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May 15, 2020

VIA ELECTRONIC FILING

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

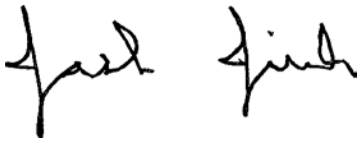
RE: Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Queue Reform Proposal
Docket No. E-100, Sub 101

Dear Ms. Campbell:

Enclosed for filing in the above-referenced docket, please find Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Queue Reform Proposal.

If you have any questions, please do not hesitate to contact me. Thank you for your assistance with this matter.

Sincerely,



Jack E. Jirak

Enclosure

cc: Parties of Record

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 101

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of

Joint Petition for Approval of Model Small Generation Interconnection Standards & Associated Application to Interconnect & Interconnection Contract Forms	))))))	DUKE ENERGY CAROLINAS, LLC'S AND DUKE ENERGY PROGRESS, LLC'S QUEUE REFORM PROPOSAL

Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP," and, together with DEC, "Duke" or the "Companies"), by and through counsel, hereby submit the Companies' Queue Reform Proposal pursuant to the North Carolina Utilities Commission's ("Commission") *Order Requiring Queue Reform Proposal and Comments* ("Queue Reform Order") issued on August 27, 2019, and subsequent Orders granting extensions of time in the above-referenced docket.

In support of this filing, the Companies submit the following:

I. INTRODUCTION AND SUMMARY OF REQUEST

Significant queue reform is needed to address the growing challenges and complexities facing Duke's generator interconnection process in the Carolinas. As detailed in Section III below, North Carolina as a State and Duke as a utility are national leaders in interconnecting new renewable energy capacity, primarily utility scale solar, to the grid. The Commission, along with Duke, Public Staff, and numerous other stakeholders have worked diligently since 2015 to evolve the existing interconnection process to continue to achieve fair and efficient generator interconnection outcomes while also ensuring that

safety, power quality, and reliability is maintained for all customers. However, the existing serial study process is no longer capable of managing the significant number of existing and new Interconnection Customers requesting to connect to the Duke systems, particularly in light of the increasing need to make substantial upgrades to the Companies' distribution and transmission system to interconnect new generation.

Queue reform is also needed as the state of North Carolina has implemented a number of renewable generation procurement programs and continues to explore further transition to increasingly distributed and carbon-free generating resources. As the Commission is aware, the comprehensive planning process for the Duke 2018 IRP and 2019 IRP Updates demonstrates that a combination of renewable resources, demand-side management and energy efficiency programs, and additional base load, intermediate and peaking generation are required over the next fifteen years to reliably meet customer demand. Additionally, in September 2019, Duke Energy Corporation announced its new, enterprise-wide climate strategy, including updating its CO_2 reduction goals to achieve at least a 50% reduction by 2030 (from 2005 levels) and achieving net-zero for electricity generation by 2050. For Duke, the base case in both Companies' 2018 IRP and the 2019 IRP Update plans achieves at least 50% CO2 reduction by 2030. In a similar vein, the recently released North Carolina Clean Energy Plan from the North Carolina Department of Environmental Quality establishes a goal of 70% greenhouse gas reductions by year 2030. Duke is committed to continuing to work in a collaborative fashion, engaging regulators, customers and other stakeholders as we chart a course into the energy future while balancing reliability, affordability and sustainability. Duke is proud of the work that it has accomplished to become a national-leader in successful solar interconnections and

remains committed to continuing to think creatively and collaboratively regarding the pathways to more sustainability in the future. Transitioning the generator interconnection process to a more structured and definitive "first ready, first served" cluster study process is one of the necessary steps along Duke's path towards achieving broader renewable energy and other policy objectives for the benefit of customers.

As discussed in the Companies' October 15, 2019 Queue Reform Update filing and in subsequent requests for extension of time to extend the stakeholder process, Duke has engaged in a robust and nearly year-long stakeholder process to discuss queue reform and how to efficiently transition from the current serial study process to a cluster study process. Through these efforts, Duke has refined its initial Queue Reform Proposal and has achieved significant stakeholder consensus regarding the overall structure of the transition of the NC Procedures to a more definitive interconnection study process. The Companies' Queue Reform Proposal builds on Cluster Study frameworks developed and implemented by other utilities across the country, and is designed to provide significant flexibility early in the study process while also reducing risk and increasing business certainty as Interconnection Customers progress towards an Interconnection Agreement. The Definitive Interconnection Study Process and broader queue reform framework discussed in Section IV of the Companies' filing are just and reasonable and a necessary evolution to achieve the Commission's stated goal in its *June 2019 Interconnection Order* of fashioning generator interconnection procedures that allow for a continued transition to higher penetrations of distributed energy resources, while continuing to ensure emerging technical and equity issues are purposefully addressed.[1]

[1] *Order Approving Revised Interconnection Standard and Requiring Testimony and Reports*, at 64, Docket No. E-100, Sub 101 (June 14, 2019) ("June 2019 Interconnection Order").

Finally, it is important to note that implementation of these changes will be complex, requiring complementary regulatory approval both by the Public Service Commission of South Carolina ("SCPSC") and the Federal Energy Regulatory Commission ("FERC") (due to the combined nature of Duke's interconnection queue). Therefore, as further addressed in Section VI, Duke respectfully requests that the Commission approve the Queue Reform Proposal on or before September 15, 2020, to provide clarity regarding North Carolina's commitment to queue reform as Duke continues to obtain the necessary regulatory approvals in other jurisdictions to transition all Interconnection Customers to the Definitive Interconnection Study Process.

II. PROCEDURAL BACKGROUND

The Companies submit the instant filing in response to recent Commission Orders directing Duke to evaluate whether "queue reform" would be beneficial to North Carolina's generator interconnection process. The Commission's June 14, 2019 *Order Approving Revised Interconnection Standard and Requiring Testimony and Reports* recognized that the "current serial study process is unsustainable for the [Companies] based upon current and growing volumes of utility scale Interconnection Requests."[2] To facilitate prospective reform of the Companies' interconnection queueing and study process, the Commission directed Duke to establish a stakeholder process to discuss transitioning the Companies' North Carolina queues to a grouping study process and to then report to the Commission on the stakeholder process as it evolved.[3]

On August 27, 2019, the Commission issued its *Order Requiring Queue Reform Proposal and Comments* ("Queue Reform Order"), directing the Companies to "file a

[2] *Id.* at 60, 66.
[3] *Id.* at 66.

queue reform proposal consistent with the Commission's June 14, 2019 Order" on or before October 15, 2019, addressing the Companies' proposed revisions to the North Carolina Interconnection Procedures, Forms, and Agreements (collectively, the "NC Procedures") needed to implement queue reform.[4] The *Queue Reform Order* also established a comment period on the required queue reform proposal.

On October 15, 2019, in compliance with the Commission's *Queue Reform Order,* Duke filed an update on its queue reform stakeholder process, providing the Commission an overview of the Companies' queue reform framework, as well as presenting detailed information on the topics addressed and feedback received in four stakeholder meetings held since June ("Duke Queue Reform Update"). The Duke Queue Reform Update explained that the Companies planned to engage in additional stakeholder meetings in order to further refine and work towards a consensus queue reform proposal to be filed with the Commission at a future date. Contemporaneous with filing the Duke Queue Reform Update, the Companies filed a Motion to Delay, requesting the Commission delay the comment period established by the Commission's *Queue Reform Order,* in order for the Companies to complete the remainder of the planned stakeholder process prior to filing a definitive queue reform proposal and initiating the Commission-directed comment period on Duke's queue reform proposal. The Commission granted the Companies' request to continue with the queue reform stakeholder process, and directed the Companies to file a queue reform proposal, as modified based on stakeholder feedback, on or before February 28, 2020.

[4] All capitalized terms not otherwise defined herein shall have the meaning assigned to them in the NC Procedures and, unless otherwise specified, all section references are to the NC Procedures.

On November 22, 2019, Duke held Stakeholder Meeting #5 addressing cost allocation issues within the cluster study process. On December 4, 2019, Duke held Stakeholder Meeting #6 to discuss a definitive cluster study process based upon the Federal Energy Regulatory Commission's ("FERC") recent order approving Public Service Company of Colorado's ("PSCo") queue reform revisions to that utility's Large Generator Interconnection Procedures ("LGIP").[5] Finally, on January 27, 2020, Duke held Stakeholder Meeting #7 to discuss the Companies' detailed queue reform proposal to modify the NC Procedures ("Queue Reform Proposal").

On February 21, 2020, the Companies requested a 30-day extension of time to file the detailed revisions to the NC Procedures to effectuate the Companies' Queue Reform Proposals, as recently discussed during Stakeholder Meeting #7. In the Motion, Duke described the ongoing stakeholder process, and committed to hold two additional stakeholder meetings during March 2020, to receive feedback on the Companies' Queue Reform Proposal. The Commission granted Duke's Motion by Order issued February 26, 2020.

On March 3, 2020, the Companies circulated its proposed queue reform revisions to the NC Procedures to all stakeholders. On March 10, 2020, the Companies held Stakeholder Meeting #8 to discuss in detail the revisions to the NC Procedures needed to implement the Queue Reform Proposal. Stakeholder feedback was solicited during this meeting, and written feedback was received from Dominion Energy North Carolina ("DENC"), the North Carolina Clean Energy Business Alliance ("NCCEBA"), and GreenGo Energy US, Inc. Stakeholder Meeting #9 was held on March 20, 2020, via remote

[5] *Pub. Serv. Co. of Colo.,* 169 FERC ¶ 61,182 (2019) ("PSCo December 2019 Order Approving Queue Reform").

teleconference to discuss stakeholder feedback on the queue reform revisions to the NC Procedures.

On March 27, 2020, the Commission granted a joint request for further extension of time filed by Duke and NCCEBA in order to allow for additional stakeholder meetings in April. Stakeholder Meeting #10 was held on April 9, 2020**,** via remote teleconference and allowed the Companies to engage in further discussions regarding the Queue Reform Proposal. To allow additional time for further discussions, Duke and NCCEBA also subsequently sought a further extension through May 15, 2020, for Duke to file its Queue Reform Proposal, which was allowed by the Commission.

The Companies' Queue Reform Proposal included as Attachment 1 and discussed in detail in Section IV is responsive to the Commission's Orders directing Duke to pursue reform of the Companies' interconnection queueing and study process, and reflects Duke's significant efforts to engage with stakeholders to discuss reforms to the current NC Procedures that will improve the NC interconnection process. Duke has achieved broad stakeholder participation in meetings #5 - #10 by interested parties in both North Carolina and South Carolina, as further identified in Attachment 2. Through these continued efforts, Duke has substantially refined its initial Queue Reform Proposal and has achieved significant stakeholder consensus regarding how to most fairly and efficiently transition the NC Procedures to a more definitive interconnection study process.

III. REGULATORY BACKGROUND AND NEED FOR QUEUE REFORM

Queue reform has been of increasing interest to the Companies, independent generation developers, and other stakeholders due the significant growth in utility-scale Interconnection Requests in the Carolinas and the evolving challenges managing the

current serial generator interconnection process, particularly as substantial portions of the available capacity of the Companies' distribution and transmission networks has been consumed by solar generator interconnections. Largely as a result of Duke's nation-leading success interconnecting new utility-scale solar Interconnection Customers to the DEC and DEP systems, it has become increasingly challenging to efficiently process Interconnection Requests. Before addressing the details of the Companies' Queue Reform proposal, the Companies explain why queue reform is necessary and the current regulatory context in which Duke is filing its Queue Reform Proposal to modify the NC Procedures.

a. Surging solar growth in the Companies' service territories has prompted need for Queue Reform

The State's adoption of a Renewable Energy and Energy Efficiency Portfolio Standard in 2007,[6] robust State renewable energy tax credits and other policies promoting new renewable generation,[7] new solar procurement programs created by Session Law 2017-192 ("HB 589"), as well as other factors[8] have all contributed to surging and sustained growth in utility-scale solar Interconnection Requests resulting in North Carolina becoming a perennial national leader in installed solar capacity.[9]

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[6] *See* N.C. Gen. Stat. § 62-133.8.

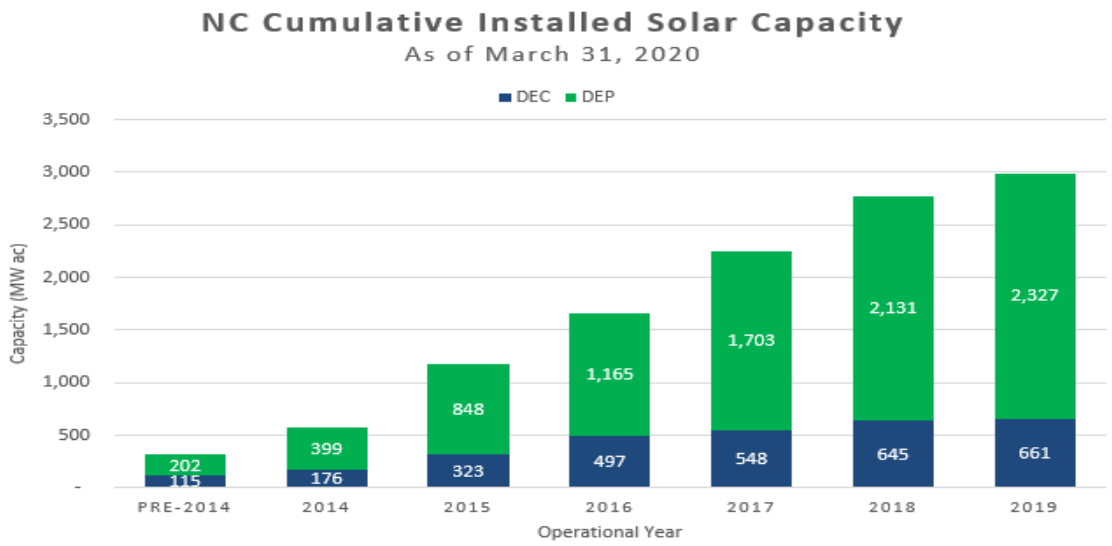
[7] *See* N.C. Gen. Stat. § 105-129.15 *et seq.* The State's Renewable Energy Tax Credit expired at the end of 2015, subject to a "safe harbor" period to provide projects in advanced stages of development until December 31, 2016, to complete development and be placed in service.

[8] The Commission's avoided cost framework prior to HB 589's enactment was a significant contributing factor to the unique development of QF solar Generating Facilities in North Carolina. *See e.g., Order Establishing Standard Rates and Contract Terms for Qualifying Facilities,* at 15-16, Docket No. E-100, Sub 148 (recognizing that the State's pre-existing PURPA policies prior to enactment of HB 589 had created a "distorted marketplace" for development of solar qualifying facilities and that "the pace and level of QF development continuing unabated would pose serious risks of overpayment by utility ratepayers and [to the] operational soundness of utility electric systems.").

[9] *See North Carolina*, State Solar Spotlight, Solar Energy Industries Association (2020), *available at* https://www.seia.org/sites/default/files/2020-03/North%20Carolina.pdf. An August 2016 report by the U.S. Energy Information Administration ("EIA") also found that North Carolina was leading all 50 states, including California, in PURPA-supported utility-scale solar installed capacity. *See* U.S. Energy Information Administration, North Carolina has more PURPA-qualifying solar facilities than any other state, (August 23, 2016), accessible at http://www.eia.gov/todayinenergy/detail.php?id=27632.

Since 2014, third-party installed utility-scale solar capacity in North Carolina has increased rapidly by over 2,400 megawatts ("MW") in DEC and DEP to approximately 2,990 MW as of March 31, 2020.[10] Figure 1 below depicts year-over-year growth in installed solar photovoltaic ("PV") capacity in DEP and DEC since 2014, and shows that DEP has over 2,330 MW of third party solar PV installed, while DEC has almost 660 MW installed.

Figure 1



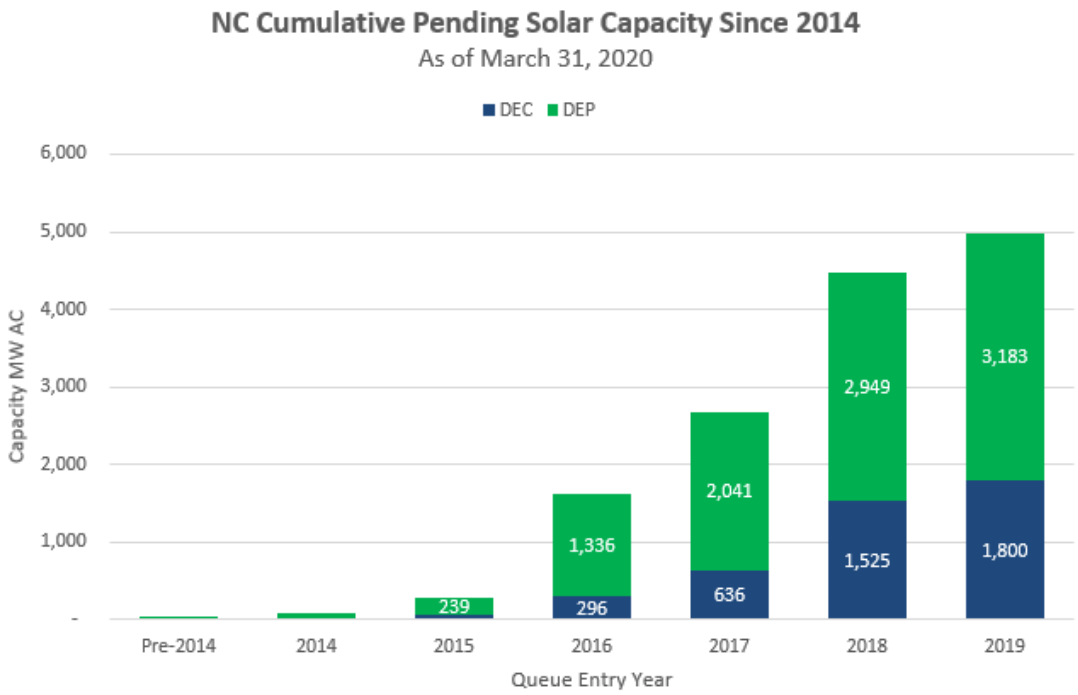
**Represents installed North Carolina solar capacity above 1MW.*

The Companies are also continuing to experience significant utility-scale solar development with over 5,390 MW of additional proposed North Carolina-sited utility-scale solar projects requesting to interconnect and to sell power to the Companies. Figure 2 depicts the growing levels of pending solar PV capacity requesting to interconnect to the

[10] The 2,987 MW installed in DEP and DEC in North Carolina represents third-party QF installations and excludes approximately 140 MW and 79 MW of utility-owned utility-scale solar Generating Facilities owned and operated by DEC and DEP, respectively, as well as third-party solar Generating Facilities interconnected behind Duke wholesale customers in North Carolina but within the DEC or DEP Balancing Authority Areas ("BAA").

DEC and DEP grids in North Carolina and reflects the significant continued interest in developing new utility-scale solar projects.

Figure 2

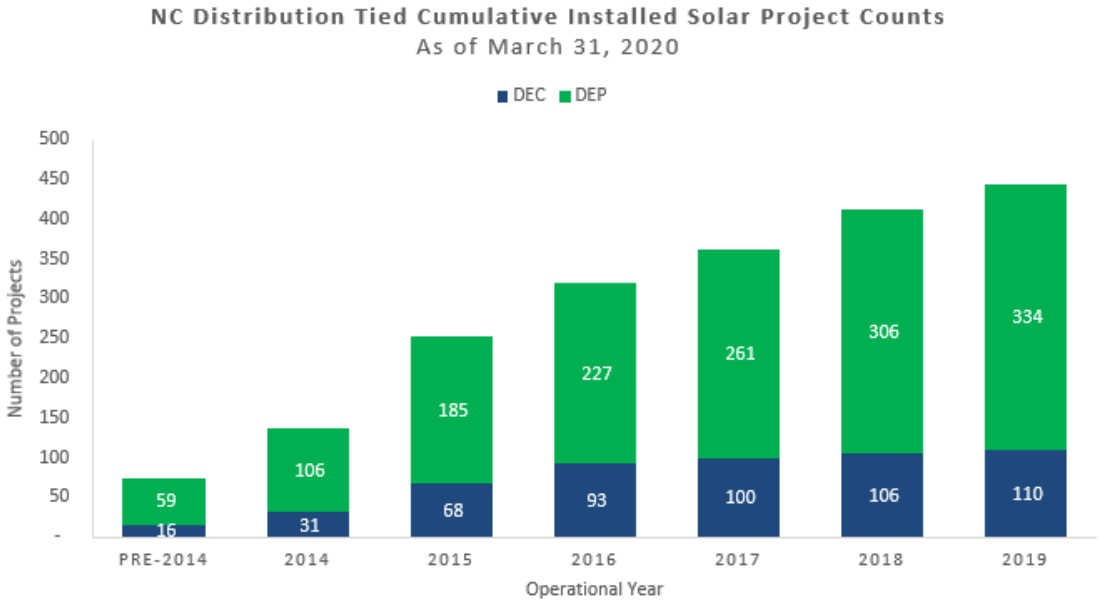


**Represents pending North Carolina solar capacity above 1MW (excludes connected MW).*

The size and volume of new renewable energy generation being developed in North Carolina has also been unique, creating further challenges and complexity within the generator interconnection process. Due to legacy policies, the vast majority of utility-scale solar development proposed for interconnection between 2012 and 2016 were in the four to five MW range and were requesting interconnection to the Companies' distribution systems. North Carolina's proliferation of "5 MW standard offer projects" resulted in unparalleled numbers of "interdependent" utility-scale solar Interconnection Customers competing for the same distribution circuit and substation capacity, which, in turn, required Duke to study an unprecedented number of proposed utility-scale solar generating facilities that were not designed to optimally utilize available capacity on the system. Figure 3 shows

the rapid year-over-year growth in completed distribution-level utility-scale solar project interconnections, with Duke interconnecting an average of approximately 60 distribution-level utility-scale solar projects in North Carolina per year over the past five years (2015-2019).[11] As of March 31, 2020, the Companies have interconnected a total of 444 utility-scale solar projects to the DEC and DEP distribution systems in North Carolina.

Figure 3

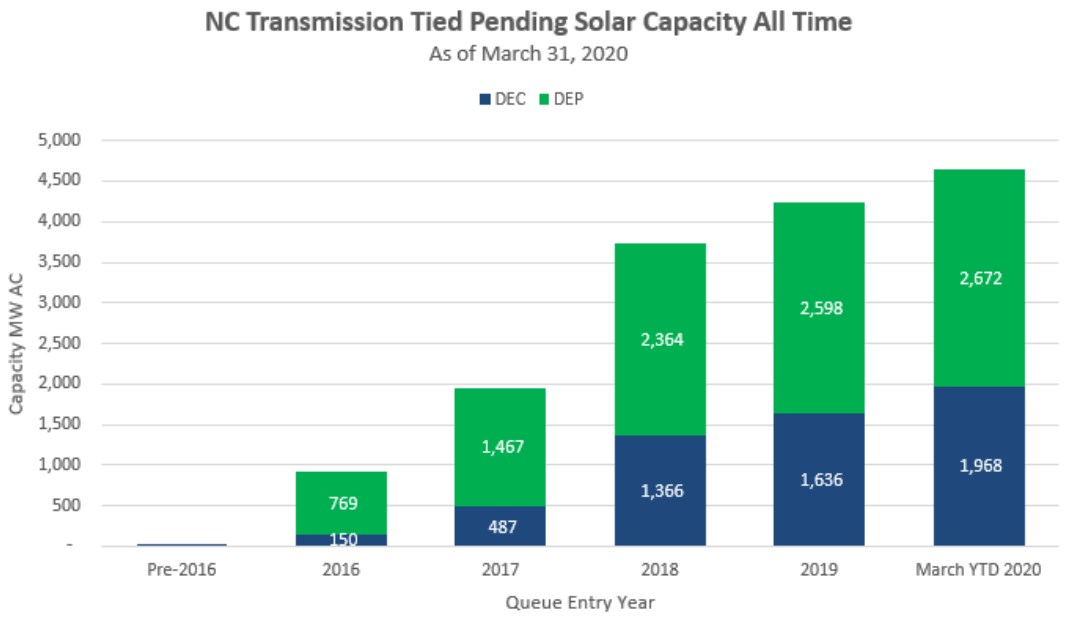


**Represents installed North Carolina solar capacity above 1MW.*

Robust development of larger utility-scale solar generating facilities requesting interconnection to the Companies' transmission systems also began in 2016. Figure 4 presents year-over-year cumulative growth in new solar Interconnection Requests proposing to interconnect to the DEC and DEP transmission systems.

[11] Reply Comments jointly filed by the Companies and Dominion Energy North Carolina in March, 2018 extensively analyzed the North Carolina utilities' unique challenges and unparalleled successes in interconnecting utility-scale solar Generating Facilities relative to other States based upon data collected by the U.S. EIA. In nearly all categories, the North Carolina utilities, and Duke specifically, had interconnected more utility-scale solar Interconnection Customers than any other utility in the country during the period 2015-2017. *See* Joint Reply Comments of Duke Energy Carolinas, LLC, Duke Energy Progress, LLC, and Dominion Energy North Carolina, at 2-11, Docket No. E-100, Sub 101 (filed March 13, 2018).

Figure 4



**Represents installed North Carolina solar capacity above 1MW.*

As of March 31, 2020, DEC and DEP had approximately 230 MW and 860 MW of solar generation interconnected on their transmission systems, respectively, and a combined 4,600 MW of proposed transmission-level Interconnection Requests in their North Carolina interconnection queues.

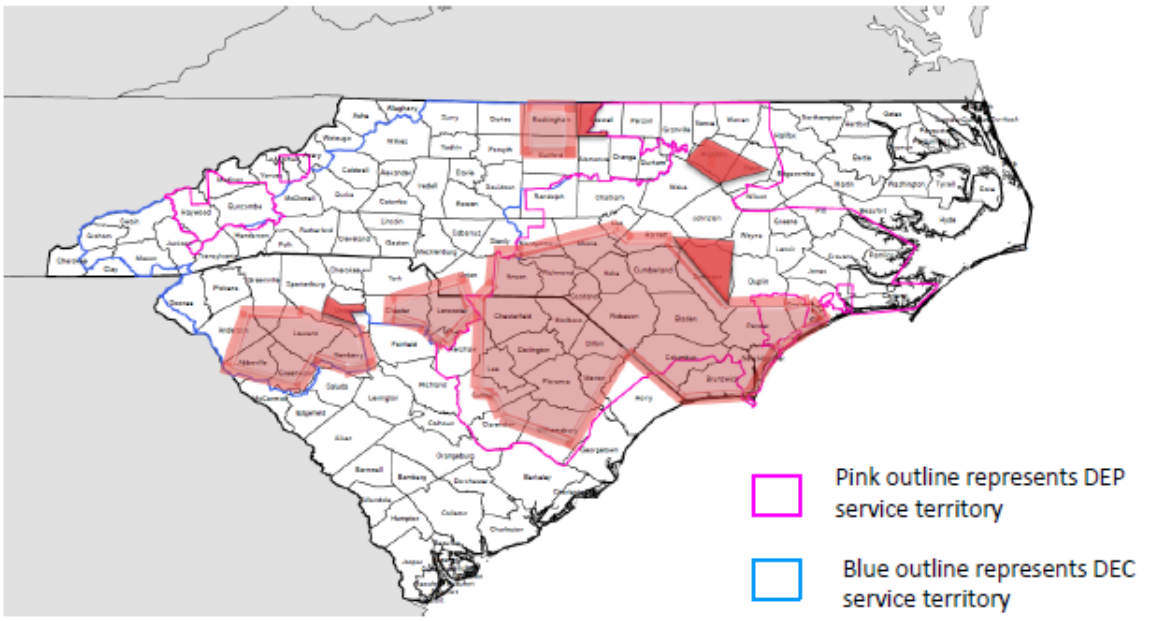
Development of larger generating facilities requesting interconnection to the Companies' transmission systems increasingly seems to be the norm, as larger projects are being developed to compete in the Competitive Procurement of Renewable Energy ("CPRE") Program or other customer-driven renewable energy procurement programs. For example, over 99% of the 3,963 MW of projects that bid into the CPRE Tranche 1 Solicitation were proposed transmission-connected projects, while approximately 513 MW of the combined total 520 MW of Tranche 1 CPRE winners were transmission-connected.

The Companies are now also experiencing significant additional solar development within the South Carolina service areas of the DEC and DEP Balancing Authority Areas ("BAAs"). Today, DEC and DEP have approximately 2,640 MW and 2,370 MW, respectively, of utility-scale solar Interconnection Requests seeking to interconnect to the DEC and DEP transmission and distribution systems in South Carolina.

The continued development of utility-scale solar projects on the DEC and DEP distribution and transmission systems across the DEC and DEP BAAs are contributing to new transmission-level interdependencies and system constraints necessitating the construction of significant new Network Upgrades to safely and reliably integrate new generating capacity into the DEP and DEC systems. Figure 5 shows the growing areas of transmission system constraint across the DEP and DEC BAAs, as recently identified in the CPRE Tranche 2 solicitation.[12]

[12] *DEC DEP Generator Interconnection Requirements and Locational Guidance,* at Attachment 1 "DEC DEP Constrained Areas" (Aug. 5, 2019), *available at* https://www.oasis.oati.com/woa/docs/CPL/CPLdocs/DEP-DEC_Generator_Interconnection_Requirements_and_Locational_Guidance_8-5-2019_FINAL.pdf.

Figure 5



Importantly, the cost of constructing new Network Upgrades required to resolve these growing areas of transmission system overloads in order to safely and reliably integrate new generation into the DEC and DEP BAAs are estimated in the tens or even hundreds of millions of dollars across the DEC and DEP BAAs.[13] Under the current serial interconnection process, 100% of these costs are assigned to the earliest-queued projects triggering the need for Network Upgrades, even though later-queued projects may also benefit from the Upgrades. In many cases, assignment of such significant Upgrade costs can make new generation projects infeasible, requiring the project to either pursue options to delay committing to fund the Upgrades—thereby disadvantaging other Interconnection Customers—or withdraw from the queue at the Interconnection Agreement stage. Under the current serial interconnection process, Interconnection Customer withdrawal results in

[13] The Commission recently heard testimony regarding significant Network Upgrades in the amount of approximately $187,000,000 that are needed to construct a proposed solar generating facility in the Southeast region of DEP East. *See generally,* Docket No. EMP-105, Sub 0.

the Upgrades being 100% assigned to the next earliest-queued Interconnection Customer, who may also determine withdrawal is necessary versus funding such significant Network Upgrade costs. As more of these substantial Network Upgrades are triggered, there is a strong likelihood under the existing serial study process of a cascading "waterfall" of withdrawals, as one project after another is forced to exit the queue due to an inability to absorb the cost of such Network Upgrades.

b. Existing queue management processes under the NC Procedures is increasingly insufficient to meet current and future interconnection challenges

An Interconnection Customer's "queue priority" in the interconnection process is generally determined based upon timing, *i.e.,* when the Interconnection Customer establishes its Queue Number by submitting a complete Interconnection Request relative to other Interconnection Customers. (*See* NC Procedures § 1.7.1.) Under the current serial study process, Queue Position determines the assignment of Upgrade costs to safely and reliably interconnect the proposed generating facility relative to all other Interconnection Customers seeking to interconnect to a Utility's system. In administering a "serial" interconnection study process, the Utility must assume that all earlier queued Interconnection Requests will be built, including any required Upgrades to the Utility's System. Queue position also generally determines the prioritization of study resources, though the interdependency construct (discussed further below) introduces substantial complexity regarding study priority (which is the primary factor that has led to particular Interconnection Requests having experienced substantial wait times in the interconnection queue).

Since 2014, the Commission has approved a number of queue management-related modifications to the NC Procedures designed to promote increased efficiency in the

generator interconnection study process and to equitably address the increasing complexities associated with North Carolina's unparalleled growth in new utility-scale generator Interconnection Requests.

In 2015, the Commission's *Order Approving Revised Interconnection Standard* approved stakeholder-supported queue management improvements to the NC Procedures to address the "clogged" distribution-level interconnection queues in North Carolina at that time.[14] The *2015 NC Procedures Order* required Interconnection Customers to provide more significant financial commitments earlier in the interconnection process, streamlined the Section 4 study process and prioritized study of "non-interdependent" Interconnection Customers. Queue management revisions adopted in the *2015 NC Procedures Order* included requiring verified site control for the proposed generating facility[15] as well as a more significant deposit ($20,000 + $1/kW) at the time of Interconnection Request submittal (including requiring increased deposits from all pending Interconnection Customers).[16] The *2015 NC Procedures Order* also eliminated the optional feasibility study prior to System Impact Study and modified the traditional purely serial "first in, first served" approach to administering the study process to incorporate an "interdependency" prioritization standard.[17]

The interdependency queuing and study processing requirements approved in 2015 have been an important component of the NC Procedures since their adoption.

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[14] *Order Approving Revised Interconnection Standard*, at 11, Docket No. E-100 Sub 101 (May 15, 2015) ("2015 NC Procedures Order") (explaining that requiring all existing Interconnection Customers to commit to increased deposits "is a reasonable method of addressing the clogged queue issue in North Carolina and that applying the deposit to existing as well as new interconnection requests will promote efficiency and clear the clogged queue by providing an incentive for developers to withdraw projects that they do not intend to pursue").

[15] NC Procedures §§ 1.4.1.3; 1.6.

[16] NC Procedures § 1.4.1.2.

[17] NC Procedures § 1.8.

Interdependency occurs where the Upgrade or Interconnection Facilities requirements of a particular Generating Facility are impacted by the Upgrade or Interconnection Facilities requirements of another Generating Facility with an earlier Queue Number. As explained above, an identified interdependency has the potential to significantly delay the serial interconnection study process where, for example, multiple projects are requesting interconnection to the same distribution circuit.[18]

Importantly, recognizing interdependency in the NC Procedures queueing process only modifies Queue Position priority as to the *timing* of which projects are studied ahead of other projects. The interdependency provisions do not modify *cost assignment* prioritization, which remains serially assigned based upon the Interconnection Request's Queue Number submittal relative to other Interconnection Customers. (§ 1.7.1.). While beneficial, the "serial interdependency" queuing process that the Companies utilize today also continues to require individual studies for each Interconnection Request in Queue Number priority order, as well as assignment of the full costs to interconnect each individual Interconnection Customer.

In 2018, the Commission adopted further revisions to the NC Procedures to enable the Companies to deviate from the serial interdependency process approved in the *2015 NC Procedures Order* to more efficiently administer the interconnection cost evaluation process for Tranche 1 of the CPRE Program.[19] For purposes of administering CPRE only, the Companies requested to amend Sections 1.7, 4.3.4, and 4.3.9 of the NC Procedures to

[18] The Duke Queue Reform Update provided additional detail on the challenges Duke has experienced processing Interconnection Requests under the interdependency provisions of the NC Procedures. For example, Duke explained that "forty-six substations [in DEC and DEP] currently contain backlogs of four or more projects seeking interconnection." *See* Duke Queue Reform Update Attachment 1, at 1-3.

[19] *See Order Approving Interim Modifications to North Carolina Interconnection Procedures for Tranche 1 of CPRE RFP*, Docket No. E-100, Sub 101 (Oct. 5, 2018) ("Order Approving Interim CPRE Modifications").

enable DEC and DEP to conduct system impact "grouping studies" for CPRE bidders in order to (1) study all CPRE bidders as a group based upon equal queue priority in terms of study timing; and (2) modify the traditional cost assignment priority within the CPRE grouping study to assign priority to the most cost-effective CPRE bidders ahead of less competitive bidders in order to obtain the least cost portfolio of new renewable energy capacity for customers.[20] Under the CPRE-related revisions to the NC Procedures approved in 2018, projects that did not elect to participate in CPRE would not be impacted by the grouping studies and earlier-queued, non-participants would maintain Queue Position priority ahead of the assigned utility-sponsored Queue Number for CPRE projects. In essence, earlier-queued, non-participating Interconnection Customers would become part of the "system baseline" and would be assumed to be constructed ahead of the CPRE proposals.[21]

To ensure that the system baseline of connected generation used in the CPRE grouping study is as accurate as reasonably possible, the *Order Approving Interim CPRE Modifications* adopted modifications to NC Procedures Section 4.3.9 requiring Interconnection Customers to definitively commit to Network Upgrades earlier in the Interconnection process by making a non-refundable prepayment or providing reasonably acceptable Financial Security during the period between System Impact Study Report issuance and Facilities Study Agreement execution. This non-refundable pre-payment has enabled Duke to more definitively rely upon the Interconnection Customer's commitment to construct those Network Upgrades when completing future System Impact Studies for later queued Interconnection Customers, including for the CPRE grouping study.

[20] *Order Approving Interim CPRE Modifications,* at 5-7.
[21] *Order Approving Interim CPRE Modifications,* at 11.

Based upon stakeholder feedback, Duke also proposed to provide a one-time transition mechanism for "Late Stage Proposals" within the CPRE Tranche 1 RFP to recognize that Interconnection Customers that had completed System Impact Study and already executed a Facilities Study Agreement had progressed to the point in the interconnection study process where they had been assigned designated Upgrades (or no Upgrades if available capacity existed), and should be afforded the right to assert their original Queue Position priority versus being assigned costs through the grouping study process.[22]

The Commission's *Order Approving Interim CPRE Modifications* adopted the CPRE grouping study modifications to the NC Procedures, as well as the Late Stage Proposal transition mechanism, on an interim basis for CPRE Tranche 1. The Commission's *June 2019 Interconnection Order* subsequently adopted the grouping study provisions as final, approved modifications to the NC Procedures,[23] which the Companies have utilized in administering CPRE Tranche 2.

The current serial interdependency and CPRE grouping study modifications to the NC Procedures have generally been beneficial in administering the CPRE Program and prioritizing study of the overall interconnection queue. However, these provisions have not enabled Duke to address the growing complexities of the study process as an increasing number of interdependencies have arisen on both Companies' distribution and transmission systems and the cost of required Network Upgrades to interconnect new generating facilities has increasingly exceeded the costs that a single Interconnection Customer can absorb. Accordingly, undertaking more significant queue reform by transitioning to the

[22] *Id.* at 8.
[23] *See June 2019 Interconnection Order,* at 12-13.

Definitive Cluster Study Process is an important step to achieving the State's goals of continuing to increase renewable energy penetration on the Companies' systems in a safe, reliable, and efficient manner.

c. Other utilities are also pursuing significant queue reform

Transition from a serial interconnection study process to a "first-ready, first-served" cluster study approach is a growing trend across the country. Queue reform efforts similar to the Companies' either have already occurred or are now occurring in other parts of the country where rapid growth in new renewable energy generation is occurring. These queue reform efforts have primarily occurred through reforms to FERC-jurisdictional generator interconnection processes,[24] both in regions where the generator interconnection process is administered by a regional transmission organization ("RTO")/independent system operator ("ISO") as well as for non-RTO/ISO utilities administering their large and small generator interconnection processes.[25]

Cluster studies are used to administer the generator interconnection processes in RTO/ISO regions across the country including CAISO,[26] MISO,[27] PJM,[28] and ISO New

[24] Not all states have developed robust state jurisdictional generator interconnection processes similar to the NC Procedures and, therefore, rely upon utilities' FERC-approved small generator interconnection procedures ("SGIP") and large generator interconnection procedures ("LGIP") to study state jurisdictional interconnection requests.

[25] In December 2007, FERC held a technical conference on interconnection queue management, and its subsequent Order identified potential reforms that may improve interconnection queuing processes, including finding "merit in a first-ready, first-served approach, whereby customers who demonstrate the greatest ability to move forward with project development are processed first." Order on Technical Conference," 122 FERC ¶ 61,252 at P 18 (2008) (hereinafter as "2008 Technical Conference Order").

[26] *Order on Compliance Filing,* 170 FERC ¶ 61,112 (2020) (approving CAISO's generator interconnection process that utilizes a cluster study process).

[27] *Order Conditionally Accepting Tariff Filing,* 138 FERC ¶ 61,222 (2012) (conditionally accepting MISO's proposed revisions to its tariff to implement a "first ready, first served" generator interconnection process).

[28] *Order on Proposed Tariff Revisions,* 139 FERC ¶ 61,079 (2012)(approving PJM's filed modifications to its Open Access Transmission Tariff to implement interconnection queue process reforms including cluster studies intended to relieve bottlenecks in the interconnection queue, improve the timeliness, quality, and significance of study results, provide for more consistent and realistic cost assessments, and increase transparency).

England.[29] In non-RTO regions, FERC has also authorized utilities to achieve queue reform through transitioning from a traditional serial study process to a more definitive cluster study process.[30] In 2011-2012, a number of utilities in the southwestern United States sought approval to reform their queue administration and Interconnection Request processing through adoption of cluster studies and other reforms.[31] Most notably, in 2011, Public Service Company of New Mexico, Inc. ("PNM") filed a request to reform its interconnection queue by transitioning from a first-come, first-served serial study process to a first-ready, first-served cluster study process to clear a significant backlog of pending interconnection requests.[32] PNM proposed to conduct cluster interconnection studies via a preliminary interconnection system impact study queue, as well as a separate definitive interconnection system impact study queue.[33] The preliminary queue was intended to provide an optional preliminary study that would help customers refine interconnection requests and determine a project's economic feasibility before entering the definitive queue

[29] *Order Accepting Tariff Revisions,* 161 FERC 61,123 (2017) (approving revisions to ISO New England's Open Access Transmission Tariff to incorporate a methodology for studying interconnection requests as a cluster rather than individually, as well as for allocating certain network upgrade costs needed to accommodate those interconnection requests on a clustered basis, when a specified set of conditions are present in the interconnection queue).

[30] Duke and stakeholders discussed many of these prior queue reform efforts during Stakeholder Meeting #1 (see March 28, 2019, presentation filed in support of the Duke Queue Reform Update), while Stakeholder Meeting #6 focused exclusively on FERC's Order approving PSCo's queue reform initiatives. *See December 16, 2019 Webinar #2 Review of 12/4/19 FERC Order on PSCo Filing,* as filed in support of the DEC and DEP Motion for Extension of Time to File Queue Reform Proposal (filed Feb. 21, 2020).

[31] *See, e.g., Ariz. Pub. Serv. Co.*, 137 FERC ¶ 61,099 (2011) (approving Arizona Public Service Companies' LGIP revisions implementing standardized six-month cluster studies and increasing initial deposit amounts for existing interconnection requests for which a feasibility study had not yet been commenced); *El Paso Elec. Serv. Co.*, 137 FERC ¶ 61,101 (2011) (approving El Paso Electric Company's revised LGIP implementing six-month queue cluster windows and requiring increasingly non-refundable study deposits for requests which had not executed a feasibility study agreement); *NV Energy, Inc.*, 142 FERC ¶ 61,165 (2013) (approving Nevada Power Company's proposal to create a pre-application requirement intended to ensure that interconnection customers had obtained the proper land permits for their projects, to eliminate feasibility studies, to adjust the required deposit amounts, and to group requests into standardized six-month clusters).

