 also filed on April 1st 18 2021. I request this be marked as Public Staff 19 Levitas Cross Exhibit Number 3. 20 COMMISSIONER DUFFLEY: So marked. (WHEREUPON, Public Staff Levitas 21 22 Cross Exhibit 3 is marked for 23 identification.) 24 MS. CUMMINGS: The next document is comments

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1 in support of the Queue Reform filing also filed in 2 the same docket, FERC Docket ER21-1579 filed on April 3 19th, 2021. This is comments in support of Pine Gate 4 Renewables. I would ask that this be marked as Public 5 Staff Levitas Cross Exhibit Number 4. COMMISSIONER DUFFLEY: So marked. 6 (WHEREUPON, Public Staff Levitas 7 Cross Exhibit 4 is marked for 8 9 identification.) 10 The next document is Motion MS. CUMMINGS: 11 for Leave to Answer and Answer of the North Carolina 12 Utilities Commission in the Edgecombe Solar Complaint 13 docket, FERC Docket Number EL21-73 filed on June 30th, 14 2021. I request that this be marked as Public Staff 15 Levitas Cross Exhibit Number 5. 16 So marked. COMMISSIONER DUFFLEY: 17 (WHEREUPON, Public Staff Levitas Cross Exhibit 5 is marked for 18 19 identification.) 20 MS. CUMMINGS: You should also have a 21 presentation entitled Transitional Cluster Phase 1 22 Customer Engagement Meeting dated November 29th, 2021. 23 We request --24 Ms. Cummings, I do not have MR. LEVITAS:

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1 that document. 2 MR. JOSEY: Sorry about that. 3 MS. CUMMINGS: Does everyone else have that? 4 COMMISSIONER DUFFLEY: Ms. Cummings, do you 5 have one for the back table? 6 MS. CUMMINGS: We'll get some more printed. 7 We are short. 8 COMMISSIONER DUFFLEY: Okay. Thanks. 9 MS. CUMMINGS: I apologize. We ask that 10 that document be marked Public Staff Miller Cross 11 Exhibit Number 6. 12 COMMISSIONER DUFFLEY: So marked. 13 (WHEREUPON, Public Staff Miller 14 Cross Exhibit 1 is marked for 15 identification.) I also do not have that 16 MS. MILLER: 17 attachment, Robert, if you have it. 18 MR. LEVITAS: We can share. 19 MS. MILLER: Thank you. 20 MS. CUMMINGS: And last you should have a 21 copy of Responses to Public Staff Data Request Number 22 2 dated October 4th, 2021. We request that be marked 23 as Public Staff Miller Cross Exhibit Number 7. 24 COMMISSIONER DUFFLEY: Ms. Cummings, should

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we remark these as Public Staff Miller Cross Exhibit 1 2 Number 1 and then the second exhibit Public Staff 3 Miller Cross Exhibit Number 2? 4 MS. CUMMINGS: Yes, Presiding Commissioner 5 Duffley, that makes sense. Thank you. 6 COMMISSIONER DUFFLEY: So marked. Yes, 7 clear for the record. 8 (REPORTER'S NOTE: Public Staff 9 Miller Cross Exhibit 6 is renamed 10 to Public Staff Miller Cross 11 Exhibit 1.) (WHEREUPON, Public Staff Miller 12 13 Cross Exhibit 2 is marked for 14 identification.) 15 MS. CUMMINGS: And just to note on that last 16 one, Public Staff Miller Cross Exhibit 2, there is an 17 Attachment that's marked confidential but that 18 confidentiality has been waived, so it's not 19 confidential. 20 COMMISSIONER DUFFLEY: Thank you. 21 CROSS EXAMINATION BY MS. CUMMINGS: 22 Good morning, Mr. Levitas. How are you doing 0 23 today? 24 Good morning to you. Α Good.

1	Q	So, let me start with your rebuttal testimony,
2		and you only filed rebuttal testimony, so to the
3		extent I refer to your testimony that's what I'm
4		referring to.
5	A	Understood.
6	Q	On page 3 of your testimony, beginning on lines
7		16 through 17, you state that Juno is at risk of
8		incurring enormous financial penalties in the
9		event of the denial of a CPCN in the future?
10	A	Right.
11	Q	And on page 4, license 18 through 19 of your
12		rebuttal testimony, you state that the withdrawal
13		penalty will be in excess of \$1 million if Juno
14		exits the study process after entering Phase 2;
15		is that correct?
16	A	Correct.
17	Q	If the project is studied in Phase 1 and
18		withdraws after receiving the final system impact
19		study for Phase 1, the Phase 1 report, what are
20		the withdrawal penalties if any under Section 7
21		of the Large Generator Interconnection
22		Procedures, which I have marked as Public Staff
23		Cross Exhibit Number 1?
24	A	Sorry. If the project withdraws after Phase 1?

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1 Q Before Phase 2.

2	А	There's not a penalty exactly. There's
3		a requirement that the project pay its applicable
4		study costs. The study deposit is \$250,000,
5		presumably that represents a reasonable estimate
6		by Duke of what those costs will be. Although I
7		believe those could be for the entire study
8		process so there may well be a refund after Phase
9		1 if the project were to withdraw. The problem
10		comes up after Phase 1.
11	Q	In the Duke FERC filing that is marked as Public
12		Staff Levitas Cross Exhibit Number 2, Duke states
13		that as part of the TCS they have provided a
14		second customer engagement window at the end of
15		Phase 1 giving interconnection customers time to
16		decide whether to make the more significant
17		financial commitments to proceed through Phase 2
18		of the Transitional Cluster and to meet the
19		increasing readiness milestones. Is that your
20		understanding?
21	A	Yes.
22	Q	And in the same filing, Duke states that the
23		Transitional Cluster Study process was designed
24		to incent any speculative projects to withdraw

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after Phase 1 or before the utility undertakes more detailed and time intensive Phase 2 study process. I'm going to take your word for that. I don't know where in the document. I'm happy to point you to it. I'll take your word for it. And in the same FERC filing, the testimony of Ken Jennings which is marked Public Staff Levitas Cross Exhibit Number 3, Ken Jennings filed testimony on behalf of Duke. If you will turn to page 23 of that testimony. I'm there. In this section of the testimony, Mr. Jennings is describing the Transitional Cluster Study And on lines 7 through 8, he states process. that Interconnection Customers withdrawing after Phase 1, will only be required to pay actual study costs and will not subject to penalties? That's right. That's what I just confirmed. And on lines 10 through 12, he says a customer withdrawing beyond the Phase 2 customer

withdrawal penalties.