[32] *Pub. Serv. Co. of N.M. Tariff Filing,* FERC Docket No. ER11-3522-000 (filed May 5, 2011).

[33] *Pub. Serv. Co. of N.M.*, 136 FERC ¶ 61,231 at PP 12-14 (2011) ("PNM Queue Reform Order").

stage, while the definitive queue was intended to study only commercially viable projects that are ready to proceed to an interconnection agreement. In order to discourage speculative projects from entering the definitive queue, PNM established a form of readiness milestone requirements, including significantly increased deposit requirements, mandatory site control demonstration, and increased technical information requirements.[34] In approving PNM's queue reform initiatives and proposed cluster study approach, FERC found that the clearing of PNM's interconnection queue backlog as soon as possible would be beneficial to all customers seeking interconnection and would enable a more efficient interconnection process going forward. FERC also determined that it was necessary for all existing projects that had not yet executed a Facilities Study agreement to be required to transition to the cluster study approach, in order to ensure that more speculative, early stage projects did not remain in the serial queue, because those projects could continue to clog the queue.[35]

More recently, in a series of filings with FERC in 2018 and 2019,[36] PSCo sought approval of a comprehensive queue reform proposal to address its queue backlog and create a more effective set of interconnection procedures by transitioning to a first-ready, first-served Cluster Study approach called the "Definitive Interconnection Study Process." [37] Among other things, PSCo proposed: (1) to provide interconnection customers with the option of receiving informational interconnection studies (rather than submit an interconnection request in order to obtain such information); (2) to replace the *pro forma*

[34] *Id.* at PP 15, 21-23.
[35] *Id.* at PP 72-76 & n.37.
[36] PSCo initially petitioned FERC for approval of significant Queue Reform proposals in November 2018, which FERC denied by Order issued January 31, 2019. *Pub. Serv. Co. of Colo.*, 166 FERC ¶ 61,076 (2019), *reh'g denied*, 167 FERC ¶ 61,141 (2019). PSCo subsequently refiled its proposed Queue Reform proposal with FERC in September, 2019 in FERC Docket Nos. ER19-2774-000 and ER19-2774-001.
[37] *See generally, PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182.

serial study process with a cluster-based Definitive Interconnection Study Process and to administer a multi-phase Definitive Interconnection System Impact Study or "DISIS;" (3) to require interconnection customers participating in the DISIS to comply with increasing non-financial "Readiness Milestones" to show that their projects are making progress toward commercial operation, or, alternatively, to provide increasing financial security in lieu of demonstrating readiness; (5) to impose withdrawal penalties on customers that exit the Definitive Interconnection Study Process and cause harm to other customers within the DISIS cluster study; (6) to clarify existing Site Control requirements, and (7) to adopt transition procedures for processing PSCo's existing backlog of requests by establishing a transitional serial process for later stage projects that have executed a Facilities Study Agreement and a transitional cluster process for earlier stage projects.

In December 2019, FERC issued its Order approving PSCo's transition to the proposed DISIS process. [38] FERC specifically found that PSCo had demonstrated that its proposed study deposits and cost allocation methodologies were consistent with or superior to the *pro forma* LGIP,[39] noting that the increased study deposit amounts and increasing readiness requirements resulted from a comprehensive stakeholder process and were reasonable for obtaining and keeping a queue position.[40] FERC also found the proposed financial security requirement reasonable by increasing interconnection customers'

[38] *Id*.

[39] As background, Order No. 2003 (which establishes FERC's *pro forma* LGIP) requires that interconnection customers pay the actual costs of their studies; FERC agreed with PSCo and commenters that the proposed study deposit amounts were reasonable for obtaining and keeping a queue position and complied with Order No 2003. *Id.* at P 36 (citing Order No. 2003, 104 FERC ¶ 61,103 at P 37 (2003)). FERC's reasoning was supported by its 2008 Technical Conference Order which was issued in response to concerns about the effectiveness of queue management and suggested that increasing the requirements for obtaining and keeping queue position, such as increasing deposit amounts, assisted in speeding up queue processing was consistent with the goals of Order No. 2003. *See generally, Order on Technical Conference*, 122 FERC ¶ 61,252 at P 3 (2008).

[40] *PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182 at P 36.

demonstration to obtain and keep a queue position, while at the same time, not being so high as to deter interested projects from initiating interconnection requests.[41] In addition, FERC approved PSCo's proposed non-financial readiness milestones and alternative financial security option in lieu of the readiness milestones, finding that the "readiness milestones should help make the interconnection process more efficient for interconnection customers with projects that are ready to proceed through the queue, i.e., first-ready, first-served approach, and PSCo's proposed options will provide interconnection customers with the flexibility to employ a variety of business models."[42] Finally, FERC found that the imposing incrementally increasing withdrawal penalties for Interconnection Customers exiting the Definitive Interconnection Study Process and using the withdrawal penalty revenue to fund restudy costs is reasonable given that it increases requirements to keep queue position and would offset the significant cost of restudies for other customers caused by a customer's withdrawal.[43]

Specific to PSCo's proposed transitional process for existing interconnection customers, FERC approved the process, finding that "the transition process will allow more advanced projects to move forward in an efficient and timely fashion under the transitional serial process if they choose, while allowing other projects currently in the queue to move ahead under either the transitional cluster process or a future DISIS cluster."[44] Notably, the transitional serial and transitional cluster processes both required projects to immediately make definitive and significant financial commitments to achieve commercial operation with late stage customers proceeding under the transitional serial process being

[41] *Id.* at PP 49-51.
[42] *Id.* at P 50.
[43] *Id.* at P 51.
[44] *Id.* at P 67.

obligated to prepay 100 percent of the Upgrade and interconnection facilities costs identified in the system impact study report. Customers proceeding under the transitional cluster were required to submit $5 million in security to enter the transitional cluster, which would then be reconciled with the costs assigned to the project in the transitional cluster study.[45] Under the PSCo transition approach, these financial commitments were refundable if the interconnection customer withdrew during the transition process or otherwise does not reach commercial operation, subject to the customer paying its allocated study costs and a significant withdrawal penalty equal to nine times the interconnection customer's total study costs.[46] FERC found the PSCo transitional process to be just and reasonable and to provide a reasonable means to implement queue reform.[47]

Most recently, on January 31, 2019, PacifiCorp submitted a queue reform proposal to FERC, requesting approval to transition that utility's LGIP and SGIP from a serial study process to a definitive interconnection Cluster Study process similar to the process recently approved for PSCo.[48] The PacifiCorp queue reform proposal incorporated many design elements of the PSCo definitive interconnection study process, including offering informational interconnection studies; establishing mandatory readiness and/or financial security requirements to progress through a multi-phase Cluster Study process; imposition of increasing withdrawal penalties for larger Interconnection Customers exiting the study

[45] *Id.* at P 65, fn. 83.
[46] *Id.*
[47] *Id.* at P 67.
[48] PacifiCorp submitted its Application in FERC Docket Nos. ER20-924-000 and ER20-924-001 on January 31, 2020. *See Order on Tariff Revisions,* 171 FERC ¶ 61,112 at P 1 (2020) ("Order on PacifiCorp Queue Reform Proposal"). Due to PacifiCorp's filing occurring after Stakeholder Meeting #7 where Duke and stakeholders discussed Duke's detailed Queue Reform Proposal, the PacifiCorp proposal did not significantly influence Duke's Queue Reform Proposal design, although there are numerous similarities.

process,[49] as well as a transition process where projects that had received a Facilities Study Agreement were eligible to either continue in the serial study process (subject to meeting readiness requirements) or could participate in a transitional cluster study with all other interconnection customers.[50] PacfiCorp also proposed an annual cluster study process versus PSCo's two Cluster Studies per year.[51] On May 12, 2020, FERC issued an order approving PacifiCorp's queue reform proposal, finding that the reforms "represent a just and reasonable solution to address the backlog of generation interconnection requests in [PacifiCorp's] queue."[52]

The Companies and stakeholders have reviewed PSCo's and other utilities' queue reform initiatives and have incorporated many of these reforms in order to address the unique issues confronting the Companies' interconnection queues in North Carolina and South Carolina. As explained further in Section IV below, the Companies' Queue Reform Proposal incorporates much of PSCo's recent queue reform Definitive Interconnection Study Process framework, but is tailored to the specific needs and concerns of DEC, DEP, and North Carolina and South Carolina stakeholders.

d. Queue reform need not apply to DENC

In addition to DEC and DEP, DENC is also a "Utility" under the NC Procedures responsible for processing all state-jurisdictional generating facilities requesting interconnection to its System. In response to the Commission's *Queue Reform Order,* DENC filed comments on October 15, 2019, asserting that it did not take issue with the

[49] PacifiCorp proposed to implement queue reform for both large and small generators requesting interconnection service under its LGIP and SGIP; however, certain aspects of PacifiCorp's proposal including mandatory readiness requirements and withdrawal penalties will apply only to large generators.
[50] *Order on PacifiCorp Queue Reform*, at PP 19, 68-70, 106-107, 114-123.
[51] *Id.* at PP 19, 48.
[52] *Id.* at P 7, 47. FERC's approval was conditional on PacifiCorp modifying certain aspects of its initial Proposal, as further described in the Order.

Companies' plans to undertake queue reform revisions to the NC Procedures but "strongly recommend[ed] that implementation of any such grouping process be at the option of [DENC]."[53] Duke agrees. While DENC may have faced similar challenges to Duke in managing the surging growth of distribution level Interconnection Requests prior to 2017, a number of factors that necessitate queue reform for Duke do not similarly apply to DENC. For example, the CPRE Program and other major renewables procurement programs enacted by HB 589 apply only to the Companies.[54] Similarly, while the Companies administer the NC Procedures for purposes providing interconnection service to small power producer qualifying facilities ("QFs") up to 80 MW requesting to deliver their full output to the interconnecting utility, FERC has granted DENC a waiver from the obligation to purchase from QFs above 20 MW.[55] Interconnection to DENC's transmission system is also administered by PJM. Accordingly, the complexities of the Duke generator interconnection study process necessitating the Companies' Queue Reform Proposal are distinct from DENC's current administration of the NC Procedures Therefore, Duke has designed the transition mechanisms and the Definitive Interconnection Study Process described in Section IV to apply only to DEC and DEP, and to not impact DENC's administration of the NC Procedures using the traditional serial plus interdependency process that DENC uses today. In response to input from DENC during the stakeholder process, Duke also proposes to eliminate Section 4.3.4 as well as the revisions to Section 4.3.9, which the Commission approved at Duke's request to implement the CPRE-specific grouping study process.

[53] DENC Queue Reform Comments, at 1, Docket No. E-100, Sub 101 (Oct. 15, 2019).
[54] N.C. Gen. Stat. §§ 62-110.8, 62-155(f), 62-159.2.
[55] *Order Granting Application to Terminate Purchase Obligation,* 124 FERC ¶ 61,045 (2008).

IV. DUKE ENERGY QUEUE REFORM PROPOSAL

A. Queue Reform Objective

Duke's proposed Queue Reform Proposal, or the "Definitive Interconnection Study Process," will better accommodate ready or near-ready projects entering the queue by implementing two complementary concepts. First, the Definitive Interconnection Study Process will enable Duke to provide more flexibility for developers who desire to obtain interconnection and Upgrade cost information before entering the queue. Second, the Definitive Interconnection Study Process will provide greater certainty to developers that are ready to interconnect by incentivizing Interconnection Customers to submit only "ready projects" into the Definitive Interconnection Study Process, so that all Interconnection Customers can proceed through the interconnection process with fewer delays and disruptions.

By structuring the Definitive Interconnection Study Process to incentivize submission of only ready projects (and dis-incentivizing speculative or non-ready projects), the proposed Cluster Study process will group projects together to share System Upgrade costs and minimize the delays that can arise from interdependencies and cascading re-studies when higher queued projects withdraw from the queue.

The Definitive Interconnection Study Process represents a significant reform of the current serial interdependency study process under the NC Procedures and recognizes the collective experience and input of Duke and numerous stakeholders, as well as concepts and procedures adopted by other utilities (such as PSCo) to manage the growing challenges of processing expanding generator interconnection queues. Through the extensive Queue Reform stakeholder meetings held over the past eleven months, developers have expressed

that they value both flexibility and certainty in the interconnection process. The importance developers ascribe to these characteristics relates directly to the relative maturity of their projects. For instance, a developer pursuing a more speculative project early in the development process values a flexible interconnection process that provides avenues to obtain Upgrade cost information about interconnection before definitively committing to incur the costs associated with interconnection. Conversely, a developer with a "ready project" values a process that delivers efficiency and certainty with respect to study timelines and cost outcomes.

The Definitive Interconnection Study Process is designed to provide flexibility early in the process by providing customers the option to obtain information needed to make business decisions about a potential Generating Facility prior to entering the queue. Duke's proposal also promotes flexibility by providing Interconnection Customers an opportunity to obtain preliminary cost information early in the DISIS with lower readiness requirements and Withdrawal Penalty risk if the Interconnection Customer elects to exit the queue.

The proposed Definitive Interconnection Study Process will also provide improved certainty to all Interconnection Customers entering the queue by requiring increasingly definitive demonstrations of readiness (or increasing financial commitments in lieu of readiness) as projects advance through the DISIS Cluster process, as well as increasing penalties for Interconnection Customers that enter the DISIS and then withdraw and cause other ready projects that are delayed and required to be restudied. As described further below, an exiting Interconnection Customer's Withdrawal Penalty will be used to minimize the adverse impact on other Interconnection Customers within the DISIS Cluster by either

funding the Cluster Study costs of remaining Interconnection Customers within the DISIS Cluster or funding the Upgrade costs assigned to an Interconnection Customer that exits late in the study process.

Duke's proposed Definitive Interconnection Study Process also provides a robust process for developers to obtain the information needed to help make informed business decisions regarding whether their projects are definitively ready to proceed with interconnection both prior to and during the study process. Prior to entering the queue, the optional Informational Interconnection Study allows prospective Interconnection Customers to make more informed business decisions about the feasibility of a proposed Interconnection Request. Once an Interconnection Request is submitted and a project enters the Definitive Interconnection Study Process, Duke has also committed to a robust customer engagement process both prior to commencing the DISIS and after each DISIS study phase in order to provide Interconnection Customers with increasingly detailed information regarding the timing and cost of the proposed interconnection.

In sum, the Definitive Interconnection Study Process is designed to meet the queue management challenges currently being experienced in North Carolina and will enable each Interconnection Customer to continue to refine its understanding of its own project, individually and in relation to other potential projects in the DISIS Cluster, while increasing the certainty for all Interconnection Customers through increasing readiness and/or financial commitments designed to ensure all projects within the DISIS Cluster will pay their allocated portion of System Upgrades and achieve commercial operation. The remainder of this section discusses the major Queue Reform provisions Duke proposes to implement the Definitive Interconnection Study Process under the NC Procedures.

B. Major Provisions of the Definitive Interconnection Study Process

i. Informational Interconnection Study (§ 1.4)

To support the proposed transition to a definitive first-ready, first-served study process where Interconnection Customers are required to make increased financial and project readiness commitments earlier in the interconnection process, Duke proposes that Transmission Level Interconnection Customers be able to preliminarily evaluate interconnection feasibility and cost by requesting a customizable Informational Interconnection Study prior to submitting an Interconnection Request.[56] New Section 1.4 details the Informational Interconnection Study process available to prospective Transmission Level Interconnection Requests, which is similar in concept to the Section 1.3 Pre-Application Report option approved by the Commission in 2015.[57]

Pursuant to new Section 1.4, a prospective Transmission Level Interconnection Customer can request that Duke perform an Informational Interconnection Study at any time prior to submitting an Interconnection Request and at the Interconnection Customer's cost.[58] The prospective Interconnection Customer would submit an Informational

[56] Although Duke offers the Informational Interconnection Study so that Interconnection Customers can evaluate their Interconnection Request prior to entering the queue, Duke does not require that Interconnection Customers must complete an Informational Interconnection Study prior to entering the queue and proceeding to the Definitive Interconnection Study Process. Duke acknowledges that developers may have other means to evaluate optimal interconnection locations and may incorporate such considerations as part of their own business planning to determine whether a project is ready to enter the Definitive Interconnection Study Process.

[57] Based upon stakeholder feedback, Duke will also continue to offer Pre-Application Reports to Transmission Level Interconnection Customers under Section 1.3. However, the information provided in a Pre-Application Report is limited to readily available System information and does not require Duke to undertake any studies or to assess the impact of interconnecting a prospective Generating Facility on the System.

[58] Allowing a prospective Interconnection Customer to contract for an Informational Interconnection Study "at any time" allows the developer to evaluate a prospective Generating Facility either during the 180 day DISIS Request Window prior to a DISIS Cluster commencing or while an earlier DISIS Cluster is underway. Duke (or its designated contractor) will evaluate the prospective Generating Facility using the current Base Case model at the time the Informational Interconnection Study request is made.

Interconnection Request Form and then enter into an Informational Interconnection Request Agreement with the Utility. (§§ 1.4.2-14.3, Attachment 4). The Informational Interconnection Study allows a prospective Transmission Level Interconnection Customer to study almost any interconnection scenario, including the evaluation of different points of interconnection, voltage, and size of a potential Generating Facility. The optional Informational Interconnection Study process may also be used to evaluate the impact of other clustered generation on a specific Interconnection Request. For example, an Informational Interconnection Study may identify the costs associated with a 50 MW request, assuming 150 MW of other requests are proposed in a future DISIS Cluster on the same transmission line or in the same area of the Utility's Transmission System.

The Informational Interconnection Study scope may be limited, much like a traditional Feasibility Study, or may be expanded to encompass a full System Impact Study analysis that includes fully analyzing the power-flow, voltage, stability, and short circuit impacts of the proposed Generating Facility on the System. (§1.4.2). Importantly, Informational Interconnection Studies are non-binding and for informational purposes only (similar to a Section 1.3 Pre-Application Report) and a prospective Interconnection Customer must still enter the Interconnection queue and be studied as part of a Cluster Study. (§1.4.4). Because of the varied scope of these studies, the actual costs and time to complete the Informational Interconnection Study may vary. Consistent with PSCo's approved Informational Interconnection Study process, Duke proposes to require a $10,000 deposit for the Informational Interconnection Study subject to true-up based on actual costs.[59] Based upon the scope of study agreed upon between the Utility and prospective

[59] *Order on Tariff Filing,* 169 FERC ¶ 61,182, at P 10 (2019).

Interconnection Customer, the Utility will provide a non-binding good faith estimate of the timing and cost of completing the Informational Interconnection Study at the time the Utility transmits the Informational Interconnection Study Agreement for execution (§1.4.2). At the request of stakeholders, Duke also plans to develop a standardized Informational Interconnection Study scope of work to be offered at a predetermined cost and time to complete.[60] The standardized Informational Interconnection Study scope(s) of work will be posted on the Company's interconnection website.

ii. Definitive Interconnection Study Process Overview

As explained in the Companies' Queue Reform Update, the basic building block of Duke's Queue Reform framework is to evaluate the system impacts and associated upgrade costs of all Interconnection Requests entering the queue through a grouping or "Cluster Study." (*See* NC Procedures, Attachment 1 Glossary of Terms now defining "Cluster Study").[61] Unlike the current serial process, where each Interconnection Request is generally studied serially based on the time the Interconnection Request is submitted, a Cluster Study approach enables multiple Interconnection Customers to be studied at the same time. Similar to the Cluster Study process recently adopted by PSCo, Duke proposes to reform its queue administration and System Impact Study process by implementing a multi-phase Definitive Interconnection Study Process.

As introduced in Section III and discussed further in Section VI below, Duke plans to study all Interconnection Customers (NC, SC, and FERC) through the same Definitive Interconnection Study Process, subject to obtaining needed regulatory approvals.

[60] Duke is currently evaluating contracting with third-party vendors to complete the Informational Interconnection Study, which will inform the cost of the standardized scope of work to be offered.
[61] Duke Queue Reform Update, at 3.

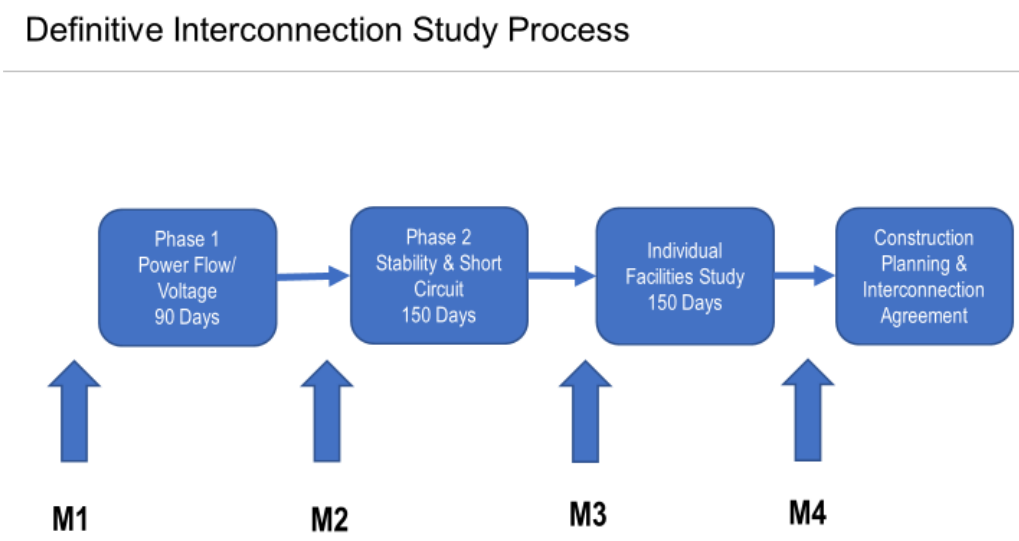
However, as explained in Duke's Queue Reform Update, net energy metering ("NEM") projects as well as power export Interconnection Customers up to two hundred and fifty kilowatts (<250 kW) will be exempted from the Definitive Interconnection Study Process, providing a simpler and likely faster path to interconnection for such customers. All QF Interconnection Customers above 250 kW will continue to be evaluated for potential Transmission System impacts through the Section III study process, and, if identified, will be informed of the need to enter the Definitive Interconnection Study Process.[62]

The Definitive Interconnection Study Process will occur annually and consists of four main phases: (1) the 180-Day DISIS Request Window, (2) an initial pre-DISIS Customer Engagement Window ("Customer Engagement Window"), (3) the DISIS, consisting of Phase 1, Phase, 2 and, potentially Phase 3 studies, and (4) Facilities Study. Under the Definitive Interconnection Study Process, the risk of project delay and need to restudy Interconnection Requests is managed by requiring increasing levels of project readiness and more significant financial commitments as Interconnection Customers move through the process. Interconnection Customers must meet specified project milestones that demonstrate increasing readiness to achieve commercial operation (or increasing financial commitment where readiness cannot be demonstrated) over the course of the Definitive Interconnection Study Process. The milestone or increased financial commitment must be satisfied before moving to the next phase or the Interconnection Request will be withdrawn from the queue, but may re-enter a future Cluster Study. For example, as shown in Figure 6 and explained in greater detail below, Readiness Milestone 1 ("M1") must be satisfied before moving to DISIS Phase 1, Readiness Milestone 2 ("M2")

[62] Duke Queue Reform Update, at 7.

must be satisfied before moving to DISIS Phase 2, Readiness Milestone 3 ("M3") must be satisfied before moving to the Section 4.5 Facilities Study and Readiness Milestone 4 ("M4") must be satisfied before moving to the Section 5 Construction Planning and Interconnection Agreement execution phase. Figure 6, which is also proposed to be included in the NC Procedures as Attachment 8-A, provides an overview of the Definitive Interconnection Study Process:

Figure 6



1. Customer Enrollment During DISIS Request Window (Section 4.4.1)

Prior to commencing the DISIS, each Utility will offer enrollment into the upcoming annual DISIS Cluster Study during a 180-day DISIS Request Window. (§ 4.4.1). During this period, Interconnection Customers may submit Interconnection Requests to be included in the upcoming DISIS Cluster.[63] The DISIS Request Window will be open each

[63] Interconnection Customers will continue to receive a Queue Number for administrative purposes; however, Section 1.8.1 makes clear that queue priority is at the Cluster Study level such that all Interconnection Requests studied in a single Cluster Study shall be considered equally queued. Section 1.8.3 also makes clear

year from January 1 to approximately June 30 annually.[64] If one or more valid Interconnection Requests are received, Duke will commence the initial Customer Engagement Window prior to initiating the DISIS.

2. Increased Study Deposits for Larger Interconnection Requests (Section 1.5.1.2)

To enter the Definitive Interconnection Study Process and be studied during a DISIS Cluster, Interconnection Customers must submit a valid Interconnection Request before the close of the DISIS Request Window. (§ 1.5.2, 4.4.1). Duke is not proposing material revisions to the requirements to establish a valid Interconnection Request, except for changes to study deposit amounts for larger Interconnection Customers above 20 MW. As discussed in Section III above, the Commission established the current $20,000+ $1/kW study deposit in the *2015 NC Procedures Order* at a time when the vast majority of Interconnection Customers were proposing distribution-connected Generating Facilities below 20 MW. Due to the increased complexity and cost of administering the Definitive Interconnection Study Process, as well as the Commission's more recent direction for Duke to recover to the greatest extent possible interconnection process related costs from Interconnection Customers[65], Duke is proposing to modify the initial study deposits using a tiered approach as follows:

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that the interdependency study prioritization provisions do not apply where a Utility is administering a Definitive Interconnection Study Process.

[64] As further discussed in Section V and VI below, Duke also plans to seek SCPSC and FERC approval to transition all Duke Interconnection Customers to a consistent Definitive Interconnection Study Process. In the interest of transparency, Duke identifies the potential that the initial DISIS Request Window may need to be extended beyond June 30, 2021, to obtain all needed regulatory approvals and to complete the transition study process. Duke plans to seek a waiver from the Commission if these circumstances arise.

[65] *2019 Interconnection Order*, at 18 (directing "the Utilities, to the greatest extent possible, to continue to seek to recover from Interconnection Customers all expenses (including reasonable overhead expenses) associated with supporting the generator interconnection process under the NC Interconnection Standard."

Figure 7

Size of Project Associated with Interconnection Request	Amount of Deposit
Less than 20 MW	$20,000+ $1/kW
Greater than 20 MW, But less than 50 MW	$35,000 + $1/kW
Greater than 50 MW	$50,000 + $1/kW

These deposit amounts are lower than the initial deposit amounts required under the PSCo Definitive Study Process[66] and were agreed to as part of the recent stakeholder process. The tiered approach to the study deposit is designed to balance the burden of requiring a higher upfront study deposit to establish an Interconnection Request with the recognition that Interconnections Customers are obligated to pay the Utility's actual costs of implementing the Definitive Interconnection Study Process.

Duke has also incorporated clarifying language in Section 1.5.1.2 that the study deposit shall be applicable towards the Utility's cost of administering the generator interconnection process under the Revised Standard. As directed by the Commission in 2016-2017[67] and again in the *2019 Interconnection Order*[68], Duke has been charging Interconnection Customers for "administrative overheads," which reflect the specific labor and technology costs incurred to support the interconnection process. At the request of stakeholders, Duke has agreed to provide the Commission with an annual update of the interconnection-related overhead and administration costs that are being allocated amongst all Interconnection Customers. Duke plans to submit this information to the Commission

[66] PSCo's study deposit amounts are as follows: $75,000 for requests between 20 MW and 50 MW; $150,000 for requests 50 MW and greater, but less than 200 MW; and $250,000 for requests of 200 MW and greater. *PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at P 31.
[67] *See Order Approving REPS and REPS EMF Riders and REPS Compliance,* at 19, Docket No. E-7, Sub 1106 (Aug. 16, 2016); *Order Approving REPS and REPS EMF Riders and REPS Compliance*, at 18, Docket No. E-2, Sub 1109 (Jan. 17, 2017).
[68] *2019 Interconnection Order*, at 18.

on March 1 annually, along with the Company's current reporting of fee-related cost information, as required by the *2019 Interconnection Order*.

3. Pre-DISIS Customer Engagement Window (§ 4.4.1)

The initial Customer Engagement Window offers Interconnection Customers additional Cluster-specific information in order to inform their ongoing decision-making about whether to enter the DISIS. During this Customer Engagement Window, Duke will work with Interconnection Customers to verify data and obtain all information needed to build study models, cure any deficiencies in the Interconnection Request(s), and generally prepare for the start of the DISIS. (§§ 1.5.4, 4.2.5, 4.4.1).

Duke will also hold a Scoping Meeting for all current Interconnection Customers that entered the queue during the DISIS Request Window once the initial DISIS Customer Engagement Window has commenced. The purpose of the Scoping Meeting is to discuss the upcoming DISIS Cluster, including evaluating alternative interconnection options; to exchange information, including any available transmission data that would reasonably be expected to impact such interconnection options; to review such information; and to determine the potential feasible Points of Interconnection. At the close of this Scoping Meeting, the objective is for each Interconnection Customer to have a definitive project size and Point of Interconnection to facilitate an efficient Cluster Study. [69] Specifically, an Interconnection Customer must select a single definitive Point of Interconnection to be studied no later than the execution of the Definitive System Impact Study Agreement. (§ 4.2.5). In addition, an Interconnection Customer must also provide affirmation of site

[69] Interconnection Customers may also request an individual, customer-specific Scoping Meeting be held to discuss their individual project. An individual Scoping Meeting must be requested in writing no later than fifteen (15) Business Days after the close of the DISIS Request Window. *See* § 4.2.5.

control for the proposed Generating Facility site and for all required Interconnection Facilities to the designated Point of Interconnection no later than commencement of Phase 1 of the DISIS process described in Section 4.4.7.1. These requirements will ensure that the Interconnection Customer is increasingly committed to achieving commercial operation as it moves through the study process and that there are no site control-related impediments to constructing the proposed Generating Facility and building the facilities needed to deliver power to the designated point of interconnection to the Utility's System.

The pre-DISIS Customer Engagement Window is also designed to minimize the risk and cost for Interconnection Customers to withdraw from the process prior to the Utility commencing the DISIS Cluster Study—which is the point in the study process when other Interconnection Customers will increasingly be impacted by withdrawal. During this preliminary phase of the process, the Interconnection Customer has submitted an Interconnection Request and study deposit, but has not signed a DISIS Agreement or committed to M1 and, therefore, is not subject to a potential Withdrawal Penalty for exiting the queue. An Interconnection Customer withdrawing during the initial Customer Engagement Window would receive a refund of its initial Study deposit under Section 6.3, subject only to initial overhead and queue administration costs.[70] Prior to the conclusion of the initial Customer Engagement Window, Duke will provide an updated estimate on the anticipated allocated cost of completing the DISIS[71] and all Interconnection Customers electing to proceed into the DISIS Cluster must: (i) execute a Definitive System Impact

[70] Currently, the pre-System Impact Study overhead and queue administration costs are $3,000. These costs will likely increase due to the more robust customer engagement and scoping meeting process contemplated prior to the DISIS.

[71] The allocated cost to complete the DISIS is dependent upon how many Interconnection Customers enter the DISIS Cluster. Study cost allocation is addressed in Section 4.4.3 and is discussed further below.

Study Agreement; (ii) provide initial security equal to one (1) times the study deposit; and (iii) achieve the M1 readiness milestone or provide increased financial security (2 times the initial study deposit) in lieu of demonstrating readiness. (§§ 4.4.1, 4.4.10, 4.4.11).

4. DISIS (Sections 4.4.5 – 4.4.7)

The objective of the DISIS is to more expeditiously process all definitively-ready Interconnection Customers through a phased System Impact Cluster Study process while also minimizing the need to restudy projects' system impacts due to Interconnection Customers withdrawing, especially later in the study process. Once the DISIS is complete, Interconnection Customers proceeding to Facilities Study will be studied independently similar to the process that exists today.[72]

Section 4.4 has been added to implement the DISIS Cluster Study process for DEC and DEP, while pre-existing Section 4.3 will continue to govern the serial study process used by DENC.[73] Section 4.4. begins by outlining the procedures necessary for the initiation of a DISIS Cluster and allows for the implementation of the DISIS Request Window and Customer Engagement Window that occurs prior to the DISIS study phases. Pursuant to Section 4.4.5, an Interconnection Customer must execute a DISIS Agreement (included as Attachment 8-C to the Revised NC Procedures) no later than the close of the Customer Engagement Window or its Interconnection Request will be withdrawn. Once executed and the initial security and/or M1 commitments are made, an Interconnection Customer proceeds to the first phase of the DISIS.

[72] Due to the fact that all Interconnection Customers will complete the DISIS and enter the Facilities Study at the same time, Duke has extended the timeframe for completing Facilities Study to 150 Calendar Days. (§ 4.5.3).

[73] Based on feedback received from DENC during the stakeholder process, Section 4.3.4 and the modifications to Section 4.3.9 approved by the Commission in 2018 to implement the CPRE Grouping Study are proposed to be deleted.

Section 4.4.6 describes the scope of the DISIS. The DISIS consists of three discrete phases: (1) Phase 1 is an initial 90-day power-flow and voltage study, (2) Phase 2 is a detailed 150 day stability and short circuit study, and (3) Phase 3 provides for restudying of the power flow/voltage analysis, short circuit analysis, and/or a stability analysis, as needed, if an Interconnection Customer(s) withdraws from the DISIS Cluster or otherwise modifies its Interconnection Request such that the results of the DISIS are no longer accurate.[74]

Section 4.4.7 outlines the procedures Duke must follow to implement each phase of the DISIS, and describes the ongoing customer engagement and reporting process that will occur after Phase 1, Phase 2, and Phase 3 (if necessary) culminating in a final Post-DISIS Report and Report Meeting. Section 4.4.7 also identifies the timing for Interconnection Customers proceeding through DISIS to achieve Readiness Milestone M2 prior to Phase 2 (§4.4.7.2) and Readiness Milestone M3 at the conclusion of the DISIS and prior to Facilities Study. (§4.4.7.6). The Readiness Milestones that Interconnection Customers must achieve to proceed through each study phase are discussed in detail in section IV.B.8 below.

Pursuant to Section 4.4.8, at the close of the final phase of the DISIS, Duke will furnish a final DISIS study report to Interconnection Customers within the DISIS Cluster and post the report on Duke's website. In addition, Duke will convene an open meeting to discuss the study results and will make itself available for individual Interconnection

[74] If the Cluster is stable (e.g., no changes to the modeling assumptions), and if no Interconnection Requests withdraw after the Phase 2 study report is published, then the Cluster Study will omit the Phase 3 study. *See* Section 4.4.7.2.

Customer meetings as well. At this point, the DISIS will be completed and those Interconnection Customers wishing to proceed to Facilities Study may do so.

5. Expedited DISIS for Distribution-Level Interconnection Customers Not Causing or Contributing to Network Upgrades during Phase 1 (Section 4.4.7.1)

Duke has also designed the DISIS to accommodate distribution-level Interconnection Customers determined during the initial Phase 1 study not to cause or contribute to the need for Network Upgrades. (§4.4.7.1). Phase 1 is a high level power-flow and voltage analysis that preliminarily identifies the Network Upgrades required to interconnect all Generating Facilities within the DISIS Cluster. The results from DISIS Phase 1 provide the Interconnection Customer with an initial look at its costs to interconnect before determining whether to proceed to Phase 2 and provide Readiness Milestone M2. Where an Interconnection Customer is proposing to interconnect a Generating Facility to the Companies' distribution system and is determined through Phase 1 not to cause or contribute to the need for Network Upgrades requiring further transmission-level study in Phase 2, Duke will notify the Interconnection Customer during the post-Phase 1 Customer Engagement Window and offer to complete an individual distribution-level System Impact Study instead of proceeding further to Phase 2 of the DISIS. Under this process, distribution-level Interconnection Customers that do not cause or contribute to Network Upgrades can more expeditiously proceed to Facilities Study and an Interconnection Agreement versus awaiting completion of the more detailed Phase 2 Study (and potential Phase 3 re-studies) required through the DISIS Cluster Study. These projects also avoid DISIS costs after Phase 1, and will be directly assigned only their study costs to complete the distribution-level System Impact Study. (§4.4.3).

6. Resource Solicitation Cluster (Section 4.4.2)

As part of the transition to the Definitive Interconnection Study Process, Duke is also proposing to remove the CPRE grouping study provisions contained in pre-existing Section 4.3.4 and 4.3.9 (as discussed above and specifically requested by DENC). Section 4.4.2 will effectively replace these existing sections and govern the initiation and administration of a Resource Solicitation Cluster under the Definitive Interconnection Study Process, in order to administer a Commission-approved Competitive Resource Solicitation, such as the CPRE Program.

Pursuant to Section 4.4.2, Duke may administer the Resource Solicitation Cluster either separately from the annual DISIS Cluster or as part of the DISIS Cluster. The Resource Solicitation Cluster will respect queue position, which means that projects included in an already-initiated DISIS Cluster will be included in the Base Case models for the Resource Solicitation Cluster. Upgrades identified in the Resource Solicitation Cluster Study will be allocated to Interconnection Requests in that Cluster in the same manner that similar Upgrades are allocated to Interconnection Customers in a specific DISIS Cluster.

Similar to the existing Grouping Study provision, the inclusion of Resource Solicitation Cluster option will allow Duke flexibility to separately administer a CPRE-specific cluster study, which may prove necessary where the timing of the CPRE Program (or any other Commission-approved Resource Solicitation Cluster) does not align with an annual DISIS Cluster.

7. Allocation of Study Costs and Interconnection Facilities and Upgrade Costs (Sections 4.4.3—4.4.4)

Under the current serial interconnection study process, one hundred percent (100%) of study costs as well as the costs of Interconnection Facilities and Upgrades are directly

assigned to the individual Interconnection Customer being studied and causing the costs to interconnect. Transitioning to a Cluster Study process where multiple Interconnection Customers are being studied and are contributing to the need for System Upgrades necessitates allocation of (1) the costs of completing the DISIS amongst Interconnection Customers within a DISIS Cluster; and (2) the costs of common Upgrades required to interconnect multiple Interconnection Customers proceeding through the DISIS Cluster. Moreover, in addition to the efficiency improvements that can be achieved through the Definitive Interconnection Study Process, allocating the increasingly significant Upgrade costs of interconnecting new Generating Facilities to the DEC and DEP systems amongst all Interconnection Customers causing or contributing to the need for such Upgrades is likely to promote more efficient development of new Generating Facilities, rather than burdening the earliest-queued individual Interconnection Customer with the total cost as occurs under the serial interconnection study process that exists today. Sections 4.4.3 and 4.4.4 establish clear procedures for allocating study costs as well as Upgrade costs amongst Interconnection Customers proceeding under the Definitive Interconnection Study Process.

Section 4.4.3 describes the allocation of study costs for the DISIS Cluster. For the clustered DISIS portion of the Definitive Interconnection Study Process, study costs are allocated as follows: (1) ten percent (10%) of the applicable study costs to Interconnection Customers on a per capita basis based on number of Interconnection Requests included in the applicable Cluster; and (2) ninety percent (90%) of the applicable study costs to Interconnection Customers on a pro-rata basis based on requested megawatts included in the applicable Cluster.[75] For example, consider a 200 MW Cluster Study consisting of four

[75] Duke's proposed allocation of study costs is designed to allocate greater costs to larger Interconnection Customers within the Cluster and to thereby reduce the study costs allocated to smaller Interconnection

projects: two 80 MW Interconnection Requests, a 30 MW Interconnection Request and a 10 MW Interconnection Request. 10% of study costs would be allocated amongst the projects on a per capita basis, which would be allocated equally to each of the four request (2.5% to each request). For the other 90% of costs allocated on a pro rata basis, the costs would be allocated 40% to the 80 MW request (36% total costs), 15% to the 30 MW request (13.5% total cost) and 5% to the 10 MW request (4.5% total costs). This overall allocation results in each of the larger 80 MW Interconnection Requests being responsible for 38.5% of the study costs, while the smaller 30 MW and 10 MW Interconnection Requests would be responsible for 16% and 7% of the Cluster Study cost, respectively. Figure 8 below also depicts how the allocation of study costs would be derived for the four-project Cluster Study described above.

Figure 8

	200 MW Capacity in Cluster Study			
	80MW-Interconnection Request	80MW-Interconnection Request	30MW-Interconnection Request	10MW-Interconnection Request
10% on per capita allocation	10%*1/4=2.5%	10%*1/4=2.5%	10%*1/4=2.5%	10%*1/4=2.5%
90% on pro rata allocation	90%*80/200=36%	90%*8/200=36%	90%*30/200=13.5%	90%*10/200=4.5%
	38.5%	38.5%	16%	7%

Section 4.4.3 also provides that an Interconnection Customer electing to exit the DISIS prior to Phase 2 commencing would only be responsible for its allocated share of study costs for completing Phase 1; however, the exiting Interconnection Customer would

Customers. For comparison, PSCo's Definitive Interconnection Study Process weighted both the per capita and pro-rata megawatt components equally at 50%. *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at P 32.

potentially also be subject to a Withdrawal Penalty which would then be used to fund study costs of other Interconnection Customers remaining in the DISIS Cluster.[76] Where an Interconnection Customer proposes non-material changes to its Interconnection Request requiring limited project-specific restudy within the Cluster, those costs shall be directly assigned to the requesting Interconnection Customer.

Section 4.4.4 establishes the allocation procedures that Duke will use to equitably allocate Upgrade costs (and potentially the cost of joint Interconnection Facilities) to Interconnection Customers within the Cluster based on the relative contribution of the Interconnection Customer to the need for the Upgrades. Section 4.4.4 describes the allocation of Interconnection Facilities and Upgrades Costs within the DISIS Cluster, with the cost of Network Upgrades and Distribution Upgrades being allocated based on the proportional impact of each individual Generating Facility in the Cluster Studies on the need for such Upgrades. The cost of Interconnection Facilities continue to be directly assigned to Interconnection Customer(s) using such facilities, unless multiple Interconnection Customers are connecting to the Utility's System through shared Interconnection Facility(ies), which shall be allocated based on the number of Generating Facilities sharing that Interconnection Facility on a per capita basis.[77]

[76] As mentioned in Section IV.B.5 above, a distribution-level Interconnection Customer that does not cause or contribute to Network Upgrades and that elect to proceed with a distribution-only System Impact Study would also be treated as exiting the DISIS Cluster after Phase 1 and would only be allocated its Phase 1 study costs. The remainder of its System Impact Study costs would be directly assigned similar to the process today.

[77] Duke's proposed approach to allocating Network Upgrade costs within the Cluster is consistent with the PSCo approach, with only limited modifications to terminology being introduced in Section 4.4.4. *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC¶ 61,182, at PP 33-34.