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engagement window will be obligated to pay

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downside of this approach is that it will likely 3 result in restudy, but that was a compromise that 4 5 resulted in overwhelming consensus with stakeholders and support for filings made with 6 state Commissions in North and South Carolina. 7 8 And do you agree with that assessment? 9 Α Yes. I was a party to that consensus. 10 So starting on page 7 of your rebuttal testimony, Q 11 you rebut Witness Metz' assertion. So, I'm on 12 page 7, line 19, beginning with that question and 13 going on to the next page, page 8. You rebut 14 Witness Metz' assertion that a Conditional CPCN 15 will not solve the problem you describe as catch Specifically, you describe that Juno will 16 22. 17 receive an initial estimate at the end of Phase 18 1, at which time if it is above the \$4.00 LCOT 19 condition, it will withdraw. You then state that 20 the Large Generator Interconnection Procedures 21 allows a project to withdraw if they go over 22 25 percent of the upgrade costs identified in 23 Phase 1. 24 Correct. Α

Then in the last paragraph,

starting on page 16 (sic), he states that the

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1	Q	And here you are referring to Section 4.7.1 of
2		the Large Generator Interconnection Procedures,
3		which provides that 25 percent exception to
4		withdraw penalties past Phase 1 into Phase 2?
5	A	Subject to check on the section number.
6	Q	And I'm happy to point you to that in the Exhibit
7		1 if you'd like.
8	A	No, I'll take your word for it.
9	Q	Okay. In Ken Jennings testimony, he describes
10		the additional circumstances the customer may
11		withdraw without penalty. So this is page 43 of
12		that Cross Exhibit 3 we were just looking at.
13	A	I'm sorry. Which page?
14	Q	Forty-three.
15	A	Okay. I'm there.
16	Q	He states that there are a number of
17		circumstances where a withdrawal penalty would
18		not be imposed. And that includes if the project
19		elects to withdraw from the interconnection
20		project, and the withdrawal does not have a
21		negative impact on other interconnection
22		customers, and where the withdrawing
23		interconnection customers assigned to some
24		upgrade costs did not significantly increase

1		between phases of the study?
2	A	Correct.
3	Q	So returning to your rebuttal testimony in that
4		section I was just on regarding the LCOT, you say
5		at page 8, lines 11 through 15, you say <i>if an</i>
6		increase of less than 25 percent in Juno Solar's
7		Phase 1 allocated network upgrade costs would
8		cause its LCOT to exceed \$4.00/MWH, Juno would
9		likely withdraw from the queue at that point
10		without penalty rather than risk the possibility
11		that a subsequent increase in its network upgrade
12		costs could cause the CPCN to terminate.
13	A	That's my testimony. Yes.
14	Q	And just to be clear on that point, if Juno
15		receives a Phase 1 report in excess of \$3.20, it
16		will likely withdraw?
17	A	I think there is a high likelihood of withdrawal
18		in that circumstance, because should there be an
19		increase in excess by the way, I didn't do the
20		math but I think your math is right should
21		there be an increase that is less than
22		25 percent, Juno would not be able to withdraw
23		without penalty but would be subject to
24		revocation of its CPCN.
1 Now, there's that other offramp that you referenced relating to no impacts on 2 3 other projects but that is, in my opinion, very 4 unlikely to come into play with Juno given the 5 interdependencies in southeastern North Carolina. 6 So you've mentioned it in your summary and in Q 7 your testimony, you're familiar with the LBNL 8 Study that the Public Staff has referenced in the 9 Friesian case and the Commission has referenced 10 in several EMP cases. And do you recall that in 11 that study the PJM average LCOT was \$3.22? 12 Α That sounds right. I haven't looked at it in 13 awhile. 14 I can point you to that if you'd like. And the Q 15 Commission uses this study or has in the past as 16 a benchmark of reasonableness as you've also 17 described. 18 Yes. Α 19 MS. CUMMINGS: At this time, Presiding 20 Commissioner Duffley, I'd ask that we take judicial 21 notice of the Friesian Order and the 2019 LBNL Study 22 of reference therein?

23 COMMISSIONER DUFFLEY: Any objection?24 MS. KEMERAIT: No objection.

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we'll take judicial notice. Thank you. Mr. Levitas, if the Commission or the Public Staff were in the future to look to a more up-to-date cost information study, something along the lines of the LBNL Study but with more

Without objection,

7 8 recent data, do you believe given the trends you 9 have witnessed in PJM that those costs would stay 10 the same or go up or go down? 11 Α Well, I don't hold myself out as an expert on interconnection costs but I do have a fair amount 12 13 of exposure to that issue and read the trade 14 press a lot, and it certainly appears that those 15 costs are going up. I don't know if that answers 16 your question. 17 But I will say in response to your 18 question just to be clear about my testimony and 19 position, I have no objection to the idea that 20 the market benchmarks that I refer to and that 21 you and the Commission have referred to, they 22 change over time. And so, that's why we have 23 kind of accepted the Public Staff's point of view 24 that there shouldn't be written in the rule a

COMMISSIONER DUFFLEY:

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BY MS. CUMMINGS:

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1		bright-line standard that's universally
2		applicable, and that a decision should be made on
3		a case-by-case basis but that they should be made
4		on the best information that's available at the
5		time.
6	Q	Thank you. That does answer my question.
7		Turning now to page 6 of your testimony, in a
8		Transitional Cluster Study, a withdrawing
9		interconnection customer would be subject to a
10		significant withdrawal penalty you state of nine
11		times the total study cost after Phase 1.
12	A	(Nods head in agreement).
13	Q	That's pursuant to Section 7.2.6 of the LGIP,
14		correct?
15	А	Correct.
16	Q	Except as the offramps described earlier?
17	А	Right.
18	Q	And down further on page 6, you state the
19		possibility of this penalty will discourage
20		projects from participating in transition or a
21		definitive Interconnection System Impact Studies.
22		For Juno, if you elected to participate in the
23		first definitive Interconnection Study, do you
24		know what the withdraw penalty is for withdrawing

after Phase 2?
I haven't checked that but I'm pretty sure it is
significantly lower than the Transitional Cluster
Study penalty.
The study deposit are three times the actually
allocated cost of the study project of Phase 2
and five times at Phase 3.
Yes. I will say that there are significant
public interest considerations in my judgment for
moving this project through the Transitional
Cluster Study rather than waiting for DISIS.
Turning now to the stakeholder process, you
discuss beginning on page 7, on line 1, you state
that during multiple stakeholder conferences you
described what you'd call a catch 22 and you
proposed two solutions. In discovery when asked
for the dates of those meetings, you said those
meetings were likely in February and March of
2021.
That's right. I don't have any contemporaneous
records of those calls. I know one of them I

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took while driving down I-40. I do have the

those, and I'm sure Duke has a record of when

email documentation that would help kind of frame

1		those calls occurred and who participated.
2	Q	These were meetings 15 and 16 of the Queue Reform
3		Stakeholder Group and the two meetings held prior
4		to the FERC filing but after the North Carolina
5		filing for Queue Reform, and they were held on
6		February 3rd and March 16th. Does that sound
7		correct?
8	А	It sounds right.
9	Q	And there's been a total of 17 Queue Reform
10		meetings?
11	А	That's right.
12	Q	So this proposal was pretty far down the road in
13		the Queue Reform process stakeholder process.
14		Is that fair to say?
15	А	Which proposal?
16	Q	Your two proposals to solve the catch 22.
17	А	Do you mean did I present them late in the
18		process?
19	Q	(Nods head affirmatively).
20	А	No, I think I first identified them early in the
21		process. Certainly, well while we were working
22		on the state jurisdictional Queue Reform it was
23		Duke's decision, understandable decision, to work
24		on the state proceedings before making a filing

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1 It was sequential but we were certainly at FERC. 2 contemplating the FERC procedures at the time 3 that we were working on the state procedures in large part, because I think there was a 4 5 recognition that solving this pressing problem of 6 relieving transmission constraints on the Duke 7 system was going to likely require a mix of state 8 and FERC-jurisdiction projects, so I anyway, and 9 I think others, were thinking about how the two 10 interconnected. 11 I did go back and -- last night to 12 try to see if I had any other email records 13 beyond the one that's Exhibit 1 and I did find 14 one set of email exchanges between myself and you 15 and Mr. Dodge that dated back to November 23rd, 16 2020, and we appear to have had a conference call 17 on December 4th, I believe. So, I think these 18 issues were on my mind as early as then. 19 And if your counsel doesn't mind, can we get a Q 20 copy of those communications? 21 Α Sure. 22 You state in your testimony that the Public Staff 0 23 did not at any stakeholder meeting express 24 objection but you raised your concern. Can you

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1		say whether any stakeholder echoed your concern?
2	A	I can't say for sure about that. I was the major
3		spokesperson for the development community on
4		many of these calls and so I was typically
5		speaking for a larger group than just myself.
6		My recollection is that on the
7		second call I specifically addressed the Public
8		Staff and with the intent of trying to confirm
9		that there was not an objection or a problem from
10		the Public Staff side with respect to what the
11		problem that we were trying to solve.
12	Q	And on that second call, do you recall if any
13		Public Staff attorney was on the line?
14	A	I don't know. I'm pretty sure on all the calls
15		there was Public Staff representation but I
16		couldn't say for sure.
17	Q	Those two meetings, meeting 15 and 16,
18		February 3rd and March 16th, the topic of those
19		meetings was to discuss changes, draft changes to
20		the LGIP and the LGIA; is that correct to your
21		recollection?
22	A	That's correct.
23	Q	Did you add any of your concerns to the agenda
24		for those meetings?

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1	A	I don't know that I was given an opportunity to
2		provide agenda items. I don't recall that I did
3		that. I was having conversations throughout this
4		time as indicated by the email traffic, not only
5		with the Public Staff but with Duke, because
6		we I personally was very committed to trying
7		to get Queue Reform approved. It was an
8		extremely time consuming, difficult, complicated
9		process, and there was quite a lot of
10		disagreement of opinion about the concept
11		generally and the details of the proposals within
12		the solar development community. I think it's
13		fair to say that I was the most active
14		participant in trying to work with Duke to
15		achieve consensus and to make this important
16		transition, the way the queue is managed, in
17		Duke's service territory. So, towards that end,
18		I was it was the highest priority thing that I
19		was working on at that period of time, and I was
20		talking to lots of people and trying to find
21		common ground.
22		And, in particular, with respect
23		to the FERC procedures, this problem that we're
24		dealing with, this so-called catch 22, as I

1		described there were two possible solutions. One
2		solution would have required that the FERC rules,
3		the FERC procedures be changed. And Duke was
4		actively seeking our support for what they were
5		going to file at FERC. So, what was on my mind
6		at the time and what I communicated was if we're
7		going to support these changes at FERC then we
8		need to have a solution to this problem, because
9		if it's going to be Plan A, which is a withdrawal
10		right, that would need to be written into the
11		FERC procedures. On the other hand, the
12		Conditional CPCN solution was within the control
13		of the Commission and wouldn't require any change
14		to the procedures. So, I was very concerned that
15		we have an understanding about how we were going
16		to solve this problem. Because, if the answer
17		was we've got to change the FERC procedures, then
18		I needed to know that before I put my name on a
19		document supporting those procedures. And as
20		I've testified, Duke in my opinion understandably
21		did not think the no-penalty withdrawal option
22		was in the public interest or a good idea, which
23		left us with the Conditional CPCN solution.
24	Q	When you proposed these two solutions, did

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1		you interpret the lack of objection from the
2		Public Staff as approval?
3	A	I certainly had the expectation, particularly
4		when I had indicated what I just said that our
5		support for these procedures was contingent on
6		developing the solution. I had the expectation
7		that if the Public Staff had a problem with what
8		I was proposing that you would let me know.
9	Q	And did the Public Staff give any explicit or
10		written feedback to your proposed solution?
11	A	I don't recall that occurring in the calls that
12		we were just referring to. I do think that in
13		some of the calls, and there were many, I feel
14		like we did have some explicit conversations
15		about the contingent CPCN. I think the I'm
16		not sure if it is in Exhibit 1 or this other
17		email that I discovered last night, but give
18		me a second. In Exhibit 1 to my testimony, you
19		will see that that began with an email to you and
20		Mr. Josey of April 2021. And in the initial
21		email that I wrote to you I did explicitly refer
22		to the Conditional CPCN Application and I say of
23		the sort we have discussed some of the sort we
24		have discussed. So, it's an indication to me