8. Readiness Milestones (Section 4.4.10)

To address the challenges of the existing serial interconnection process discussed in Section III above, the proposed Definitive Interconnection Study Process is a "first-ready, first served" process that prioritizes projects that are ready to interconnect. Therefore, it is necessary to require Interconnection Customers to demonstrate increasing project readiness as part of the interconnection process to show that they are making sufficient progress toward achieving commercial operation. Fundamentally, the purpose of mandatory Readiness Milestones is to require each Interconnection Customer in the Cluster to demonstrate that a specific project is ready to move forward with interconnection in order to make it less likely that the Interconnection Customer will withdraw from the queue, thereby harming other Interconnection Customers proceeding in the same Cluster or a later Cluster.

Duke has developed the proposed Readiness Milestones with the goal of allowing all viable projects seeking interconnection under the NC Procedures to move through the queue, while also providing developers with the flexibility to demonstrate readiness in a variety of ways. Project readiness has been a topic of significant discussion during the stakeholder process, and both Duke and stakeholders support offering non-financial readiness demonstration options as well as the alternative option of providing additional security in lieu of providing a demonstration of readiness. Providing both non-financial readiness demonstrations as well as an increased financial security option in lieu of readiness affords Interconnection Customers flexibility to pursue a variety of business models and to elect the timing of when and how to definitively commit to a project, while also protecting other Interconnection Customers from the risk of non-ready projects staying in the Cluster Study and then withdrawing and causing restudies. As part of this balancing

of flexibility and certainty for all Interconnection Customers in the Cluster, it is also important that the readiness demonstrations increase as Interconnection Customers advance through the study process commensurate with the increasing risk and potential harm to other Interconnection Customers from restudies and delays that could be caused by an Interconnection Customer's withdrawal.

Section 4.4.10 describes the options available for Interconnection Customers to provide the M1, M2, M3, and M4 non-financial Readiness Milestones that must be satisfied (unless additional security is provided) as Interconnection Customers progress through the Definitive Interconnection Study Process. All Interconnection Customers electing to enter the DISIS must provide initial security equal to 1 times their Section 1.5.1.2 study deposit amount at M1 as well as provide an initial demonstration of non-financial project readiness (or additional financial security in lieu of demonstrating readiness as discussed further below).

To satisfy non-financial project readiness for M1 and M2, the Readiness Milestone options are consistent and allow an Interconnection Customer to demonstrate readiness by providing evidence of one of the following:

a) Executed term sheet (or comparable evidence of legally enforceable obligation) related to a contract, binding upon the parties to the contract, for sale of the Generating Facility's energy, where the term of sale is not less than five (5) years, or
b) Reasonable evidence the project has been selected by the Utility in a Resource Plan or is offering to sell its output through a Resource Solicitation Process.

The first readiness demonstration option at M1 allows a project to satisfy readiness by showing a definitive intent to enter into a long-term contract for sale of the Generating Facility's output over a period of five years or longer. An Interconnection Customer with an executed term sheet (such as under the Green Source Advantage Program) or that has

established a legally enforceable obligation via a Commission-approved Notice of Commitment Form to sell its output to Duke under PURPA, would meet this requirement. Similarly, an Interconnection Customer that is offering to sell its output through a Resource Solicitation Process, such as the CPRE Program, also meets these readiness requirements along with a Generating Facility that has been selected by the Utility under its most recent Integrated Resource Plan ("(IRP") for development as part of the Utility's more definitive Short Term Action Plan.[78] Achieving these initial readiness demonstrations would allow an Interconnection Customer to satisfy the Readiness Milestones up through the completion of the DISIS prior to proceeding to a Facilities Study without any increase in financial security beyond its initial security required to enter the DISIS.

The M3 readiness milestone (or increased security in lieu of demonstrating readiness) is required at the end of the DISIS Cluster prior to Interconnection Customers executing a Facilities Study Agreement. (§ 4.4.7.6). At this point in the process, the Utility has (i) completed the Phase 1 and more detailed Phase 2 studies, (ii) completed any Phase 3 restudies that are required as a result of project withdrawals or other changes to projects that occurred during the DISIS; (iii) issued a Phase 1 Report, a Phase 2 Report and a final DISIS Report detailing the Upgrades and Interconnection Facilities allocated or assigned to each project in the Cluster; and (iv) held three Customer Engagement periods to discuss the progress of the DISIS Study and to review the interim study reports and final DISIS Report with all Interconnection Customers within the Cluster. In short, significant work

[78] Duke anticipates that there will only be limited circumstances where interconnection of a Duke-owned generating facility will be subject to the Commission's jurisdiction and be studied under the NC Procedures. However, including this IRP-based readiness option to proceed through DISIS is consistent with PSCo's queue reform structure and should be included where a Duke-owned distribution-level interconnection is studied under the NC Procedures. *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at P 39.

has been undertaken by the Utility to complete the DISIS and significant time—approximating 300 days or more if restudy is required—has passed since the Interconnection Customers initially entered the Cluster. Therefore, it is of great importance at this stage of the process for Interconnection Customers to further increase their readiness commitment to achieving commercial operation (or to provide increased financial security in lieu of demonstrating readiness) in order to minimize the potential for future withdrawals after the Facilities Study commences. Accordingly, the M3 readiness milestone requires projects showing readiness to either have executed a long-term contract for the sale of the Generating Facility's energy[79] or to have received a contract award in a Resource Solicitation Process, such as the CPRE Program. A Utility-sponsored project selected in the Utility's most recent IRP would continue to demonstrate readiness at M3.

The options to show definitive readiness required at M3 are also required at M4, which effectively allows a project that could not demonstrate readiness at M3 (and provided financial security in lieu of demonstrating readiness) to reduce its financial security by demonstrating readiness at M4. (§ 4.4.10.4) M4 is required within ten (10) Business Days of the Utility's issuance of the Facilities Study Report. At M4, all Interconnection Customer must provide increased financial security equal to the greater of 100% of the assigned System Upgrades in the Facilities Study Report or a minimum deposit based upon the Interconnection Customer's nameplate capacity prior to the Utility commencing the Construction Planning and IA development process in Section 5. The

[79] At the request of stakeholders, Duke has also included a short 20 calendar day grace period for Interconnection Customers to finalize a PPA after the M3 due date, where the Interconnection Customer has initiated a dispute regarding the Utility's failure to provide an executable PPA or to execute the contract tendered by the Interconnection Customer. By the end of the 20 calendar day period, the Interconnection Customer must either have executed a mutually-agreeable PPA, filed a formal Complaint with the Commission, or provided the increased financial security in lieu of demonstrating readiness. *See* § 4.4.10.3.

minimum deposit amounts were agreed to through the stakeholder process and increase based upon the nameplate capacity of the Interconnection Customer's proposed Generating Facility. The minimum deposit levels as identified in Figure 9 (the "Minimum Deposits") are also used in the Transitional Serial and Transitional Cluster process discussed in Section V below.

Figure 9

Size of Project Associated with Interconnection Request	Minimum Deposit Amount
Less than 5 MW	$100,000
Greater than 5 MW, But less than 10 MW	$150,000
Greater than 10 MW, But less than 20 MW	$200,000
Greater than 20 MW, But less than 50 MW	$500,000
Greater than 50 MW	$800,000

As discussed further below, demonstrating readiness at M4 caps the Withdrawal Penalty risk that would be imposed if the Interconnection Customer withdraws after M4 and prior to funding its assigned Upgrades and Interconnection Facilities under its Interconnection Agreement.

9. Provision of Security in lieu of Demonstrating Project Readiness (Section 4.4.11)

As described above, the Definitive Interconnection Study Process is designed to afford Interconnection Customers flexibility to determine when and how to definitively commit to achieving interconnection and commercial operation of the proposed Generating Facility, while providing all Interconnection Customers increasing certainty as they progress through the Cluster Study process. Requiring increasing Financial Security for non-ready projects in conjunction with the imposition of Withdrawal Penalties where an

Interconnection Customer withdraws its Interconnection Request after the DISIS commences are key components of the Definitive Interconnection Study Process. Because no demonstration of readiness is provided, the additional security helps to prioritize projects under the first-ready, first-served interconnection process that are most committed to achieving commercial operation.[80]

Security equal to one times the study deposit amount is required for all Interconnection Customers at M1 upon entering the Definitive Interconnection Study Process. (§ 4.4.1). This security is fully refundable to the Interconnection Customer when it reaches commercial operation or upon withdrawal (subject to settlement of all final invoices for which the security is being held).[81] The security must be in the form of an irrevocable letter of credit upon which the Utility may draw or cash. Where an Interconnection Customer cannot satisfy a Readiness Milestones during the study phases of the Definitive Interconnection Study Process, Section 4.4.11 provides for incrementally increasing security requirements at each milestone for an Interconnection Customer to continue to progress through the Definitive Interconnection Study Process. For entities that do not provide a demonstration of readiness, Duke proposes total security requirements, inclusive of the initial M1 security required for all Interconnection Customers to enter the Definitive Interconnection Study Process, equal two, three, and five times the study deposit for Readiness Milestones M1, M2, and M3 respectively. (§ 4.4.11). This means that the most amount of security that a non-ready project would be obligated to pay to proceed

[80] The concept of using increasing security to prioritize the study of projects that cannot achieve readiness criteria was recently approved by FERC in approving the PSCo Definitive Interconnection Study Process. *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at PP 51-53 (2019).

[81] If the customer withdraws prior to commercial operation, the security is returned after settling final invoices, which would include any applicable Withdrawal Penalty described in Section IV.B.10 below. To the extent the final invoices are not paid, the security may be used to offset any unpaid amounts and the balance is returned to the Interconnect Customer.

through Facilities Study would be $650,000 (five times the $130,000 study deposit amount for an 80 MW project) in addition to its initial study deposit at the time of Interconnection Request. Figure 10 provides a comparison of the total security required as an Interconnection Customer progresses from M1- through M4 depending on whether readiness is provided.

Figure 10

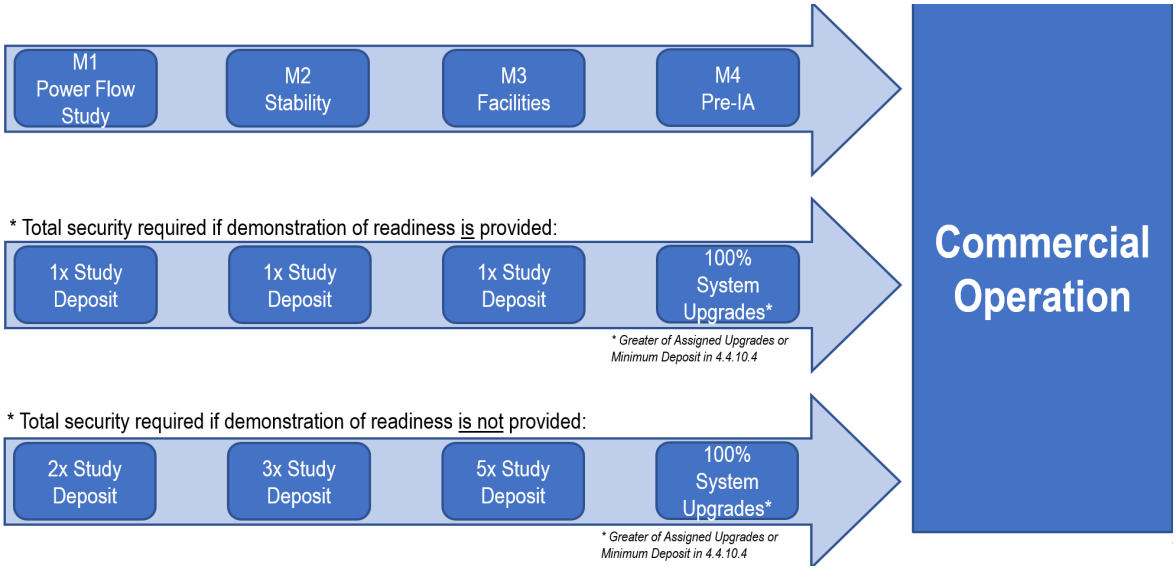


Figure 11 provides an example of the total security required at each milestone for a hypothetical 50 MW Interconnection Customer that does and does not demonstrate readiness and proceeds all the way to an Interconnection Agreement after M4.

Figure 11

Milestone	Total Security Required (Multiple of Section 1.5.1.2 Study Deposit*) If Demonstration of Readiness IS Provided This Security is provided under Section 4.4.1 to enter the DISIS	Total Security Required (Multiple of Section 1.5.1.2 Study Deposit*) If Demonstration of Readiness IS NOT Provided	Example: 50 MW facility; DOES NOT provide a Demonstration of Readiness (Assumes $3,000,000 in allocated Upgrade Costs)
M1	1x	2x	$170,000
M2	1x	3x	$255,000
M3	1x	5x	$425,000
M4**	Assigned Upgrade Costs	Assigned Upgrade Costs	$3,000,000
Post IA***	Assigned Upgrade Costs	Assigned Upgrade Costs	$3,000,000

*Security required is in addition to $85,000 Study deposit ($35,000 + (50x$1/kW)) required at the time of Interconnection Request.
** M4 would be inclusive of M3 Security so cash/letter of credit must be increased by $2,575,000
*** Post IA is intended to represent the existing Section 5.1.4 requirement to fund Upgrades within 60 Calendar Days of IA delivery by the Utility. Cash provided at M4 may be used to fund assigned Upgrades and Interconnection Facilities in IA.

Duke and stakeholders engaged in significant discussion regarding the appropriate amount of security at M4, which is required within ten (10) Business Days of the date the Facilities Study is issued. (§ 5.1.2). For both ready and non-ready projects, the security required at M4 is equal to the greater of 100% of the System Upgrade costs identified in the Interconnection Customer's Facilities Study Report or the Minimum Deposit amount.[82] (§§ 4.4.10.4; 4.4.11, 5.1.4). Importantly, for non-ready projects, the security for System

[82] Requiring the Minimum Deposit establishes an increased level of security from M3 for both ready and non-ready projects, and is designed to minimize the risk to other Interconnection Customers that an Interconnection Customer that is assigned minimal System Upgrades through the Definitive Interconnection Study Process proceeds to an Interconnection Agreement without an increased demonstration of readiness or financial commitment and subsequently withdraws.

Upgrades provided at M4 becomes non-refundable at this phase of the process as all other Interconnection Customers in the Cluster will be relying upon the Upgrades assigned to the Interconnection Customer in their Interconnection Agreements and would be significantly harmed if those Upgrades are not constructed.[83] For ready projects, the non-refundable prepayment obligation is capped by the Withdrawal Penalty at two million dollars. (§6.3.5.1(3)). This difference in treatment is based upon Duke's and stakeholder's expectation that an Interconnection Customer that makes the significant M4 readiness commitment (*e.g.,* executed negotiated QF PPA or selection in CPRE) and delivers a deposit of 100% of its System Upgrades is highly likely to achieve commercial operation.

10. Withdrawal Penalty (Section 6.3.5)

In conjunction with requiring Interconnection Customers to demonstrate increasing levels of readiness or to provide increased Financial Security as they progress through the interconnection process, the proposed Definitive Interconnection Study Process also promotes compliance with its "first ready, first studied" framework through imposition of a Withdrawal Penalty where an Interconnection Customer exits the queue and causes harm to other Interconnection Customers. (§ 6.3.5). The Withdrawal Penalty structure is based upon the PSCo Definitive Interconnection Study Process and is designed to balance the legitimate interests of all Interconnection Customers to have the ability to make the business decision to withdraw from the study process while providing redress for other

[83] *See* § 6.3.5.2(4) (". . . Withdrawal Penalty shall be higher of the non-refundable pre-payment for the estimated System Upgrades allocated to the Interconnection Customer in the Facilities Study Report or five (5) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. There is no cap on the M4 Withdrawal Penalty amount for non-ready projects.")

Interconnection Customers that are adversely impacted by an Interconnection Customer's withdrawal.[84]

To achieve this balance, there are a number of circumstances where a Withdrawal Penalty would not be imposed under Section 6.3.5. If an Interconnection Customer reaches commercial operation, there is obviously no Withdrawal Penalty. Similarly, if the Interconnection Customer's withdrawal does not harm other customers within the Cluster (such as by requiring restudy or shifting costs to other customers), then there is no Withdrawal Penalty. There would also be no Withdrawal Penalty imposed where the Interconnection Customer is faced with a significant increase in Upgrade costs between DISIS phases or between the DISIS (phase 2) and Facilities Study Report.

As detailed in Section 6.3.5, Duke would impose a Withdrawal Penalty only if (1) the withdrawal negatively affects the timing or cost of equal or lower queued projects; (2) the cost responsibility for System Upgrades identified for the withdrawing Interconnection Customer increased by less than twenty-five (25%) percent between the prior and the current DISIS study reports (e.g., Phase 1 and Phase 2 or Phase 2 and a Phase 3 restudy; and, (3) the cost responsibility for System Upgrades identified for the withdrawing Interconnection Customer increased by less than one hundred percent (100%) between the Phase 2 DISIS report and the Facilities Study report. (§ 6.3.5). More simply, an Interconnection Customer is subject to a Withdrawal Penalty if it elects to withdraw from the interconnection process and the withdrawal has a negative impact on other Interconnection Customers and where the withdrawing Interconnection Customer's

[84] The Withdrawal Penalty concept and structure is closely modeled on the PSCo process. *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at PP 44-46, 51.

assigned System Upgrade costs did not increase significantly between phases of the DISIS or over the Definitive Interconnection Study Process.

Calculation of the Withdrawal Penalty amount is dependent on (1) whether a demonstration of readiness was provided, and (2) the phase of the Definitive Interconnection Study Process that the Interconnection Customer is in at the time of withdrawal. (§ 6.3.5.1) Figure 12 summarizes the applicable Withdrawal Penalty at each phase of the Definitive Interconnection Study Process.

Figure 12

Phase of Withdrawal	Readiness Demonstration Provided?	Total Withdrawal Penalty (if greater than study deposit)	Cap on Withdrawal Penalty
Pre-DISIS	N/A	None	N/A
Post M1	Yes	1 times allocated study costs through Phase 1	No Cap
Post M2	Yes	Higher of study deposit or 1 times allocated study costs through Phase 2	No Cap
Post M3	Yes	Higher of study deposit or 1 times allocated study costs through Facilities Study	No Cap
Post M4	Yes	Higher of assigned System Upgrades in Facilities Study or 5 times allocated Study Costs through Section 5	$2 million
Pre-DISIS	N/A	None	N/A
Post M1	No	Higher of study deposit or 2 times allocated study costs through Phase 1	$1 million
Post M2	No	Higher of study deposit or 3 times allocated study costs through Phase 2	$1.5 million
Post M3	No	Higher of study deposit or 5 times allocated study costs through Phase 2	$2 million
Post M4	No	Higher of assigned System Upgrades in Facilities Study or 5 times allocated Study Costs through Section 5	Uncapped

Consistent with the overarching framework of the Definitive Interconnection Study Process, the Withdrawal Penalty structure is designed to incentivize ready projects as well

as the withdrawal of speculative projects early in the study process so that the potential for harm to other Interconnection Customers is minimized. As described above, no Withdrawal Penalty is imposed if an Interconnection Customer elects to withdraw prior to the DISIS (and providing M1) and then the potential Withdrawal Penalty for ready projects that withdraw prior to Phase 2 is limited to the Interconnection Customer's allocated study costs through Phase 1. However, for non-ready projects during Phase 1 and for both ready and non-ready projects at each subsequent phase, the Withdrawal Penalty is the *higher of* the Interconnection Customer's initial study deposit or a multiple of the allocated study costs assigned to the Interconnection Customer.

Where a Withdrawal Penalty is assigned under Section 6.3.5—requiring a determination that other Interconnection Customers in the Cluster are negatively affected by the Interconnection Customer's withdrawal—Withdrawal Penalty revenues for Interconnection Customers withdrawing after M1 and before M4 will be used to fund study costs. If a ready customer exits after M4, the Withdrawal Penalty will also be used to fund study costs if the Interconnection Customer's assigned Upgrade Costs exceed the two million cap. If this unlikely circumstances arises, the Company will also not be required to construct the Upgrades and restudy will likely by required. Where a non-ready Interconnection Customer withdraws after M4, there is no cap on the Withdrawal Penalty and they will be used to fund the Upgrades that were previously assigned to the withdrawing Interconnection Customer. (§§4.4.10.4; 6.3.5.1(3); 6.3.5).

Withdrawal Penalty revenue will be distributed to Interconnection Customers in a specific cluster in a similar way as study costs are allocated. This distribution will appear as a bill credit on the Interconnection Customers' study invoice, but will not exceed the

study amount for which the customer is responsible and will not be distributed to the withdrawing customer. To the extent there are additional Withdrawal Penalty revenues after funding not-yet-invoiced studies (e.g. restudies) for other customers in the same cluster, the Withdrawal Penalty revenue will be distributed to not-yet-invoiced studies for subsequent clusters. (§6.3.6).

11. Dispute Resolution

To facilitate an efficient Definitive Interconnection Study Process, Duke is also adding a DISIS-specific section to Section 6.2 governing dispute resolution. Proposed Section 6.2.7 makes clear that where an Interconnection Customer opting to participate in a DISIS Cluster initiates a dispute pursuant to Section 6.2, that Interconnection Customer shall remain obligated to comply with the requirements of Section 4.4 governing the DISIS process (such as completing Readiness Milestones) if it elects to continue to be considered a part of the DISIS Cluster. Through the stakeholder process, Duke agreed to remove proposed language that would allow Duke to remove a disputing Interconnection Customer from a pending DISIS Cluster and to require the Interconnection Customer to proceed through a future Cluster Study if Duke reasonably determined that the pending dispute will shift costs to other customers or would delay completion of the DISIS. While Section 6.2.7 now allows the disputing Interconnection Customer to elect whether to remain in the existing Cluster, it is critical that all Interconnection Customers progressing through the Definitive Interconnection Study Process achieve their increasing readiness and other commitments in order to reduce potential harm to other Interconnection Customers of future withdrawals.

V. TRANSITIONAL PROCESS

A. Overview

Transitioning the interconnection process from a serial process to a Cluster Study process will be critical in implementing Duke's Queue Reform Proposal. To achieve an effective transition, Duke must know for certain that all Interconnection Customers queued ahead of a future DISIS Cluster are definitively committed to interconnection. Put another way, a transition process that allows speculative or non-ready Interconnection Customers to remain in the serial queue will cause an uncertain or unstable Base Case resulting in cascading restudies under the transition process and the initial DISIS Cluster. This result would both clog the queue and frustrate the purpose of queue reform implementation. To solve for these issues, Duke proposes a transitional study process to occur prior to the initiation of the Definitive Interconnection Study Process in order to move as many definitively ready Interconnection Requests to commercial operation as possible or, conversely, to move as many speculative Interconnection Requests from the current serial process into the upcoming Definitive Interconnection Study Process.

Duke's objective, and the goal of many stakeholders, is to provide an orderly transition that allows DEP and DEC to complete the transitional serial process and progress through the Transitional Cluster study prior to the initial DISIS Request Window closing on June 30, 2021, and the annual DISIS study beginning thereafter. Accomplishing an efficient transition to the Definitive Interconnection Study Process will require significant commitments from Interconnection Customers, efficient administration by Duke, and the minimization of the potential for late stage withdrawal or restudy of Interconnection Requests electing to enter the transitional study process.

To accomplish this objective, Duke proposes an expedited transition process for ready Interconnection Customers in the current queue by providing three options: (1) a Transitional Serial Study Process; (2) a Transitional Cluster Study Process, or (3) withdrawal from the queue and the option reenter the queue and participate in a future DISIS Cluster. (§ 1.10). Any Interconnection Customer that has received a Queue Number but has not executed an Interconnection Agreement prior to the effective date of the Revised Standard may elect to be studied under the Transition Procedures by meeting the requirements to enter either the Transitional Serial study process (§ 1.10.1) or Transitional Cluster study process (§ 1.10). An Interconnection Customer electing to complete the transitional process must notify the Utility and meet all readiness milestone requirements within 60 Calendar Days of the later of the Effective Date of the Revised Standard or the Utility's delivery of written notice of the Utility's commencement of transition to the Definitive Interconnection Study Process. (§ 1.1.3) If a currently-queued Interconnection Customer elects not to transition using either the transitional serial or transitional cluster process, as further described below, then that Interconnection Customer will be withdrawn from the queue and will have the option to reenter through a future DISIS Cluster.

B. Eligibility for Transitional Process

Eligibility for the queue reform transitional process, specifically the Transitional Serial study process, has been a topic of significant interest and discussion amongst certain stakeholders with existing projects in the interconnection queue. As detailed further below, an existing Interconnection Customer is eligible for the transitional serial process if it is in advanced stages of the interconnection process, meaning the Interconnection Customer has completed System Impact Study (resulting in a determination of system impacts and

associated assignment of System Upgrades) and has executed a Facilities Study Agreement as of the date that Queue Reform is approved. However, where an Interconnection Customer has not completed System Impact Study and its System Upgrades are not definitively determined, the Interconnection Customer may elect to enter into the Transitional Cluster study process or to withdraw. Importantly, the vast majority (if not all) of the projects situated in this manner are subject to interdependency and/or are subject to constraints due to the need for substantial Transmission Network Upgrades, which is one of the key impediments under the serial study process and which, as discussed above, will be addressed by the transition to a Cluster Study approach. State differently, such projects face an uncertain and, in many cases, untenable interconnection path under the current serial study process and therefore will not be harmed and may, in fact, benefit from the transition to a Cluster Study Process.

The Companies' transition process eligibility requirements are consistent with the eligibility requirement recently proposed by PSCo and approved by FERC, as well as those approved by the Commission for CPRE Tranche 1. The FERC found PSCo's proposed transition process to be a just and reasonable means to resolve its interconnection queue backlog because PSCo considered the interests of interconnection customers with requests far along in the process, as well as all other existing interconnection customers at the time queue reform was proposed. In particular, FERC noted that PSCo allowed more advanced projects that had received a System Impact Study report and executed a Facilities Study Agreement to move forward in a timely fashion under a transitional serial process if they choose, while allowing other less advanced projects still in System Impact Study or earlier

to move ahead under a transitional cluster process.[85] Duke's proposed one-time transitional process will also be similar to the Commission's approval of the "temporary one-time modification to the NCIP" implemented for purposes of CPRE Tranche 1 to allow "late-stage proposals" (*i.e.,* Interconnection Customers that had already completed a System Impact Study and executed a Facilities Study Agreement) to have the option of (1) retaining their serial queue position and paying their assigned system upgrade costs, or (2) joining the utility-sponsored queue number and potentially share in an imputed allocation of system upgrade costs.[86] Duke's proposed transitional process to implement queue reform similarly provides increased optionality to late stage projects that have completed System Impact Study and been definitively assigned Upgrades to continue with the serial process or to transition to the new cluster study approach.

The Companies' eligibility requirements for the transitional serial process should be approved as reasonable and necessary to efficiently transition to the Definitive Interconnection Study Process. Allowing projects earlier in the study process to continue to be studied serially once interdependencies are resolved would not be reasonable and would fundamentally frustrate the objective of queue reform by creating uncertainty and instability in the Transitional Cluster Base Case model (which is intended to be commenced in parallel and to assume all Transitional Serial projects achieve commercial operation). In the interest of compromise, Duke has, however, designed the transitional process eligibility to be determined as of the effective date of the Commission's order approving queue reform (as opposed to the filing date used by PSCo) and commits to continue to diligently study and process Interconnection Requests in order to enable additional Interconnection

[85] *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC¶ 61,182, at PP 65, 67.
[86] *Order Approving Interim CPRE Modifications,* at 8.

Customers to be eligible for both the Transitional Serial and Transitional Cluster Study processes.

C. Transitional Serial Study Process (Section 1.10.1)

An Interconnection Customer is eligible to enter the transitional serial process if the Interconnection Customer has (a) a final System Impact Study Report identifying the Interconnection Facilities and any required Upgrades to interconnect, and (b) a Facilities Study Agreement executed by the Interconnection Customer prior to the effective date of the Revised Standard. These requirements essentially allow late stage projects to commit to previously assigned Upgrades under a completed System Impact Study and to continue through the serial study process to an Interconnection Agreement, and interconnect to the Companies' systems, assuming such projects demonstrate readiness.

The financial and non-financial readiness requirements in Section 1.10.1 ensure that only ready and non-speculative projects proceed through the Transitional Serial process. To ensure that Interconnection Customers eligible for the Transitional Serial process are truly ready to connect, they must demonstrate "readiness" similar to projects under the DISIS Cluster described above. Because these Interconnection Customers know the Upgrades and associated costs required to interconnect, the Interconnection Customers opting to enter the transitional serial process must make a supplemental, non-refundable deposit equal to the greater of (a) one hundred percent (100%) of the System Upgrade costs identified in the System Impact Study Report or (b) the Minimum Deposit identified in Figure 9 above based upon the Interconnection Customers' nameplate capacity identified in the Interconnection Request. This deposit can be used towards construction costs of the Interconnection Customers' Upgrades and/or Interconnection Facilities and trued up by the

Utility in the Detailed Estimated Upgrade Charges included in a future Interconnection Agreement. If the Interconnection Customer withdraws the Interconnection Request or otherwise does not reach Commercial Operation, the supplemental deposit amount shall be forfeited to the Utility, and the deposited amounts used to construct the Upgrades identified in the Interconnection Customer's System Impact Study Report, except where the cost of System Upgrades identified in the Facilities Study Report (i) exceeded the Interconnection Customer's Section Minimum Deposit amount; and (ii) increased by more than twenty-five percent (25%) compared to the costs identified in the Interconnection Customer's System Impact Report. (§ 1.10.1.2) Any amounts not required by the Utility for construction of System Upgrades shall be treated as a Withdrawal Penalty and distributed to fund future Cluster Study costs pursuant to Section 6.3.6.

In addition to the deposit, Transitional Serial projects must also demonstrate exclusive Site Control for the entire Generating Facility and the Interconnection Customer's Interconnection Facilities up to the Point of Interconnection to the Utility's System. This requirement is reasonable because projects that are sufficiently advanced in the study process and definitively ready to interconnect should have full Site Control for their Generating Facility to deliver the Generating Facility to the Point of Interconnection to the Utility's System.

Last, and in addition to the deposit on Upgrades and demonstration of full Site Control, Interconnection Customers opting to enter the Transitional Serial process must provide either:

(i) A contract, binding upon the parties to the contract, for sale of the Generating Facility's energy where the term of sale is not less than five (5) years, or

(ii) Reasonable evidence that the Generating Facility is included in a Utility's Resource Plan or has received a contract award in a Resource Solicitation Process.

These requirements to transition are just and reasonable because they provide evidence that the transitional projects are truly ready to proceed to an Interconnection Agreement and commercial operation. If transitional projects are not ready, then Duke would not be able to establish a definitive Base Case for the Transitional Cluster thereby harming other ready projects. Additionally, as discussed above, Duke's approach of using Facilities Study Agreement execution as the eligibility threshold for the Transitional Serial process is consistent with the Commission's prior approval of "late stage proposals" for the CPRE Grouping Study process.

D. Transitional Cluster Study Process (Section 1.10.2)

The Transitional Cluster study process was another area of significant stakeholder interest and is one area that has evolved significantly from the PSCo Definitive Interconnection Study Process. Through the stakeholder process, many stakeholders expressed concerns about mandating significant readiness requirements to enter the Transitional Cluster without information from Duke about their potentially assigned Upgrades. This lack of information is in part due to the fact that these early-stage projects have not completed System Impact Study under the existing study process and in part due to the fact that Duke cannot identify system impacts and provide preliminary estimates of Upgrades without knowing which projects will enter the Transitional Cluster. In an effort to address these concerns, Duke has significantly restructured the Transitional Cluster study process from a "significant financial readiness to enter, single study" Transitional Cluster, similar to PSCo, to a "lower readiness to enter, multi-phased" Transitional Cluster process more similar to DISIS. The Transitional Cluster will unquestionably take longer

than initially proposed and is likely to require some amount of restudy as Interconnection Customers exit after the Transitional Cluster Phase 1 study; however, Duke supports this proposal as just and reasonable and responsive to stakeholder feedback.

To enter the Transitional Cluster Study, Interconnection Customers must and (1) have an assigned Queue Position prior to the effective date of the Revised Standard; (2) meet the transitional cluster readiness requirements prescribed in Section 1.10.2.1, and (3) execute a Transitional Cluster Study Agreement. All Interconnection Requests that opt for this path will be considered to have an equal Queue Position and be studied in a single Transitional Cluster. The costs of the study and the identified facilities will be allocated in the same manner as costs are allocated for DISIS Clusters pursuant to Section 4.4.4 of the Revised Standard.

The Transitional Cluster study process will begin with a thirty (30) calendar day Customer Engagement period for all Interconnection Customers electing to enter the Transitional Cluster. Section 1.10.2.1 of the Revised Standard specifically requires projects to meet each of the following to be included in the Transitional Cluster, in addition to signing a Transitional Cluster Study Agreement:

(a) payment of a supplemental Interconnection Request study deposit, if necessary, to increase the Interconnection Customer's total study deposit to equal the amount required under Section 1.5.1.2 of the Revised Standard;

b) affirmation that it has exclusive site control for the entire Generating Facility and all required Interconnection Facilities to the Point of Interconnection to the Utility's System; and

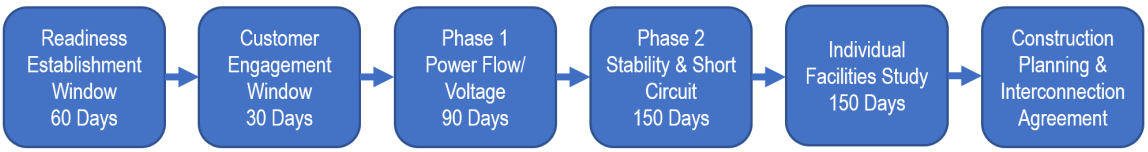
c) reasonable evidence that the Interconnection Customer has executed a contract, binding upon the parties to the contract, or has established a legally enforceable obligation binding upon the Interconnection Customer, for sale of the Generating Facility's energy to the Utility, where the term of sale is not less than five (5) years.

The Companies are proposing significantly lower initial Readiness Milestones for eligible Interconnection Customers electing to proceed through the Transitional Cluster Study Process as compared to PSCo's transitional cluster requirements. For example, PSCo required transitional cluster projects to make a $5 million study deposit to enter the PSCo transitional cluster study.[87] In addition, the Companies have agreed to extend the time for Interconnection Customers to meet the Transitional Cluster Readiness Milestones and to execute a Transition Study Agreement from thirty (30) calendar days to sixty (60) calendar days. During this sixty day period, the Companies will also host a general informational meeting for projects considering whether to enter the Transitional Cluster or withdraw and later enter a DISIS Cluster.

In response to stakeholder feedback, Duke has significantly redesigned the Transitional Cluster to a multi-phase study process where more significant readiness commitments are not required until the Interconnection Customer elects to proceed to Phase 2 or to Facilities Study (more similar to the full DISIS process). Figure 13 presents a process overview of the Transitional Cluster Study.

Figure 13

Transitional Cluster Process



After the Transitional Cluster Customer Engagement Window, Phase 1 will consist of a power flow and voltage analysis occurring over a ninety (90) calendar day period.

[87] *See PSCo December 2019 Order Approving Queue Reform,* 169 FERC ¶ 61,182, at P 65, fn. 83.

Thereafter, Duke will issue a Transitional Cluster Study Phase 1 Report for Interconnection Customers to evaluate whether to proceed through Phase 2, or withdraw from the queue. In response to stakeholders the Companies have agreed to provide a second, thirty (30) calendar day customer engagement window and host a meeting to discuss the results of the Transitional Cluster Study Phase 1 Report. By providing this second customer engagement window, Interconnection Customers will receive additional time to decide whether to make the more significant financial commitments to proceed through Phase 2 of the Transitional Cluster and meet the increasing Readiness Milestones necessary to complete the Transitional Study Process.

An Interconnection Customer electing to withdraw prior to the Phase 2 study will be assigned only its allocated Transitional Cluster Study Phase 1 study costs subject to the withdrawal process under Section 6.3.4, but will not be subject to any Withdrawal Penalty. An Interconnection Customer electing to proceed with Phase 2 of the Transitional Cluster is viewed as definitively committed and will be required to submit a non-refundable supplemental deposit equal to the Minimum Deposit amount identified in Figure 9. If an Interconnection Customer withdraws after Phase 2 commences or otherwise does not reach Commercial Operation, the supplemental deposit amount provided after Phase 1 will be assessed under the Section 6.3.5 Withdrawal Penalty process and, if a Withdrawal Penalty is required, distributed to fund future Cluster Study costs pursuant to Section 6.3.6.

Transitional Cluster Study Phase 2 will consist of an updated power flow/voltage analysis (if necessary), stability analysis and short circuit analysis completed pursuant to Section 4.4.7.3 and within one-hundred and fifty (150) calendar days. The results of this analysis will be summarized in the Transitional Cluster Study Phase 2 Report which will

identify the Interconnection Facilities and Network Upgrades expected to be required for the Transitional Cluster to interconnect, and will also provide a non-binding good-faith estimate of cost responsibility and a non-binding good-faith estimated time to construct for each transitional Interconnection Customer.

Pursuant to Section 1.10.2.5, within thirty (30) calendar days of Duke's publication of the Transitional Cluster Study Phase 2 Report, each Interconnection Customer within the Transitional Cluster Study shall meet the following readiness requirements:

a) submit a non-refundable deposit equal to one hundred percent (100%) of the System Upgrade costs identified in the Transitional Cluster Study Phase 2 Report, that would be borne by the Interconnection Customer under a future Interconnection Agreement. The deposit shall be in the form of an irrevocable letter of credit upon which the Utility may draw or a cash deposit;

b) demonstrate definitive readiness by having executed a contract, binding upon the parties to the contract, for sale of the Generating Facility's energy to the Utility, where the term of sale is not less than five (5) years; and

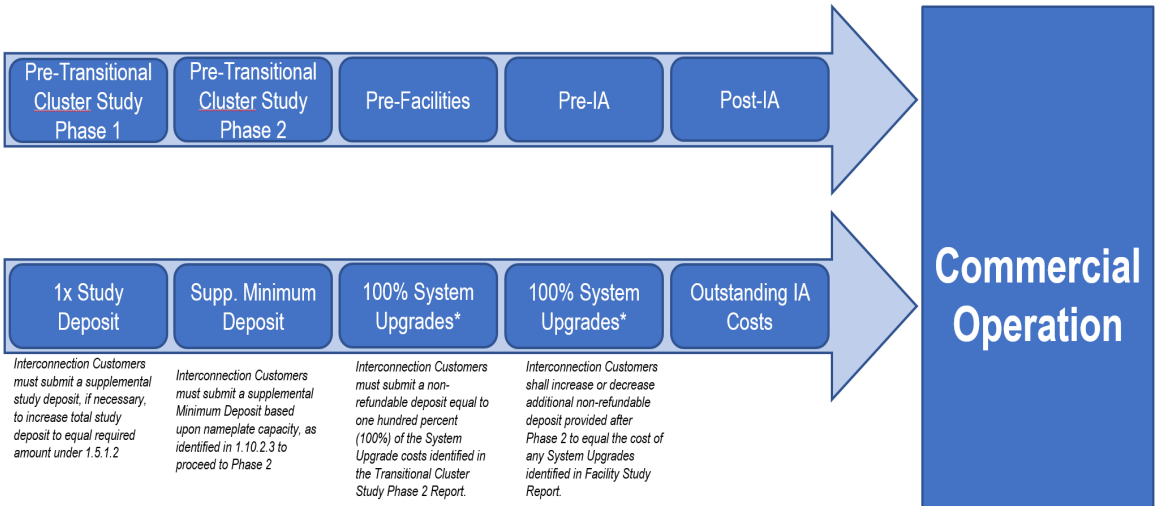
c) execute a Facilities Study Agreement to proceed with Facilities Study under Section 4.5.

If an Interconnection Customer fails to meet any of the above requirements, that Interconnection Customer shall be deemed withdrawn from the queue and subject to the Withdrawal Penalty identified in Section 1.10.2.3.

Duke will determine whether re-study of the Transitional Cluster is required pursuant to the procedures outlined in Section 4.4.7.5 prior to executing the Facilities Study Agreement and returning it to the Interconnection Customers. However, Duke does not envision any re-studies of the Transitional Cluster as all projects entering Phase 2 of the Transitional Cluster are required to demonstrate readiness equal to M4 under the Definitive Interconnection Study Process under Section 1.10.2.5 before entering the Transitional Cluster Facilities Study.

Duke will complete Facilities Study for all Transitional Cluster projects pursuant to Section 4.5. Within ten (10) business days of issuance of the Facilities Study Report, the Interconnection Customer will be required to either increase or decrease its additional non-refundable deposit provided after Phase 2 of the Transitional Cluster Study to equal the cost of any System Upgrades identified in in the Transitional Cluster Study that would be borne by the Interconnection Customer under a future IA or be deemed withdrawn. At this point in time, Duke will follow the Section 5 Construction Planning and Interconnection Agreement process, except that M4 required in Section 5.1.1 will not apply to Interconnection Customers participating in the Transitional Cluster Study. Figure 14 provides a process map of the increasing readiness and/or security required for interconnection Customers to proceed through the Section 1.10.2 Transitional Cluster process.

Figure 14



The increasing readiness requirements are just and reasonable for the Transitional Cluster study process and are designed to ensure other ready projects included in the Transitional Cluster or future DISIS Clusters will not be harmed by withdrawals late in the

Transitional Cluster process. The interests of potentially withdrawing projects will also be protected as a Withdrawal Penalty will not be imposed where assigned Upgrades exceed the Minimum Deposit and a Withdrawal Penalty would not be imposed under Section 6.3.5 of the Definitive Interconnection Study Process.

E. Option to Withdraw and Reenter DISIS Cluster 1

It is also important to identify that Interconnection Request withdrawal and reentry into the Definitive Interconnection Study Process is another viable option for projects who determine they are not fully ready to proceed with the transitional process. Because study priority and cost assignment will no longer be serial and will now be administered through a Cluster Study process, this option allows Interconnection Customers a clear path forward in 2021 through the regular DISIS process.

VI. REQUEST FOR COMMISSION APPROVAL AND PLANS FOR SYSTEM-WIDE IMPLEMENTATION

As mentioned throughout this proceeding, it will be crucial for the state interconnection processes to be aligned between North Carolina and South Carolina, as well as within Duke's LGIP and SGIP governing the interconnection of FERC jurisdictional Interconnection Customers. In the forthcoming months, the Companies plan to seek approval of the Queue Reform Proposal from the South Carolina Public Service Commission, potentially in parallel with the Commission's proceeding. The Companies also plan to seek approval of revisions to the FERC Joint OATT necessary to implement the Definitive Interconnection Study Process for FERC-jurisdictional projects in the near future. Seeking such approvals from the South Carolina Public Service Commission and FERC in parallel is likely necessary to implement this reform in a reasonably timely manner. In general, therefore, it is important for the Companies to obtain a Commission

decision on the Duke Queue Reform Proposal within a reasonable timeframe so as to align the North Carolina, South Carolina, and FERC-jurisdictional interconnection processes and most efficiently process each of the queues through a consistent timeframe for transition to the Definitive Interconnection Study Process. The Companies therefore request that the Commission approve the Queue Reform Proposal and adopt the proposed revisions to the NC Procedures necessary to implement the Definitive Interconnection Study Process by September 15, 2020.[88]

VII. RECOMMENDED TIMEFRAME FOR FUTURE STAKEHOLDER REVIEW OF DEFINITIVE INTERCONNECTION STUDY PROCESS

Duke and stakeholders have also discussed the frequency of completing the DISIS and the potential to incorporate lessons learned through future implementation of the overall Definitive Interconnection Study Process. Accordingly, the Companies commit to open a stakeholder process on Queue Reform after the second annual DISIS process is completed and to make an informational filing with the Commission in this docket no later than three years after the effective date of the Revised NC Procedures evaluating whether any modifications to the Definitive Interconnection Study Process would be beneficial to the generator interconnection process in North Carolina.

VIII. CONCLUSION

WHEREFORE, and based on the foregoing, Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC respectfully request that the Commission issue an order by

[88] Duke respectfully makes this request, while also recognizing the significant number of proceedings currently before the Commission, as well as the ongoing State of Emergency. If the Commission determines that 60 days from the filing of reply comments is not a reasonable period of time to decide the matters presented by Duke's Queue Reform Proposal, the Commission has also recently issued notices of decisions prior to issuing a final Order in other proceedings, which would also provide Duke the guidance needed to proceed with Queue Reform approvals from other jurisdictions. *See generally* Docket Nos. E-100, Sub 158; EMP-105, Sub 0.

September 15, 2020, approving the Companies' Queue Reform Proposal and granting such other relief as may be appropriate.

Respectfully submitted, this the 15th day of May, 2020.

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Duke Energy Carolinas, LLC
and
Duke Energy Progress, LLC

Attachment 1

Queue Reform Proposal

NORTH CAROLINA

INTERCONNECTION PROCEDURES, FORMS, AND AGREEMENTS

For State-Jurisdictional Generator Interconnections

Effective ~~June 14~~Month Day, ~~2019~~2020

Docket No. E-100, Sub 101

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Section 1. General Requirements

1.1 Applicability

1.1.1 This Standard contains the requirements, in addition to applicable tariffs and service regulations, for the interconnection and parallel operation of Generating Facilities with Utility Systems in North Carolina. These procedures apply to Generating Facilities that are interconnecting to Utility Systems in North Carolina where the Interconnection Customer is not selling the output of its Generating Facility to an entity other than the Utility to which it is interconnecting.

This Standard also contains specific requirements for a Utility that has obtained Commission authorization to implement a Definitive Interconnection Study Process to study Clusters of Interconnection Customers as further described in Section 4.

Interconnection Requests for new Generating Facilities shall be submitted to the Utility for approval at the final design stage and prior to the beginning of construction.

The submission of a written request for a Section 1.2 Pre-Request Response and/or Section 1.3 Pre-Application Report is encouraged to identify potential interconnection issues unforeseen by the Interconnection Customer.

Prospective Interconnection Customers considering submitting a Transmission Level Interconnection Request(s) to be studied under a Utility's Definitive Interconnection Study Process may also request the Utility complete an Informational Interconnection Study, as provided for in Section 1.4, prior to submitting an Interconnection Request. Interconnection Customers evaluating different options (such as different sizes, sites or voltages) are encouraged but not required to use the Informational Interconnection Study Process before entering the Definitive Interconnection Study Process.

Revised Interconnection Requests for equipment or design changes should be submitted pursuant to Section 1.5.

Notification by the Interconnection Customer to the Utility of change of ownership or change in control should be submitted pursuant to Section 6.11.

1.1.1.1 A request to interconnect a certified inverter-based Generating Facility no larger than 20 kW shall be evaluated under the Section 2, 20 kW Inverter Process. (See Attachments 4 and 5 for certification criteria.)

1.1.1.2 A request to interconnect a certified Generating Facility no larger than the capacity specified in Section 3.1 shall be evaluated under the Section 3 Fast Track Process. (See Attachments 4 and 5 for certification criteria.)

1.1.1.3 A request to interconnect a Generating Facility larger than the capacity stated in Section 3.1, or a Generating Facility that does not qualify for or pass the Fast Track Process or qualify for the 20 kW Inverter Process, shall be evaluated under the Section 4 Study Process. Interconnection Customers that qualify for Section 2 or Section 3 may also choose to proceed directly to Section 4 if they believe Section 4 review is likely to be necessary.

1.1.2 Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 or the body of these procedures.

1.1.3 The ~~2019~~ most current revisions to this interconnection Standard effective Month Day, 2020 ("Revised Standard"), shall not apply to Generating Facilities having a fully executed Interconnection Agreement as of the effective date of the ~~2019 revisions to this~~Revised Standard, unless the Interconnection Customer proposes a Material Modification, transfers ownership of the Generating Facility, or application of the ~~2019 revisions to the Commission's interconnection s~~Revised Standard ~~are~~ is agreed to in writing by the Utility and the Interconnection Customer. This Revised Standard shall apply if the Interconnection Customer does not have a fully executed Interconnection Agreement for the Generating Facility as of the effective date of the ~~2019~~ Revised Standard~~revisions~~. Revised fees and new deposits will apply to new Interconnection Requests and future transactions involving existing Interconnection Requests occurring after the effective date of the ~~2019~~ Revised Standard~~revisions~~.

Where the Commission has authorized a Utility to administer a Definitive Interconnection Study Process prescribed in Section 4.4, a~~A~~n~~y~~ Interconnection Customer that has received a Queue Number but has not executed an Interconnection Agreement with the Utility prior to the effective date of the ~~2019 revisions to this~~ Revised Standard ~~shall~~ may elect to be studied under the Transition Procedures set forth in Section 1.10 by executing a transitional study agreement and meeting the requirements to enter the Transition Procedures study process. ~~The~~An Interconnection Customer~~'s~~ electing to complete the study process under the Section 1.10 Transition Procedures must notify the utility and meet all transitional readiness milestone requirements within 60 Calendar Days of the later of the Effective Date of the Revised Standard or delivery of written notice of the Utility's transition to the Definitive Interconnection Study Process provided by the Utility. An Interconnection Customer that does not meet the

Transition Procedure requirements shall be deemed withdrawn and then may submit a new Interconnection Request to be studied under the Definitive Interconnection Study Process. ~~have 45 Business Days following the later of the effective date of the Standards or the posted date of notice in writing from the Utility to make prepayment or provide Financial Security in a form reasonably acceptable to the Utility for any Network Upgrades identified in the Interconnection Customer's System Impact Study Report as required by Section 4.3.9 of the Procedures.~~

1.1.4 Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All Utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.

1.1.5 References in these procedures to Interconnection Agreement are to the North Carolina Interconnection Agreement. (See Attachment 9.)

1.2 Pre-Request Response for Distribution Level Interconnection Requests

1.2.1 The Utility shall designate an employee or office from which information on the application process can be obtained through informal requests from the Interconnection Customer presenting a proposed project for a specific site. The name, telephone number, and e-mail address of such contact employee or office shall be made available on the Utility's Internet web site.

1.2.2 The Interconnection Customer may request a Pre-Request Response by providing the Utility details of a potential project in writing, including site address, grid coordinates, project size, project developer name, and proposed Point of Interconnection.

Electric system information provided to the Interconnection Customer should include number of phases and voltage of closest circuit, distance to existing source, distance to substation, and other information and/or materials useful to an understanding of an interconnection at a particular point on the Utility's System, to the extent such provision does not violate confidentiality provisions of prior agreements or critical infrastructure requirements. The Utility shall comply with reasonable requests for such information in a timely manner, not to exceed ten (10) Business Days. The Pre-Request Response produced by the Utility is non-binding and does not confer any rights. The Interconnection Customer must still meet the Section 1.5~~4~~ requirements to apply to interconnect to the Utility's System and to obtain a Queue Number. Any one developer shall have no more than five (5) requests for Pre-Request Responses in the Pre-Request Response queue at one time.

1.3 Pre-Application Report

1.3.1 In addition to, or instead of, requesting an informal Pre-Request Response, an Interconnection Customer may submit a formal written Pre-Application Report request form (see Attachment 3) along with a non-refundable fee of $500 for a Pre-Application Report on a proposed project at a specific site. The Utility shall provide the Pre-Application data described in Section 1.3.2 to the Interconnection Customer within ten (10) Business Days of receipt of the completed request form and payment of the $500 fee. The Pre-Application Report produced by the Utility is non-binding, does not confer any rights, and the Interconnection Customer must still successfully apply to interconnect to the Utility's System and to obtain a Queue Number. The written Pre-Application Report request form shall include the information in Sections 1.3.1.1 through 1.3.1.8 below to clearly and sufficiently identify the location of the proposed Point of Interconnection. Any one developer shall have no more than five (5) requests for Pre-Application Reports in the Pre-Application Report queue at one time.

1.3.1.1 Project contact information, including name, address, phone number, and email address.

1.3.1.2 Project location (street address, location map with nearby cross streets and town, grid coordinates of anticipated Point of Interconnection, etc.).

1.3.1.3 Meter number, pole number, location map or other equivalent information identifying proposed Point of Interconnection, if available.

1.3.1.4 Generator or Storage Type (e.g., solar, wind, combined heat and power, battery, etc.)

1.3.1.5 Size (alternating current kW, and for Storage kWh).

1.3.1.6 Single or three phase generator configuration.

1.3.1.7 Stand-alone generator (no onsite load, not including station service – Yes or No?)

1.3.1.8 Is new service requested? Yes or No? If there is existing service, include the customer account number, site minimum and maximum current or proposed electric loads in kW (if available) and specify if the load is expected to change.

1.3.2 Using the information provided by the Interconnection Customer in the Pre-Application Report request form pursuant to Section 1.3.1, the Utility shall identify the substation/area bus, bank or circuit likely to serve the proposed Point of Interconnection. This selection by the Utility does not necessarily indicate, after application of the screens and/or study, that this would be the circuit the project ultimately connects to. The Interconnection Customer

must request additional Pre-Application Reports if information about multiple Points of Interconnection is requested. Subject to Section 1.3.3, the Pre-Application Report shall include the following information:

1.3.2.1 Total capacity (in MW) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed Point of Interconnection.

1.3.2.2 Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed Point of Interconnection.

1.3.2.3 Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed Point of Interconnection.

1.3.2.4 Substation nominal distribution voltage and/or transmission nominal voltage if applicable.

1.3.2.5 Nominal distribution circuit voltage at the proposed Point of Interconnection.

1.3.2.6 Approximate circuit distance between the proposed Point of Interconnection and the substation.

1.3.2.7 Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load and absolute minimum load, when available.

1.3.2.8 Number, location, and rating of protective devices, and number, location, and type (standard, bi-directional) of voltage regulating devices between the proposed Point of Interconnection and the substation/area. Identify whether the substation has a load tap changer.

1.3.2.9 Number of phases available at the proposed Point of Interconnection. If a single phase, distance from the three-phase circuit.

1.3.2.10 Limiting conductor ratings from the proposed Point of Interconnection to the distribution substation.

1.3.2.11 Whether the Point of Interconnection is located on a spot network, grid network, or radial supply.

1.3.2.12 Based on the proposed Point of Interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

1.3.2.13 Other information regarding an Affected System the Utility deems relevant to the Interconnection Customer.

1.3.3 The Pre-Application Report need only include existing data. A Pre-Application Report request does not obligate the Utility to conduct a study or other analysis of the proposed generator in the event that data is not readily available. If the Utility cannot complete all or some of the Pre-Application Report due to lack of available data, the Utility shall provide the Interconnection Customer with a Pre-Application Report that includes the data that is readily available. Notwithstanding any of the provisions of this section, the Utility shall, in good faith, include data in the Pre-Application Report that represents the best available information at the time of reporting. Further, the total capacity provided in Section 1.3.2.1 does not indicate that an interconnection of aggregate generation up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, and data provided in the Pre-Application Report may become outdated at the time of the submission of the complete Interconnection Request.

1.4 Informational Interconnection Study Process for Transmission Level Interconnections

1.4.1 At any time, a prospective Interconnection Customer may request a Utility authorized to administer a Definitive Interconnection Study Process to perform Informational Interconnection Studies for Transmission Level Generating Facility interconnections. The Interconnection Customer shall submit a separate Informational Interconnection Request for each Generating Facility and may submit multiple Informational Interconnection Requests for different Generating Facility sizes or configurations at a single site. An Informational Interconnection Request to evaluate one Generating Facility interconnecting at two different voltage levels shall be treated as two Informational Interconnection Requests. Any one developer shall have no more than five (5) requests for Informational Interconnection Study reports pending at one time. The Interconnection Customer must submit a deposit with each Informational Interconnection Request if more than one request is submitted for a single Generating Facility or site.

1.4.2 The request shall use the form in Attachment 4 of the Revised Standard and shall describe the assumptions that Interconnection Customer wishes the Utility to study within the scope described in Section 1.4.4. Within five (5) Business Days after receipt of a request for an Informational

Interconnection Study, the Utility shall provide to Interconnection Customer an Informational Interconnection Study Agreement in the form provided in Attachment 4, including a non-binding good faith estimate of the timing and cost of completing the Informational Interconnection Study. Notwithstanding the above, the Utility shall not be required as a result of an Informational Interconnection Study request to conduct any additional Interconnection Studies with respect to any other Interconnection Request.

1.4.3 Interconnection Customer shall execute and return the Informational Interconnection Study Agreement to the Utility within ten (10) Business Days of receipt of an agreed upon scope of work and shall deliver the Informational Interconnection Study Agreement, the technical data, and a $10,000 deposit to the Utility. The Utility shall then countersign and return the Informational Interconnection Study Agreement within ten (10) Business Days of receipt.

1.4.4 Scope of Informational Interconnection Study.

1.4.4.1 The intent of the Informational Interconnection Study is to aid a prospective Interconnection Customer in its business decisions related to interconnection of generation facilities prior to entering the Section 4 Study Process. The Informational Interconnection Study shall consist of analysis based on the assumptions and scope of work specified by Interconnection Customer and agreed to by the Utility in the Informational Interconnection Study Agreement. The Informational Interconnection Study shall preliminarily identify the potential Interconnection Facilities and the Network Upgrades, and the estimated cost thereof, that may be required to interconnect a proposed Generating Facility based upon the results and assumptions of the Informational Interconnection Study. The Informational Interconnection Study shall be performed solely for informational purposes and is non-binding and does not confer any rights, as the Interconnection Customer must still successfully apply to interconnect to the Utility's System. The Utility shall utilize existing studies to the extent practicable in conducting the Informational Interconnection Study.

1.4.5 Informational Interconnection Study Procedure.

1.4.5.1 The executed Informational Interconnection Study Agreement, the deposit, and technical and other data called for therein must be provided to Utility within ten (10) Business Days of Interconnection Customer receipt of the Informational Interconnection Study Agreement. The Utility shall use Reasonable Efforts to complete the Informational Interconnection Study within a mutually agreed upon time

period specified within the Informational Interconnection Study Agreement. If Utility is unable to complete the Informational Interconnection Study within such time period, it shall notify Interconnection Customer and provide an estimated completion date and an explanation of the reasons why additional time is required. After the Informational Interconnection Study is concluded, any difference between the Informational Interconnection Study deposit and the actual cost of the study shall be paid to Utility or refunded to Interconnection Customer, as appropriate, consistent with the timeframe and procedures established in Section 6.3.3.

~~1.4~~1.5 Interconnection Request

~~1.4.1~~1.5.1 The Interconnection Customer shall submit its Interconnection Request to the Utility, and the Utility shall notify the Interconnection Customer confirming receipt of the Interconnection Request within three (3) Business Days of receiving the Interconnection Request.

The Interconnection Request Application Form shall be date- and time-stamped upon receipt of the following:

~~1.4.1.1~~1.5.1.1 A substantially complete Interconnection Request Application Form contained in Attachment 2 submitted by a valid legal entity registered with the North Carolina Secretary of State, and signed by the Interconnection Customer.

~~1.4.1.2~~1.5.1.2 The applicable fee or Interconnection Request Deposit. The applicable fee is specified in the Interconnection Request Application Form and applies to a certified inverter-based Generating Facility no larger than 20 kW reviewed under Section 2 and to any certified Generating Facility no larger than the capacity specified in Section 3.1 to be evaluated under the Section 3 Fast Track Process.

For all other Generating Facilities, including those that do not qualify for the 20 kW Inverter Process or the Fast Track Process, or that fail the Fast Track and Supplemental Review Process under Section 3.0 and are to be evaluated under the Section 4 Study Process, an Interconnection Request Deposit is required.

The Interconnection Request Deposit for Interconnection Customers to be evaluated under the Section 4 Study Process shall equal: (1) $20,000 plus one dollar ($1.00) per kWac of capacity specified in the Interconnection Request Application Form~~, not to exceed an aggregate Interconnection~~

~~Request Deposit of $100,000~~ for all Interconnection Requests less than 20 MW; (2) $35,000 plus one dollar ($1.00) per kWac for Interconnection Requests between 20 MW and 50 MW; and (3) $50,000 plus one dollar ($1.00) per kWac for all Interconnection Requests greater than 50 MW. The Interconnection Request Deposit is intended to cover the Utility's reasonably anticipated costs including overheads for conducting the System Impact Study and the Facilities Study. Such deposit shall, however, be applicable towards the Utility's cost of ~~all studies~~administering the generator interconnection process under the Revised Standard as well as any~~,~~ Upgrades and Interconnection Facilities, including overheads under a future Interconnection Agreement.

~~1.4.1.3~~1.5.1.3 A Site Control Verification letter (sample included within Attachment 2).

~~1.4.1.4~~1.5.1.4 A site plan indicating the location of the project, the property lines and the desired Point of Interconnection.

~~1.4.1.5~~1.5.1.5 An electrical one-line diagram for the Generating Facility.

~~1.4.1.6~~1.5.1.6 Inverter specification sheets for the Interconnection Customer's equipment that will be utilized.

1.5.2 The original date- and time-stamp applied to the Interconnection Request Application Form shall be accepted as the qualifying date- and time-stamp for the purposes of establishing Queue Position and any timetable in these procedures.

Where a Utility is administering a Definitive Interconnection Study Process, an Interconnection Customer wishing to join the next Definitive Interconnection Study shall submit its Interconnection Request to Utility within, and no later than the close of the DISIS Request Window established in Section 4.4.1 .

~~1.4.2~~1.5.3 The Utility shall notify the Interconnection Customer in writing within ten (10) Business Days of the receipt of the Interconnection Request Application Form as to whether the Form and initial supporting documentation specified in Sections 1.5~~4.~~1.1 through 1.4~~5~~.1.7~~6~~ are complete or incomplete. An Interconnection Request will be deemed complete upon submission of the listed information in Section 1.4~~5~~.1 to the Utility.

1.5.4 If the Interconnection Request Application Form and/or the initial supporting documentation or any other information requested by the Utility is

incomplete, the Utility shall provide, along with notice that the information is incomplete, a written list detailing all information that must be provided. The Interconnection Customer will have ten (10) Business Days after receipt of the notice to submit the listed information. If the Interconnection Customer does not provide the listed information or a written request for an extension of time, not to exceed ten (10) additional Business Days, within the deadline, the Interconnection Request will be deemed withdrawn.

Where a Utility is administering a Definitive Interconnection Study Process, the Utility may request additional technical information from the Interconnection Customer as the Utility may reasonably determine necessary consistent with Good Utility Practice to complete the Definitive Interconnection System Impact Study. Where the Utility determines that technical information provided in an Interconnection Request is not adequate~~ly sufficient~~ to initiate the Definitive Interconnection Study Process and requests the Interconnection Customer provide supplemental information prior to the close of the initial Customer Engagement Window provided for in Section 4.4.1, the Utility shall provide a written list detailing all information that must be provided within ten (10) Business Days where the Interconnection Customer's failure to provide the information required by the utility within the deadline will result in the Interconnection Request being deemed withdrawn.

~~1.5~~1.6 Modification of the Interconnection Request

"Material Modification" means a modification to machine data or equipment configuration or to the interconnection site of the Generating Facility that has a material impact on the cost, timing or design of any Interconnection Facilities or Upgrades or that may adversely impact other Interdependent Interconnection Requests with higher Queue Numbers. Material Modifications include certain project revisions, as defined in Section 1.5.1, but exclude certain project revisions as defined in Section 1.5.2.

~~1.5.1~~1.6.1 Changes indicia of a Material Modification are described as follows:

~~1.5.1.1~~1.6.1.1 Indicia of a Material Modification before the System Impact Study Agreement (4.3.1) or DISIS Agreement (4.4.5.1) has been executed by the Interconnection Customer include only:

~~1.5.1.1.1~~1.6.1.1.1 A change in Point of Interconnection (POI) to a new location, unless the change in a POI is on the same circuit less than two (2) poles away from the original location, and the new POI is within the same protection zone as the original location;

~~1.5.1.1.2~~1.6.1.1.2 A change from certified to non-certified devices ("certified" means certified by an OSHA recognized Nationally Recognized Test Laboratory (NRTL), to relevant UL and IEEE standards, authorized to perform tests to such standards);

~~1.5.1.1.3~~1.6.1.1.3 An increase of the Maximum Generating Capacity of a Generating Facility; or

~~1.5.1.1.4~~1.6.1.1.4 A change reducing the AC output of the Generating Facility by more than 10%.

~~1.5.1.2~~1.6.1.2 Indicia of a Material Modification after the System Impact Study Agreement (4.3.1) or DISIS Agreement (4.4.5.1) has been executed by the Interconnection customer include, but are not limited to:

~~1.5.1.2.1~~1.6.1.2.1 A change in the POI to a new location, unless the new POI is on the same circuit less than two (2) poles away from the original location, and the new POI is within the same protection zone as the original location;

~~1.5.1.2.2~~1.6.1.2.2 A change or replacement of generating equipment such as generator(s), inverter(s), transformers, relaying, controls, etc. that is not a like-kind substitution in size, ratings, impedances, efficiencies or capabilities of the equipment specified in the original or preceding Interconnection Request;

~~1.5.1.2.3~~1.6.1.2.3 A change from certified to non-certified devices ("certified" means certified by an OSHA recognized Nationally Recognized Test Laboratory (NRTL), to relevant UL and IEEE standards, authorized to perform tests to such standards);

~~1.5.1.2.4~~1.6.1.2.4 A change of transformer connection(s) or grounding from that originally proposed;

~~1.5.1.2.5~~1.6.1.2.5 A change to certified inverters with different specifications or different inverter control specifications or set-up than originally proposed;

~~1.5.1.2.6~~1.6.1.2.6 An increase of the Maximum Generating Capacity of a Generating Facility; or

~~1.5.1.2.7~~1.6.1.2.7 A change reducing the Maximum Generating Capacity of the Generating Facility by more than 10%.

~~1.5.2~~1.6.2 Changes not indicia of a Material Modification are described as follows:

~~1.5.2.1~~1.6.2.1 The following are not indicia of a Material Modification before the System Impact Study Agreement (4.3.1) or DISIS Agreement (4.4.5.1) has been executed by the Interconnection Customer:

~~1.5.2.1.1~~1.6.2.1.1 A change in the DC system configuration to include additional equipment including: DC optimizers, DC-DC converters, DC charge controllers, power plant controllers, and energy storage devices, so long as the proposed change does not violate any of the provisions laid out in Section 1.5.1.1.

~~1.5.2.2~~1.6.2.2 Except as provided for in Section 1.5.2.1, the following are not indicia of a Material Modification at any time:

~~1.5.2.2.1~~1.6.2.2.1 A change in ownership of a Generating Facility; the new owner, however, will be required to execute a new Interconnection Agreement and Study agreement(s) for any Study which has not been completed and the Report issued by the Utility;

~~1.5.2.2.2~~1.6.2.2.2 A change or replacement of generating equipment such as generator(s), inverter(s), solar panel(s), transformers, relaying controls, etc. that is a like-kind substitution in size, ratings, impedances, efficiencies or capabilities of the equipment specified in the original or preceding Interconnection Request;

~~1.5.2.2.3~~1.6.2.2.3 An increase in the DC/AC ratio that does not increase the maximum AC output capability of the Generating Facility;

~~1.5.2.2.4~~1.6.2.2.4 A decrease in the DC/AC ratio that does not reduce the AC output capability of the Generating Facility by more than 10%.

1.6.2.2.5 A change in the DC system configuration to include additional equipment that does not impact the Maximum Generating Capacity, daily production profile or the proposed AC configuration of the Generating Facility including: DC optimizers, DC-DC converters, DC charge controllers, power plant controllers, and energy storage devices such that the output is delivered during the same periods and with the same profile considered during the System Impact Study.

~~1.5.2.2.5~~1.6.2.2.6 For a Utility administering a Definitive Interconnection Study Process, a change in the POI to a new location or new voltage level, where requested by the Utility and agreed to by the Interconnection Customer pursuant to Section 4.4.6.

~~1.5.3~~1.6.3 To the extent Interconnection Customer proposes to modify any information provided in the Interconnection Request deemed complete by the Utility, the Interconnection Customer shall submit any such modifications to the Utility in writing. If the Utility determines that the proposed modification(s) constitutes a Material Modification, the Utility shall notify the Interconnection Customer in writing within ten (10) Business Days that the modification is a Material Modification and the Interconnection Request shall be withdrawn from the queue unless the Interconnection Customer withdraws the proposed Material Modification within 15 Calendar Days of receipt of the Utility's written notification. If the modification is determined by the Utility not to be a Material Modification, then the Utility shall notify the Interconnection Customer in writing that the modification has been accepted and that the Interconnection Customer shall retain its Queue Number. Any dispute as to the Utility's determination that a modification constitutes a Material Modification shall proceed in accordance with Section 6.2 below.

~~1.5.4~~1.6.4 Modification Inquiry

~~1.5.4.1~~1.6.4.1 Prior to making any modification, the Interconnection Customer may first submit an informal modification inquiry in writing that requests the Utility to evaluate whether such modification to the original or most recent Interconnection Request is a Material Modification. The Interconnection Customer shall provide specific details on all changes that are to be considered by the Utility.

~~1.5.4.2~~1.6.4.2 In response to Interconnection Customer's informal request, if the Utility evaluates the proposed modification(s) and determines that the changes are not Material Modifications, the Utility shall inform the Interconnection Customer in writing within ten (10) Business Days. If the Interconnection Customer wishes to proceed with the proposed modification(s), the Interconnection Customer shall submit a revised Interconnection Request Application Form that reflects the approved modifications.

~~1.6~~1.7 Site Control

Documentation of site control shall be submitted to the Utility with the Interconnection Request using the sample site control verification form included in the Interconnection Request in Attachment 2.

Site control may be demonstrated through:

1. Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing the Generating Facility;

2. An option to purchase or acquire a leasehold site for such purpose; or

3. An exclusivity or other business relationship between the Interconnection Customer and the entity having the right to sell, lease, or grant the Interconnection Customer the right to possess or occupy a site for such purpose.

Should Interconnection Customer's site control lapse at any point in time prior to interconnection and such lapse is brought to the attention of Utility, the Utility shall notify the Interconnection Customer in writing of the alleged lapse in site control. The Interconnection Customer shall have ten (10) Business Days from the posted date on the notice from the Utility to cure and submit documentation of re-established site control, where failure to cure the lapse will result in the Interconnection Request being deemed withdrawn.

~~1.7~~1.8 Queue Number and Queue Position

~~1.7.1~~1.8.1 The Utility shall assign each Interconnection Request a Queue Number pursuant to Section 1.64.2. ~~Subject to an Interconnection Customer's election to participate in an optional Utility-sponsored System~~

~~Impact Grouping Study, as described in Section 4.3.4~~Where a utility is studying each Interconnection Request serially, the Queue Number of each Interconnection Request shall be used to determine the cost responsibility for the Upgrades necessary to accommodate the interconnection. Subject to Sections 1.~~7~~8.3 and~~,~~ 1.~~8~~9~~, and Section 4.3.4~~, the Queue Number of each Interconnection Request shall also determine the order in which each Interconnection Request is studied. Where a Utility is administering a Definitive Interconnection Study Process, all Interconnection Requests studied in a single Cluster shall be considered equally queued but Clusters initiated earlier in time shall be considered to have an earlier Queue Position than clusters initiated later. The Queue Position of an Interconnection Request shall have no bearing on the allocation of the cost of the common U~~u~~pgrades identified in the applicable Cluster Study (such costs will be allocated among Interconnection Requests in accordance with Section 4.4.3).

~~1.7.2~~1.8.2 Subject to the provisions of Sections 1.5~~4~~, 1.6~~5~~, and 1.6~~9~~, Generating Facilities shall retain the Queue Number assigned to their initial Interconnection Request throughout the review process, including when moving through the processes covered by Sections 2, 3, and 4.

~~1.7.3~~1.8.3 ~~A~~ Where a Utility is administering a Definitive Interconnection Study Process, ~~Queue Number established for purposes of administering~~ all Interconnection Requests in a Cluster established ~~a Competitive Resource Solicitation~~~~Cluster and inclusive of all Interconnection Requests in the Cluster established~~ under Section 4.~~3~~.4 shall not be subject to the Interdependency provisions of Section 1.~~8~~9. ~~Any Interconnection Customer that elects to participate in the System Impact Grouping Study and is selected through the Competitive Resource Solicitation shall complete the Section 4 Study process based upon the Queue Position designated to administer the Competitive Resource Solicitation and the Interconnection Customer's cost responsibility shall be determined based upon the terms of the Competitive Resource Solicitation. Any Interconnection Customer that elects to participate in the System Impact Grouping Study established in Section 4.3.4 but is not selected through the Competitive Resource Solicitation shall be deemed subordinate to the designated Competitive Resource Solicitation Queue Number or an Interconnection Customer that has completed System Impact Study and committed to Upgrades under Section 4.3.9, but shall maintain its original Queue Position for purposes of determining cost responsibility for Upgrades in relation to (i) other Interconnection Customers that elected to participate in the System Impact Grouping Study, but were not selected through the Competitive Resource Solicitation; and (ii) projects that were assigned a Queue Number after the date on which the Queue Number was designated by the Utility to administer the System Impact Grouping Study.~~

~~1.8~~1.9 Interdependent Projects Under Serial Study Process

"Interdependent Customer" (or "Project"), "Project A", "Project B", and "Project C" are defined in the Glossary of Terms (see Attachment 1).

1.9.1 Determination of interdependent project status for each Interconnection Customer is required where a Utility is administering a serial interconnection study process. Where the Commission has authorized a Utility to administer a Definitive Interconnection Study Process prescribed in Section 4.4, the Utility shall administer a Cluster Study process where Queue Position is determined at the Cluster level and not at the individual Interconnection Customer level such that the interdependency process prescribed in Section 1.9 shall not apply.

~~1.8.1~~1.9.2 Upon an Interconnection Customer's submission of a Section 1.4 Interconnection Request for the Section 3 Fast Track Process or Section 4 Study Process, the Utility shall review the Interconnection Request and make a preliminary determination whether any known Interdependency exists between the Interconnection Customer's proposed Generating Facility and any other Interconnection Customer with a lower Queue Number. Any preliminary determination by the Utility that the Generating Facility does not create an Interdependency will result in the Interconnection Request being preliminarily designated as a Project A and the Utility shall proceed immediately to either the Section 3 Fast Track Process or the Section 4 Study process, as applicable. The Utility shall advise the Interconnection Customer in writing or at the Section 4.2 scoping meeting, if requested by the Interconnection Customer, regarding its preliminary determination of whether Interdependency would be created by the Generating Facility. A Generating Facility designated and reviewed for system impacts as a Project A may still be determined to create an Interdependency and may be designated by the Utility as an Interdependent Project during the Section 4.3 System Impact Study Process. Once the System Impact Study Report is issued by the Utility designating a Generating Facility as a Project A for purposes of the Section 4.~~4~~ 5 Facilities Study, the Interconnection Request shall retain this designation without change.

~~1.8.2~~1.9.3 If the Utility determines that the Interconnection Customer's proposed Generating Facility is Interdependent with one (1) other Interconnection Request with a lower Queue Number, the Utility shall notify the Interconnection Customer in writing or at the Section 4.2 scoping meeting that the Interconnection Request is designated as a Project B.

~~1.8.2.1~~1.9.3.1 Following the Section 4.2 scoping meeting and execution of the System Impact Study Agreement, the Project B shall proceed to the Section 4.3 Study process. Project B shall receive a System Impact Study Report that assumes the interdependent Project A Interconnection Request with the lower Queue Number completes construction and

interconnection and another System Impact Study Report that assumes the interdependent Project A Interconnection Request with the lower Queue Number is not constructed and is withdrawn.

~~1.8.2.2~~1.9.3.2 The Utility shall not proceed to a Project B Facilities Study until after the Project B Interconnection Customer returns a signed Facilities Study Agreement to the Utility and the Utility has issued the Section 4.5~~4~~.4 Facilities Study Report for the Interdependent Project A. The Project B Interconnection Customer shall then have the option of whether to proceed with a Facility Study, or wait until the Interdependent Project A executes an Interconnection Agreement and makes payment for any required Upgrade, Interconnection Facilities, and other charges under Section 5.2. If the Project B Interconnection Customer signed a Facilities Study Agreement prior to Interdependent Project A committing to Section 5 construction, the Project B's Facility Study shall assume that the Interdependent Project A Interconnection Request with the lower Queue Number completes construction and interconnection. If Project A is later cancelled prior to the Project A Interconnection Customer making payment for the required Upgrade, the Utility will revise the Project B Facility Study at Project B Interconnection Customer's expense. If Project B Interconnection Customer chooses to wait to request the Project B Facility Study, Project B is not required to adhere to the timeline in Section 4.~~4~~5.1 until Project A has signed an Interconnection Agreement and paid the charges specified in Section 5.2.4 of these Interconnection Procedures or withdrawn.

~~1.8.3~~1.9.4 If the Utility determines that the Interconnection Customer's proposed Generating Facility is Interdependent with more than one (1) other Interconnection Request with lower Queue Numbers, the Utility shall make a preliminary determination and notify the Interconnection Customer in writing or at the Section 4.2 scoping meeting, if requested by the Interconnection Customer, describing generally the number and type of Interdependencies of Interconnection Requests with lower Queue Numbers.

~~1.8.3.1~~1.9.4.1 Except as provided in Section 1.~~8~~9.3.3 below, the Utility shall not study a project if it is interdependent with more than one project, each of which has a lower Queue Number. The Utility will study a project when interdependency with only one lower Queue Number project exists. The removal of interdependency with multiple projects may be the result of 1) upgrades to the Utility System which eliminate the cause of the

interdependency, 2) withdrawal of interdependent project(s) with lower Queue Numbers, or 3) a lower Queue Number project signing an Interconnection Agreement and making payments required in Section 5.2.4.

~~1.8.3.2~~1.9.4.2 Within five (5) Business Days of an Interconnection Request becoming a Project B Interconnection Request that is Interdependent with only one (1) other Interconnection Request with a lower Queue Number, the Utility shall notify the Interconnection Customer in writing and provide the new Project B an executable System Impact Study Agreement. Upon being designated by the Utility as a Project B, the Interconnection Customer may request a Section 4.2 scoping meeting on or before the date that the System Impact Study Agreement must be returned to the Utility pursuant to Section 4.2.1. The new Project B Interconnection Customer's Queue Number will be used to determine the order in which the Interconnection Request is studied under Section 4.3 relative to all other Interconnection Requests.

~~1.8.3.3~~1.9.4.3 When an Interconnection Customer is proposing to interconnect a Small Animal Waste Facility and that facility is interdependent with more than one project, each of which has a lower Queue Number, the Utility shall designate the Small Animal Waste Facility for expedited Section 4 study ahead of other interdependent Interconnection Customers that have not commenced the Section 4 Study Process pursuant to Section 1.8.3.1, as either (i) Project B, if the project with the next lowest Queue Number to Project A has not completed the Section 4.2 scoping meeting or executed a System Impact Study Agreement; or (ii) Project C, if a Project B has already been designated by the Utility, completed the Section 4.2 scoping meeting, or executed a System Impact Study Agreement. Upon being designated by the Utility as a Project C, the Small Animal Waste Facility shall be the next facility to become a Project B, regardless of whether another interdependent Interconnection Request with a lower Queue Number exists and notwithstanding Section 1.~~8~~9.3.2. Upon being designated a Project B, a Small Animal Waste Facility shall be the next Project B studied under Section 4.3 regardless of Queue Number.

~~1.8.3.4~~1.9.4.4 When an Interconnection Customer is proposing to interconnect a Standby Generating Facility with zero export requested, the Utility shall designate the Standby Generating Facility for expedited Section 4 study as a Project A and also ahead of all other Section 4 studies currently underway in the

Utility study queue, unless there are other Standby Generating Facilities currently under study, in which case such Standby Generating Facilities shall be studied in their own queue order. Notwithstanding Section 1.~~7~~8.1, a Standby Generating Facility will be responsible for Interconnection Facilities and any Upgrades arising from its designated Project A position in the Queue as provided for in this section.

~~1.9~~1.10 Interconnection Requests Submitted Prior to the Effective Date of these Procedures

Other than as set forth in Section 1.1.3, nothing in this Standard affects an Interconnection Customer's Queue Number assigned before the effective date of these procedures. Interconnection Requests which have received a System Impact Study report as of the effective date of these procedures that did not identify any interdependency with another project shall be deemed a Project A. Any Interconnection Requests for which the Utility has not completed the System Impact Study and issued a System Impact Study Report to the Interconnection Customer as of the effective date of these procedures shall be reviewed for Interdependency pursuant to Section 1.~~8~~9.

Where the Commission has authorized a Utility to administer a Definitive Interconnection Study Process prescribed in Section 4.4, any Interconnection Customer that has received a Queue Number but has not executed an Interconnection Agreement with the Utility prior to the effective date of the Revised Standard may request to be studied under the following Transition Procedures or shall be withdrawn from the queue:

1.10.1 Transitional Serial Projects.

An Interconnection Customer that has a) a final System Impact Study Report that identifies the Interconnection Facilities and any Upgrades required to feasibly interconnect the proposed Generating Facility, and b) a Facilities Study Agreement executed by the Interconnection Customer prior to the effective date of the Revised Standard, may opt to continue with the serial Facilities Study process if the Interconnection Customer meets each of the following requirements that demonstrate readiness within the timeframe prescribed in Section 1.1.3:

a) The Interconnection Customer makes a supplemental non-refundable deposit equal to the greater of: a) one hundred percent (100%) of the System Upgrade costs identified in the Interconnection Customer's System Impact Study Report; or b) a minimum deposit based upon the Interconnection Customers' nameplate capacity identified in the Interconnection Request of: $100,000 for Interconnection Customers up to 5MW; $150,000 for Interconnection Customers greater than 5 MW up to 10 MW; $200,000 for Interconnection Customers greater than 10 MW up to 20 MW; $500,000 for I~~i~~nterconnection Customers greater than 20

MW up to 50 MW, or $800,000 for Interconnection Customers greater than 50 MW. The supplemental deposit shall be in the form of an irrevocable letter of credit upon which the Utility may draw or a cash deposit. The supplemental deposit shall be held by the Utility as a non-refundable pre-payment for the estimated cost of System Upgrades to be designed by the Utility in the Section 4.5 Facilities Study.

b) The Interconnection Customer affirms that it holds exclusive site control to construct the entire Generating Facility and all required Interconnection Facilities to the Point of Interconnection to the Utility's System.

c) The Interconnection Customer provides one of the following:

i. A contract, binding upon the parties to the contract, for sale of the Generating Facility's energy where the term of sale is not less than five (5) years, or

ii. Reasonable evidence that the Generating Facility is included in a Utility's Resource Plan or has received a contract award in a Resource Solicitation Process.

1.10.1.1 For each Interconnection Customer that achieves the Transitional Serial readiness requirements described in Section 1.10.1, the Utility shall complete the Facilities Study pursuant to the process established in Section 4.5. The Utility and the Interconnection Customer shall then follow the Section 5 Construction Planning and Interconnections Agreement administration process, except that the Milestone 4 requirement in Section 5.1.1 shall not apply to Interconnection Customers participating in the Transitional Serial Study.

1.10.1.2 If an Interconnection Customer that has entered the Transitional Study process withdraws the Interconnection Request or otherwise does not reach Commercial Operation, the supplemental deposit amount shall be forfeited to the Utility, with amounts deposited for pre-payment of System Upgrades to be used to construct the Upgrades identified in the System Impact Study Report. If the Interconnection Customer submitted a minimum supplemental deposit amount in excess of its assigned System Upgrades, the minimum deposit amount shall be treated as a Withdrawal Penalty and distributed to fund restudies and if not necessary for restudy will be distributed to fund future Cluster Study costs pursuant to Section 6.3.6. Notwithstanding the foregoing, an Interconnection Customer may withdraw without being subject to a Withdrawal Penalty and be fully refunded pre-payment amounts for System Upgrades where (1) the Interconnection Customer's System Upgrades identified in the Facilities Study Report exceed the Interconnection Customer's Section 1.10.1.a) minimum deposit amount;

(2) the Interconnection Customer's System Upgrades identified in the Facilities Study Report increased by more than twenty-five percent (25%) compared to the costs identified in the Interconnection Customer's System Impact Study Report; and (3) the Interconnection Customer provides written notice of withdrawal to the Utility within ten (10) Business Days of receipt of the Facilities Study Report.

1.10.1.3 If the Interconnection Customer proceeds to execute an Interconnection Agreement, the supplemental deposit shall be applied towards future construction costs required to complete the interconnection under the Interconnection Agreement and shall be trued up by the Utility in the Detailed Estimated Upgrade Charges.

1.10.2 Transitional Cluster Study Process.

An Interconnection Customer with an assigned Queue Position prior to the effective date of the Revised Standard, may opt to enter the transitional cluster study ("Transitional Cluster Study") if the Interconnection Customer: (1) meets the requirements in Section 1.10.2.1; and (2) executes a Transitional Cluster Study Agreement pursuant to the process established in Section 1.1.3. All Interconnection Customers who enter the Transitional Cluster Study shall be considered to have an equal Queue Position, and identified Upgrade costs shall be allocated according to Section 4.4.4 of this Revised Standard. The Transitional Cluster Study costs shall be allocated according to the method described in Section 4.4.3.

1.10.2.1 A Transitional Cluster Study general informational meeting open to all eligible Interconnection Customers shall be held within thirty (30) calendar days of the effective date of Revised Standard. To join the Transitional Cluster Study, the Interconnection Customer must meet all of the following requirements within the timeframe prescribed in Section 1.1.3:

a) The Interconnection Customer must make a supplemental Interconnection Request study deposit, if necessary, to increase the Interconnection Customer's total study deposit to equal the amount required under Section 1.5.1.2 of the Revised Standard;

b) The Interconnection Customer must affirm that it has exclusive site control for the entire Generating Facility and all required Interconnection Facilities to the Point of Interconnection to the Utility's System; and

c) The Interconnection Customer must provide reasonable evidence that the Interconnection Customer has executed a contract, binding upon the parties to the contract, or has established a legally

enforceable obligation binding upon the Interconnection Customer, for sale of the Generating Facility's energy to the Utility, where the term of sale is not less than five (5) years.