1		that as of April 21st we had been talking about
2		this idea and I'm quite sure that you had not
3		communicated an objection to me to the concept.
4	Q	But do you assert that there was any communicated
5		approval?
6	A	I can't make that assertion. No.
7	Q	And for these stakeholder meetings, Duke
8		solicited feedback in all its stakeholder
9		meetings via an email inbox that's set up and
10		posted responses to those requests for feedback
11		on its OASIS website. Did you submit a request
12		along the lines of these proposals?
13	A	No. I'll have to plead technological
14		incompetence. I had countless, countless
15		communications with Duke and other stakeholders
16		about these procedures. I did not use that
17		portal as a vehicle for those communications.
18		There's all kinds of emails and other
19		communications.
20	Q	And other than a connection with this EMP
21		application, have you made any filings before
22		this Commission or FERC detailing CCEBA's
23		position or Pine Gate's position that a
24		Conditional CPCN would be needed to accommodate

1		projects entering a cluster study?
2	A	I don't believe so.
3	Q	At the time the FERC filing was made by Duke in
4		April of 2021, Pine Gate filed comments in
5		support of Queue Reform. This is our Exhibit 4.
6		Is that correct?
7	A	That's right. Duke was I think encouraging that
8		other parties weigh in in support in the hope
9		that we would be able to expedite approval at
10		FERC.
11	Q	Pine Gate supported Queue Reform even after the
12		meetings in which the Public Staff did not
13		respond to concerns you raised?
14	A	That's right. As I said, my assumption at the
15		time was that the solution to the problem that I
16		had identified was that we were going to be able
17		to utilize a Conditional CPCN procedure, not
18		and not need to modify the FERC procedures. So,
19		we were comfortable supporting the procedures on
20		that basis.
21	Q	Okay. Turning to a different topic. On page 5
22		of your testimony, you state that this Commission
23		will deny a CPCN based quote, unquote, solely on
24		the fact that FERC's crediting policy requires

1		the utility to reimburse the customer for network
2		upgrade costs; is that correct?
3	A	For network upgrade costs that are deemed to be
4		unreasonably high by industry standards.
5	Q	And that's a qualification you're making now and
6		not in your testimony?
7	A	Can you point me to what page in my testimony?
8	Q	Sure. Page 5, line 14.
9	A	Yes. That appears to be sort of an abbreviation
10		or a shorthand for what follows later, because I
11		think elsewhere and throughout my testimony I
12		make clear that what the Commission has actually
13		utilized is a reasonableness test based on LCOT.
14		So, it's not my intention to suggest that the
15		Commission has denied or suggested it would deny
16		a CPCN solely because there are reimbursable
17		costs and, to the contrary I've suggested I think
18		it would be unlawful for them to do so.
19	Q	Understood. But you with your qualification
20		earlier, you believe they would solely deny a
21		CPCN such as Juno's based on the cost?
22	A	Based on the LCOT.
23	Q	I would like to turn to what I premarked as
24		Public Staff Levitas Cross Exhibit Number 5.

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1		That's the North Carolina Utilities Commission
2		Motion for Leave and Answer filed in the
3		Edgecombe Solar Complaint, FERC Docket EL21-73.
4		Do you have a copy of that?
5	A	I do. I never I have not seen this before
6		today.
7	Q	Are you familiar with the Edgecombe complaint at
8		FERC?
9	A	I'm aware of it, yes.
10	Q	On page 4 of this exhibit, the Commission
11		states and this is under the headline B, the
12		third sentence, the NCUC has not adopted any
13		rule, guidance, or practice that would require
14		denial of a CPCN simply because the costs of
15		network upgrades would be allocated in part to
16		retail customers.
17	A	I'm sorry. Where are you?
18	Q	I'm on the third sentence under B.
19	A	I see that.
20	Q	And further down
21	A	And I don't disagree with that.
22	Q	Further down, when discussing the Friesian Order,
23		the Commission says that it can consider all
24		costs as and this is the last sentence of that

1		page as one of the many factors to be weighed
2		when determining whether generating resources
3		needed as appropriately sited at the location
4		proposed by the CPCN Applicant.
5	A	Was there a question?
6	Q	Does that do you think the Commission has
7		taken a different position than that in any
8		docket?
9	A	Well, I note above that that this filing says
10		that the NCUC Orders speak for themselves. And I
11		do think the Friesian Order speaks for itself and
12		I don't think that what's cited below is what the
13		Friesian Order says.
14	Q	On pages 10 through 12 of your rebuttal
15		testimony, you argue that the Public Staff is
16		changing its position by suggesting the
17		Commission consider the total cost of network
18		upgrades for one project, or the total cost of
19		network upgrades for the Transitional Cluster.
20		Has the Public Staff before considered a CPCN
21		Application for an EMP to your knowledge that is
22		participating in a Transitional Cluster Study?
23	A	No. There hasn't been a Transitional Cluster
24		Study. I will say on that point, in terms of my

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1		tostimony recording the Dublic Staffle position
Т		testimony regarding the Public Stall's position,
2		I have been persistent over a two-year period in
3		trying to ascertain the Public Staff's position
4		as to the applicable test for merchant plant
5		certification. And, as evidenced in my Exhibit 1
6		to my testimony the most one of the more
7		recent times where I put that question to you, in
8		response and I feel like you may have been
9		getting a little bit understandably impatient
10		with me because I kept asking the question so
11		many times what you said to me on April 22nd
12		of this year is, as we have discussed before many
13		times, that's my word many times, stated in
14		testimony, we consider the LCOT a benchmark for
15		reasonableness.
16		So yes, it is my testimony that if
17		you're now asserting that there is a different
18		test for reasonableness that that is a change in
19		position and a departure from what you have
20		communicated to me on multiple occasions.
21	Q	On page 12 (sic) of your rebuttal testimony, you
22		state that as a procedural matter, the Public
23		Staff seems to have some vague concern about
24		whether Juno Solar can be held to the agreed-upon

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1		conditions of the CPCN, even though Juno Solar
2		has expressly proposed and agreed to them.
3		Can I ask what the basis of this
4		assertion is?
5	A	Yes. I think we responded to that in response to
6		a data request. And I was reminded as we were
7		responding to your data request that that was
8		communicated in a conversation that we had I
9		think in connection to trying to understand the
10		nature of the Public Staff's concern or
11		opposition, and so it certainly does not appear
12		in Mr. Metz' testimony. And if that issue is
13		sort of irrelevant or inappropriate for
14		consideration here, I don't need to pursue that
15		or I'll have to talk to my lawyers about striking
16		it. But I didn't at the time we were
17		preparing the testimony, I was conflating things
18		that Mr. Metz had said with things that had been
19		said elsewhere. That was said in a phone
20		conversation.
21	Q	I think it's, from our perspective, appropriate
22		just to clarify that that's not based on anything
23		in the record.
24	A	Fair enough.