1.10.2.2 If one or more valid requests are received into the Transitional Cluster Study, the Utility shall undertake an expedited thirty (30) Calendar Day customer engagement process as provided for in Section 4.4.1 and shall then initiate a Phase 1 study under the procedures prescribed in Section 4.4.7.1 ("Transitional Cluster Study Phase 1") to evaluate the impact of the proposed interconnection(s) within the Transitional Cluster Study on the reliability of the Utility's System. The Utility shall use Reasonable Efforts to complete the Transitional Cluster Study Phase 1 consisting of a power flow and voltage analysis within ninety (90) Calendar Days. The Transitional Cluster Study Phase 1 Report shall identify the Interconnection Facilities and System Upgrades that are expected to be required as a result of the Interconnection Request(s) and provide a non-binding good-faith indicative estimate of cost responsibility and a non-binding good-faith estimated time to construct. The Utility will host a meeting to discuss the results of Transitional Cluster Study Phase 1 within ten (10) Calendar Days of issuing the Transitional Cluster Study Phase 1 Report.

1.10.2.3 Within thirty (30) Calendar Days of the Utility's publication of the Transitional Cluster Study Phase 1 Report, each Interconnection Customer electing to proceed with Phase 2 of the Transitional Cluster Study shall submit a non-refundable supplemental deposit based upon the Interconnection Customers' nameplate capacity identified in the Interconnection Request of: $100,000 for Interconnection Customers up to 5MW; $150,000 for Interconnection Customers greater than 5 MW up to 10 MW; $200,000 for Interconnection Customers greater than 10 MW up to 20 MW; $500,000 for Interconnection Customers greater than 20 MW up to 50 MW, or $800,000 for Interconnection Customers greater than 50 MW.

An Interconnection Customer electing to withdraw from the Transitional Cluster Study prior to commencement of the Phase 2 study shall be assigned its allocated Transitional Cluster Study Phase 1 study costs subject to the withdrawal process under Section 6.3.4, but shall not be subject to any Withdrawal Penalty.

1.10.2.4 Once Transitional Cluster Study Phase 2 commences, the Utility shall complete an updated power flow/voltage analysis (if necessary), stability analysis and short circuit analysis for the Interconnection Customers remaining in the Transitional Cluster Study pursuant to the procedures in Section 4.4.7.3. The Utility shall use Reasonable Efforts to complete the Phase 2 analysis within one hundred fifty (150) Calendar Days. The results of this analysis shall identify the Interconnection Facilities and

Network Upgrades expected to be required to reliably interconnect the Generating Facilities proceeding in the Transitional Cluster Study and shall provide a non-binding good-faith estimate of cost responsibility and a non-binding good-faith estimated time to construct. The Phase 2 Report shall identify each Interconnection Customer's estimated allocated costs for the Interconnection Facilities and Network Upgrades that would be borne by the Interconnection Customer under a future Interconnection Agreement.

If the Interconnection Customer withdraws the Interconnection Request at any time after Phase 2 commences or otherwise does not reach Commercial Operation, the Section 1.10.2.3 supplemental deposit amount provided after Phase 1 shall be treated as a Withdrawal Penalty and distributed to fund future Cluster Study costs pursuant to Section 6.3.6, unless (1) the System Upgrades assigned to the Interconnection Customer exceeds the supplemental deposit amount required under Section 1.10.2.3; and (2) the Utility determines consistent with Good Utility Practice that a Withdrawal Penalty should not be assigned pursuant to Section 6.3.5.

1.10.2.5 Within thirty (30) Calendar Days of the Utility's publication of the Transitional Cluster Study Phase 2 Report, each Interconnection Customer within the Transitional Cluster Study shall meet the following requirements:

a) Submit a non-refundable deposit equal to one hundred percent (100%) of the System Upgrade costs identified in the Transitional Cluster Study Phase 2 Report, that would be borne by the Interconnection Customer under a future Interconnection Agreement. The deposit shall be in the form of an irrevocable letter of credit upon which the Utility may draw or a cash deposit;

b) demonstrate definitive readiness by having executed a contract, binding upon the parties to the contract, for sale of the Generating Facility's energy to the Utility, where the term of sale is not less than five (5) years; and

c) execute a Facilities Study Agreement to proceed with Facilities Study under Section 4.5.

If any Interconnection Customer within the Transitional Cluster Study fails to meet the foregoing requirements, such Interconnection Customer shall be deemed withdrawn and subject to the Withdrawal Penalty identified in Section 1.10.2.4. The Utility shall determine whether re-study of the Transitional Cluster Interconnection Customers is required pursuant to the procedures of Section 4.4.7.5 prior to executing the

Facilities Study Agreement and returning it to the Interconnection Customers.

1.10.2. 6 The Utility shall complete the Facilities Study for all Interconnection Customers in the Transitional Cluster Study pursuant to Section 4.5. Within ten (10) Business Days of the Utility's issuance of the Facilities Study Report, the Interconnection Customers shall either increase or decrease its additional non-refundable deposit provided after Phase 2 of the Transitional Cluster Study to equal the cost of any System Upgrades identified in the Transitional Cluster Facilities Study Report, that would be borne by the Interconnection Customer under a future Interconnection Agreement, or the Interconnection Customer shall be deemed withdrawn. The Utility and the Interconnection Customer shall follow the Section 5 Construction Planning and Interconnection Agreement administration process, except that the Milestone 4 requirement in Section 5.1.1 shall not apply to Interconnection Customers participating in the Transitional Cluster Study.

Section 2. Optional 20 kW Inverter Process for Certified Inverter-Based Generating Facilities No Larger than 20 kW

2.1 Applicability

The 20 kW Inverter Process is available to an Interconnection Customer proposing to interconnect its inverter-based Generating Facility with the Utility's System if the Generating Facility is no larger than 20 kW and if the Interconnection Customer's proposed Generating Facility meets the codes, standards, and certification requirements of Attachments 4 and 5 of these procedures, or the Utility has reviewed the design or tested the proposed Generating Facility and is satisfied that it is safe to operate.

The Utility may require the Interconnection Customer to install a manual load-break disconnect switch or safety switch as a clear visible indication of switch position between the Utility System and the Interconnection Customer. When the installation of the switch is not otherwise required (e.g. National Electric Code, state or local building code) and is deemed necessary by the Utility for certified, inverter-based generators no larger than 10 kW, the Utility shall reimburse the Interconnection Customer for the reasonable cost of installing a switch that meets the Utility's specifications (see also Section 6.16).

2.2 Interconnection Request

The Interconnection Customer shall complete the Interconnection Request Application Form for a certified inverter-based Generating Facility no larger than 20 kW in the form provided in Attachment 6 and submit it to the Utility, together with the non-refundable processing fee specified in the Interconnection Request Application Form and the documentation required pursuant to Section 1.4.1.

2.2.1 The Utility shall verify that the Generating Facility can be interconnected safely and reliably using the screens contained in the Fast Track Process. (See Section 3.2.1.) The Utility has 15 Business Days to complete this process. Unless the Utility determines and demonstrates that the Generating Facility cannot be interconnected safely and reliably, the Utility shall approve the Interconnection Request upon fulfillment of all requirements in Section 1.4 and return the Interconnection Request Application Form to the Interconnection Customer.

2.2.1.1 If the proposed interconnection passes the screens but the Utility determines that minor Utility construction is required to interconnect the Generating Facility to the Utility's System, the Interconnection Request shall be approved and the Utility will provide the Interconnection Customer a non-binding good faith estimate of the cost of interconnection along with the Interconnection Request Application Form within 15 Business Days after the determination.

2.2.1.2 If the proposed interconnection passes the screens, but the costs of interconnection including System Upgrades and Interconnection Facilities cannot be determined without further study or review, the Utility will notify the Interconnection Customer that the Utility will need to complete a Facilities Study under Section 4.4 to determine the necessary costs of interconnection and will charge the actual cost of the Facilities Study to the Interconnection Customer.

2.2.2 Screen failure: Despite the failure of one or more screens, the Utility, at its sole option, may approve the interconnection provided such approval is consistent with safety and reliability. If the Utility cannot determine that the Generating Facility may be interconnected consistent with safety, reliability, and power quality standards, the Utility shall provide the Interconnection Customer with detailed information on the reasons for failure in writing. In addition, the Utility shall either:

2.2.2.1 Notify the Interconnection Customer in writing that the Utility is continuing to evaluate the Generating Facility under Section 3.4 Supplemental Review if the Utility concludes that the Supplemental Review might determine that the Generating Facility could continue to qualify for interconnection pursuant to Fast Track; or

2.2.2.2 Offer to continue evaluating the Interconnection Request under the Section 4 Study Process.

2.3 Certificate of Completion

2.3.1 After installation of the Generating Facility, the Interconnection Customer shall submit the Certificate of Completion in the form provided in Attachment 6 to the Utility. Prior to parallel operation, the Utility may inspect the Generating Facility for compliance with standards including a witness test and the scheduling of an appropriate metering replacement, if necessary.

2.3.2 The Utility shall notify the Interconnection Customer in writing that interconnection of the Generating Facility is authorized. If the witness test is not satisfactory, the Utility has the right to disconnect the Generating Facility. The Interconnection Customer has no right to operate in parallel with the Utility until a witness test has been performed, or previously waived on the Interconnection Request. The Utility is obligated to complete this witness test within ten (10) Business Days of the receipt of the Certificate of Completion. If the Utility does not inspect within ten (10) Business Days or by mutual agreement of the Parties, the witness test is deemed waived.

2.3.3 Interconnection and parallel operation of the Generating Facility is subject to the Terms and Conditions stated in Attachment 6 of these procedures.

2.4 Contact Information

The Interconnection Customer must provide its contact information. If another entity is responsible for interfacing with the Utility, that contact information must also be provided on the Interconnection Request Application Form.

2.5 Ownership Information

The Interconnection Customer shall provide the legal name(s) of the owner(s) of the Generating Facility.

2.6 UL 1741 Listed

The Underwriters' Laboratories (UL) 1741 standard (Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources) addresses the electrical interconnection design of various forms of generating equipment. Many manufacturers submit their equipment to a nationally recognized testing laboratory that verifies compliance with UL 1741. This "listing" is then marked on the equipment and supporting documentation.

Section 3. Optional Fast Track Process for Certified Generating Facilities

3.1 Applicability

The Fast Track Process is available to an Interconnection Customer proposing to interconnect its Generating Facility with the Utility's System if the Generating Facility’s capacity does not exceed the size limits identified in the table below. Generating Facilities below these limits are eligible for Fast Track review. However, Fast Track eligibility is distinct from the Fast Track Process itself, and

eligibility does not imply or indicate that a Generating Facility will pass the Fast Track screens in Section 3.2 below or the Supplemental Review screens in Section 3.4 below.

Fast Track eligibility is determined based upon the generator type, the size of the generator, voltage of the line and the location of and the type of line at the Point of Interconnection. Generating Facilities connecting to lines greater or equal to 35 kilovolt (kV) are ineligible for the Fast Track Process regardless of size, unless mutually agreed to in writing between the Interconnection Customer and the Utility. Only certified inverter-based systems are eligible for the Fast Track Process and the size limit varies according to the voltage of the line at the proposed Point of Interconnection. Certified inverter-based Generating Facilities located within 2.5 electrical circuit miles of a substation and on a mainline (as defined in the table below) are eligible for the Fast Track Process under the higher thresholds set forth in the table below. In addition to the size threshold, the Interconnection Customer's proposed Generating Facility must meet the codes, standards, and certification requirements of Attachments 4 and 5 of these procedures, or the Utility has to have reviewed the design or tested the proposed Generating Facility and be satisfied that it is safe to operate.

Fast Track Eligibility for Inverter-Based Systems[1]		
Line Voltage	Fast Track Eligibility Regardless of Location	Fast Track Eligibility on a Mainline[2] and ≤ 2.5 Electrical Circuit Miles from Substation[3]
< 5 kV	≤ 100 kW	≤ 500 kW
≥ 5 kV and < 15 kV	≤ 1 MW	≤ 2 MW
≥ 15 kV and < 35 kV	≤ 2 MW	≤ 2 MW

[1]Must be an UL certified inverter.
[2]For purposes of this table, a mainline is the three-phase backbone of a circuit. It will typically constitute lines with wire sizes of 4/0 American wire gauge, 336.4 kcmil, 397.5 kcmil, 477 kcmil, and 795 kcmil.
[3]An Interconnection Customer can determine this information about its proposed interconnection location in advance by requesting a Pre-Application Report pursuant to Section 1.3.

3.1.1 The Interconnection Customer may elect in the Interconnection Request Application Form to proceed directly to Supplemental Review, in order to minimize overall processing time in the event the Utility deems Supplemental Review is appropriate. This is accomplished by selecting both the Fast Track and Supplemental Review options on the Interconnection Request Application Form and paying the applicable Fast Track fee and Supplemental Review deposit.

3.2 Initial Review

Within 15 Business Days after the Utility notifies the Interconnection Customer it has received a complete Interconnection Request pursuant to Section 1.4 and the Utility has preliminarily determined that the Interconnection Request is not interdependent with more than one Interconnection Request with lower Queue Numbers under Section 1.8, the Utility shall perform an initial review using the screens set forth below, shall notify the Interconnection Customer of the results, and include with the notification copies of the analysis and data underlying the Utility's determinations under the screens.

3.2.1 Screens

3.2.1.1 The proposed Generating Facility's Point of Interconnection must be on a portion of the Utility's Distribution System.

3.2.1.2 For interconnection of a proposed Generating Facility to a radial distribution circuit, the aggregated generation, including the proposed Generating Facility, on the circuit shall not exceed 15% of the line section annual peak load as most recently measured at the substation. A line section is that portion of a Utility’s System connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line.

3.2.1.3 For interconnection of a proposed Generating Facility to a radial distribution circuit, the aggregated generation, including the proposed Generating Facility, on the circuit shall not exceed 90% of the circuit and/or bank minimum load at the substation.

3.2.1.4 For interconnection of a proposed Generating Facility to the load side of spot network protectors, the proposed Generating Facility must utilize an inverter-based equipment package and, together with the aggregated other inverter-based generation, shall not exceed the smaller of 5% of a spot network's maximum load or 50 kW.

3.2.1.5 The proposed Generating Facility, in aggregation with other generation on the distribution circuit, shall not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed point of change of ownership.

3.2.1.6 The proposed Generating Facility, in aggregate with other generation on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Interconnection Customer equipment on the

system to exceed 87.5% of the short circuit interrupting capability; nor shall the interconnection be approved for a circuit that already exceeds 87.5% of the short circuit interrupting capability.

3.2.1.7 Using the table below, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service to be provided to the Interconnection Customer, including line configuration and the transformer connection for the purpose of limiting the potential for creating over-voltages on the Utility's System due to a loss of ground during the operating time of any anti-islanding function.

Primary Distribution Line Type	**Type of Interconnection to Primary Distribution Line**	**Result/Criteria**
Three-phase, three wire	3-phase or single phase, phase-to-phase	Pass Screen
Three-phase, four wire	Effectively-grounded three-phase or single phase, line-to-neutral	Pass Screen

3.2.1.8 If the proposed Generating Facility is to be interconnected on a single-phase shared secondary, the aggregate Generating Facility capacity on the shared secondary, including the proposed Generating Facility, shall not exceed 65% of the transformer nameplate rating.

3.2.1.9 If the proposed Generating Facility is single-phase and is to be interconnected on a center tap neutral of a 240 volt service, its addition shall not create an imbalance between the two sides of the 240 volt service of more than 20% of the nameplate rating of the service transformer.

3.2.1.10 The Generating Facility, in aggregate with other generation interconnected to the transmission side of a substation transformer feeding the circuit where the Generating Facility proposes to interconnect shall not exceed 10 MW in an area where there are known, or posted, transient stability limitations to generating units located in the general electrical vicinity (e.g., three or four transmission busses from the point of interconnection).

3.2.2 Screen Results

3.2.2.1 If the proposed interconnection passes the screens and requires no construction by the Utility on its own System, the Interconnection Request shall be approved and the Utility will provide the Interconnection Customer an executable Interconnection Agreement within ten (10) Business Days after the determination.

3.2.2.2 If the proposed interconnection passes the screens and the Utility is able to determine without further study or review that only minor Utility construction is required to interconnect the Generating Facility to the Utility's System, the Interconnection Request shall be approved and the Utility will provide the Interconnection Customer a non-binding good faith estimate of the cost of interconnection along with an executable Interconnection Agreement within 15 Business Days after the determination.

3.2.2.3 If the proposed interconnection passes the screens, but the costs of interconnection including System Upgrades and Interconnection Facilities cannot be determined without further study or review, the Utility will notify the Interconnection Customer that the Utility will need to complete a Facilities Study under Section 4.4 to determine the necessary costs of interconnection.

3.2.2.4 If the proposed interconnection fails the screens, but the Utility determines that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards, and requires no construction by the Utility on its own System, the Interconnection Request shall be approved and the Utility shall provide the Interconnection Customer an executable Interconnection Agreement within ten (10) Business Days after the determination.

3.2.2.5 If the proposed interconnection fails the screens, but the Utility determines that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards and the Utility is able to determine without further study or review that only minor Utility construction is required to interconnect with the Generating Facility, the Interconnection Request shall be approved and the Utility will provide the Interconnection Customer a non-binding good faith estimate of the cost of interconnection along with an executable Interconnection Agreement within 15 Business Days after the determination.

3.2.2.6 If the proposed interconnection fails the screens, and the Utility does not or cannot determine from the initial review that the Generating Facility may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Customer is willing to consider minor modifications or further study, the Utility shall provide the Interconnection Customer with the opportunity to attend a customer options meeting as described in Section 3.3 below.

3.3 Customer Options Meeting

If the Utility determines the Interconnection Request cannot be approved without (1) minor modifications at minimal cost, (2) a supplemental study or other additional studies or actions, or (3) incurring significant cost to address safety, reliability, or power quality problems, the Utility shall notify the Interconnection Customer of that determination within five (5) Business Days after the determination, and upon request provide copies of data and analyses underlying its conclusion. Within ten (10) Business Days of the Utility's determination, the Utility shall offer to convene a customer options meeting to review possible Interconnection Customer facility modifications or the screen analysis and related results, to determine what further steps are needed to permit the Generating Facility to be connected safely and reliably. At the time of notification of the Utility's determination, or at the customer options meeting, the Utility shall:

3.3.1 Offer to perform facility modifications or minor modifications to the Utility's System (e.g., changing meters, fuses, relay settings) and provide a non-binding good faith estimate of the limited cost to make such modifications to the Utility's System. The Interconnection Customer shall have ten (10) Business Days to agree to pay for the modifications to the Utility’s electric System or the Interconnection Request shall be deemed to be withdrawn. If the Interconnection Customer agrees to pay for the modifications to the Utility’s electric System, the Utility will provide the Interconnection Customer with an executable Interconnection Agreement within ten (10) Business Days of the Interconnections Customer’s agreement to pay; or

3.3.2 Offer to perform a Supplemental Review under Section 3.4 if the Utility concludes that the Supplemental Review might determine that the Generating Facility could continue to qualify for interconnection pursuant to the Fast Track Process, and provide a non-binding good faith estimate of the costs of such review. The Interconnection Customer shall have ten (10) Business Days to accept in writing the Utility’s offer to perform a Supplemental Review and post any deposit requirement for the Supplemental Review, or the Interconnection Request shall be deemed to be withdrawn; or

3.3.3 Offer to continue evaluating the Interconnection Request under the Section 4 Study Process. The Interconnection Customer shall have ten (10)

Business Days to agree in writing to its Interconnection Request continuing to be evaluated under the Section 4 Study Process, and post any deposit requirement for the Study Process, or the Interconnection Request shall be deemed to be withdrawn.

3.4 Supplemental Review

If the Interconnection Customer agrees to a Supplemental Review, the Interconnection Customer shall agree in writing within ten (10) Business Days of the offer, and submit a deposit of $750 (if the facility is larger than 20 kW but not larger than 100 kW) or $1,000 (if the facility is larger than 100 kW but not larger than 2 MW), or the request shall be deemed to be withdrawn. The Interconnection Customer shall be responsible for the Utility's actual costs for conducting the Supplemental Review. The Interconnection Customer must pay any review costs that exceed the deposit within 20 Business Days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Utility will return such excess within 20 Business Days of the invoice without interest.

3.4.1 Within ten (10) Business Days following receipt of the deposit for a Supplemental Review, the Utility will determine if the Generating Facility can be interconnected safely and reliably.

3.4.1.1 If so, the Utility shall forward an executable Interconnection Agreement to the Interconnection Customer within ten (10) Business Days.

3.4.1.2 If so, and Interconnection Customer facility modifications are required to allow the Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under these procedures, the Utility shall ask if the customer agrees to make the necessary modifications. The customer will be given 10 Business Days to agree, in writing, to the required modifications. The Utility will forward an executable Interconnection Agreement to the Interconnection Customer within 15 Business Days after confirmation that the Interconnection Customer has agreed to make the necessary modifications at the Interconnection Customer’s cost.

3.4.1.3 If so, and minor modifications to the Utility’s System are required to allow the Generating Facility to be interconnected consistent with safety, reliability, and power quality standards under these procedures, the Utility shall forward an executable Interconnection Agreement to the Interconnection Customer within ten (10) Business Days that requires the Interconnection Customer to pay the costs of such System modifications prior to interconnection.

3.4.1.4 If so, but the costs of interconnection including System Upgrades and Interconnection Facilities cannot be determined without further study or review, the Utility will notify the Interconnection Customer that the Utility will need to complete a Facilities Study under Section 4.4 to determine the necessary costs of interconnection.

3.4.1.5 If not, the Interconnection Request will continue to be evaluated under the Section 4 Study Process, provided the Interconnection Customer indicates it wants to proceed and submits the required deposit within 15 Business Days.

Section 4. Study Process

4.1 Applicability

The Study Process shall be used by an Interconnection Customer proposing to interconnect its Generating Facility with the Utility's System if the Generating Facility exceeds the size limits for the Section 3 Fast Track Process, is not certified, or is certified but did not pass the Fast Track Process or the 20 kW Inverter Process. The Interconnection Customer may be required to submit additional information or documentation, as may be requested by the Utility in writing, during the Study Process.

4.1.1. Applicability of Definitive Interconnection Study Process

For Duke Energy Carolinas, LLC and Duke Energy Progress, LLC, the Commission has authorized a Definitive Interconnection System Impact Cluster Study Process, as provided for in Sections 4.2.5, 4.4, and 6.3.4. Interconnection Customers may initially elect to obtain an Informational Interconnection Study, as provided for under Section 1.4, prior to submitting an Interconnection Request and proceeding into the Definitive Interconnection Study Process. Attachment 8-A provides Interconnection Customers an overview and timeline of initiation of a Definitive Interconnection Study Process: the DISIS Request Window, initial Customer Engagement Window, and Phase 1 of the DISIS. Customers that elect to withdraw from the Definitive Interconnection Study Process may be subject to a Withdrawal Penalty, as further addressed in Section 6.3.4.

4.2 Scoping Meeting

4.2.1 A scoping meeting will be held within ten (10) Business Days after the Interconnection Request is deemed complete, unless the Interconnection Customer is preliminarily designated as interdependent with more than one (1) Interconnection Request pursuant to Section 1.8.3.1, or as otherwise mutually agreed to by the Parties. The Utility and the Interconnection

Customer will bring to the meeting personnel, including system engineers and other resources as may be reasonably required to accomplish the purpose of the meeting. The scoping meeting may be omitted by mutual agreement in writing.

4.2.2 The purpose of the scoping meeting is to discuss the Interconnection Request and review existing studies relevant to the Interconnection Request. The Parties shall further discuss whether the Utility should perform a System Impact Study, a Facilities Study, or proceed directly to an Interconnection Agreement.

4.2.3 If the Utility, after consultation with the Interconnection Customer, determines the project should proceed to a System Impact Study or Facilities Study, the Utility shall provide the Interconnection Customer, no later than ten (10) Business Days after the scoping meeting, either a System Impact Study Agreement (Attachment 7) or a Facilities Study Agreement (Attachment 8), as appropriate, including an outline of the scope of the study or studies and a nonbinding good faith estimate of the cost to perform the study or studies, which cost shall be subtracted from the deposit outlined in Section 1.54.1.2.

4.2.4 If the Parties agree not to perform a System Impact Study or Facilities Study, but to proceed directly to an Interconnection Agreement, the Parties shall proceed to the Construction Planning Meeting as called for in Section 5.

~~4.2.4~~4.2.5 For Utilities authorized to implement a Definitive Interconnection Study Process, the Utility shall, within ten (10) Business Days after the close of the DISIS Request Window, host an open Scoping Meeting, for all Interconnection Requests received in the DISIS Request Window. If requested by an Interconnection Customer, the Utility shall also hold individual customer specific Scoping Meetings, which must be requested in writing no later than fifteen (15) business days after the close of the DISIS Request Window.

The purpose of the Scoping Meeting shall be to discuss alternative interconnection options; to exchange information, including any available transmission data that would reasonably be expected to impact such interconnection options; to review such information; and to determine the potential feasible Points of Interconnection. The Utility and Interconnection Customer will bring to the meeting such technical data, including, but not limited to: (i) general facility loadings, (ii) general instability issues, (iii) general short circuit issues, (iv) general voltage issues, and (v) general reliability issues as may be reasonably required to accomplish the purpose of the meeting. The Utility and Interconnection Customer will each bring to the meeting personnel and other resources as may be reasonably required to accomplish the purpose of the meeting in the time allocated for the

meeting. On the basis of the meeting, Interconnection Customer shall designate a single and definitive Point of Interconnection to be studied by the Utility during the Cluster Study.

At Interconnection Customer's option, the Utility and Interconnection Customer will identify alternative Point(s) of Interconnection and configurations at the Scoping Meeting to evaluate in the System Impact Cluster Study Process and attempt to eliminate alternatives in a reasonable fashion given resources and information available. Interconnection Customer shall select a single definitive Point of Interconnection to be studied no later than the execution of the Definitive System Impact Study Agreement and shall provide affirmation of site control to construct the entire Generating Facility and all required Interconnection Facilities to the designated Point of Interconnection no later than commencement of the Phase 1 study process described in Section 4.4.7.1.

4.3 System Impact Study (Serial Study Process)

~~4.3~~ The Section 4.3 serial interconnection study process is applicable to Interconnection Customers requesting to interconnect to a Utility's System that has not been authorized to implement a Definitive Interconnection Study Process and continues to study interconnection requests on a serial basis.

4.3.1 In order to retain its Queue Position the Interconnection Customer must return a System Impact Study Agreement signed by the Interconnection Customer within 15 Business Days of receiving an executable System Impact Study Agreement as provided for in Section 4.2.3.

4.3.2 The scope of and cost responsibilities for a System Impact Study are described in the System Impact Study Agreement. The time allotted for completion of the System Impact Study shall be as set forth in the System Impact Study Agreement.

4.3.3 The System Impact Study shall identify and detail the electric System impacts that would result if the proposed Generating Facility were interconnected without project modifications or electric System modifications, or to study potential impacts, including, but not limited to, those identified in the scoping meeting. The System Impact Study shall evaluate the impact of the proposed interconnection on the reliability of the electric System, including the distribution and transmission systems, if required.

~~4.3.4 At the Utility's option, and solely for purposes of administering a Commission-approved Competitive Resource Solicitation, a Utility may designate a Queue Number and act as authorized representative for Interconnection Customer(s) proposing a Generating Facility requesting to~~

~~interconnect to the Utility's System for evaluation through the Solicitation. The Utility shall evaluate combinations of such Interconnection Requests for purposes of conducting the System Impact Grouping Study(ies) of combinations of Generating Facilities within the Queue Number in order to achieve the resource need identified in the Competitive Resource Solicitation. Such studies in connection with a Competitive Resource Solicitation shall be implemented based upon the Queue Number relative to the Queue Position of all other Interconnection Requests. The Utility may also study an Interconnection Request separately to the extent provided for under the terms of the Competitive Resource Solicitation or if otherwise warranted by Good Utility Practice such as to evaluate the locational remoteness of a proposed Generating Facility.~~

~~Through completing the System Impact Grouping Study(ies) of the requested combinations of Interconnection Requests, the Utility must select one of the studied combinations that achieves the capacity solicited through the Competitive Resource Solicitation Process prior to the start of any Interconnection Facilities Study. While conducting the Interconnection Facilities Study(ies) for the selected combination of resources, the Utility may suspend further study of the Interconnection Customers that have opted in to the System Impact Grouping Study that are not included in the selected combination and such customers may elect during this period to return to their original Queue Position, subject to 1.7.3, or participate in a new Competitive Resource Solicitation, if available.~~

~~4.3.5~~4.3.4 The System Impact Study Report will provide the Preliminary Estimated Upgrade Charge, which is a preliminary indication of the cost and length of time that would be necessary to correct any System problems identified in those analyses and implement the interconnection.

~~4.3.6~~4.3.5 The System Impact Study Report will provide the Preliminary Estimated Interconnection Facilities Charge, which is a preliminary non-binding indication of the cost and length of time that would be necessary to provide the Interconnection Facilities.

~~4.3.7~~4.3.6 If the Utility has determined that an Interdependency exists and the Project is designated as a Project B, the Project B Interconnection Request shall receive a System Impact Study report, addressing a scenario assuming Project A is constructed and a second scenario assuming Project A is not constructed.

~~4.3.8~~4.3.7 After receipt of the System Impact Study Report(s), the Interconnection Customer shall inform the Utility in writing if it wishes to withdraw the Interconnection Request and to request an accounting of any remaining deposit amount pursuant to Section 6.3.

~~4.3.9~~4.3.8 At the time the System Impact Study Report is provided to the Interconnection Customer, the Utility shall also deliver an executable Facilities Study Agreement to the Interconnection Customer. After receipt of the System Impact Study Report and Facilities Study Agreement, when the Interconnection Customer is ready to proceed with the design and construction of the Upgrades and Interconnection Facilities, the Interconnection Customer shall return the signed Facilities Study Agreement to the Utility in accordance with Section 4.5~~4 and shall also submit payment or Financial Security reasonably acceptable to the Utility equal to the cost of any Network Upgrades identified in the Preliminary Estimated Upgrade Charge, as set forth in the System Impact Study Report, that would be borne by the Interconnection Customer under a future Interconnection Agreement. This payment or Financial Security shall be held by the Utility as a non-refundable pre-payment for the estimated cost of Network Upgrades to be designed by the Utility in the Section 4.4 Facilities Study. The preliminary Network Upgrade pre-payment amount shall be trued up by the Utility in the Detailed Estimated Upgrade Charges included in a future Interconnection Agreement or shall be forfeited to the Utility to construct the Network Upgrades if the Interconnection Request is subsequently withdrawn by the Interconnection Customer. Failure to timely make such pre-payments will result in the Utility removing the Interconnection Request from the queue~~.

4.4 Definitive Interconnection System Impact Study

Section 4.4 is applicable to Interconnection Customers requesting to interconnect to a Utility that has been authorized by the Commission to implement a Definitive Interconnection Study Process, as addressed in Section 4.1.1.

4.4.1 Initiation of a Definitive Interconnection System Impact Study Cluster.

The Utility shall accept Interconnection Requests during the "DISIS Request Window." A DISIS Request Window shall open annually on ~~October~~January 1 and shall remain open for 180 calendar days or the following Business Day if the 180th day falls on a weekend or NERC recognized holiday.

If one or more valid requests are received, for sixty (60) Calendar Days following the close of the DISIS Request Window (the "Customer Engagement Window"), the Utility shall work with applicable Interconnection Customers to build models, verify data, hold stakeholder meetings (including Scoping Meetings, as appropriate), cure any deficiencies in the Interconnection Request(s), and generally prepare for the start of the Definitive Interconnection System Impact Study. Notwithstanding the preceding sentence and upon written consent of all Interconnection Customers within a specific Cluster, the Utility may shorten the "Customer Engagement Window" in order to start the Definitive Interconnection

System Impact Study earlier. Within the first ten (10) Business Days following the close of the DISIS Request Window, the Utility shall post on the Utility's website a list of Interconnection Requests for that Cluster, identifying for each Interconnection Request: (i) the location by county and state; (ii) the distribution or transmission substation or transmission line or lines where the interconnection will be made; (iii) cluster being requested; and (iv) the type of Generating Facility to be constructed including fuel type such as wind, natural gas, coal, or solar.

Prior to the close of the Customer Engagement Window, each Interconnection Customer shall i) execute a DISIS Agreement pursuant to Section 4.4.5.1; ii) provide initial security equal to 1 times the Section 1.5.1.2 study deposit amount to enter the DISIS; and iii) provide evidence satisfactory to the Utility of either an initial Readiness Milestone ("M1"), as described in Section 4.4.10, or additional security in the form of an irrevocable letter of credit or cash in lieu of the M1 Readiness Milestone equal to one times the Study Deposit required in Section 1.5.1.2.

At the end of the Customer Engagement Window, all Interconnection Requests meeting the foregoing readiness requirements and that have an executed DISIS Agreement shall be included in that DISIS Cluster. Any Interconnection Requests not deemed sufficient pursuant to Section 1.5.4 or that are undergoing dispute resolution pursuant to Section 6.2 at the close of the Customer Engagement Window shall not be included in the commencing DISIS Cluster. Immediately following the Customer Engagement Window, the Utility shall initiate the Definitive Interconnection System Impact Study process described in more detail in Section 4.4.5.

4.4.2 Initiation of a Resource Solicitation Cluster.

At any time, and solely for purposes of administering a Commission approved Competitive Resource Solicitation, a Utility may initiate a Resource Solicitation Cluster. The Utility may administer the Resource Solicitation Cluster either separately or as part of a Definitive Interconnection System Impact Study Cluster initiated pursuant to Section 4.4.1. Where the Resource Solicitation Cluster is studied separately from the Definitive Interconnection System Impact Study Cluster, the Resource Solicitation Cluster shall respect Queue Position and shall be studied as its own Cluster based upon a Utility-designated Queue Number where the Utility acts as authorized representative for Interconnection Customer(s) in connection with a Competitive Resource Solicitation and shall Study the Cluster based upon the Queue Number of the Resource Solicitation Cluster relative to the Queue Position of all other Interconnection Requests/Clusters.

The Utility shall publicize the scope of study and timeframe to initiate the Resource Solicitation Cluster as part of the Competitive Resource

Solicitation. The timeline shall indicate the close of the Customer Engagement Window for that Resource Solicitation Cluster. Thereafter the Definitive Interconnection System Impact Study shall proceed as described in Sections 4.4.5 and 4.4.7.

A Generating Facility that initially is associated with a Queue Position through the Competitive Resource Solicitation may also reserve a later Queue Position separate from the Resource Solicitation Cluster. In either case, the Interconnection Customer must meet all requirements associated with maintaining each Queue Position for the Generating Facility. In the event a Generating Facility has multiple Queue Positions, it shall not be double counted in the study models.

After receipt of the Phase 2 Report produced in Section 4.4.7.3, the Utility must select one of the studied combinations by identifying winning applicants in the Competitive Resource Solicitation prior to the commencement of any Facilities Study associated with Generating Facilities selected in the Resource Solicitation Process. Prior to the completion of the Facilities Study for the combination of Generating Facilities selected in the Competitive Resource Solicitation, the Utility may replace Interconnection Customers, subject to any necessary Re-Study pursuant to Sections 4.4.7.5 or 4.4.9. While conducting the Definitive Interconnection Study Process, the Utility may suspend further action on the Interconnection Requests in the Competitive Resource Solicitation that are not included in the selected combination. Once a Generating Facility is rejected in the Resource Solicitation Process, the Generating Facility shall lose the Queue Position it held as part of the Competitive Resource Solicitation. If a Generating Facility is selected at the conclusion of the Competitive Resource Solicitation, the Generating Facility may no longer maintain more than one Queue Position.

4.4.3 Allocation of Study Costs for DISIS Cluster

The administering Utility shall determine each Interconnection Customer's share of the costs of completing the DISIS Cluster Study (including general queue administration costs and overheads) by allocating: (1) ten percent (10%) of the applicable study costs to Interconnection Customers on a per capita basis based on number of Interconnection Requests included in the applicable Cluster; and (2) ninety percent (90%) of the applicable study costs to Interconnection Customers on a pro-rata basis based on requested megawatts included in the applicable Cluster. If an Interconnection Customer exits the Cluster prior to the Utility commencing Phase 2 pursuant to Section 4.4.7.3 (including where the Utility determines through Phase 1 that a distribution-level System Impact Study should be completed for one or more distribution-level Interconnection Customers in lieu of being evaluated through Phase 2), then the Utility shall determine each Interconnection Customer's costs of preparing for and completing the DISIS

prior to commencing Phase 2 and shall then separately determine each remaining Interconnection Customer's costs for the remainder of the DISIS.

If a Phase 3 restudy or general restudy is required pursuant to Section 4.7.5 or 4.4.9, then Utility shall allocate the costs of the restudy as provided for in this section amongst the Interconnection Customers included in the restudy. If an Interconnection Customer proposes non-material changes to its Interconnection Request requiring limited restudy, the costs of the limited restudy shall be directly assigned to the requesting Interconnection Customer. The Facilities Study for a Utility administering the Definitive Interconnection Study Process shall continue to be an individual study and the costs for each Facilities Study is directly assigned to the Interconnection Customer associated with such study.

4.4.4 Allocation of Interconnection Facilities and Upgrade Costs within DISIS Cluster.

The Utility shall calculate each Interconnection Customer's share of Upgrades and Interconnection Facilities costs identified in Cluster Studies in the following manner:

a) Interconnection Station Upgrades, including all switching stations, shall be allocated based on the number of Generating Facilities interconnecting at an individual station on a per capita basis (i.e. on a per Interconnection Request basis). If multiple Interconnection Customers are connecting to the Utility's System through shared Interconnection Facility(ies), those Interconnection Customers shall be considered one Interconnection Customer for the per capita calculation described in the preceding sentence. Shared Interconnection Facilities shall be allocated based on the number of Generating Facilities sharing that Interconnection Facility on a per capita basis.

b) All Network Upgrades other than those identified in Subsection 4.4.4.a shall be allocated based on the proportional impact of each individual Generating Facility in the Cluster Studies on such Network Upgrades. The proportional impact of such Upgrades shall be calculated as follows. All transmission lines and transformers identified as Network Upgrades shall be allocated using distribution factor analysis. Voltage support related Upgrades shall be allocated using a voltage impact analysis which will identify each Generating Facility's contribution to the voltage violation. System Upgrades associated with upgrading existing breakers due to short circuit current exceeding breaker capability shall be allocated proportionally based on the short circuit current contribution of each request.

c) Costs of Distribution Upgrades shall be allocated or assigned to each Interconnection Customer based upon the proportional impact of each

individual Generating Facility in the Cluster Study based upon the need for the Distribution Upgrade. Distribution line work (e.g., reconductoring) shall be allocated to Generating Facilities contributing to the Upgrade on a per MW basis, based upon location (% of Upgrade). All other Distribution Upgrades shall be allocated on a per capita basis (i.e. on a per Interconnection Request basis) based upon the number of projects on the feeder or substation contributing to the need for the Upgrade.

d) Costs of Interconnection Facilities are directly assigned to the Interconnection Customer(s) using such facilities.

4.4.5 Execution of Definitive Interconnection System Impact Study Agreement.

Unless otherwise agreed, pursuant to the Scoping Meeting provided for in Section 4.2.5, within thirty (30) Calendar Days of the Utility's acknowledgement of a valid Interconnection Request requesting that a Definitive Interconnection System Impact Study be performed, the Utility shall provide to the Interconnection Customer a DISIS Agreement in the form of Attachment 8-C to this Revised Standard. At least seven (7) Calendar Days before the close of a Customer Engagement Window, the Utility shall provide to each Interconnection Customer proposing to enter the DISIS Cluster a non-binding updated good faith estimate of the cost and timeframe for completing the Definitive Interconnection System Impact Study.

The Interconnection Customer shall execute the DISIS Agreement and deliver the executed DISIS Agreement to the Utility no later than the close of the Customer Engagement Window or its Interconnection Request shall be withdrawn.

4.4.6 Scope of Definitive Interconnection System Impact Study.

The Definitive Interconnection System Impact Study shall evaluate the impact of the proposed interconnection(s) within the Cluster on the reliability of the Utility's System. The Definitive Interconnection System Impact Study will consider the Utility's Base Case as well as all generating facilities (and with respect to (iii) below, any identified Network Upgrades associated with such higher queued requests) that, on the date the DISIS Request Window closes: (i) are existing and directly interconnected to the Utility's System; (ii) are existing and interconnected to Affected Systems and may have an impact on the Interconnection Request; and (iii) have a pending Interconnection Request to interconnect to the Utility's System with a higher queue position than the DISIS Cluster, either individually under Section 1.10.1 or included in a higher queued Cluster Study.

As set forth in more detail in Section 4.4.7 below, the Definitive Interconnection System Impact Study is a phased study under which the

first phase (Phase 1) consists of a power flow and voltage analysis that is followed by a second phase (Phase 2) that consists of a short circuit analysis and a stability analysis. Any DISIS re-studies (Phase 3) shall consist of a power flow/voltage analysis, a short circuit analysis, and/or a stability analysis, as needed. The Definitive Interconnection System Impact Study report shall state the assumptions upon which it is based; state the results of the analyses; and provide the requirements or potential impediments to providing the requested interconnection, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and implement the interconnection. The Definitive Interconnection System Impact Study shall provide a list of facilities that are required as a result of the Interconnection Request and a non-binding good faith Preliminary Estimated Upgrade Charge estimate of cost responsibility and a nonbinding good faith estimated time to construct.

For purposes of clustering Interconnection Requests, the Utility may make reasonable changes to the requested Point(s) of Interconnection as part of the DISIS to facilitate the efficient and reliable interconnection of Interconnection Customers at common points of interconnection. The Utility shall notify Interconnection Customers in writing of any intended changes to the requested Point(s) of Interconnection and the Point(s) of Interconnection shall only change upon mutual agreement. Where the Interconnection Customer agrees to a Utility's proposal to change the Point of Interconnection and the change results in a loss of site control, the Interconnection Customer shall have 150 days to provide affirmation and reasonable documentation, if requested by the Utility, that site control to the new Point of Interconnection has been obtained or the Interconnection Customer shall be required to post the additional financial security required by Section 4.4.11 to continue to proceed through the Definitive Interconnection Study process.

Where an Interconnection Customer is proposing to interconnect a Generating Facility to the Utility's distribution system and is determined through Phase 1 not to cause or contribute to the need for Network Upgrades requiring further study in Phase 2, the Utility shall complete a distribution level System Impact Study, as further discussed in Section 4.4.7.1 below.

4.4.7 Definitive Interconnection System Impact Study Procedures.

Attachment 8-A to the Revised Standard provides an overview and timeline of the Definitive Interconnection Study Process, including the Phases and milestones associated with the Definitive Interconnection System Impact Study.

4.4.7.1 The DISIS Cluster shall consist of all eligible Interconnection Requests that have satisfied M1 (or provided financial security in lieu of M1), have executed a DISIS Agreement, and have provided all required information before the close of the Customer Engagement Window. The Utility shall use Reasonable Efforts to complete the first phase (Phase 1) consisting of a power flow and voltage analysis within ninety (90) Calendar Days. The Phase 1 Report shall identify the Interconnection Facilities and System Upgrades that are expected to be required as a result of the Interconnection Request(s) and a non-binding good-faith indicative level estimate of cost responsibility and a non-binding good-faith estimated time to construct. After issuing the Phase 1 Report, the Utility shall hold a second thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 1 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 1 results on the Utility's website.

Where the Utility determines through the initial Phase 1 study that a proposed distribution-level Interconnection Customer will not cause or contribute to the need for Network Upgrades, the Utility shall notify the Interconnection Customer in writing during the post-Phase 1 Customer Engagement Window that the Utility shall complete an individual Distribution-level System Impact Study for the proposed Generating Facility within 50 business days. Upon issuance of the individual Distribution-level System Impact Study Report, the Interconnection Customer would then proceed immediately to the Section 4.5 Facilities Study process. Interconnection Customers that are studied for distribution level impacts only must continue to meet all Readiness Milestone requirements (or provide security in lieu of the Readiness Milestone) to proceed to Facilities Study under Section 4.5.

4.4.7.2 Within twenty (20) Calendar Days of the Phase 1 Report Meeting, all Interconnection Customers proceeding in the DISIS to Phase 2 are required to satisfy the requirements of Readiness Milestone 2 ("M2"). Interconnection Customers that do not provide the Readiness Milestone (or provide additional security in lieu of the Readiness Milestone) by the required date shall be deemed withdrawn from the Queue and subject to a Withdrawal Penalty pursuant to Section 6.3.4.

4.4.7.3 Interconnection Customers who satisfy the M2 readiness requirements or provide the required security by the Utility shall continue in to the second phase ("Phase 2") of the Definitive Interconnection System Impact Study. Phase 2 consists of an updated power flow/voltage analysis (if necessary), stability analysis and short circuit analysis for the Interconnection Customers

remaining in the DISIS Cluster. The Utility shall use Reasonable Efforts to complete the Phase 2 analysis within one hundred fifty (150) Calendar Days. The results of this analysis shall identify the Interconnection Facilities and Network Upgrades expected to be required to reliably interconnect the Generating Facilities in that DISIS Cluster. The Phase 2 Report shall provide non-binding estimates of the costs of required Upgrades and Interconnection Facilities allocated to each Interconnection Customer within the Cluster. The Utility shall hold a third thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 2 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 2 results on the Utility's website.

4.4.7.4 Within twenty (20) Calendar Days of the Phase 2 Report Meeting, each Interconnection Customer in the Cluster shall notify the Utility in writing whether it intends to proceed to the Section 4.5 Facilities Study, where failure to provide the required notice shall result in the Interconnection Request being deemed withdrawn from the Queue and subject to a Withdrawal Penalty pursuant to Section 6.3.4.

i. If no Interconnection Customers withdraw from the Queue at this stage, the Definitive Interconnection Study Process shall advance to the Facilities Study (Section 4.5). The Utility shall electronically notify Interconnection Customers in the Cluster that Phase 3 is not required and simultaneously provide the Facilities Study Agreement in the form of Attachment 9.

ii. If one or more Interconnection Customer(s) withdraws from the Cluster, the Utility shall determine if a full system impact re-study is necessary. If the Utility determines a re-study is not necessary and Phase 3 is not required, the Utility shall provide an updated Phase 2 Report within thirty (30) Calendar Days of such determination and the Definitive Interconnection Study Process advances to the Interconnection Facilities Study (Section 4.5). When the updated Phase 2 report is issued, the Utility shall electronically notify Interconnection Customers in the Cluster that Phase 3 is not required and simultaneously provide the Facilities Study Agreement in the form of Attachment 9.

iii. If one or more Interconnection Customers withdraws from the Cluster and the Utility determines a full system impact re-study is necessary, the Utility will continue with System Impact restudies ("Phase 3") until the Utility determines that no further re-studies are required. If a customer withdraws after the Phase 3 restudy described in Section 4.4.7.5 or during the Facilities Study and the Utility determines system impact level

re-studies are necessary, the Cluster shall be restudied under the terms of Phase 3. The Utility shall electronically notify Interconnection Customers in the Cluster that a re-study is required.

4.4.7.5 If required by the Utility under Section 4.4.7.4, Interconnection Customers shall continue with the third phase ("Phase 3") of the Definitive Interconnection System Impact Study. Phase 3 may consist of updated power flow/voltage analysis, stability analysis, and/or short circuit analysis if necessary for the Interconnection Customers remaining in the Cluster. The Utility shall use Reasonable Efforts to complete the Phase 3 analysis within one hundred fifty (150) Calendar Days. The results of this analysis shall identify the Interconnection Facilities and System Upgrades expected to be required to reliably interconnect the Generating Facilities in that Cluster and shall provide non-binding Preliminary Estimated Upgrade Charges for the required Upgrades. The Phase 3 Report shall identify each Interconnection Customer's estimated allocated costs for Interconnection Facilities and System Upgrades. The Utility shall hold a fourth thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 3 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 3 results on the Utility's website. The Utility shall electronically notify Interconnection Customers in the Cluster when no further re-studies are required and simultaneously provide the Interconnection Customer(s) a Facilities Study Agreement in the form of Attachment 9.

4.4.7.6 Within thirty (30) Calendar Days of the notice that no System Impact restudies are needed and delivery of a Facilities Study Agreement by the Utility, each Interconnection Customer within the Cluster that has completed the DISIS process is required to (i) return an executed Facilities Study Agreement in the form of Attachment 9 (completed and including all required data identified therein); and (ii) provide Readiness Milestone 3 ("M3") (or provide additional security in lieu of the Readiness Milestone). Milestones for the Definitive Interconnection Study Process are described in Section 4.4.10. Interconnection Customers that do not provide the executed Facilities Study Agreement and Readiness Milestone (or provide security in lieu of the Readiness Milestone) by the required date shall be deemed withdrawn from the Queue and subject to a Withdrawal Penalty pursuant to Section 6.3.4.

4.4.7.7 At the request of an Interconnection Customer or at any time the Utility determines that it will not meet the indicated timeframe for completing the DISIS, the Utility shall notify Interconnection Customer(s) in writing as to the schedule status of the DISIS Cluster. If the Utility is unable to complete the DISIS within the time period, it shall notify Interconnection Customer(s) and provide an estimated completion date with an explanation of the reasons why additional time is required.

4.4.8 Post-DISIS Report Meeting.

Within ten (10) Business Days of furnishing a final DISIS study report to Interconnection Customer(s) within the Cluster and posting the report on the Utility's website, the Utility shall convene an open meeting to discuss the study results. The Utility shall, upon request, also make itself available to meet with individual Interconnection Customers after the study report is provided.

4.4.9 Re-Study.

If Re-Study of the Definitive Interconnection System Impact Study other than the re-study described above in Section 4.4.7.4 is required due to a higher or equal priority queued project dropping out of the Queue, or due to modification of an earlier queued project subject to Section 1.6, the Utility shall notify the Interconnection Customer(s) within the Cluster in writing. The Utility shall make Reasonable Efforts to ensure such Re-Study take no longer than one hundred fifty (150) Calendar Days from the date of notice. Any cost of Re-Study shall be borne by Interconnection Customer(s) being re-studied.

4.4.10 Readiness Milestones.

Satisfaction of the requirements of Readiness Milestones 1, 2 and 3 are required throughout the Definitive Interconnection Study Process to demonstrate the readiness of the Interconnection Customer to develop the Generating Facility. Satisfaction of the requirements of Readiness Milestone 4 is required after the Definitive Interconnection Study Process has concluded, but before the Interconnection Agreement is issued by the Utility to the Interconnection Customer. An Interconnection Customer who does not satisfy the requirements of an applicable Readiness Milestone (or provide additional security in lieu thereof) is subject to withdrawal from the queue and payment of a withdrawal penalty pursuant to Section 6.3.5.

4.4.10.1 Readiness Milestone 1 ("M1").

M1 is satisfied by the Interconnection Customer providing evidence of one of the options below. M1 may also be satisfied by providing additional security described in Section 4.4.11 in lieu of demonstrateing readiness.

a) Executed term sheet (or comparable evidence of legally enforceable obligation) related to a contract, binding upon the parties to the contract, for sale of the Generating Facility's energy, where the term of sale is not less than five (5) years, or

b) Reasonable evidence the project has been selected by the Utility in a Resource Plan or is offering to sell its output through a Resource Solicitation Process.

4.4.10.2 Readiness Milestone 2 ("M2").

M2 is satisfied by the Interconnection Customer providing evidence of one of the options below. M2 may also be satisfied by providing additional security as described in Section 4.4.11 in lieu of demonstrating readiness.

a) Executed term sheet (or comparable evidence of a legally enforceable obligation) related to a contract, binding upon the parties to the contract, for sale of the Generating Facility's energy, where the term of sale is not less than five (5) years.

b) Reasonable evidence that the project has been selected by the Utility in a Resource Plan or is offering to sell its output through Resource Solicitation Process; or

4.4.10.3 Readiness Milestone 3 ("M3").

M3 is satisfied by the Interconnection Customer providing evidence of one of the options below. M3 may also be satisfied by providing additional security described in Section 4.4.11 in lieu of demonstrateing readiness.

a) Executed contract, binding upon the parties to the contract, for sale of the Generating Facility's energy, where the term of sale is not less than five (5) years, or, where Interconnection Customer has initiated dispute resolution regarding the Utility's failure to provide an executable contract or to execute the contract tendered by the Interconnection Customer and, in such circumstances, the Interconnection Customer shall have twenty (20) calendar days to execute a mutually-agreeable PPA or to file a formal Complaint with the Commission; or

b) Reasonable evidence that the project has been selected by the Utility in a Resource Plan or has received a contract award in a Resource Solicitation Process.

4.4.10.4 Readiness Milestone 4 ("M4").

M4 must be achieved within 10 Business Days of the Utility's issuance of the Facilities Study Report and is satisfied by the Interconnection Customer providing prepayment amount as described below and evidence of one of the options below. M4 may also be satisfied by

providing security as described in Section 4.4.11 in lieu of demonstrating readiness.

a) Executed contract, binding upon the parties to the contract, for sale of the Generating Facility's energy, where the term of sale is not less than five (5) years;

b) Reasonable evidence that the project has been selected by the Utility in a Resource Plan or has received a contract award in a Resource Solicitation Process.

The M4 prepayment amount shall be the greater of a) one hundred percent (100%) of the System Upgrade costs identified in the Facilities Study Report that would be borne by the Interconnection Customer under a future Interconnection Agreement or b) a minimum deposit based upon the Interconnection Customers' nameplate capacity identified in the Interconnection Request of: $100,000 for Interconnection Customers up to 5MW; $150,000 for Interconnection Customers greater than 5 MW up to 10 MW; $200,000 for Interconnection Customers greater than 10 MW up to 20 MW; $500,000 for ~~i~~Interconnection Customers greater than 20 MW up to 50 MW, or $800,000 for Interconnection Customers greater than 50 MW. If the Interconnection Customer is assigned System Upgrades in the Facilities Study Report, M4 shall be held by the Utility as a non-refundable pre-payment for the estimated cost of such System Upgrades and shall be trued up by the Utility in the Detailed Estimated Upgrade Charges included in a future Interconnection Agreement or shall be forfeited to the Utility to construct the assigned System Upgrades if the Interconnection Request is subsequently withdrawn by the Interconnection Customer subject to the cap established for ready projects in Section 6.3.5.1.

4.4.11 Definitive Interconnection Study Process Security Requirements.

A table showing the security required in lieu of demonstrating readiness at each Readiness Milestone is provided in Appendix 8-B. The security amount is dependent on if the Interconnection Customer provided a Readiness Milestone and the study phase the customer is entering. All security described below shall be in the form of an irrevocable letter of credit upon which the Utility may draw or cash.

- An Interconnection Customer may opt to provide security in lieu of satisfying the requirements of Readiness Milestones 1 through 4, as described in Section 4.4.10. The security provided is applied towards the security amount required for each successive milestone if the Interconnection Customer does not withdraw from the queue. For example, the security

provided for M2 is applied to the additional amount of security required for M3.

The amount of security required for each Readiness Milestone for Interconnection Customers that do not provide a demonstration of readiness is:

M1 = 2 times the Section 1.5.1.2 study deposit amount

M2 = 3 times the Section 1.5.1.2 study deposit amount

M3 = 5 times the Section 1.5.1.2 study deposit amount

M4 = Greater of System Upgrades identified in the Interconnection Customer's Facilities Study Report or a minimum deposit amount equal to the minimum deposit required for ready projects in Section 4.4.10.4.

If an Interconnection Customer is initially required to provide increased financial security under this Section 4.4.11 because it cannot satisfy the requirements of a Readiness Milestone under Section 4.4.10, but subsequently does satisfy those requirements prior to the next Readiness Milestone, its security should be reduced accordingly.

~~4.4~~4.5 Facilities Study

~~4.4.1~~4.5.1 Where a Utility administers a serial System Impact Study process under Section 4.3 above, a~~A~~ solar Interconnection Customer must request a Facilities Study by returning the signed Facilities Study Agreement within 60 Calendar Days of the date the Facilities Study Agreement was provided. Any other Interconnection Customer must request a Facility Study by returning the signed Facilities Study Agreement within 180 Calendar Days of the date the Facilities Study Agreement was provided. Failure to return the signed Facilities Study Agreement within the foregoing applicable time period will result in the Interconnection Request being deemed withdrawn.

~~4.4.2~~4.5.2 Where a Utility administers a serial System Impact Study process under Section 4.3 and ~~W~~hen an Interdependent Project A exists, a Project B Interconnection Request will not be required to comply with Section 4.4.1 until Project A has signed the Interconnection Agreement, and made payments and provided Financial Security as specified in Section 5.2 or withdrawn. If Project B has not provided written notice of its intent to proceed to a Facilities Study under Section 1.8.2.2, upon the Project A fulfilling the requirements in Section 5.2 or withdrawing the Interconnection Request, the Utility shall notify the Project B Interconnection Customer that it has the time specified in Section 4.4.1 to return the signed Facilities Study Agreement or the Interconnection Request shall be deemed withdrawn.

4.5.3 The scope of and cost responsibilities for the Facilities Study are described in the Facilities Study Agreement. The time allotted for completion of the Facilities Study is described in the Facilities Study Agreement.

~~4.4.3~~4.5.4 Where a Utility administers a Definitive Interconnection Study Process and is completing Facilities Study for all Interconnection Customers within a Cluster or Resource Solicitation Cluster, the Utility shall use reasonable efforts to complete ~~the~~ Facilities Stud~~y~~ies within one hundred fifty (150) Calendar Days for all Interconnection Customers within the Cluster.

~~4.4.4~~4.5.5 The Facilities Study Report shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the System Impact Studies and to allow the Generating Facility to be interconnected and operated safely and reliably.

~~4.4.5~~4.5.6 The Utility shall design any required Interconnection Facilities and/or Upgrades under the Facilities Study Agreement. The Utility may contract with consultants to perform activities required under the Facilities Study Agreement. The Interconnection Customer and the Utility may agree to allow the Interconnection Customer to separately arrange for the design of some of the Interconnection Facilities. In such cases, facilities design will be reviewed and/or modified prior to acceptance by the Utility, under the provisions of the Facilities Study Agreement. If the Parties agree to separately arrange for design and construction, and provided that critical infrastructure security and confidentiality requirements can be met, the Utility shall make sufficient information available to the Interconnection Customer in accordance with confidentiality and critical infrastructure requirements to permit the Interconnection Customer to obtain an independent design and cost estimate for any necessary facilities.

Section 5. Interconnection Agreement and Scheduling

5.1 Construction Planning Meeting

5.1.1 Within ten (10) Business Days of receipt of the Facilities Study Report, the Interconnection Customer shall request a Construction Planning Meeting, where failure to comply shall result in the Interconnection Request being deemed withdrawn. The Construction Planning Meeting request shall be in writing and shall include the Interconnection Customer's reasonably requested date for completion of the construction of the Upgrades and Interconnection Facilities.

5.1.2 Where a Utility administers a Definitive Interconnection Study Process, all Interconnection Customers must also satisfy the requirements of Readiness Milestone 4 ("M4") within ten (10) Business Days of receipt of the Facilities

Study Report. Interconnection Customers that do not provide M4 (or provide security in lieu of the Readiness Milestone by the required date) shall be deemed withdrawn from the Queue and subject to a Withdrawal Penalty pursuant to Section 6.3.4.

~~5.1.1~~5.1.3 The Construction Planning Meeting shall be scheduled within ten (10) Business Days of the Section 5.1.1 request from the Interconnection Customer, or as otherwise mutually agreed to in writing by the parties.

~~5.1.2~~5.1.4 The purpose of the Construction Planning Meeting is to identify the tasks for each party and discuss and determine the milestones for the construction of the Upgrades and Interconnection Facilities. Agreed upon milestones shall be specific as to scope of action, responsible party, and date of deliverable and shall be recorded in the Interconnection Agreement (see Appendix 4 to Attachment 9) to be provided to Interconnection Customer pursuant to Section 5.2.1 below.

~~5.1.3~~5.1.5 If the Utility cannot complete the installation of the required Upgrades and Interconnection Facilities within two (2) months of the Interconnection Customer's reasonably requested In-Service Date, the Interconnection Customer shall have the option of payment for work outside of normal business hours or hiring a Utility-approved subcontractor to perform the distribution Upgrades. Any Utility-approved subcontractor performance remains subject to Utility oversight during construction. The Utility shall make a list of Utility-approved subcontractors available to the Interconnection Customer promptly upon request.

5.2 Interconnection Agreement

5.2.1 Within fifteen (15) Business Days of the Construction Planning Meeting, the Utility shall provide an executable Interconnection Agreement containing the Detailed Estimated Upgrade Charges, Detailed Estimated Interconnection Facility Charge, Appendix 4 (Construction Milestone and payment schedule listing tasks, dates and the party responsible for completing each task), and other appropriate information, requirements, and charges.

5.2.2 Within ten (10) Business Days of receiving the Interconnection Agreement, the Interconnection Customer must execute and return the Interconnection Agreement, where failure to comply results in the Interconnection Request being deemed withdrawn.

5.2.3 After the Parties execute the Interconnection Agreement, the Utility shall return a copy of the Interconnection Agreement to the Interconnection Customer and interconnection of the Generating Facility shall proceed under the provisions of the Interconnection Agreement.

5.2.4 The Interconnection Agreement shall specify milestones for payment for Upgrades and Interconnection Facilities and/or, provision of Financial Security for Interconnection Facilities, if acceptable to the Utility, that are required prior to the start of design and construction of Upgrades and Interconnection Facilities. Payment and Financial Security must be received by close of business forty-five (45) Business Days after the date the Interconnection Agreement is delivered to the Interconnection Customer for signature, where failure to comply results in the Interconnection Request being deemed withdrawn.

5.3 Interconnection Construction

Construction of the Upgrades and Interconnection Facilities will proceed as called for in the Interconnection Agreement and Appendices.

Section 6. Provisions that Apply to All Interconnection Requests

6.1 Reasonable Efforts

The Utility shall make reasonable efforts to meet all time frames provided in these procedures unless the Utility and the Interconnection Customer agree to a different schedule. If the Utility cannot meet a deadline provided herein, it shall at its earliest opportunity notify the Interconnection Customer, explain the reason for the failure to meet the deadline, and provide an estimated time by which it will complete the applicable interconnection procedure in the process.

6.2 Disputes

6.2.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this section. Each Party agrees to conduct all negotiations in good faith.

6.2.2 In the event of a dispute, either Party shall provide the other Party with a written Notice of Dispute. Such Notice shall describe in detail the nature of the dispute. A copy of the Notice of Dispute shall also be served on the Public Staff.

6.2.3 The Parties shall seek to resolve a dispute within twenty (20) Business Days after receipt of the Notice. If a resolution is not reached, the Parties may 1) if mutually agreed, continue negotiations for up to an additional twenty (20) Business Days; or 2) either Party may contact the Public Staff for assistance in informally resolving the dispute within twenty (20) Business Days with the opportunity to extend this timeline upon mutual agreement.

6.2.4 In the alternative, the parties may, upon mutual agreement, seek the assistance of a dispute resolution service to resolve the dispute within twenty (20) Business Days, with the opportunity to extend this timeline upon mutual agreement. The dispute resolution service will assist the parties in

either resolving the dispute or in selecting an appropriate dispute resolution venue (e.g., mediation, settlement judge, early neutral evaluation, or technical expert) to assist the parties in resolving their dispute. Each Party will be responsible for one-half of any costs paid to neutral third-parties. Upon resolution of the dispute, the parties shall jointly make an informational filing with the Commission.

6.2.5 If the Parties are unable to informally resolve the dispute within the timeframe provided in Sections 6.2.3 or 6.2.4, either Party may then file a formal complaint with the Commission, and may exercise whatever rights and remedies it may have in equity or law consistent with the terms of these procedures.

6.2.6 The Queue Number assigned to an Interconnection Customer seeking to resolve a dispute shall not be withdrawn pursuant to Section 6.3 unless: (1) the Interconnection Request is deemed withdrawn by the Utility and the Interconnection Customer fails to take advantage of any express opportunity to cure; (2) the informal dispute processes described in Sections 6.2.3 and 6.2.4 do not resolve the dispute and the Interconnection Customer does not indicate its intent to file a formal complaint within ten (10) Business Days following the completion of the informal dispute process and file a formal complaint within (30) Business Days; (3) the Commission issues a final order in a formal complaint process stating that the Interconnection Request is deemed withdrawn; or (4) the Interconnection Customer voluntarily submits a written request for withdrawal.

~~6.2.6~~6.2.7 Where the Commission has authorized a Utility to administer a Definitive Interconnection Study Process prescribed in Section 4.4 and an Interconnection Customer initiates a dispute pursuant to this Section, the disputing Interconnection Customer shall have the option to either withdraw from the Cluster and be studied as part of the next Cluster or to continue being evaluated as part of the Cluster provided that it complies with all requirements of the Section 4.4 DISIS process.

6.3 Withdrawal of An Interconnection Request

6.3.1 An Interconnection Customer may withdraw an Interconnection Request at any time prior to executing a Interconnection Agreement by providing the Utility with a written request for withdrawal.

6.3.2 An Interconnection Request shall be deemed withdrawn if the Interconnection Customer fails to meet its obligations specified in the Interconnection Procedures, System Impact Study Agreement or Facilities Study Agreement or to take advantage of any express opportunity to cure.

6.3.3 Within 60 Business Days of any voluntary or deemed withdrawal of the Interconnection Request, the Utility will provide the Interconnection

Customer with a final accounting report of any difference between (1) the Interconnection Customer's cost responsibility for the actual cost of such work performed, and (2) the Interconnection Customer's previous aggregate Interconnection ~~Facility~~ Request Deposit payments to the Utility for such work. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Utility shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Utility within 30 Calendar Days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility under this Agreement, the Utility shall refund to the Interconnection Customer an amount equal to the difference within 30 Calendar Days of the final accounting report.

6.3.4 Where a Utility is administering a Definitive Interconnection Study Process and an Interconnection Customer requests withdrawal, the Utility shall (i) impose the Withdrawal Penalty described in Section 6.3.5, and (ii), refund any of the refundable portion of Interconnection Customer's study deposit that exceeds the share of the costs that Utility has incurred after settling the final invoice pursuant to Section 6.3.3. If an invoice is not paid within the timeframe provided in Section 6.3.3, the Utility shall draw upon the security provided to settle all accounts, which shall include any offsets of amounts due and owing by the Utility. After the final invoice is paid and all accounts are settled, the Utility shall refund or release all remaining security.

6.3.5 Withdrawal Penalty.

An Interconnection Customer~~s~~ shall be subject to a Withdrawal Penalty if it withdraws its request from the Queue or the Generating Facility does not otherwise reach Commercial Operation unless the Utility determines consistent with Good Utility Practice that (1) the withdrawal does not negatively affect the timing or cost of equal or lower queued projects; (2) the cost responsibility identified for that Interconnection Customer in the current Phase 2, or Phase 3 study report associated with System Upgrades increased by more than twenty-five percent (25%) compared to the costs identified in the previous DISIS report; or (3) if the Interconnection Customer withdraws after the Utility issues a Facilities Study report and the cost responsibility for that Interconnection Customer identified in the Facilities Study report increases by more than one hundred percent (100%) compared to the cost responsibility assigned to the Interconnection Customer in the Phase 2 report.

6.3.5.1 Calculation of the Withdrawal Penalty for Ready Projects.

If the Interconnection Customer satisfied the Readiness Milestone requirements for the most recent phase of the Definitive Interconnection Study Process prior to withdrawal, that Interconnection Customer's Withdrawal Penalty shall be calculated as follows:

1. If the Interconnection Customer withdraws after M1, but before M2, the Withdrawal Penalty shall be equal to the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process.

2. If the Interconnection Customer withdraws after M2, but before M4, the Withdrawal Penalty shall be the higher of the study deposit or one (1) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process.

3. If the Interconnection Customer withdraws after proceeding to Section 5 and providing M4, the Withdrawal Penalty shall be the higher of the non-refundable pre-payment for the estimated System Upgrades allocated to the Interconnection Customer in the Facilities Study Report or five (5) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. This amount shall be capped at two (2) million dollars. If the M4 prepayment amount provided by the Interconnection Customer exceeded the cap, the Utility shall not be obligated to proceed with constructing the Upgrades assigned to the withdrawing Interconnection Customer and shall refund the prepayment amounts exceeding the capped Withdrawal Penalty to the withdrawing Interconnection Customer and shall allocate the Withdrawal Penalty in accordance with Section 6.3.6 in lieu of constructing the System Upgrade assigned to the withdrawing Interconnection Customer.

6.3.5.2 Calculation of the Withdrawal Penalty for Non-Ready Projects.

If the Interconnection Customer did not satisfy the Readiness Milestone requirements for the most recent phase of the Definitive Interconnection Study Process prior to withdrawal and instead provided financial security pursuant to Section 4.4.11 in lieu of demonstrating readiness, that Interconnection Customer's Withdrawal Penalty shall be dependent on the Phase in which the Interconnection Customer withdraws and shall be calculated as follows:

1. If the Interconnection Customer withdraws in Phase 1 (after M1, but before M2), the Withdrawal Penalty shall be the higher of the study deposit or two (2) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. This amount shall be capped at one (1) million dollars.

2. If the Interconnection Customer withdraws in Phase 2 (after M2, but before M3), the Withdrawal Penalty shall be the higher of the study deposit or three (3) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. This amount shall be capped at one and one half (1.5) million dollars.

3. If the Interconnection Customer withdraws after proceeding to Section 4.5 Facilities Study (after M3, but before M4), the Withdrawal Penalty shall be the higher of the study deposit or five (5) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. This amount shall be capped at two (2) million dollars.

4. If the Interconnection Customer withdraws after proceeding to Section 5 and providing M4, the Withdrawal Penalty shall be higher of the non-refundable pre-payment for the estimated System Upgrades allocated to the Interconnection Customer in the Facilities Study Report or five (5) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. There is no cap on the M4 Withdrawal Penalty amount for non-ready projects.

6.3.5.3 Calculation of the Withdrawal Penalty for Projects with Executed Interconnection Agreements.

The Withdrawal Penalty for any Interconnection Customer that has executed an Interconnection Agreement pursuant to Section 5.2.1 is the higher of System Upgrade costs assigned to the Interconnection Customer under its executed Interconnection Agreement or five (5) times the Interconnection Customer's actual allocated cost of the Definitive Interconnection Study Process. There is no cap on this Withdrawal Penalty amount.

6.3.6 Distribution of Withdrawal Penalty.

Withdrawal Penalty revenues associated with M1-M3 shall be used to fund generation interconnection studies. Withdrawal Penalty revenues shall first be applied, in the form of a bill credit, to not-yet-invoiced study costs for other Interconnection Customers in the same Cluster, and to the extent that such studies are fully credited, shall be applied to the Utility's general queue administration costs and the costs of future Clusters in Queue order. Withdrawn Interconnection Customers shall not receive a bill credit associated with Withdrawal Penalties. Distribution of Withdrawal Penalty revenues to a specific study shall not exceed the total actual study costs. Allocation of Withdrawal Penalty revenues within a Cluster to a specific customer shall be comparable to the allocation of study costs described in Section 4.4.3. Specifically, the Withdrawal Penalty revenue distribution to each Interconnection Customer in a specific Cluster, shall be (1) ten percent (10%) on a per capita basis based on number of Interconnection Requests in the applicable Cluster; and (2) ninety percent (90%) to Interconnection Customers on a pro-rata basis based on requested megawatts included in the applicable Cluster. Where an Interconnection Customer withdraws after achieving the M4 readiness milestone and its assigned System Upgrades

exceed the M4 cap amount in Section 6.3.5.1, the Utility shall also follow the process prescribed in this Section for allocating Withdrawal Penalty revenues. The Utility shall not change the distribution of Withdrawal Penalty revenue without authorization by the Commission.

6.4 Interconnection Metering

Any metering necessitated by the use of the Generating Facility shall be installed at the Interconnection Customer's expense in accordance with all applicable regulatory requirements or the Utility's specifications.

6.5 Commissioning and Post-Commissioning Inspections

6.5.1 Commissioning tests of the Interconnection Customer's installed equipment shall be performed pursuant to applicable codes and standards. If the Interconnection Customer is not proceeding under Section 2.3.2, the Utility must be given at least ten (10) Business Days' notice, or as otherwise mutually agreed to in writing by the Parties, of the tests and may be present to witness the commissioning tests.

6.5.2 In the case of any Generating Facility that was not inspected prior to commencing parallel operation, the Utility shall be authorized to conduct an inspection of the medium voltage AC side of each Generating Facility (including assessing that the anti-islanding process is operational). The Interconnection Customer shall pay the actual cost of such inspection within 30 Business Days after the Utility provides a written invoice for such costs.

6.5.3 The Utility shall also be entitled, on a periodic basis, to inspect the medium voltage AC side of each Interconnected Generating Facility on a reasonable schedule determined by the Utility in accordance with the inspection cycles applicable to its own distribution system. The Interconnection Customer shall pay the actual cost of such inspection within 30 Business Days after the Utility provides a written invoice for such costs.

6.5.4 The Utility shall also be entitled to inspect the medium voltage AC side of an Interconnected Generating Facility in the event that the Utility identifies or becomes aware of any condition that (1) has the potential to either cause disruption or deterioration of service to other customers served from the same electric system or cause damage to the Utility's System or Affected Systems, or (2) is imminently likely to endanger life or property or cause a material adverse effect on the security of, or damage to the Utility's System, the Utility's Interconnection Facilities or the systems of others to which the Utility's System is directly connected. The Interconnection Customer shall pay the actual cost of such inspection within 30 Business Days after the Utility provides a written invoice for such costs.

6.6 Confidentiality

6.6.1 Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated "Confidential." For purposes of these procedures all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such.

6.6.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce these procedures. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under these procedures, or to fulfill legal or regulatory requirements.

6.6.2.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.

6.6.2.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

6.6.3 If information is requested by the Commission from one of the Parties that is otherwise required to be maintained in confidence pursuant to these procedures, the Party shall provide the requested information to the Commission within the time provided for in the request for information. In providing the information to the Commission, the Party may request that the information be treated as confidential and non-public in accordance with North Carolina law and that the information be withheld from public disclosure.

6.6.4 All information pertaining to a project will be provided to the new owner in the case of a change of control of the existing legal entity or a change of ownership to a new legal entity.

6.7 Comparability

The Utility shall receive, process, and analyze all Interconnection Requests received under these procedures in a timely manner, as set forth in these procedures. The Utility shall use the same reasonable efforts in processing and analyzing Interconnection Requests from all Interconnection Customers, whether

the Generating Facility is owned or operated by the Utility, its subsidiaries or affiliates, or others.

6.8 Record Retention

The Utility shall maintain for three (3) years records, subject to audit, of all Interconnection Requests received under these procedures, the times required to complete Interconnection Request approvals and disapprovals, and justification for the actions taken on the Interconnection Requests.

6.9 Coordination with Affected Systems

The Utility shall develop an Affected System communication protocol with potential Affected Systems, upon request by the Affected System, such that reciprocal notification of Interconnection Requests, as applicable per the specified communication protocol, between the Utility and the Affected System can be addressed and implemented.

The Utility shall coordinate the conduct of any studies required to determine the impact of the Interconnection Request on Affected Systems with Affected System operators and, if possible, include those results (if available) in its applicable studies within the time frame specified in these procedures. The Utility will include such Affected System operators in all meetings held with the Interconnection Customer as required by these procedures. The Interconnection Customer will cooperate with the Utility in all matters related to the conduct of studies and the determination of modifications to Affected Systems. A Utility which may be an Affected System shall cooperate with the Utility with whom interconnection has been requested in all matters related to the conduct of studies and the determination of modifications to Affected Systems.

6.10 Capacity of the Generating Facility

6.10.1 If the Interconnection Request is for a Generating Facility that includes multiple energy production devices at a site for which the Interconnection Customer seeks a single Point of Interconnection, the Interconnection Request shall be evaluated on the basis of the aggregate capacity of the multiple devices, unless otherwise agreed to by the Utility and the Interconnection Customer.

6.10.2 For the purposes of this Standard, the capacity of the Generating Facility shall be considered the maximum rated capacity of the Generating Facility, except where the gross generating capacity of the Generating Facility is limited (e.g., through the use of a control system, power relay(s), or other similar device settings or adjustments as mutually agreed upon by the Utility and Interconnection customer). The Generating Facility’s capacity shall be considered the Maximum Generating Capacity specified by the Interconnection Customer in the Interconnection Request. The Maximum

Generating Capacity approved in the Study Process will subsequently be included as a limitation in the Interconnection Agreement.

6.11 Sale of an Existing or Proposed Generating Facility

6.11.1 The Interconnection Customer shall notify the Utility of the pending sale of a proposed Generating Facility in writing. The Interconnection Customer shall provide the Utility with information regarding whether the sale is a change of ownership of the Generating Facility to a new legal entity, or a change of control of the existing legal entity.

The Interconnection Customer shall promptly notify the Utility of the final date of sale and transfer date of ownership in writing. The purchaser of the Generating Facility shall confirm to the Utility the final date of sale and transfer date of ownership in writing, and submit an Interconnection Request requesting transfer control or change of ownership together with the $500 change of ownership fee listed in Attachment 2.

6.11.2 Existing Interconnection Agreements are non-transferable. If the Generating Facility is sold to a new legal entity, a new Interconnection Agreement must be executed by the new legal entity prior to the interconnection or for the continued interconnection of the Generating Facility to the Utility's System. The Utility shall not withhold or delay the execution of an Interconnection Agreement with the new owner provided the Generating Facility or proposed Generating Facility complies with requirements of 6.11.

6.11.3 The technical requirements in the Interconnection Agreement shall be grandfathered for subsequent owners as long as (1) the Generating Facility's maximum rated capacity has not been changed; (2) the Generating Facility has not been modified so as to change its electrical characteristics; and (3) the interconnection system has not been modified.

6.12 Isolating or Disconnecting the Generating Facility

6.12.1 The Utility may isolate the Interconnection Customer's premises and/or Generating Facility from the Utility's System when necessary in order to construct, install, repair, replace, remove, investigate or inspect any of the Utility's System, or if the Utility determines that isolation of the Interconnection Customer's premises and/or Generating Facility from the Utility's System is necessary because of emergencies, forced outages, force majeure or compliance with prudent electrical practices.

6.12.2 Whenever feasible, the Utility shall give the Interconnection Customer reasonable notice of the isolation of the Interconnection Customer's premises and/or Generating Facility from the Utility's System.

6.12.3 Notwithstanding any other provision of this Standard, if at any time the Utility determines that the continued operation of the Generating Facility may endanger either (1) the Utility's personnel or other persons or property or (2) the integrity or safety of the Utility's System, or otherwise cause unacceptable power quality problems for other electric consumers, the Utility shall have the right to isolate the Interconnection Customer's premises and/or Generating Facility from the Utility's System

6.12.4 The Utility may disconnect from the Utility's System any Generating Facility determined to be malfunctioning, or not in compliance with this Standard. The Interconnection Customer must provide proof of compliance with this Standard before the Generating Facility will be reconnected

6.13 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission hereunder, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, incidental, consequential, or punitive damages of any kind.

6.14 Indemnification

The Parties shall at all times indemnify, defend and save the other Party harmless from any and all damages, losses, claims, including claims and actions relating to injury or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney's fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inaction of its obligations hereunder on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

6.15 Insurance

The Interconnection Customer shall obtain and retain, for as long as the Generating Facility is interconnected with the Utility's System, liability insurance which protects the Interconnection Customer from claims for bodily injury and/or property damage. The amount of such insurance shall be sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. This insurance shall be primary for all purposes. The Interconnection Customer shall provide certificates evidencing this coverage as required by the Utility. Such insurance shall be obtained from an insurance provider authorized to do business in North Carolina. The Utility reserves the right to refuse to establish or continue the interconnection of the Generating Facility with the Utility's System, if such insurance is not in effect.

6.15.1 For an Interconnection Customer that is a residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be a standard homeowner's insurance policy with liability coverage in the amount of at least $100,000 per occurrence.

6.15.2 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be comprehensive general liability insurance with coverage in the amount of at least $300,000 per occurrence.

6.15.3 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility greater than 250 kW, the required coverage shall be comprehensive general liability insurance with coverage in the amount of at least $1,000,000 per occurrence.

6.15.4 An Interconnection Customer of sufficient credit-worthiness may propose to provide this insurance via a self-insurance program if it has a self- insurance program established in accordance with commercially acceptable risk management practices, and such a proposal shall not be unreasonably rejected.

6.16 Disconnect Switch

The Utility may require the Interconnection Customer to install a manual load-break disconnect switch or safety switch as a clear visible indication of switch position between the Utility System and the Interconnection Customer. The switch must have padlock provisions for locking in the open position. The switch must be visible to, and accessible to Utility personnel. The switch must be in close proximity to, and on the Interconnection Customer's side of the point of electrical interconnection with the Utility's System. The switch must be labeled "Generator Disconnect Switch." The switch may isolate the Interconnection Customer and its associated load from the Utility's System or disconnect only the Generator from the Utility's System and shall be accessible to the Utility at all times. The Utility, in its sole discretion, determines if the switch is suitable and necessary. When the installation of the switch is not otherwise required (e.g. National Electric Code, state or local building code) and is deemed necessary by the Utility for certified, inverter-based generators no larger than 10 kW, the Utility shall reimburse the Interconnection Customer for the reasonable cost of installing a switch that meets the Utility's specifications.

6.17 Certification Codes and Standards

Attachment 5-A4 specifies codes and standards the Generating Facility must comply with.

6.18 Certification of Generator Equipment Packages

Attachment 5-B specifies the certification requirements for the Generating Facility.

ATTACHMENT 1

Glossary of Terms

20 kW Inverter Process - The procedure for evaluating an Interconnection Request for a certified inverter-based Generating Facility no larger than 20 kW that uses the Section 3 screens. The application process uses an all -in-one document that includes a simplified Interconnection Request Application Form, simplified procedures, and a brief set of Terms and Conditions. (See Attachment 6.)

Affected System - A Utility other than the interconnecting Utility's System that may be affected by the proposed interconnection. The owner of an Affected System might be a Party to the Interconnection Agreement or other study agreements needed to interconnect the Generating Facility.

Applicable Laws and Regulations - All duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Auxiliary Load - The term “Auxiliary Load” shall mean power used to operate auxiliary equipment in the facility necessary for power generation (such as pumps, blowers, fuel preparation machinery, exciters, etc.)

Base Case - The base case power flow, short circuit, and stability data bases used by the Utility for completing Interconnection Studies for the Interconnection Customer.

Business Days - Monday through Friday, excluding State Holidays.

Calendar Days - Sunday through Saturday, including all holidays.

Cluster - A group of Interconnection Requests (one or more) that are studied together for the purpose of conducting the Interconnection Studies.

Cluster Study - An Interconnection Study evaluating one or more Interconnection Requests.

Clustering - The process whereby a group of Interconnection Requests is studied together, instead of serially, for the purpose of conducting the System Impact Study.

Commission - The North Carolina Utilities Commission.

Competitive Resource Solicitation - A competitive generation procurement process through which a Utility solicits, or Utilities jointly solicit, new Generating Facilities offering to deliver energy to the Utility for the purpose of meeting the requirements of applicable laws or regulations, including but not limited to G.S. § 62-110.8.

Default - The failure of a breaching Party to cure its breach under the Interconnection Agreement.

Definitive Interconnection Study Process ("Definitive Interconnection Study") – An interconnection study process adopted by the Utility, after notice and Commission approval, for purposes of administering a Cluster Study process. The complete definitive study process is inclusive of the DISIS Request Window, Customer Engagement Window, Definitive Interconnection System Impact Study, and the Interconnection Facilities Study.

Definitive Interconnection System Impact Study ("DISIS") - An engineering study that evaluates the impact of a Cluster of Interconnection Requests on the safety and reliability of the Utility's System and, if applicable, an Affected System.

Definitive Interconnection System Impact Study Agreement ("DISIS Agreement") - Form of System Impact Study agreement contained in Attachment 8-C for conducting the Definitive Interconnection System Impact Study.

Definitive Interconnection System Impact Study Cluster ("DISIS Cluster") A Cluster studied through a DISIS.

DISIS Request Window shall have the meaning set forth in Section 4.2.1 of the Revised Standard.

Detailed Estimated Interconnection Facilities Charge - The estimated charge for Interconnection Facilities that is based on field visits and/or detailed engineering cost calculations and is presented in the Facilities Study Report and Interconnection Agreement. This charge is not final.

Detailed Estimated Upgrade Charge - The estimated charge for Upgrades that is based on field visits and/or detailed engineering cost calculations and is presented in the Facilities Study Report and Interconnection Agreement.

Distribution System - The Utility's facilities and equipment used to transmit electricity to ultimate usage points such as homes and industries from nearby generators or from interchanges with higher voltage transmission networks which transport bulk power over longer distances. The voltage levels at which Distribution Systems operate differ among areas.

Distribution Upgrades - The additions, modifications, and upgrades to the Utility's Distribution System at or beyond the Point of Interconnection to facilitate interconnection of the Generating Facility and render the service necessary to allow the Generating Facility to operate in parallel with the Utility and to inject electricity onto the Utility's System. Distribution Upgrades do not include Interconnection Facilities.