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1 On page 16 of your rebuttal testimony, can you Q 2 read the first sentence starting on line 1? 3 Beginning Juno Solar? Α 4 Yes. 0 5 Α Juno Solar was sited at its proposed location for 6 the express purpose of seeking to help solve what is arguably the biggest impediment to large-scale 7 solar development in the state and, in my 8 9 opinion, the biggest obstacle to achieving the 10 carbon-reduction mandate of House Bill 951. 11 Q And just to explore that a little, Juno was 12 purposely sited in this area to resolve the 13 congestion associated in the southeastern area of 14 the state? 15 Α To help do so, yes. 16 Q Are you in that assertion speaking to the 17 Friesian upgrades? 18 To the upgrades that were the subject of the Α 19 Friesian proceeding, yes, that are -- that would 20 serve many projects besides Friesian. Yes. 21 Q But you're speaking to --22 Α The southeast -- the significant transmission 23 constraints on Duke's system in southeastern 24 North Carolina and northeastern South Carolina.

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1	Q	Okay. You go on on page 16, lines 6 and 7, to
2		say that Duke has confirmed the importance of
3		these upgrades to its system planning. Can you
4		explain how Duke has confirmed these upgrades
5		are important to system planning?
6	A	I think we provided in response to your data
7		request references to and perhaps copies of the
8		Duke comments that were filed in the Friesian
9		proceeding where I think they made statements to
10		that effect.
11	Q	Are these upgrades to your knowledge needed for
12		reliability purposes?
13	A	I'm not a reliability expert. And I believe
14		there may be testimony suggesting that they're
15		not needed in some sense for reliability
16		purposes. My own view is that when not a single
17		megawatt can be added to a significant portion of
18		the grid serving two states that there's probably
19		a need to upgrade that portion of the grid for
20		reliability purposes. But I'm not an expert on
21		reliability.
22	Q	On pages on the same page, lines 18 through
23		20, you say Pine Gate and its development
24		partners have actively sought to identify and

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1		develop projects like Juno Solar that could
2		participate in the cost sharing. Can you tell
3		what other projects are in the TCS owned and
4		being developed by Pine Gate and its partners?
5	A	I would need for Ms. Miller to respond to that
6		question.
7	A	(Ms. Miller) At this point, I would just say that
8		we have several projects in the Transitional
9		Cluster across the DEP system. There are
10		probably too many to name individually, but we
11		could file an exhibit after the fact if helpful.
12		And, you know, not necessarily all
13		of those are specifically for the express purpose
14		of those costs. Some of them are just to help
15		serve both the needs we're expecting through
16		House Bill 951 and a lot of the renewable energy
17		mandates. And we feel that solar siting in the
18		DEP system is easier and less complicated than
19		the DEC system or it is much more challenging to
20		site projects of that size.
21	A	(Mr. Levitas) And if I could add, Ms. Cummings,
22		I've been on something of a mission for the last
23		several years to try to solve what I believe is
24		one of the most significant problems facing our
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1 state today, which are these transmission 2 constraints in the southeast part of the state, 3 because I believe as someone who's worked for a long time in the solar industry that we cannot 4 5 achieve the Governor's goals of decarbonization 6 without getting these upgrades built. 7 Friesian Solar came before this 8 Commission with one possible solution for that 9 several years ago, which was to allow a federal 10 project to go forward there would be 11 reimbursement of the upgrades, other projects 12 would benefit; that proposal was rejected. 13 Understood. 14 Once that occurred, I then said 15 well now what do we do, and I said that to 16 members of the Public Staff. And the solution to 17 how we solve this problem was to move forward 18 with a cluster study process with Queue Reform, 19 which is a large reason why I devoted so much of 20 my time for over a year to Queue Reform, so we 21 could get Queue Reform procedures in place, get a 22 cluster study process in place, get as many 23 megawatts into that cluster study as possible to 24 spread those costs, some combination of state and

federal projects, so we could finally break this log jam and move the state forward. And we And the Public And I

3 talked about that many times. 4 Staff specifically said to me, I asked the 5 question, this is what I'm going to go do now. 6 Plan A didn't work. Do you agree that that's the 7 right approach to solving this problem? 8 was repeatedly told, yes, that's what we think 9 should happen, let's have a large cluster, spread 10 the megawatts as much as we can. And it was 11 understood there would be, unlike the Friesian case where a Friesian -- a federal project was 12 13 going to get reimbursed for all those costs. In 14 Plan B there would be a mix of state and federal projects that would participate in funding those 15 16 upgrades. Yes, the federal projects would be 17 subject to the crediting policy, but there would 18 be a lot of state megawatts in there that would 19 significantly reduce the impact to ratepayers 20 resulting from the crediting policy. 21 So, that's what I've been trying 22 to make happen now for a couple of years. And 23 having this project participate in the 24 Transitional Cluster Study, in my belief, is

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1		essential to that strategy having a chance at
2		working.
3	Q	It is possible though that this log jam created
4		in this particular area could be solved in
5		subsequent clusters?
6	A	It's it is theoretically possible, but there's
7		several problems with that. One is time. So
8		we're going to lose a year in coming up with a
9		solution and that means costs are likely going to
10		go up, achieving the goals of 951 are going to be
11		impaired, but we also don't know how that may
12		complicate things. And I think, you know, I
13		think in the Friesian proceeding Duke's comments
14		indicated that if we could just get this problem
15		solved everything becomes so much easier. And
16		not wait a year or two years to solve it but find
17		a way to get it solved now, and that's what I've
18		been trying to make happen.
19	Q	Turning to page 17 of your testimony, lines 10
20		through 11, you're speaking to the Friesian case
21		which of course you participated in, you say that
22		the Public Staff did not argue, let alone put on
23		any supporting evidence, that the network
24		upgrades at issue were unneeded or inefficient;
I	-	

1		is that correct?
2	A	I did say that.
3	Q	And you are, of course, familiar with Mr. Metz,
4		who's a witness today, and Mr. Lawrence's joint
5		testimony in that proceeding?
6	A	I am. I haven't gone back and looked at that
7		lately so I probably was going on memory for
8		that.
9		MS. CUMMINGS: Presiding Commissioner
10	Duff	ley, I would ask at this time that we take
11	judi	cial notice of Lawrence/Metz joint testimony in
12	Dock	et EMP-105?
13		COMMISSIONER DUFFLEY: Without objection,
14	that	is allowed.
15		MS. CUMMINGS: Thank you.
16	BY M	S. CUMMINGS:
17	Q	On page 14 of your testimony, you say under the
18		CPCN that Juno seeks, if its calculated LCOT ever
19		exceeds \$4.00/MWh at any time before the
20		execution of an Interconnection Agreement, the
21		CPCN would automatically terminate.
22	А	Correct.
23	Q	How frequently will Juno update the Commission on
24		its LCOT calculation?