Electric Generator Lessor - The owner of a solar energy facility who leases the facility to a customer generator lessee, including any agents who act on behalf of the electric generator lessor.

Fast Track Process - The procedure for evaluating an Interconnection Request for a certified Generating Facility no larger than 2 MW that meets the eligibility requirements of Section 3.1.

Financial Security - A letter of credit or other financial arrangement that is reasonably acceptable to the Utility and is consistent with the Uniform Commercial Code of North Carolina that is sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Utility's Interconnection Facilities. Where appropriate, the Utility may deem Financial Security to exist where its credit policies show that the financial risks involved are de minimus, or where the Utility's policies allow the acceptance of an alternative showing of credit-worthiness from the Interconnection Customer.

Generating Facility - The Interconnection Customer's device for the production and/or storage for later injection of electricity identified in the Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities.

Good Utility Practice - Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority - Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Interconnection Customer, the Utility, or any affiliate thereof.

In-Service Date - The date upon which the construction of the Utility's facilities is completed and the facilities are capable of being placed into service.

Interconnection Agreement - The Interconnection Agreement that specifies the Detailed Estimated Upgrade Charge, Detailed Interconnection Facility Charge, mutually agreed upon Milestones, etc. See Attachment ~~9~~ 10 of the NC Procedures.

Interconnection Customer - Any valid legal entity, including the Utility, that proposes to interconnect its Generating Facility with the Utility's System.

Interconnection Facilities - Collectively, the Utility's Interconnection Facilities and the Interconnection Customer's Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the Generating Facility and the Point of Interconnection, including any modification, additions or upgrades that are

necessary to physically and electrically interconnect the Generating Facility to the Utility's System. Interconnection Facilities are sole use facilities and shall not include Upgrades. Where a Utility implements the Definitive Interconnection Study Process, Interconnection Facilities may be shared by more than one Generating Facility in a Cluster.

Interconnection Facilities Delivery Date - The Interconnection Facilities Delivery Date shall be the date upon which the Utility's Interconnection Facilities are first made operational for the purposes of receiving power from the Interconnection Customer.

Interconnection Request - The Interconnection Customer's written request, in accordance with these procedures, to interconnect a new Generating Facility, or make changes to a prior Interconnection Request (such as items including but not limited to changes in capacity, equipment substitution requests, etc.), or to make changes to an existing Generating Facility that is interconnected with the Utility's System.

Interdependent Customer (or Interdependent Project) means an Interconnection Customer (or Project) whose Upgrade or Interconnection Facilities requirements are impacted by another Generating Facility, as determined by the Utility.

Material Modification means a modification to machine data or equipment configuration or to the interconnection site of the Generating Facility that has a material impact on the cost, timing or design of any Interconnection Facilities or Upgrades or that may adversely impact other Interdependent Interconnection Requests with higher Queue Numbers or may adversely impact another Interconnection Customer who is part of the same Cluster where the utility is implementing the Definitive Interconnection Study Process. Material Modifications include certain project revisions as defined in Section 1.5.1.

Maximum Generating Capacity - The term shall mean the maximum continuous electrical output of the Generating Facility at any time as measured at the Point of Interconnection and the maximum kW delivered to the Utility during any metering period. Requested Maximum Generating Capacity will be specified by the Interconnection Customer in the Interconnection Request and an approved Maximum Generating Capacity will subsequently be included as a limitation in the Interconnection Agreement.

Month - The term "Month" means the period intervening between readings for the purpose of routine billing, such readings usually being taken once per month.

Nameplate Capacity - The term "Nameplate Capacity" shall mean the manufacturer's nameplate rated output capability of the generator. For multi-unit generator facilities, the "Nameplate Capacity" of the facility shall be the sum of the individual manufacturer's nameplate rated output capabilities of the generators.

Net Capacity - The term "Net Capacity" shall mean the Nameplate Capacity of the Customer's generating facilities, less the portion of that capacity needed to serve the Generating Facility's Auxiliary Load.

Net Power - The term "Net Power" shall mean the total amount of electric power produced by the Customer's Generating Facility less the portion of that power used to supply the Generating Facility's Auxiliary Load.

Network Upgrades - Additions, modifications, and upgrades to the Utility's Transmission System required to accommodate the interconnection of the Generating Facility to the Utility's System. Network Upgrades do not include Distribution Upgrades.

NERC - The North American Electric Reliability Corporation or its successor organization.

North Carolina Interconnection Procedures - The term "North Carolina Interconnection Procedures" shall refer to the most recent North Carolina Interconnection Procedures, Forms, and Agreements for State-Jurisdictional Generator Interconnections as approved by the North Carolina Utilities Commission.

Operating Requirements - Any operating and technical requirements that may be applicable due to Regional Reliability Organization, Independent System Operator, control area, or the Utility's requirements, including those set forth in the Interconnection Agreement.

Party or Parties - The Utility, Interconnection Customer, and possibly the owner of an Affected System, or any combination of the above.

Point of Interconnection - The point where the Interconnection Facilities connect with the Utility's System.

Preliminary Estimated Interconnection Facilities Charge - The estimated charge for Interconnection Facilities that is developed using high level estimates, including overheads and is presented in the System Impact Study Report. This charge is not based on field visits and/or detailed engineering cost calculations.

Preliminary Estimated Upgrade Charge - The estimated charge for Upgrades that is developed using high level estimates including overheads and is presented in the System Impact Study Report. This charge is not based on field visits and/or detailed engineering cost calculations.

Project A - An Interconnection Customer that has a lower Queue Number than Interdependent Project B.

Project B - An Interconnection Customer that has a higher Queue Number than Interdependent Project A.

Project C - An Interconnection Customer that has a higher Queue Number than Interdependent Project B.

Public Staff - The Public Staff of the North Carolina Utilities Commission.

Queue Number - The number assigned by the Utility that establishes an Interconnection Request's position in the study queue relative to all other valid Interconnection Requests. Generally, an Interconnection Request with a lower Queue Number will be studied prior to one with a higher Queue Number. The Queue Number of each Interconnection Request shall be used to determine the cost responsibility for the Upgrades necessary to accommodate the interconnection.

Queue Position - The order of a valid Interconnection Request, relative to all other pending valid Interconnection Requests, based on Queue Number.

Readiness Milestone – A point in a Definitive Interconnection Study Process at which the Interconnection Customer must satisfy certain requirements set forth in Section 4.4.10 of this Revised Standard or be subject to increased withdrawal penalties and security.

Reasonable Efforts - With respect to an action required to be attempted or taken by a Party under the Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Resource Plan — An integrated resource plan filed by a Utility with the Commission pursuant to G.S. 62-110 and Commission Rule R8-60(c).

Resource Solicitation Cluster - A Cluster Study associated with a Resource Plan, Competitive Resource Solicitation or related process.

Small Animal Waste to Energy Facility - An electric generating facility 2 MW or less in capacity that uses swine or poultry waste as its energy source, and is eligible for an expedited study process pursuant to G.S. 62-133.8(i)(4).

Standard - The interconnection procedures, forms and agreements approved by the Commission for interconnection of Generating Facilities to Utility Systems in North Carolina when the Generating Facility is selling its output to the Utility.

Standby Generating Facility - An electric Generating Facility primarily designed for standby or backup power in the event of a loss of power supply from the Utility. Such Facilities may operate in parallel with the Utility for a brief period of time when transferring load back to the Utility after an outage, or when testing the operation of the Facility and transferring load from and back to the Utility.

Study Process - The procedure for evaluating an Interconnection Request that includes the Section 4 scoping meeting, System Impact Study, including optional system Impact Grouping Study(ies), and Facilities Study.

System - The facilities owned, controlled or operated by the Utility that are used to provide electric service in North Carolina.

Utility - The entity that owns, controls, or operates facilities used for providing electric service in North Carolina.

Transmission System - The facilities owned, controlled or operated by the Utility that are used to transmit electricity in North Carolina.

Upgrades - The required additions and modifications to the Utility's System at or beyond the Point of Interconnection. Upgrades may be Network Upgrades or Distribution Upgrades, and "System Upgrades" include both Network Upgrades or Distribution Upgrades. Upgrades do not include Interconnection Facilities.

ATTACHMENT 2

NORTH CAROLINA
INTERCONNECTION REQUEST APPLICATION FORM

Utility: _____

Designated Utility Contact: _____

E-Mail Address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone Number: _____

Fax: _____

An Interconnection Request Application Form is considered complete when it provides all applicable and correct information required below.

Preamble and Instructions

An Interconnection Customer who requests a North Carolina Utilities Commission jurisdictional interconnection must submit this Interconnection Request Application Form by hand delivery, mail, e-mail, or fax to the Utility.
Request for: Fast Track Process ____ Supplemental Review _____
Study Process ____ Standby Generator / Closed Transition _____
(Refer to Section 3 of the Interconnection Standards for guidance in selecting Fast Track Review options. All Generating Facilities larger than 2 MW must use the Section4 Study Process.)

Processing Fee or Deposit

Fast Track Process – Non-Refundable Processing Fees

–
– If the Generating Facility is larger than 20 kW but not larger than 100 kW, the fee is$750.
– If the Generating Facility is larger than 100 kW but not larger than 2 MW, the fee is$1,000.

Supplemental Review - Deposit

– If the Generating Facility is larger than 20 kW but not larger than 100 kW the deposit is $750.
– If the Generating Facility is larger than 100 kW but not larger than 2 MW the deposit is $1,000.

Study Process – Deposit

If the Interconnection Request is submitted under the Study Process, whether a new submission or an Interconnection Request that did not pass the Fast Track Process, the Interconnection Customer shall submit to the Utility an Interconnection Facilities Deposit ~~Charge~~ of (1) $20,000 plus $1.00 per kWAC for all for Interconnection Requests less than 20 MW; (2) $35,000 plus one dollar ($1.00) per kWac for all Interconnection Requests between 20 MW and 50 MW; and (3) $50,000 plus one dollar ($1.00) per kWac for all Interconnection Requests greater than 50 MW..

Standby Generator / Closed Transition - Deposit

- If the Facility is less than 1 MW, deposit is $2,500.
- If the Facility is equal to or greater than 1 MW the deposit is $5,000.

Change in Ownership – Non-Refundable Processing Fee

- If the Interconnection Request is submitted solely due to a transfer of ownership or change of control of the Generating Facility, the fee is $500.

Interconnection Customer Information

Legal Name of the Interconnection Customer (or, if an individual, individual's name)

Legal Entity: _____

Primary Contact Name: _____

Title: _____

E-Mail Address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

County: _____

Telephone (Day): _____ (Evening): _____

Fax: _____

Secondary Contact Name: _____

Title: _____

E-Mail Address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

County: _____

Telephone (Day): _____ (Evening): _____

Fax: _____

Facility Location (if different from above):

Project Name: _____

Latitude: _____ (decimal format, to at least 4 places)

Longitude: _____ (decimal format, to at least 4 places)

Address: _____

City: _____ State: _____ Zip: _____

County: _____

For installations at locations with existing electric service to which the proposed Generating Facility will interconnect,

provide the Existing Account Number: _____

~~Alternative Developer/~~Controlling Entity~~er~~ ~~Contact~~ Information (business in charge of project, if different from the Interconnection Customer)

Controlling Entity: _____

Contact Name: _____

Title: _____

E-Mail Address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day) _____ (Evening) _____

Fax: _____

Application is for:

_____ New Generating Facility

_____ Capacity Change to a Proposed or Existing Generating Facility

_____ Change of Ownership of a Proposed or Existing Generating Facility to a new legal entity

_____ Change of Control of a Proposed or Existing Generating Facility of the existing legal entity.

_____ Equipment Substitution

_____ Other

Please provide additional information regarding the proposed change(s): _____

_____

_____

Will the Generating Facility be used for any of the following?

Net Metering? Yes _____ No _____

To Supply Power to the Interconnection Customer? Yes _____ No _____

To Supply Power to the Utility? Yes _____ No _____

To Supply Power to Others? Yes _____ No _____

(If yes, discuss with the Utility whether the interconnection is covered by the NC Interconnection Standard.)

Is the Generating Facility owned by the Interconnection Customer or Leased from an Electric Generator Lessor in NC?

❑ Owned ❑ ~~Owned~~
Leased

NCUC Docket No.:
~~NCUC Docket No.:~~
~~R~~Requested Point of Interconnection:

Requested In-Service Date: Requested Commercial Operation Date:

Generating Facility Information

Data applies only to the Generating Facility, not the Interconnection Facilities.

Prime Mover Information (Refer to U.S. EIA Form 860 Instructions, Table 2 Prime Mover Codes and Descriptions at: https://www.eia.gov/survey/form/eia860/instructions.pdf)

Prime Mover Code

Prime Mover Description

Energy Source Information (Refer to U.S. EIA Form 860 Instructions, Table 28 Energy Source Codes and Heat Content at: https://www.eia.gov/survey/form/eia_860/instructions.pdf)

Fuel Type	Energy Source Code	Energy Source Description

Type of Generator: Synchronous ❑ Induction ❑ Inverter ❑

Total Generator/ Storage Nameplate Capacity: _____ kWAC (Typical) _____ kVAR

Storage Nameplate Energy: _____ kWh

Interconnection Customer or Customer-Site Load: _____ kWAC (if none, so state)

Interconnection Customer Generator Auxiliary Load: _____ kWAC

Typical Reactive Load (if known): _____ kVAR

Maximum Generating Capacity Requested: _____ kWAC

(The maximum continuous electrical output of the Generating Facility at any time at a power factor of approximately unity as measured at the Point of Interconnection and the maximum kW delivered to the Utility during any metering period)

Production profile: provide below the maximum import and export levels (as a percentage of the Maximum Generating Capacity Requested) for each hour of the day, as measured at the Point of Interconnection. Power flow in excess of these levels during the corresponding hour shall be considered an Adverse Operating Effect per section 3.4.4. of the Interconnection Agreement.
Maximum import and export, hour ending:

0100	imp:	exp:	%	0200	imp:	exp:	%	0300	imp:	exp:	%
0400	imp:	exp:	%	0500	imp:	exp:	%	0600	imp:	exp:	%
0700	imp:	exp:	%	0800	imp:	exp:	%	0900	imp:	exp:	%
1000	imp:	exp:	%	1100	imp:	exp:	%	1200	imp:	exp:	%
1300	imp:	exp:	%	1400	imp:	exp:	%	1500	imp:	exp:	%
1600	imp:	exp:	%	1700	imp:	exp:	%	1800	imp:	exp:	%
1900	imp:	exp:	%	2000	imp:	exp:	%	2100	imp:	exp:	%
2200	imp:	exp:	%	2300	imp:	exp:	%	2400	imp:	exp:	%

Please provide any additional pertinent information regarding the daily operating characteristics of the facility here or attached as noted. Also note information about intended reactive flows:

_____

_____

_____

_____

List components of the Generating Facility equipment package that are currently certified:

Number	Equipment Type	Certifying Entity
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____

Battery Information

Manufacturer, Model & Quantity (for each type):

_____

_____

AC/DC Coupled: ❑ AC ❑ DC

DC-DC Converter Model (if used):

Total Battery Capacity in kW_{AC}: _____

Total Battery Capacity in kW_{DC}: _____

Rated Battery Capacity in MWh: _____

Hours to discharge at Max: _____ Max Ramp Rate MW/s: _____

Rated Discharging Power MW: _____ Rate to Charge: _____

Rate to Discharge: _____

Max Discharging Duration at Rated Power (hrs): _____

Battery Operation

Control Narrative (generally describe intended operation and output characteristics used for programming the BESS controller – e.g. peak-load serving, flattening solar facility output, etc. _____

_____

_____

Modes of operation (check all that apply):

❑ Continuous Charge ❑ Frequency Response ❑ Islanding ❑ Dispatch

Reactive Capability MvVar (provide curve if available): _____

Rated Life Span (cycles): _____

Please attach 8760 projections for total facility output with storage

Generator (**or solar panel information**)

Inverter Manufacturer, Model & Quantity (for each type):

_____

_____

Other Equipment Manufacturer, Model & Quantity (for each type):

_____

_____

Nameplate Output Power Rating in kWAC: Summer _____ Winter _____

Nameplate Output Power Rating in kVA: Summer _____ Winter _____

Individual Generator Rated Power Factor: _____ Leading _____Lagging

For wind projects provide the following information:

Total Number of Generators in wind farm to be interconnected pursuant to this Interconnection Request: _____

Elevation: _____

For solar projects provide the following information:

Orientation: _____ Degrees (Due South=180°)

❑ Fixed Tilt Array ❑ Single Axis Tracking Array ❑ Double Axis Tracking Array

Fixed Tilt Angle: _____ Degrees

For transmission-connected projects, provide completed PSS/E data sheets for the generic PV library model(s) and~~or~~ user written model.

Impedance Diagram - If interconnecting to the Utility System at a voltage of 44-kV or greater, provide an Impedance Diagram. An Impedance Diagram may be required by the Utility for proposed interconnections at lower interconnection voltages. The Impedance Diagram shall provide, or be accompanied by a list that shall provide, the collector system impedance of the generation plant. The collector system impedance data shall include equivalent impedances for all components, starting with the inverter transformer(s) up to the utility level Generator Step-Up transformer.

Collector System Impedances (For PV Plants)

Collector system voltage = _____ kV

~~• Length = _____ feet~~

For each line/cable section (different size or length) indicated in the one-line diagram, the following impedance data needs to be provided in an attached Excel spreadsheet.

Length = _____ feet

For Transmission-Connected Projects:

- R = _____ ohm or _____ pu on 100 MVA and collector kV base (positive sequence)
- X = _____ ohm or _____ pu on 100 MVA and collector kV base (positive sequence)
- C = _____ µF or B = _____ pu on 100 MVA and collector kV base (positive sequence)

Alternatively, check here if Customer wants Duke Energy to use typical values for collector system impedances: ❑

For Distribution-connected projects >=1MW:

- R1 = _____ ohms/mile (Positive Sequence Resistance)
- R0 = _____ ohms/mile (Zero Sequence Resistance)
- X1 = _____ ohms/mile (Positive Sequence Inductive Reactance)
- X0 = _____ ohms/mile (Zero Sequence Inductive Reactance)
- B1 = _____ µS/mile (Positive Sequence Capacitive Susceptance)
- B0 = _____ µS/mile (Zero Sequence Capacitive Susceptance)

Interconnection Transmission Line (For Transmission Projects Only)

(from station transformer to POI)

- Line Voltage = _____ kV
- Length = _____ feet
- R = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)
- X = _____ ohm or _____ pu on 100 MVA and line kV base (positive sequence)
- C = _____ µF or B = _____ pu on 100 MVA and line kV base (positive sequence)

Load Flow Data Sheet - If interconnecting to the Utility System at a voltage of 44-kV or greater, provide a completed Power Systems Load Flow data sheet. A Load Flow data sheet may be required by the Utility for proposed interconnections at lower interconnection voltages.

Excitation and Governor System Data for Synchronous Generators - If interconnecting to the Utility System at a voltage of 44-kV or greater, provide appropriate IEEE model block diagram of excitation system, governor system and power system stabilizer (PSS) in accordance with the regional reliability council criteria. A PSS may be required at lower interconnection voltages. A copy of the manufacturer's block diagram may not be substituted.

Generating Facility Characteristic Data (for inverter-based machines)

Max design fault contribution current: _____ Instantaneous ❑ RMS❑
Harmonics Characteristics:

Start-up requirements:

Inverter Short-Circuit Model Data

Model and parameter data required for short-circuit analysis is specific to each PV inverter make and model. All data to be provided in per-unit ohms, on the equivalent inverter MVA base.
Inverter Equivalent MVA Base: _____ MVA

Values below are valid for initial 2 to 6 cycles:

Short-Circuit Equivalent Pos. Seq. Resistance (R1): _____p.u.

Short-Circuit Equivalent Pos. Seq. Reactance (XL1): _____p.u.

Short-Circuit Equivalent Neg. Seq. Resistance (R2): _____p.u.

Short-Circuit Equivalent Neg. Seq. Reactance (XL2): _____p.u.

Short-Circuit Equivalent Zero Seq. Resistance (R0): _____p.u.

Short-Circuit Equivalent Zero Seq. Reactance (XL0): _____p.u.

Special notes regarding short-circuit modeling assumptions:

Plant Reactive Power Compensation

Describe which devices (e.g. inverters, capacitors, SVC) will supply reactive power (Mvar) to allow the plant to meet the ~~0.95 lagging~~ power factor requirement at the Point of Interconnection (transmission HV bus) when the plant is simultaneously injecting full requested MW. All reactive power compensation devices must be automatically controlled.

In addition to the inverters, if a plant reactive power compensation device is part of the plant design, the following data needs to be provided:

- Shunt capacitors: _____(count), _____Mvar each, _____ Mvar total
- Shunt reactors: _____(count), _____Mvar each, _____ Mvar total

- Dynamic reactive control device type, (SVC, STATCOM): _____
    - Control range _____ Mvar (capacitive), _____ Mvar (inductive)
    - Control mode (e.g., voltage, power factor, reactive power): _____
    - Regulation set point _____ (kV, power factor, or Mvar)
    - Describe the overall reactive power control strategy: _____
    - Completed PSS/E data sheets and model for the dynamic reactive control device need to be provided.

Generating Facility Characteristic Data (for rotating machines)

RPM Frequency: _____

(*) Neutral Grounding Resistor (if applicable): _____

Synchronous Generators:

Direct Axis Synchronous Reactance, Xd: _____ P.U.

Direct Axis Transient Reactance, X'_d: _____ P.U.

Direct Axis Subtransient Reactance, X''_d: _____ P.U.

Negative Sequence Reactance, X_2: _____ P.U.

Zero Sequence Reactance, X_0: _____ P.U.

KVA Base: _____

Field Volts: _____

Field Amperes: _____

Induction Generators:

Motoring Power (kW): _____

I_2^2t or K (Heating Time Constant): _____

Rotor Resistance, Rr: _____

Stator Resistance, Rs: _____

Stator Reactance, Xs: _____

Rotor Reactance, Xr: _____

Magnetizing Reactance, Xm: _____

Short Circuit Reactance, Xd": _____

Exciting Current: _____

Temperature Rise: _____

Frame Size: _____

Design Letter: _____

Reactive Power Required In Vars (No Load): _____

Reactive Power Required In Vars (Full Load): _____

Total Rotating Inertia, H: _____ Per Unit on kVA Base

Note: Please contact the Utility prior to submitting the Interconnection Request to determine if the specified information above is required.

Interconnection Facilities Information

Will more than one transformer be used between the generator and the point of common coupling? ❑ Yes ❑ No

(If yes, copy this section and provide the information for each transformer used. This information must match the single-line drawing and transformer specification sheets. For identical transformers, one set of data may be provided.)
Will the transformer be provided by the Interconnection Customer? ❑ Yes ❑ No

Transformer Data (if applicable, for Interconnection Customer-owned transformer):

Is the transformer: Single phase ❑ Three phase ❑ Size: _____ kVA

~~Transformer Impedance: _____ % on _____ kVA Base Delete?~~

If Two Winding:

a) Rating (ONAN/ONAF/ONAF): / / MVA

b) Nominal Voltage for each winding (High/Low): / kV

c) Winding Connections (High/Low): [Delta or Wye](grounded) or Wye(ungrounded) / [Delta or Wye](grounded) or Wye(ungrounded)~~Delta-or-Wye~~]

* Transmission: High side should be delta for tap station or wye for switching station with network breakers.

Distribution: High side should be wye-grounded.

d) Available tap positions: / / / / kV **or** % # of taps.

e) Positive sequence impedance Z_1: %, X/R on self-cooled (ONAN) MVA rating above.

f) Zero sequence impedance Z_0: %, X/R on self-cooled (ONAN) MVA rating above.

g) For pad mounted transformer, construction: 3 / 4 / 5 -legged

~~Additional Transformer Inrush data required:~~

For Distribution-connected sites >=1MW for each xfrmr in SLD please include:

a) Eddy Current (No Load) Losses (kW):
b) Copper Losses at Full Rated Load (kW):
c) Magnetizing (No Load) Current at 100% Voltage (% nominal Current):
d) Knee Voltage (% nominal Voltage):
e) Air-Core Reactance
   - Ohms:

- per unit: _____ (on transformer ONAN MVA base and nominal primary voltage)

f) Manufacturer Estimated Maximum RMS Inrush Current (Primary Side Amps): _____

~~If Three Three PhaseWinding:~~

~~Transformer Primary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

~~Primary Wiring Connection: ❑ 3-wire ❑ 4-wire, grounded neutral~~

~~Transformer Secondary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

~~Secondary Wiring Connection: ❑ 3-wire ❑ 4-wire, grounded neutral~~

~~Transformer Tertiary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

If Three ~~Connection &~~ Winding:

Please attach diagram and mark to reference this form)

	H Winding Data	**X Winding Data**	**Y Winding Data**
Full load ratings (i.e. ONAN/ONAF/ONAF)	____/____/____ MVA	____/____/____ MVA	____/____/____ MVA
Rated voltage base	____ kV Delta or Wye connected	____ kV Delta or Wye connected	____ kV Delta or Wye connected
Tap positions available	____/____/____ /____/____ kV	____/____/____ /____/____ kV	____/____/____ /____/____ kV
Present Tap Setting (if applicable)	____ kV	____ kV	____ kV
Neutral solidly grounded? (or) Neutral Grounding Resistor (if applicable)	_____ ____ Ohms	_____ ____ Ohms	_____ ____ Ohms
BIL rating	____ kV	____ kV	____ kV

_____Three Winding Impedance Data:

Please attach diagram and mark to reference this form)

~~Transformer Primary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

~~Primary Wiring Connection: ❑ 3-wire ❑ 4-wire, grounded neutral~~

~~Transformer Secondary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

~~Secondary Wiring Connection: ❑ 3-wire ❑ 4-wire, grounded neutral~~

~~Transformer Tertiary Winding _____ Volts,~~

~~❑ Delta ❑ WYE, grounded neutral ❑ WYE, ungrounded neutral~~

	H-X Winding Data	**H-Y Winding Data**	**X-Y Winding Data**
Transformer base for impedances provided	MVA	MVA	MVA
Positive sequence impedance Z_1	% X/R	% X/R	% X/R
Zero sequence impedance Z_0	% X/R	% X/R	% X/R

~~Is this highlighted portion correctly placed outside of the "If 3 phase" section?~~
~~For all Transformers:~~

- ~~Available taps: _____ (indicate fixed or with LTC)~~
- ~~Positive sequence impedance Z _____% on transformer self-cooled (ONAN) MVA base and nominal primary voltage~~
- ~~MVA base value for %Z (MVA): _____~~
- ~~X/R ratio: _____~~

~~Correctly placed?~~
~~For Distribution-connected sites >=1MW for each xfrmr in SLD please include:~~

~~a) Eddy Current (No Load) Losses (kW):_____~~
~~b) Copper Losses at Full Rated Load (kW):_____~~
~~c) Magnetizing (No Load) Current at 100% Voltage (% nominal Current):_____~~
~~d) Knee Voltage (% nominal Voltage):_____~~
~~e) Air-Core Reactance~~
  - ~~Ohms:_____~~
  - ~~per unit:_____(on transformer ONAN MVA base and nominal primary voltage)~~

~~f) Manufacturer Estimated Maximum RMS Inrush Current (Primary Side Amps):_____~~

Transformer Fuse Data (if applicable, for Interconnection Customer-owned fuse):

(Attach copy of fuse manufacturer's Minimum Melt and Total Clearing Time-Current Curves)

Manufacturer: _____ Type: _____ Size: _____ Speed: _____

Interconnecting Circuit Breaker (if applicable):

Manufacturer: _____ Type: _____

Load Rating (Amps): ____ Interrupting Rating (Amps): _____

Trip Speed (Cycles): _____

Interconnection Protective Relays (if applicable):

If Microprocessor-Controlled:

List of Functions and Adjustable Setpoints for the protective equipment or software:

	Setpoint Function	Minimum	Maximum
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____

If Discrete Components:

(Enclose Copy of any Proposed Time-Overcurrent Coordination Curves)

Manufacturer	Type:	Style/Catalog No.	Proposed Setting
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Current Transformer Data (if applicable):

(Enclose Copy of Manufacturer's Excitation and Ratio Correction Curves)

Manufacturer: _____ Type: _____

Accuracy Class: _____ Proposed Ratio Connection: _____

Manufacturer: _____ Type: _____

Accuracy Class: _____ Proposed Ratio Connection: _____

Potential Transformer Data (if applicable):

Manufacturer: _____ Type: _____

Accuracy Class: _____ Proposed Ratio Connection: _____

Manufacturer: _____ Type: _____

Accuracy Class: _____ Proposed Ratio Connection: _____

General Information

1. One-line diagram
   Enclose site electrical one-line diagram showing the configuration of all Generating Facility equipment, current and potential circuits, and protection and control schemes.
   - The one-line diagram should include the project owner's name, project name, project address, model numbers and nameplate sizes of equipment, including number and nameplate electrical size information for solar panels, inverters, wind turbines, disconnect switches, latitude and longitude of the project location, and tilt angle and orientation of the photovoltaic array for solar projects.
   - The diagram should also depict the metering arrangement required whether installed on the customer side of an existing meter ("net metering/billing") or directly connected to the grid through a new or separate delivery point requiring a separate meter.
   - List of adjustable set points for the protective equipment or software should be included on the electrical one-line drawing.
   - This one-line diagram must be signed and stamped by a licensed Professional Engineer if the Generating Facility is larger than 50 kW.
   - Is One-Line Diagram Enclosed? Yes ___ No ___
2. Site Plan
   - Enclose copy of any site documentation that indicates the precise physical location of the proposed Generating Facility (Latitude & Longitude Coordinates and USGS topographic map, or other diagram) and the proposed Point of Interconnection.
   - Proposed location of protective interface equipment on property (include address if different from the Interconnection Customer's address)
   - Is Site Plan Enclosed? Yes ___ No ___
3. Is Site Control Verification Form Enclosed? Yes ___ No ___
4. Equipment Specifications
   Include equipment specification information (product literature) for the solar panels and inverter(s) that provides technical information and certification information for the equipment to be installed with the application.
   - Are Equipment Specifications Enclosed? Yes ___ No ___
5. Protection and Control Schemes
   - Enclose copy of any site documentation that describes and details the operation of the protection and control schemes.
   - Is Available Documentation Enclosed? Yes ___ No ___
   - Enclose copies of schematic drawings for all protection and control circuits, relay current circuits, relay potential circuits, and alarm/monitoring circuits (if applicable).
   - Are Schematic Drawings Enclosed? Yes ___ No ___
6. Register with North Carolina Secretary of State (if not an individual)

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Interconnection Request Application Form is true and correct.

For Interconnection Customer:

Signature _____ Date: _____

(Authorized Agent of the Legal Entity)

Print Full Name _____

Company Name _____

Title With Company _____

E-Mail Address _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

County: _____

Telephone (Day): _____ (Evening): _____

Fax: _____

In the Matter of the Application of [Developer Name] for an Interconnection Agreement with [Utility Name])))) **SITE CONTROL VERIFICATION**

I, [Authorized Signatory Name], [Title] of [Developer Name], under penalty of perjury, hereby certify that, [Developer Name] or its affiliate has executed a written contract with the landowner(s) noted below, concerning the property described below. I further certify that our written contract with the landowner(s) specifies the agreed rental rate or purchase price for the property, as applicable, and allows [Developer Name] or its affiliates to construct and operate a renewable energy power generation facility on the property described below.

This verification is provided to [Utility Name] in support of our application for an Interconnection Agreement.

Landowner Name(s):

_____

Land Owner Contact information (Phone or e-mail):

_____

Parcel or PIN Number: _____

County: _____

Site
Address:_____

Number of Acres under Contract (state range, if applicable): _____

Date Contract was executed _____

Term of Contract _____

_____[signature]_____
[Authorized Signatory Name]

[Authorized Signatory Name], being first duly sworn, says that [he/she] has read the foregoing verification, and knows the contents thereof to be true to [his/her] actual knowledge.
Sworn and subscribed to before me this _____ day of _____, 201____.

_____[signature]_____
[Authorized Signatory Name]

[Title], [Developer Name]

_____[Signature of Notary Public]_____
Notary Public

_____
Name of Notary Public [typewritten or printed]
My Commission expires_____

ATTACHMENT 3

Generating Facility Pre-Application Report Form

Preamble and Instructions

An Interconnection Customer who requests a Pre-Application Report must submit this Pre-Application Report Request by hand delivery, mail, e-mail, or fax to the Utility along with the non-refundable fee of $500.

DISCLAIMER: Be aware that this Pre-Application Report is simply a snapshot in time and is non-binding. System conditions can and do change frequently.

☐ Check here if payment is enclosed. Fee is required for application to be considered complete.

Date:

_____

Interconnecting Customer Name (print): _____

Contact Person: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime):_____

E-Mail Address:_____

Alternative Contact Information (e.g., system installation contractor or coordinating company) Name (print):

_____

Role:

_____

_____

Contact Person:

_____

_____

Mailing Address:

_____

_____

City: _____ State: _____ Zip Code: _____

Telephone (Daytime):_____

E-Mail Address:_____

Facility Information:

1) Proposed Facility Location

Address (or cross-roads):

_____

_____

City: _____ State: _____ Zip Code: _____

☐ Site Map provided (Google, MapQuest, etc.)

☐ Grid Coordinates (decimal) - Latitude: _____ Longitude:_____

☐ Pole or Tower number if available: _____

2) Primary Energy Source (Refer to U.S. EIA Form 860 Instructions, Table 28 Energy Source Codes and Heat Content at https://www.eia.gov/survey/form/eia 860/instructions.pdf)

Fuel Type	Energy Source Code	Energy Source Description

3) Prime Mover (Refer to U.S. EIA Form 860 Instructions, Table 2 Prime Mover Codes and Descriptions at https://www.eia.gov/survey/form/eia 860/instructions.pdf)

Prime Mover Code
Prime Mover Description

4) Type of Generator Choose one:

1. Inverter-based Machine
2. Rotating Machine
3. Rotating Machine with Inverters

5) Generator/Storage Nameplate Capacity: kW

Maximum Generating Capacity requested: kWAC

Storage Nameplate Energy: kWh

6) Generator Configuration:

□ Single-phase ❑ Three Phase

7) Interconnection Configuration

□ New Generation

□ Stand-alone

□ Addition to existing commercial or industrial customer's delivery Customer's Electric Utility account number:

Customer's Electric meter number:

Is Customer's kW load going to increase?

□ No

□ Yes, Details

Is Customer's kW load going to decrease?

□ No

□ Yes, Details

Proposed Point of Interconnection on Customer-side of Utility meter

OR

□ Addition to existing generation

□ Stand-alone

□ Addition to existing commercial or industrial customer's delivery Customer's Electric Utility account number:_____

Customer's Electric meter number:_____

Is Customer's kW load going to increase?

□ No

□ Yes, Details

Is Customer's kW load going to decrease?

☐ No

☐ Yes, Details_____

Type of Existing Generation:_____

Size of Existing Generation: kW_{AC}_____

Proposed Point of Interconnection on Customer-side of Utility meter

_____

Additional Comments

_____

_____

_____

_____

ATTACHMENT 4

Informational Interconnection Request Form and Study Agreement

1. The undersigned Interconnection Customer submits this request to evaluate the interconnection of its Generating Facility with Utility's Transmission System.

2. Interconnection Customer provides the following information:

   a. Address or location of the proposed new Generating Facility site (to the extent known) or, in the case of an existing Generating Facility, the name and specific location (GIS coordinates) of the existing Generating Facility;
   b. Maximum summer at _____ degrees C and winter at _____ degrees C megawatt electrical output of the proposed new Generating Facility or the amount of megawatt increase in the generating capacity of an existing Generating Facility;
   c. General description of the equipment configuration;
   d. Proposed Commercial Operation Date to be studied (Day, Month, and Year);
   e. Name, address, telephone number, and e-mail address of Interconnection Customer's contact person;
   f. Approximate location of the proposed Point of Interconnection;
   g. Interconnection Customer Data (set forth in Attachment A)
   h. Primary frequency response operating range for electric storage resources.
   i. Maximum Generating Capacity Requested (in MW); and
   j. A Scope of Work including any additional information that may be reasonably required.

3. $10,000 study deposit amount as specified in Section 1.4.3 of Revised Standard.

4. This Informational Interconnection Study Request shall be submitted to the representative indicated below:

   [To be completed by Utility]

5. Representative of Interconnection Customer to contact:

   [To be completed by Interconnection Customer]

6. This Interconnection Request is submitted by:

   Name of Interconnection Customer: _____

   By (signature): _____

   Name (type or print): _____

   Title: _____

Date: _____

GENERATING FACILITY DATA FOR INFORMATIONAL INTERCONNECTION STUDY

UNIT RATINGS

kVA _____ °F _____ Voltage _____

Power Factor _____ _____

Speed (RPM) _____ Connection (e.g. Wye) _____

Short Circuit Ratio _____ Frequency, Hertz _____

Stator Amperes at Rated kVA _____ Field Volts _____

Max Turbine MW _____ °F _____

Primary frequency response operating range for electric storage resources.

Minimum State of Charge: _____

Maximum State of Charge: _____

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = _____ kW sec/kVA Moment-of-Inertia, WR^2 = _____ lb. $ft.^2$

REACTANCE DATA (PER UNIT-RATED KVA) DIRECT AXIS QUADRATURE AXIS

Synchronous – saturated	X_{dv} _____	X_{qv} _____
Synchronous – unsaturated	X_{di} _____	X_{qi} _____
Transient – saturated	X'_{dv} _____	X'_{qv} _____
Transient – unsaturated	X'_{di} _____	X'_{qi} _____
Subtransient – saturated	X''_{dv} _____	X''_{qv} _____
Subtransient – unsaturated	X''_{di} _____	X''_{qi} _____
Negative Sequence – saturated	$X2_v$ _____	
Negative Sequence – unsaturated	$X2_i$ _____	
Zero Sequence – saturated	$X0_v$ _____	
Zero Sequence – unsaturated	$X0_i$ _____	
Leakage Reactance	Xl_m _____	

Open Circuit	T'_{do}_____	T'_{qo}_____
Three-Phase Short Circuit Transient	T'_{d3}_____	T'_{q}_____
	T'_{d1}_____	
Line to Line Short Circuit Transient	T''_{d}_____	T''_{q}_____
Short Circuit Subtransient	T'_{d2}_____	
Open Circuit Subtransient	T''_{do}_____	T''_{qo}_____
Line to Neutral Short Circuit Transient		

FIELD TIME CONSTANT DATA (SEC)
ARMATURE TIME CONSTANT DATA (SEC)

Three Phase Short Circuit T_{a3}_____
Line to Line Short Circuit T_{a2}_____ Line to Neutral Short Circuit T_{a1}_____

NOTE: If requested information is not applicable, indicate by marking "N/A."

MW CAPABILITY AND PLANT CONFIGURATION
GENERATING FACILITY DATA ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive R_1_____
Negative R_2_____ Zero R_0_____

Rotor Short Time Thermal Capacity I_2^2t =_____
Field Current at Rated kVA, Armature Voltage and PF =_____ amps
Field Current at Rated kVA and Armature Voltage, 0 PF =_____ amps
Three Phase Armature Winding Capacitance =_____ microfarad
Field Winding Resistance =_____ ohms_____ °C
Armature Winding Resistance (Per Phase) =_____ ohms_____ °C

CURVES

Provide Saturation, Vee, Reactive Capability, Capacity Temperature Correction curves. Designate normal and emergency Hydrogen Pressure operating range for multiple curves.

GENERATOR STEP-UP TRANSFORMER DATA RATINGS

Capacity Self-cooled/
Maximum Nameplate
_____/_____kVA

Voltage Ratio(Generator Side/System side/Tertiary)
_____/_____/_____kV

Winding Connections (Low V/High V/Tertiary V (Delta or Wye))
_____/_____/_____

Fixed Taps Available _____

Present Tap Setting _____

If more than one transformer stage is used to deliver the output from the proposed generator to the Transmission System, please provide the information above for each transformer or transformer type.

IMPEDANCE

Positive

Z_1 (on self-cooled kVA rating) _____% _____X/R

Zero

Z_0 (on self-cooled kVA rating) _____% _____X/R

EXCITATION SYSTEM DATA

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer (PSS) for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.

GOVERNOR SYSTEM DATA

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.

WIND GENERATORS

Number of generators to be interconnected pursuant to this Interconnection Request: _____

Elevation: _____ Single Phase _____ Three Phase _____

Inverter manufacturer, model name, number, and version:

_____

List of adjustable setpoints for the protective equipment or software:

Note: A completed General Electric Company Power Systems Load Flow (PSLF) data sheet or other compatible formats, such as IEEE and PTI power flow models, must be supplied with the Interconnection Request. If other data sheets are more appropriate to the proposed device, then they shall be provided and discussed at Scoping Meeting.

INDUCTION GENERATORS

(*) Field Volts: _____
(*) Field Amperes: _____
(*) Motoring Power (kW): _____
(*) Neutral Grounding Resistor (If Applicable: _____
(*) I_2^2t or K (Heating Time Constant): _____
(*) Rotor Resistance: _____
(*) Stator Resistance: _____
(*) Stator Reactance: _____
(*) Rotor Reactance: _____
(*) Magnetizing Reactance: _____
(*) Short Circuit Reactance: _____
(*) Exciting Current: _____
(*) Temperature Rise: _____
(*) Frame Size: _____
(*) Design Letter: _____
(*) Reactive Power Required In Vars (No Load): _____
(*) Reactive Power Required In Vars (Full Load): _____
(*) Total Rotating Inertia, H: _____Per Unit on KVA Base

Note: Please consult with Utility prior to submitting the Informational Interconnection Study Request to determine if the information designated by (*) is required.

INFORMATIONAL INTERCONNECTION STUDY AGREEMENT

THIS AGREEMENT is made and entered into this day of , 20 by and between , a organized and existing under the laws of the State of , ("Interconnection Customer,") and a existing under the laws of the State of , ("Utility""). Interconnection Customer and Utility each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Interconnection Customer is evaluating developing a Generating Facility or generating capacity addition to an existing Generating Facility proposing an interconnection with the Utility's Transmission System; and

WHEREAS, Interconnection Customer has submitted to Utility an Informational Interconnection Study Interconnection Request; and

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in Revised Procedures authorized by the Commission.

2. Interconnection Customer elects and Utility shall cause an Informational Interconnection Study consistent with Section 1.4 of this Revised Standard to be performed.

3. The scope of the Informational Interconnection Study shall be subject to the assumptions set forth in Attachment A to this Agreement.

4. The Informational Interconnection Study shall be performed solely for informational purposes.

5. The Informational Interconnection Study report shall provide an analysis based on the assumptions specified by Interconnection Customer in Attachment A to this Agreement, as agreed to by the Utility. The Informational Interconnection Study shall preliminarily identify Utility's Interconnection Facilities and the ~~Network~~System Upgrades, and the estimated cost thereof that may be required to ~~provide transmission service or Interconnection Service~~interconnect the proposed Generating Facility based upon the assumptions specified by Interconnection Customer in Attachment A.