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1	A	I'm glad you're asking that question. We've been
2		talking about that a lot and want to be sure
3		we're very clear about that. And Ms. Miller may
4		want to add to this. But we think it would be
5		appropriate for there to be a condition on this
6		CPCN that requires Juno to provide updated
7		information in realtime immediately upon receipt
8		of any updated information, both with respect to
9		the total interconnection costs and the LCOT
10		calculation using the Public Staff's methodology,
11		which you provided with us provided to us so
12		that that occurs in realtime and that would
13		result in the CPCN automatically terminating.
14		I would just also note and I think
15		it's in Ms. Miller's rebuttal testimony, we
16		when we made the initial filing, we proposed the
17		idea of not quite so automatic a termination and
18		that perhaps we could come into the Commission
19		and say well it was just a little bit over \$4.00,
20		maybe you should give us a break and reconsider.
21		And we've withdrawn that request, so we're now
22		proposing the \$4.00/MWh as a bright-line test
23		with no avenue for relief.
24	Q	Thank you for that clarification. The CPCN, if

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1		it automatically terminates, does it do that by
2		its own terms or will that require an Order from
3		the Commission, in your view?
4	A	Well, I would leave that to the Commission.
5		There might be some value in having that in the
6		record for interested parties to know that that
7		CPCN had terminated, but it would be ministerial
8		we make the filing. There's no debate about
9		whether it should happen, it just would happen.
10	Q	And has Juno determined that if the LCOT goes
11		over \$4.00 whether it would, even say if the CPCN
12		terminates just as you described, would it
13		continue in the Transitional Cluster Study
14		process?
15	A	Again, Ms. Miller may have some thoughts about
16		that. I don't think so. I think, if the CPCN is
17		not issued or terminates, it's going to be very
18		difficult for this project to go forward because
19		of the uncertainty about it, its certification
20		status. And I think at that point, Ms. Miller
21		talked about the 951 compliance, I think it
22		becomes a lot more likely, it may be somewhat
23		likely today, but it becomes a lot more likely
24		that this project becomes a Duke-acquired project

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1		under 951.
2	Q	And Duke, obviously they'll file a carbon plan
3		and this Commission will determine will
4		approve that plan after stakeholder input. But,
5		in your opinion or how you, you know, might
6		represent Pine Gate or CCEBA going forward,
7		does do your organizations think there will be
8		competitive solicitations in the nature of CPRE
9		going forward for PPAs and asset
10		acquisition-type how this facility might fall
11		under a utility owned?
12	A	Yes. I can tell what I think as somebody who's
13		spent a lot of time working on House Bill 951.
14		First of all, there will have to be different
15		procurement, maybe somewhat similar but different
16		procurement because of the different ownership
17		structure created by 951, PPAs will no longer be
18		competing with utility-owned projects, so there
19		will be silos or separate procurement of those
20		two types of assets. The bill is the bill
21		does not speak in the same way that HB589 did
22		with respect to competitive procedures, but it
23		does have a least-cost requirement which leads me
24		to believe that it's likely that there will be

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1		competitive procurement. Again, PPAs being
2		procured in one bucket and utility-owned assets
3		being procured in another. None of that, of
4		course, has been established or defined yet. And
5		I don't think there's anything in the legislation
6		that prevents Duke from going out tomorrow and
7		saying we need to get to work and buying a
8		project like Juno.
9	Q	One thing that may be preventing Duke from doing
10		that is there's not a carbon plan yet developed.
11	A	That's true. I'll leave it to Duke to decide how
12		they interpret the bill. But, I mean, the one
13		thing I will say is it's just hard to overstate
14		the time urgency if this goal is to be achieved,
15		because there has to be an enormous amount of
16		procurement that occurs in a very tight timeframe
17		to have any chance of achieving the Governor's
18		goals and the Legislature's goals.
19	Q	And these silos, as you envision it, Juno could
20		probably only compete in a solicitation for the
21		utility owned.
22	A	That's right. There's an 80-MW cap for PPA
23		projects. There is no such cap for utility-owned
24		projects. That's good for ratepayers because

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1		larger projects will almost certainly be able to
2		be delivered at lower costs.
3		MS. CUMMINGS: I'll turn it over now to my
4	colle	eague Robert Josey. He has questions for
5	Ms. 1	Miller. Thank you.
6		MR. JOSEY: Thank you very much.
7	CROSS	S EXAMINATION BY MR. JOSEY:
8	Q	Good morning, Ms. Miller. How are you?
9	A	Good morning. Good.
10	Q	I am going to try to keep my questions kind of in
11		subject matter groups, so I may jump back and
12		forth between your revised direct testimony, your
13		supplemental testimony, and your rebuttal
14		testimony. So, if you have any questions on
15		which one I'm referring to, just let me know.
16	A	Okay.
17	Q	So, on page 23 of your revised direct testimony,
18		you mention that Pine Gate performed a power flow
19		analysis; is that correct?
20	A	Yes, that is correct.
21	Q	And in your supplemental testimony, page 2, you
22		discuss that the projects modeled in the power
23		flow study you modeled different projects in
24		the power flow study; is that correct?

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1	A	Correct.
2	Q	Okay. Was there two power flow analyses done or
3		was it just one?
4	A	Just one.
5	Q	Just one. And when was that power flow analysis
6		done?
7	A	I believe it was conducted right around the time
8		when we first mentioned it and I can't recall if
9		it was first mentioned in the direct testimony or
10		the supplemental testimony.
11	Q	But in July?
12	A	Correct.
13	Q	So it was July?
14	A	Yeah, so it was pre-close of the Transitional
15		Cluster.
16	Q	Pre-close, yes. Thank you.
17	A	So before October.
18	Q	Before October 31st.
19	A	Correct.
20	Q	Yes. And obviously before today which is the
21		last day that projects can drop out of the
22		Transitional Cluster before the power flow study
23		begins, correct?
24	A	That's correct.

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1	Q	Thank you. And you state in your testimony that
2		the power flow analysis that resulted, it
3		resulted in a \$13 million upgrade if it were on a
4		conservative basis and a \$16.84 million upgrade
5		scenario on page 6 of your testimony; is that
6		correct?
7	А	That's correct.
8	Q	Yeah. And but Duke must complete its own
9		study in order to come up with the final analysis
10		of what the upgrades will be?
11	A	That is correct.
12	Q	And those results will be what is used to
13		determine the cost of Juno's final upgrades,
14		correct?
15	A	Yes.
16	Q	Thank you. I'm going to switch over to
17		discussing, I think Mr. Levitas hit a little bit
18		on this, but I just want to kind of follow up on
19		some milestone payments and withdrawal penalties.
20		On page 9 of your revised direct
21		testimony you state that the estimated
22		construction cost of the facility is
23		approximately \$370,690,000; is that correct?
24	А	That is correct.

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1	Q	And we heard from Mr. Levitas earlier that the
2		study deposit for Juno was \$250,000.
3	A	That's right, around \$250,000.
4	Q	And so the LGIA Section 7.2.6 states that the
5		penalty is nine times the interconnection request
6		total study cost imposed.
7	A	That's correct. So, it would be around
8		\$2.25 million for Juno if the full study costs
9		were allocated.
10	Q	And subject to check my math, \$2.25 million would
11		be approximately .6 percent of the total
12		projected construction cost of the Juno facility,
13		correct?
14	A	That is correct. You may be getting at this
15		point, but there from a development
16		perspective, we do and see that development
17		expenditures for an earlier stage facility to be
18		at risk and a question of risk exposure when
19		there are still potential binary risks
20		outstanding for the project that could ultimately
21		kill the project or stop it from proceeding.
22		So, that \$2.25 million could be
23		\$2.25 million absolutely lost for the facility as
24		opposed to the construction costs for the

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1		facility, which ultimately at that point we would
2		likely have a financial counter-party lined up
3		that have obtained the construction loan for
4		those costs, and at that point have obtained all
5		necessary permits and approvals to build and
6		operate the facility.
7		So, we would consider that all
8		risks to be eliminated or be fully de-risked to
9		that point. So, we do view a difference of
10		at-risk exposures in the early stage of the
11		development process versus the construction funds
12		which are procured through a construction lender.
13	Q	Understood. And is it your understanding that
14		the purpose of the Transitional Cluster was to
15		remove speculative projects from the queue in
16		order for the cluster study to move forward in an
17		expeditious manner?
18	A	It's my understanding that the Transitional
19		Cluster was intended for projects that had
20		already been in queue for a while and were
21		serious projects that intended to move forward.
22	Q	You state on page 5 of your rebuttal testimony
23		that you believe the uncertainty of whether the
24		Commission will grant a CPCN to a merchant

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1 facility might dissuade FERC-jurisdictional 2 Interconnection Customers from entering Phase 2 3 of the study process due to the magnitude of the 4 withdrawal penalties. 5 А Correct. 6 And I would like to refer you to Miller Cross 0 7 Exhibit 1, which I believe is entitled the 8 "Transitional Cluster Phase 1 Customer Engagement 9 Meeting". Do you have that in front of you? 10 Α I do, yes. 11 Q I would like you to turn to page 7, 8 and 9, 12 slides 7, 8 and 9, please, and particularly slide 13 The -- this is the list of DEP Transitional 9. 14 Cluster projects. And I believe, if you can look 15 through and correct me if I'm wrong, but all the 16 FERC-jurisdictional projects are, within the 17 Transitional Cluster, are listed on page 3, slide 18 9 of the Queue Report? 19 Most of them, correct. It appears so. Α 20 0 And, subject to check, there appear to be eight 21 FERC-jurisdictional queued projects in the 22 Transitional Cluster. 23 Α Correct. I believe there may be one more 24 further -- there is one additional FERC project

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1		that's actually a battery page 6, but otherwise
2		that appears to be correct.
3	Q	Thank you. And of those eight on page 3, five of
4		them are in North Carolina?
5	A	Correct, they appear so.
6	Q	And two are solar projects?
7	A	I believe there oh, two in North Carolina.
8	Q	Two in North Carolina are solar projects?
9	A	Correct.
10	Q	And the first one is a 275-megawatt project in
11		Richmond County?
12	A	Correct, that is Juno Solar.
13	Q	That would be Juno. And the other one is a
14		69.9-megawatt project in Scotland County?
15	А	Correct. That is Friesian Solar.
16	Q	And that is Friesian. So, those are the only two
17		North Carolina FERC-jurisdictional solar projects
18		in the Transitional Cluster?
19	А	Correct.
20	Q	And Pine Gate has a development interest in both?
21	А	Correct. We are responsible for the development
22		of both facilities.
23	Q	And FERC, or excuse me, Friesian has already had
24		a denied CPCN.

1	A	Correct. I believe it is currently going through
2		the appeal process. But looking to Steve Levitas
3		to confirm.
4	A	(Mr. Levitas) I'm sorry.
5	A	(Ms. Miller) If needed. I don't think we need
6		you right now but just in case.
7	Q	And on page 23 of your testimony you say that the
8		solution to the patently unfair and unreasonable
9		situation is for the Commission to issue
10		Conditional CPCNs?
11	A	Correct. We believe so.
12	Q	And that patently unfair and unreasonable
13		situation you're referring to is that Juno can't
14		find out its system upgrade costs until it
15		completes the study process?
16	A	It's the the problem statement is the
17		significant financial exposure that a
18		FERC-jurisdictional project like Juno would be
19		subject to to proceed in the Transitional Cluster
20		process without knowing its interconnection
21		system costs until quite far into that process
22		once significant financial payments are made.
23	Q	Have projects in the past or other jurisdictions
24		ever completed the study process without a CPCN?

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1	A	I am not sure I can speak to that accurately, but
2		typically you do obtain a CPCN early on in the
3		study process from my experience.
4	Q	But it is possible to complete the CPCN or the
5		study process without a CPCN?
6	A	I think it is possible but the question of
7		whether that is considered good business practice
8		based on the risk exposer is a different
9		question.
10	Q	Okay. And you're aware that the study process
11		along with the milestone payments and the
12		withdrawal penalties were developed through a
13		lengthy stakeholder process as we've discussed
14		here today?
15	A	Correct.
16	Q	And that the NCIP changes reflect those changes
17		to the study process and were approved by this
18		Commission?
19	A	Correct.
20		MR. JOSEY: I would like the Commission to
21	take	judicial notice of its Order in E-100, Sub 101,
22	the (Queue Reform Approval Order, on October 15th,
23	2020	
24		COMMISSIONER DUFFLEY: Without objection,

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1	the Commission will take judicial notice.	
2	MR. JOSEY: And judicial notice that	
3	excuse me.	
4	BY MR. JOSEY:	
5	Q And you are aware that FERC also approved this	
6	process as well	
7	A Correct.	
8	Q in the LGIP? Okay.	
9	MR. JOSEY: And I'd like to take judicial	
10	notice of FERC's Order Accepting Tariff Revisions in	
11	ER21-1579-00 and ER21-1579-001 issued on August 6th,	
12	2021.	
13	COMMISSIONER DUFFLEY: Without objection,	
14	the Commission will take judicial notice.	
15	A I would like to point out on that point that I	
16	believe it was in Steve Levitas' test or	
17	rebuttal testimony that we did acknowledge this	
18	situation and potential issue for	
19	FERC-jurisdictional projects during that process.	
20	And it was our understanding, after discussions	
21	with the Public Staff, that a Conditional CPCN	
22	could be one way based on LCOT to solve that	
23	problem. So, I believe in some ways there was	
24	reliance on prior discussions that that would be	

1		solved.
2	Q	And on page 3 of your rebuttal testimony, you
3		state that a Conditional CPCN would not eliminate
4		all risks associated with the interconnection.
5		The Commission's issuance of a Conditional CPCN
6		to Juno would appropriately mitigate the
7		substantial financial risk that Juno would face
8		if it has to withdraw from the Transitional
9		Cluster Study, correct?
10	A	Correct.
11	Q	And so is it your contention that we that the
12		Commission must weigh the financial risk of
13		Applicants when determining whether to grant a
14		CPCN?
15	A	I think it's our hope that the Commission and the
16		Public Staff will seek to find a what we would
17		all consider a reasonable solution to an
18		unintended problem.
19	Q	And on page 5 of your rebuttal testimony, you
20		state that the Conditional CPCN with a \$4.00 LCOT
21		is designed to provide ample protection of
22		ratepayers for ratepayers from unreasonably
23		high network upgrade costs, correct?
24	A	Correct.

1	Q Is it your contention that anything over \$4.00 is	,
2	unreasonable in this situation?	
3	A I don't believe that we've contemplated that or	
4	that we're taking a position necessarily on what	
5	would be unreasonable beyond that threshold, but	
6	\$4.00 is what we believe is a reasonable	
7	threshold for Juno Solar specifically.	
8	Q And would an LCOT over \$4.00 be unreasonable in	
9	any situation?	
10	A I think it's up to the Commission and the Public	
11	Staff to view it on a case-by-case basis and	
12	determine what is justified for an individual	
13	merchant facility since they are, each facility	
14	of course, is unique.	
15	MR. JOSEY: Madam Presiding Chair, at this	
16	time I would like to ask some questions that may touch	L
17	on confidential information.	
18	COMMISSIONER DUFFLEY: Okay. Do we we	
19	need to clear the courtroom of anyone that has not	
20	signed a confidentiality agreement. And, John, we're	
21	going to need to stop broadcasting.	
22	MR. McCOY: Okay. Right now?	
23	COMMISSIONER DUFFLEY: Yes. And actually,	
24	we're going to go off the record and give the court	

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1	reporter a break. And we'll take a so, let's go
2	off the record, Ms. Mitchell.
3	(A RECESS WAS TAKEN FROM 11:42 A.M. UNTIL 12:00 P.M.)
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1	CERTIFICATE
2	I, KIM T. MITCHELL, DO HEREBY CERTIFY that
3	the Proceedings in the above-captioned matter were
4	taken before me, that I did report in stenographic
5	shorthand the Proceedings set forth herein, and the
6	foregoing pages are a true and correct transcription
7	to the best of my ability.
8	
9	<u>Kím T. Mítchell</u>
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Juno Solar, LLC Merchant Plant CPCN Application Docket No. EMP-116, Sub 0 EXHIBIT 3

STATEMENT OF NEED

There is a need for the Juno Solar facility in the state and the region. Birch Creek is currently engaged in discussions with a large, well-established commercial off-taker, and plans to execute a Purchase Power Agreement ("PPA") term sheet for Juno Solar in the near future. The off-taker has expressed a strong desire to contract for Juno Solar's full volume, as renewable energy projects of this size are not presently available to the many renewable energy buyers in PJM.

Additionally, as an interconnection project falling under the Federal Energy regulatory Commission's ("FERC") jurisdiction, Juno Solar will have the ability to contract for its power output with either the incumbent integrated utility, DEP, or to reserve available transmission capacity and deliver its power to an adjacent balancing authority, including the PJM RTO. Both DEP and PJM have demonstrated the need for new renewable energy and flexible battery storage capacity in the coming years.

<u>DEP</u> – In its 2020 Integrated Resource Plan ("IRP"), DEP identifies six different planning scenarios for its resource portfolio. All six scenarios result in increased solar and storage capacity on the DEP system. For example, the "Base with Carbon Policy" scenario would add approximately 5 GW of new solar capacity and approximately 2 GW of storage capacity to the DEP system during the planning period, with substantially more solar and storage called for in scenarios that would achieve the objectives of the Governor's Clean Energy Plan, which requires 70% of the state's electric generation to be sourced from clean energy resources by 2030. Solely sourcing this energy from typical sub-100 MW solar projects and small storage installations is likely to prove inefficient (if not infeasible). It is therefore in the interest of meeting Duke's and the State's renewable goals to bring on-line large, flexile clean energy-generating resources, like Juno Solar.

<u>PJM</u> – Commercial and Industrial ("C&I") demand for clean energy in the PJM market is stronger than ever in the market's history and continues to grow. The year 2020 saw yet another increase in C&I demand for renewable energy, despite the challenges of the Covid-19 pandemic. Level Ten Energy, which matches renewable energy buyers and sellers and provides insight into nationwide renewable PPA pricing, noted an increase in solar PPA prices in PJM over the past two years, with a steady escalation in price from Q1 2019 to Q4 2020. "The convergence of more challenging local and state permitting regimes, prohibitively high grid upgrade costs, and a surge in buyer demand has resulted in a PJM market that is short in project supply, which has in turn led to rising PPA prices" observes Rob Collier, Vice President of Developer Relations at Level Ten in its Q4 2020 Energy PPA Price Index. The report finds PJM Solar PPA prices to be the highest of any ISO or RTO in the country, with a 25th percentile PPA price of \$37.50/MWh, underscoring the need for large and affordable solar power in the PJM

market. The other ISOs and RTOs in the United States range between \$25.10 and \$33.70/MWh for 25th percentile solar energy PPA prices.

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