6. Interconnection Customer shall provide a deposit of ten thousand dollars ($10,000.00) for the performance of the Informational Interconnection Study. The Utility's good faith estimate for the time of completion of the Informational Interconnection Study is [insert date].

7. Upon receipt of the Informational Interconnection Study, the Utility shall charge and Interconnection Customer shall pay the actual costs of the Informational Interconnection Study. The Interconnection Customer must pay any Study costs that exceed the Interconnection Request Deposit without interest within 20 Business Days of receipt of the invoice. If the deposit exceeds the invoiced fees or the Interconnection Customer's costs exceed the aggregate deposits received, the amount of funds equal to the difference will be settled in accordance with Section 6.3 of the NC Interconnection Standard.

8. Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

9. Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

10. No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

11. Waiver

11.1. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

11.2. Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, or duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the

Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

12. Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

13. No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

14. Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

15. Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

15.1. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

15.2. The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

16. Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Utility]	**[Insert name of Interconnection Customer]**
Signed	Signed
Name (Printed):	Name (Printed):
Title	

ATTACHMENT 5-A

Certification Codes and Standards

ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Ratings (60 Hertz)

IEEE 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems (including use of IEEE 1547.1 testing protocols to establish conformity)

IEEE Std 100-2000, IEEE Standard Dictionary of Electrical and Electronic Terms

IEEE Std 519-1992, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

IEEE Std C37.108-1989 (R2002), IEEE Guide for the Protection of Network Transformers

IEEE Std C37.90.1-1989 (R1994), IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems

IEEE Std C37.90.2 (1995), IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

IEEE Std C57.12.44-2000, IEEE Standard Requirements for Secondary Network Protectors

IEEE Std C62.41.2-2002, IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits

IEEE Std C62.45-1992 (R2002), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits

NEMA MG 1-1998, Motors and Small Resources, Revision 3 NEMA MG 1-2003 (Rev 2004), Motors and Generators, Revision 1 NFPA 70 (2002), National Electrical Code

UL1741, Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

ATTACHMENT 5-B

Certification of Generator Equipment Packages

1.0 Generating Facility equipment proposed for use separately or packaged with other equipment in an interconnection system shall be considered certified for interconnected operation if (1) it has been tested in accordance with industry standards for continuous utility interactive operation in compliance with the appropriate codes and standards referenced below by any Nationally Recognized Testing Laboratory (NRTL) recognized by the United States Occupational Safety and Health Administration to test and certify interconnection equipment pursuant to the relevant codes and standards listed in Attachment ~~4~~ 5-A of the North Carolina Interconnection Procedures, (2) it has been labeled and is publicly listed by such NRTL at the time of the Interconnection Request, and (3) such NRTL makes readily available for verification all test standards and procedures it utilized in performing such equipment certification, and, with consumer approval, the test data itself. The NRTL may make such information available on its website and by encouraging such information to be included in the manufacturer's literature accompanying the equipment.

2.0 The Interconnection Customer must verify that the intended use of the equipment falls within the use or uses for which the equipment was tested, labeled, and listed by the NRTL.

3.0 Certified equipment shall not require further type-test review, testing, or additional equipment to meet the requirements of this interconnection procedure; however, nothing herein shall preclude the need for an on-site commissioning test by the Parties to the interconnection or follow-up production testing by the NRTL.

4.0 If the certified equipment package includes only interface components (switchgear, inverters, or other interface devices), then an Interconnection Customer must show that the generator or other electric source being utilized with the equipment package is compatible with the equipment package and is consistent with the testing and listing specified for this type of interconnection equipment.

5.0 Provided the generator or electric source, when combined with the equipment package, is within the range of capabilities for which it was tested by the NRTL, and does not violate the interface components' labeling and listing performed by the NRTL, no further design review, testing or additional equipment on the Interconnection Customer's side of the point of common coupling shall be required to meet the requirements of the North Carolina Interconnection Procedures.

6.0 An equipment package does not include equipment provided by the Utility.

Attachment 6

Interconnection Request Application Form for Interconnecting a Certified Inverter- Based Generating Facility No Larger than 20 kW

This Interconnection Request Application Form is considered complete when it provides all applicable and correct information required below. Additional information to evaluate the Interconnection Request may be required.

Processing Fee

A non-refundable processing fee of $ 200 must accompany this Interconnection Request Application Form.

If the Interconnection Request is submitted solely due to a transfer of ownership of the Generating Facility, the non-refundable fee is $50.

Interconnection Customer

Name:_____

Primary Contact Person:_____

Title:_____

E-Mail Address:_____

Mailing Address:_____

City:_____ State:_____ Zip:_____

County:_____

Telephone (Day):_____ (Evening):_____

Fax:_____

Secondary Contact Name:_____

Title:_____

E-Mail Address:_____

Mailing Address:_____

City:_____State:_____Zip:_____

County:_____

Telephone (Day):_____(Evening):_____

Fax:_____

Contact (if different than Interconnection Customer)

Name:_____

E-Mail Address:_____

Address:_____

City:_____ State:_____ Zip:

County:

Telephone (Day):_____ (Evening):_____

Fax:_____

Owner(s) of the Generating Facility:_____

Generating Facility Information

Facility Location (if different from above):

Address:_____

City:_____ State:_____ Zip:_____

County:_____

Utility:_____

Account Number:_____

Is the Generating Facility owned by the Interconnection Customer or Leased from an Electric Generator Lessor in NC?

Owned _____

Leased NCUC Docket No.: _____

Inverter Manufacturer: Model:_____

Nameplate Rating (each inverter): _____kW (AC) (each inverter)
_____kVA (AC) (each inverter)
_____Volts (AC) (each inverter)

Single Phase: _____ Three Phase:_____

System Design Capacity [a]: _____kW (AC) (system total)
_____kVA (AC) (system total)

For photovoltaic sources only:

Total panel capacity: _____ kW (DC) (system total)

Maximum Generating Capacity Rquested:[b] _*(calculated)*[c] kW (AC)

For other sources:

Maximum Generating Capacity Requested:[2]

_____ kW (AC)

Prime Mover Information (Refer to U.S. EIA Form 860 Instructions, Table 2 Prime Mover Codes and Descriptions at https://www.eia.gov/survey/form/eia860/instructions.pdf)

Prime Mover Code_____

Prime Mover Description_____

Energy Source Information (Refer to U.S. EIA Form 860 Instructions, Table 28 Energy Source Codes and Heat Content at https://www.eia.gov/survey/form/eia 860/instructions.pdf)

Fuel Type	Energy Source Code	Energy Source Description

Is the equipment UL 1741 Listed? Yes ____ No ____

If Yes, attach manufacturer's cut-sheet showing UL 1741 listing

Estimated Installation Date: _____Estimated In-Service Date:_____

[a] Total inverter capacity.

[b] At the Point of Interconnection, this is the maximum possible export power that could flow back to the Utility. Unless special circumstances apply, load should not be subtracted from the System Design Capacity.

[c] For a photovoltaic installation, the Utility will calculate this value as the lesser of (1) the total kW inverter capacity and (2) the total kW panel capacity (no DC to AC losses included, for simplicity).

The 20 kW Inverter Process is available only for inverter-based Generating Facilities no larger than 20 kW that meet the codes, standards, and certification requirements of Attachments 3 and 4 of the North Carolina Interconnection Procedures, or the Utility has reviewed the design or tested the proposed Generating Facility and is satisfied that it is safe to operate.

List components of the Generating Facility equipment package that are currently certified:

	Number	Equipment Type	Certifying Entity
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Interconnection Customer Signature

I hereby certify that, to the best of my knowledge, the information provided in this Interconnection Request Application Form is true. I agree to abide by the Terms and Conditions for Interconnecting a Certified Inverter-Based Generating Facility No Larger than 20 kW and return the Certificate of Completion when the Generating Facility has been installed.

Signed:_____

Full Name_____

Company Name

_____

Title With Company

_____

E-Mail Address_____

Mailing Address:_____

City:_____State:_____Zip:_____

County:_____

Telephone (Day): _____ (Evening): _____

Fax:_____

Contingent Approval to Interconnect the Generating Facility (For Utility use only)

Interconnection of the Generating Facility is approved contingent upon the Terms and Conditions for Interconnecting a Certified Inverter-Based Generating Facility No Larger than 20 kW and return of the Certificate of Completion.

Utility Signature:

Title:_____ Date:_____

Interconnection Request ID number:_____

Utility waives inspection/witness test? Yes _____No_____

Certificate of Completion
for Interconnecting a Certified Inverter-Based
Generating Facility No Larger than 20 kW

Is the Generating Facility owner-installed? Yes _____No _____

Interconnection Customer

Name: _____
Contact Person: _____
E-Mail Address: _____
Address: _____
City: _____ State: _____ Zip: _____
County: _____
Telephone (Day): _____ (Evening): _____
Fax: _____

Location of the Generating Facility (if different from above)
Address: _____
City: _____ State: _____ Zip: _____

Electrician

Name: _____
Company: _____
E-Mail Address: _____
Address: _____
City: _____ State: _____ Zip: _____
County: _____
Telephone (Day): _____ (Evening): _____
Fax: _____
License Number: _____

Date Approval to Install Generating Facility granted by the Utility: _____

Interconnection Request ID Number: _____

Inspection:

The Generating Facility has been installed and inspected in compliance with the local building/electrical code of _____

Signed (Local electrical wiring inspector, or attach signed electrical inspection):

Signature: _____

Print Name: _____ Date: _____

As a condition of interconnection, you are required to send/ email/ fax a copy of this form along with a copy of the signed electrical permit to (insert Utility information below):

Utility Name: _____

Attention: _____

E-Mail Address: _____

Address: _____

City: _____ State: _____ Zip: _____

Fax: _____

Approval to Energize the Generating Facility (For Utility use only)

Energizing the Generating Facility is approved contingent upon the Terms and Conditions for Interconnecting a Certified Inverter-Based Generating Facility No Larger than 20 kW.

Utility Signature:

Title: _____ Date: _____

Terms and Conditions
for Interconnecting a Certified Inverter-Based
Generating Facility No Larger than 20 kW

1.0 Construction of the Facility

The Interconnection Customer (Customer) may proceed to construct (including operational testing not to exceed two hours) the Generating Facility when the Utility approves the Interconnection Request and returns it to the Customer.

2.0 Interconnection and Operation

The Customer may interconnect the Generating Facility with the Utility's System and operate in parallel with the Utility's System once all of the following have occurred:

2.1 Upon completing construction, the Customer will cause the Generating Facility to be inspected or otherwise certified by the appropriate local electrical wiring inspector with jurisdiction,

2.2 The Customer returns the Certificate of Completion to the Utility, and

2.3 The Utility has either:

2.3.1 Completed its inspection of the Generating Facility to ensure that all equipment has been appropriately installed and that all electrical connections have been made in accordance with applicable codes. All inspections must be conducted by the Utility, at its own expense, within ten Business Days after receipt of the Certificate of Completion and shall take place at a time agreeable to the Parties. The Utility shall provide a written statement that the Generating Facility has passed inspection or shall notify the Customer of what steps it must take to pass inspection as soon as practicable after the inspection takes place; or

2.3.2 If the Utility does not schedule an inspection of the Generating Facility within ten Business Days after receiving the Certificate of Completion, the witness test is deemed waived (unless the Parties agree otherwise); or

2.3.3 The Utility waives the right to inspect the Generating Facility.

2.4 The Utility has the right to disconnect the Generating Facility in the event of improper installation or failure to return the Certificate of Completion.

2.5 Revenue quality metering equipment must be installed and tested in accordance with applicable American National Standards Institute (ANSI) standards and all applicable regulatory requirements.

3.0 Safe Operations and Maintenance

The Customer shall be fully responsible to operate, maintain, and repair the Generating Facility as required to ensure that it complies at all times with the interconnection standards to which it has been certified.

The Customer shall not operate the Generating Facility in such a way that the Generating Facility would exceed the Maximum Generating Capacity.

4.0 Access

The Utility shall have access to the disconnect switch (if a disconnect switch is required) and metering equipment of the Generating Facility at all times. The Utility shall provide reasonable notice to the Customer, when possible, prior to using its right of access.

5.0 Disconnection

The Utility may temporarily disconnect the Generating Facility upon the following conditions:

5.1 For scheduled outages upon reasonable notice.

5.2 For unscheduled outages or emergency conditions.

5.3 If the Generating Facility does not operate in a manner consistent with these Terms and Conditions.

5.4 The Utility shall inform the Customer in advance of any scheduled disconnection, or as soon as is reasonable after an unscheduled disconnection.

6.0 Indemnification

The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inactions of its obligations hereunder on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7. 0 Insurance

All insurance policies must be maintained with insurers authorized to do business in North Carolina. The Parties agree to the following insurance requirements:

7.1 If the Customer is a residential customer of the Utility, the required coverage shall be a standard homeowner's insurance policy with liability coverage in the amount of at least $100,000 per occurrence.

7.2 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be comprehensive general liability insurance with coverage in the amount of at least $300,000 per occurrence.

7.3 The Customer may provide this insurance via a self-insurance program if it has a self-insurance program established in accordance with commercially acceptable risk management practices.

8.0 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, or expense, including reasonable attorney's fees, relating to or arising from any act or omission hereunder, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, incidental, consequential, or punitive damages of any kind.

9.0 Termination

The agreement to interconnect and operate in parallel may be terminated under the following conditions:

9.1 By the Customer

By providing written notice to the Utility and physically and permanently disconnecting the Generating Facility.

9.2 By the Utility

If the Generating Facility fails to operate for any consecutive 12-month period or the Customer fails to remedy a violation of these Terms and Conditions.

9.3 Permanent Disconnection

In the event this Agreement is terminated, the Utility shall have the right to disconnect its facilities or direct the Customer to disconnect its Generating Facility.

9.4 Survival Rights

This Agreement shall continue in effect after termination to the extent necessary to allow or require either Party to fulfill rights or obligations that arose under the Agreement.

10.0 Assignment/Transfer of Ownership of the Facility

10.1 This Agreement shall not survive the transfer of ownership of the Generating Facility to a new owner.

10.2 The new owner must complete and submit a new Interconnection Request agreeing to abide by these Terms and Conditions for interconnection and parallel operations within 20 Business Days of the transfer of ownership. The Utility shall acknowledge receipt and return a signed copy of the Interconnection Request Application Form within ten Business Days.

10.3 The Utility shall not study or inspect the Generating Facility unless the new owner's Interconnection Request Application Form indicates that a Material Modification has occurred or is proposed.

ATTACHMENT 7

System Impact Study Agreement
[Applicable to Section 4.3 Serial Study Process]

THIS AGREEMENT ("Agreement") is made and entered into this ____ day of ____, 20__, by and between _____, an organized and existing under the laws of the State of , ("Interconnection Customer"), and _____, a _____ existing under the laws of the State of _____, ("Utility"). The Interconnection Customer and the Utility each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the Interconnection Request completed by the Interconnection Customer, dated _____ and received by the Utility on _____; and

WHEREAS, the Interconnection Customer desires to interconnect the Generating Facility with the Utility's System; and

WHEREAS, the Interconnection Customer has requested the Utility to perform a System Impact Study to assess the impact of interconnecting the Generating Facility with the Utility's System, and of any Affected Systems;

NOW, **THEREFORE**, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the North Carolina Interconnection Procedures.

2. The Interconnection Customer elects and the Utility shall cause to be performed a System Impact Study consistent with the North Carolina Interconnection Procedures.

3. The scope of the System Impact Study shall be subject to the assumptions set forth in Appendix A to this Agreement.

4. A System Impact Study will be based upon the technical information provided by Interconnection Customer in the Interconnection Request. The Utility reserves the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the System Impact Study. If the information requested by the Utility is not provided by the Interconnection Customer within a reasonable timeframe to be identified by the Utility in writing, the Utility shall provide the Interconnection Customer written notice

providing an opportunity to cure such failure by the close of business on the tenth (10^{th}) Business Day following the posted date of such notice, where failure to provide the information requested within this period shall result in the study being terminated and the Interconnection Request being deemed withdrawn. The period of time for the Utility to complete the System Impact Study shall be tolled during any period that the Utility has requested information in writing from the Interconnection Customer necessary to complete the study and such request is outstanding.

5. In performing the study, the Utility shall rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection Customer shall not be charged for such existing studies; however, the Interconnection Customer shall be responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the System Impact Study.

6. The System Impact Study Report shall provide the following analyses for the purpose of identifying any potential adverse system impacts that would result from the interconnection of the Generating Facility as proposed:

6.1. Initial identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection, considering the Nameplate Capacity of the Generating Facility;

6.2. Initial identification of any thermal overload or voltage limit violations resulting from the interconnection, considering the Maximum Generating Capacity of the Generating Facility; and

6.3. Initial review of grounding requirements and electric system protection.

7. The System Impact Study shall model the impact of the Generating Facility regardless of purpose in order to avoid the further expense and interruption of operation for reexamination of feasibility and impacts if the Interconnection Customer later changes the purpose for which the Generating Facility is being installed. This Section does not assume any Material Modification or changes in Production Profile in the Interconnection Request used to perform this System Impact Study.

8. The Study shall include the feasibility of any interconnection at a proposed project site where there could be multiple potential Points

of Interconnection, as requested by the Interconnection Customer and at the Interconnection Customer's cost.

9. A System Impact Study shall consist of a short circuit analysis, a stability analysis, a power flow analysis, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews, as necessary.

10. The System Impact Study will also include an analysis of distribution and transmission impacts as may be necessary to understand the impact of the proposed Generating Facility on electric system operation.

11. A System Impact Study shall state the assumptions upon which it is based, state the results of the analyses, and provide the requirement or potential impediments to providing the requested interconnection service.

12. The System Impact Study will provide the Preliminary Estimated Upgrade Charge, which is a preliminary indication of the cost and length of time that would be necessary to correct any System problems identified in those analyses and implement the interconnection.

13. The System Impact Study will provide the Preliminary Estimated Interconnection Facilities Charge, which is a preliminary indication of the cost and length of time that would be necessary to provide the Interconnection Facilities.

14. A distribution System Impact Study shall incorporate a distribution load flow study, an analysis of equipment interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and set point coordination studies, grounding reviews, and the impact on electric system operation, as necessary.

15. Affected Systems may participate in the preparation of a System Impact Study, with a division of costs among such entities as they may agree. All Affected Systems shall be afforded an opportunity to review and comment upon a System Impact Study that covers potential adverse system impacts on their electric systems, and the Utility has 20 additional Business Days to complete a System Impact Study requiring review by Affected Systems.

16. The Utility shall have an additional 15 Business Days from the time set forth in Section 18 of the System Impact Study Agreement to complete the dual scenario System Impact Study reports for a Project B.

17. If the Utility uses a queuing procedure for sorting or prioritizing projects and their associated cost responsibilities for any required Network Upgrades, the System Impact Study shall consider all generating facilities (and with respect to paragraph 17.3 below, any identified Upgrades associated with such interconnection with a lower Queue Number) that, on the date the System Impact Study is commenced –

17.1. Are directly interconnected with the Utility's electric System; or

17.2. Are interconnected with Affected Systems and may have an impact on the proposed interconnection; and

17.3. Have a pending Interconnection Request to interconnect with the Utility's electric System with a lower Queue Number.

18. The System Impact Study shall be completed within a total of 65 Business Days if transmission system impacts are studied, and 50 Business Days if distribution system impacts are studied, but in any case, shall not take longer than a total of 65 Business Days unless the study involves Affected Systems per Section 15 or the studied Interconnection Request is a Project B per Section 16~~ or the System Impact Study is a Grouping Study implemented pursuant to Section 4.3.4 of the Interconnection Procedures, which shall be completed during the timeframe of the Competitive Resource Solicitation~~. The period of time for the Utility to complete the System Impact Study shall be tolled during any period that the Utility has requested information in writing from the Interconnection Customer necessary to complete the Study and such request is outstanding.

19. Any study fees shall be based on the Utility's actual costs and will be deducted from the Interconnection Facilities deposit made by the Interconnection Customer at the time of the Interconnection Request. After the study is completed, the Utility shall deliver a summary of costs incurred.

20. The Interconnection Customer must pay any Study costs that exceed the Interconnection Request Deposit without interest within 20 Business Days of receipt of the invoice. If the deposit exceeds the invoiced fees or the Interconnection Customer's costs exceed the aggregate deposits received and the Interconnection Customer withdraws the Interconnection Request, the amount of funds equal to the difference will be settled in accordance with Section 6.3 of the NC Interconnection Standard.

21. Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

22. Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

23. No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

24. Waiver

24.1. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

24.2. Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, or duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

25. Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

26. No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

27. Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

28. Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

28.1. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

28.2. The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

30. Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Utility]	**[Insert name of Interconnection Customer]**
_____	_____
Signed_____	Signed_____
Name (Printed):	Name (Printed):
_____	_____
Title_____	

Assumptions Used in Conducting the System Impact Study

The System Impact Study shall be based upon the Interconnection Request subject to any modifications in accordance with the Interconnection Procedures, and the following assumptions:

1) Designation of Point of Interconnection and configuration to be studied (to be completed by the Interconnection Customer and the Utility).

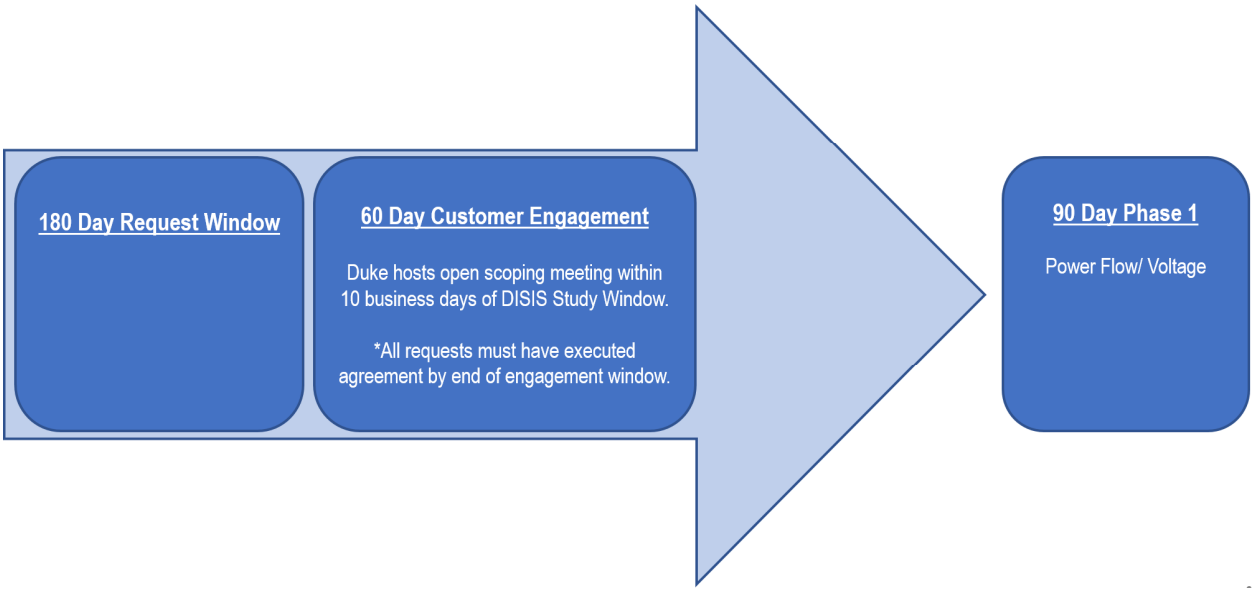
2) Other assumptions (listed below) are to be provided by the Interconnection Customer and the Utility

ATTACHMENT 8-A

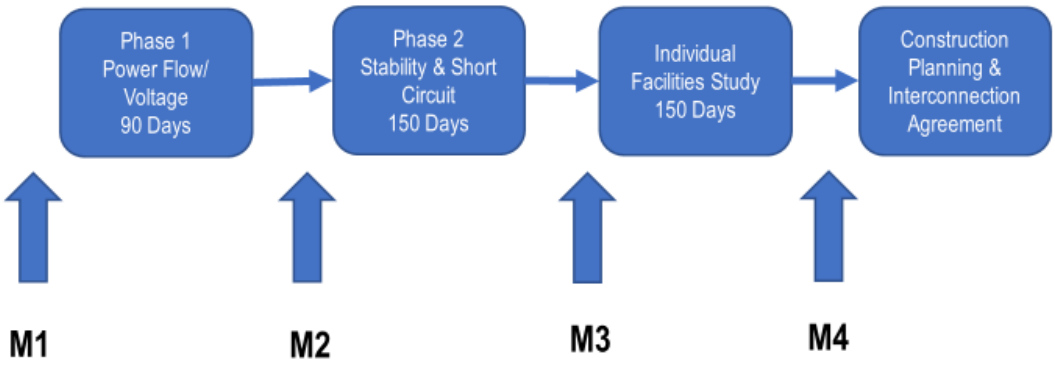
Definitive Interconnection Study Process and DISIS Agreement

Definitive Interconnection Study Process Overview

Enrollment Window: 4.4.1



Definitive Interconnection Study Process



DISIS Study Process Overview

Phase 1: M1 Required Before Power Flow/Voltage(90 calendar days)

- The Utility shall use Reasonable Efforts to complete the first phase (Phase 1) consisting of a power flow and voltage analysis within ninety (90) Calendar Days.
- The Phase 1 Report shall identify the Interconnection Facilities and System Upgrades that are expected to be required as a result of the Interconnection Request(s) and a non-binding good-faith indicative level estimate of cost responsibility and a non-binding good-faith estimated time to construct.
- After issuing the Phase 1 Report, the Utility shall hold a second thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 1 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 1 results on the Utility's website.
- Where the Utility determines through the initial Phase 1 study that a proposed distribution-level Interconnection Customer will not cause or contribute to the need for Network Upgrades, the Utility shall notify the Interconnection Customer in writing during the post-Phase 1 Customer Engagement Window that the Utility shall complete an individual Distribution-level System Impact Study for the proposed Generating Facility within 50 business days. Upon issuance of the individual Distribution-level System Impact Study Report, the Interconnection Customer would then proceed immediately to the Section 4.5 Facilities Study process. Interconnection Customers that are studied for distribution level impacts only must continue to meet all Readiness Milestone requirements (or provide security in lieu of the Readiness Milestone) to proceed to Facilities Study under Section 4.5.
- Within twenty (20) Calendar Days of the Phase 1 Report Meeting, all Interconnection Customers proceeding in the DISIS to Phase 2 are required to satisfy the requirements of Readiness Milestone 2 ("M2").

Phase 2: M2 Required Before Stability/Short Circuit (150 calendar days)

- Interconnection Customers who satisfy the M2 readiness requirements or provide the required security to the Utility shall continue in to the second phase ("Phase 2") of the Definitive Interconnection System Impact Study.
- Phase 2 consists of an updated power flow/voltage analysis (if necessary), stability analysis and short circuit analysis for the Interconnection Customers remaining in the DISIS Cluster.
- The Utility shall use Reasonable Efforts to complete Phase 2 analysis within one hundred fifty (150) Calendar Days.
- The results of this analysis shall identify the Interconnection Facilities and Network Upgrades expected to be required to reliably interconnect the Generating Facilities in that DISIS Cluster. The Phase 2 Report shall provide non-binding estimates of the costs of required Upgrades and Interconnection Facilities allocated to each Interconnection Customer within the Cluster.
- The Utility shall hold a third thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 2 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 2 results on the Utility's website.
- Within twenty (20) Calendar Days of the Phase 2 Report Meeting, each Interconnection Customer in the Cluster shall notify the Utility in writing whether it intends to proceed to the Section 4.5 Facilities Study.

Phase 3: Restudy (if necessary, 150 calendar days)

- If one or more Interconnection Customers withdraws from the Cluster and the Utility determines a full system impact re-study is necessary, the Utility will continue with System Impact restudies ("Phase 3") until the Utility determines that no further re-studies are required. If a customer withdraws after the Phase 3 restudy described in Section 4.4.7.5 or during the Facilities Study and the Utility determines system impact level re-studies are necessary, the Cluster shall be restudied under the terms of Phase 3. The Utility shall electronically notify Interconnection Customers in the Cluster that a re-study is required.
- The Utility shall use Reasonable Efforts to complete the Phase 3 analysis within one hundred fifty (150) Calendar Days.
- The Utility shall hold a fourth thirty (30) calendar day Customer Engagement Window and will host an open stakeholder meeting ("Phase 3 Report Meeting") within ten (10) Business Days of publishing the DISIS Phase 3 results on the Utility's website.

Facilities Study: M3 Required Before Individual Facilities Study (150 calendar days)

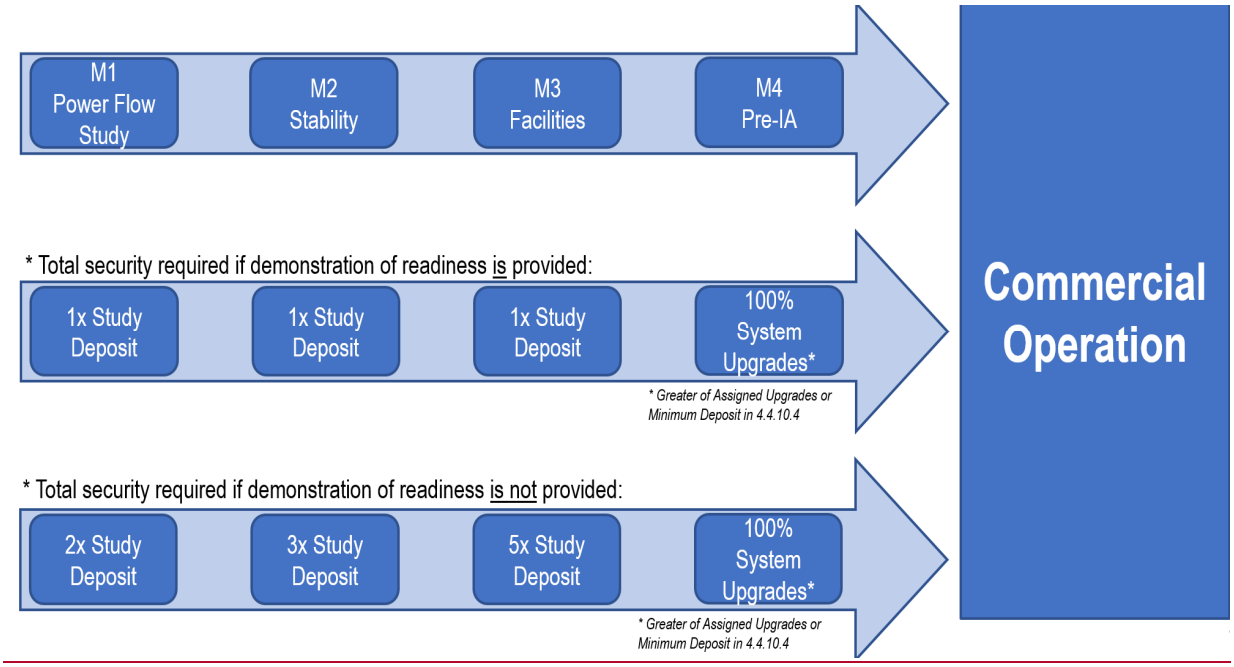
- Within thirty (30) Calendar Days of the notice that no System Impact restudies are needed and delivery of an Facilities Study Agreement by the Utility, each Interconnection Customer within the Cluster that has completed the DISIS process is required to (i) return an executed Facilities Study Agreement in the form of Attachment 9 (completed and including all required data identified therein); and (ii) provide Readiness Milestone 3 ("M3") (or provide security in lieu of the Readiness Milestone).
- The Utility shall use reasonable efforts to complete the Facilities Study for all Interconnection Customers within a Cluster or Resource Solicitation Cluster within one hundred fifty (150) Calendar Days.
- The Facilities Study Report shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the System Impact Studies and to allow the Generating Facility to be interconnected and operated safely and reliably.

IA: M4 Required Before Construction Planning and Interconnection Agreement

- All Interconnection Customers within a Cluster or Resource Solicitation Cluster must satisfy the requirements of Readiness Milestone 4 ("M4") within ten (10) Business Days of receipt of the Facilities Study Report.
- Within ten (10) Business Days of receipt of the Facilities Study Report, the Interconnection Customer shall request a Construction Planning Meeting. The Construction Planning Meeting request shall be in writing and shall include the Interconnection Customer's reasonably requested date for completion of the construction of the Upgrades and Interconnection Facilities.
- The Construction Planning Meeting shall be scheduled within ten (10)Business Days of the Section 5.1.1 request from the Interconnection Customer, or as otherwise mutually agreed to in writing by the parties.

- The purpose of the Construction Planning Meeting is to identify the tasks for each party and discuss and determine the milestones for the construction of the Upgrades and Interconnection Facilities.
- Within fifteen (15) Business Days of the Construction Planning Meeting, the Utility shall provide an executable Interconnection Agreement.
- Within ten (10) Business Days of receiving the Interconnection Agreement, the Interconnection Customer must execute and return the Interconnection Agreement.
- After the Parties execute the Interconnection Agreement, the Utility shall return a copy of the Interconnection Agreement to the Interconnection Customer and interconnection of the Generating Facility shall proceed under the provisions of the Interconnection Agreement.
- The Interconnection Agreement shall specify milestones for payment for Upgrades and Interconnection Facilities and/or, provision of Financial Security for Interconnection Facilities, if acceptable to the Utility, that are required prior to the start of design and construction of Upgrades and Interconnection Facilities.
- Payment and Financial Security must be received by close of business forty-five (45) Business Days after the date the Interconnection Agreement is delivered to the Interconnection Customer for signature.-

ATTACHMENT 8-B



ATTACHMENT 8C

DEFINITIVE INTERCONNECTION SYSTEM IMPACT STUDY AGREEMENT

THIS AGREEMENT ("Agreement") is made and entered into this day of , 20 by and between , a organized and existing under the laws of the State of , ("Interconnection Customer,") and a existing under the laws of the State of , ("Utility"). Interconnection Customer and Utility each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, Interconnection Customer is proposing to develop a Generating Facility or generating capacity addition to an existing Generating Facility consistent with the Interconnection Request submitted by Interconnection Customer dated and received by the Utility on ; and

WHEREAS, Interconnection Customer desires to interconnect the Generating Facility with the Utility's System and to deliver the full output of the Generating Facility to Utility subject to the terms of the North Carolina Interconnection Procedures; and

WHEREAS, the Interconnection Customer has requested the Utility to perform a Definitive Interconnection System Impact Study to assess the impact of interconnecting the Generating Facility to the Utility's System, and on any Affected Systems; and

WHEREAS, the Interconnection Customer commits to provide certain Readiness Milestones or financial security if readiness cannot be demonstrated through the Definitive Interconnection Study process as described in Section 4.4 of the North Carolina Interconnection Procedures.

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1.0 When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated in the North Carolina Interconnection Procedures.

2.0 Interconnection Customer elects and the Utility shall cause to be performed a Definitive Interconnection System Impact Study consistent with Section 4.4 of the North Carolina Interconnection Procedures.

3.0 The scope of the Definitive Interconnection System Impact Study shall be subject to the assumptions set forth in Attachment A to this Agreement.

4.0 The Definitive Interconnection System Impact Study shall be based upon the technical information provided by Interconnection Customer in the Interconnection Request,

subject to any modifications in accordance with Section 1.6 and 4.1 of the North Carolina Interconnection Procedures. The Utility reserves the right to request additional technical information from Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Definitive Interconnection System Impact Study. If the information requested by the Utility is not provided by the Interconnection Customer within a reasonable timeframe to be identified by the Utility in writing, the Utility shall provide the Interconnection Customer written notice providing an opportunity to cure such failure by the close of business on the tenth (10th) Business Day following the posted date of such notice, where failure to provide the information requested within this period shall result in the study being terminated and the Interconnection Request being deemed withdrawn.

5.0 The final Definitive Interconnection System Impact Study report shall provide the following information, as appropriate:

- identification of any circuit breaker short circuit capability limits exceeded as a result of the interconnection;

- identification of any thermal overload or voltage limit violations resulting from the interconnection;

- identification of any instability or inadequately damped response to system disturbances resulting from the interconnection; and

- description and non-binding, good faith estimated cost of facilities required to interconnect the Generating Facility to the Utility's System and to address the identified short circuit, instability, and power flow issues.

6.0 Interconnection Customer shall provide the deposit as specified in Section 1.5.1.2 of the North Carolina Interconnection Procedures for the performance of the Definitive Interconnection System Impact Study. The Utility's good faith estimate for the time of completion of the Definitive Interconnection System Impact Study (Phase 2) is [insert date].

Upon receipt of the Definition Interconnection System Impact Study results (Post Phase 3 Results), or withdrawal of the Interconnection Request, the Utility shall charge and Interconnection Customer shall pay the actual costs of the Definitive Interconnection System Impact Study, and the Withdrawal Penalty, as applicable, allocated according to Section 4.4.3 and 6.3.5 of the North Carolina Interconnection Procedures.

Any difference between the study deposit and the actual cost of the study shall be paid by or refunded to Interconnection Customer, as appropriate, except as otherwise provided herein. As provided in Section 6.3.3 of the North Carolina Interconnection Procedures, Interconnection Customer has thirty (30) Calendar Days of receipt of an invoice from the Utility to pay any undisputed costs. If invoices are not paid within thirty (30) Calendar Days of receipt of an invoice, the Utility may draw upon the security provided to settle all accounts, which shall include any offsets of amounts due and

owing by the Utility. After the final invoice is paid and all accounts are settled, the Utility shall refund all remaining security.

7.0 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

8.0 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

9.0. No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

10.0. Waiver

10.1. The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

10.2. Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, or duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

11.0. Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

12.0. No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

13.0. Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

14.0. Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

14.1. The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

14.2. The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

15.0. Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

IN WITNESS THEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

[Insert name of Utility, if applicable]

By: _____ By: _____

Title: _____ Title: _____

Date: _____ Date: _____

[Insert name of Interconnection Customer]

By: _____

Title: _____

Date: _____

ATTACHMENT 9

Facilities Study Agreement

THIS AGREEMENT ("Agreement") is made and entered into this _____ day of _____, 20____, by and between _____, a _____ organized and existing under the laws of the State of _____, ("Interconnection Customer"), and, _____, a _____ existing under the laws of the State of _____ ("Utility"). The Interconnection Customer and the Utility each may be referred to as a "Party," or collectively as the "Parties."

RECITALS

WHEREAS, the Interconnection Customer is proposing to develop a Generating Facility or generating capacity in addition to an existing Generating Facility consistent with the Interconnection Request Application Form completed by the Interconnection Customer, dated _____ and received by the Utility on _____; and the single-line drawing provided by the Interconnection Customer, dated _____ and received by the Utility on _____ ; and

WHEREAS, the Interconnection Customer desires to interconnect the Generating Facility with the Utility's System; and

WHEREAS, the Utility has completed a System Impact Study and provided the results of said Study to the Interconnection Customer (this recital to be omitted if the Parties have agreed to forego the System Impact Study); and

WHEREAS, the Interconnection Customer has requested the Utility to perform a Facilities Study to specify and estimate the cost of the equipment, engineering, procurement and construction work needed to implement the conclusions of the System Impact Study and/or any other relevant studies in accordance with Good Utility Practice to physically and electrically connect the Generating Facility with the Utility's System.

NOW, THEREFORE, in consideration of and subject to the mutual covenants contained herein the Parties agree as follows:

1. When used in this Agreement, with initial capitalization, the terms specified shall have the meanings indicated or the meanings specified in the North Carolina Interconnection Procedures.

2. The Interconnection Customer elects and the Utility shall cause to be performed a Facilities Study consistent with the North Carolina Interconnection Procedures.

3. The scope of the Facilities Study shall be subject to data provided in Appendix A to this Agreement.

4. The Facilities Study shall specify and estimate the cost of the equipment, engineering, procurement and construction work (including overheads) needed to implement the conclusions of the system impact studies. The Facilities Study shall also identify (1) the electrical switching configuration of the equipment, including, without limitation, transformer, switchgear, meters, and other station equipment, (2) the nature and estimated cost of the Utility's Interconnection Facilities and Upgrades necessary to accomplish the interconnection, and (3) an estimate of the construction time required to complete the installation of such facilities.

   If the study is for a Project B, the Study shall assume the interdependent Project A is interconnected.

5. The Utility may propose to group facilities required for more than one Interconnection Customer in order to minimize facilities costs through economies of scale, but any Interconnection Customer may require the installation of facilities required for its own Generating Facility if it is willing to pay the costs of those facilities.

6. A deposit of the good faith estimated Facilities Study cost is required from the Interconnection Customer. If the unexpended portion of the Interconnection Request deposit made for the Interconnection Request exceeds the estimated cost of the Facilities Study, no payment will be required of the Interconnection Customer.

7. In cases where Upgrades are required, the Facilities Study must be completed within 45 Business Days of the Utility's receipt of this Agreement, or completion of the Facilities Study for an Interdependent Project A whichever is later. In cases where no Upgrades are necessary, and the required facilities are limited to Interconnection Facilities, the Facilities Study must be completed within 30 Business Days. Where a Utility administers a Definitive Interconnection Study Process and is completing Facilities Study for all Interconnection Customers within a Cluster or Resource Solicitation Cluster, the Utility shall use Reasonable Efforts to complete the Facilities Study for each Interconnection Request within the Cluster within one hundred fifty (150) Calendar Days. The Utility reserves the right to request additional technical information from the Interconnection Customer as may reasonably become necessary consistent with Good Utility Practice during the course of the Facilities Study. If the information requested by the Utility is not provided by the Interconnection Customer within a reasonable timeframe to be identified by the Utility in writing, the Utility shall provide the Interconnection Customer written notice providing an opportunity to cure such failure by the close of business on the tenth (10th) Business Day following the posted date of such notice, where failure

to provide the information requested within this period shall result in the Study being terminated and the Interconnection Request being deemed withdrawn. The period of time for the Utility to complete the Facilities Study shall be tolled during any period that the Utility has requested information in writing from the Interconnection Customer necessary to complete the Study and such request is outstanding.

8. Once the Facilities Study is completed, a Facilities Study Report shall be prepared and transmitted to the Interconnection Customer.

9. Any study fees shall be based on the Utility's actual costs and will be deducted from the Interconnection Request deposit made by the Interconnection Customer at the time of the Interconnection Request. After the Study is completed the Utility shall deliver a summary of costs incurred.

10. The Interconnection Customer must pay any Study costs that exceed the Interconnection Request deposit without interest within 20 Business Days of receipt of the invoice. If the unexpended portion of the Interconnection Request deposit exceeds the invoiced fees and the Interconnection Customer withdraws the Interconnection Request, the Utility shall make refund to the Customer pursuant to Section 6.3 of the North Carolina Interconnection Procedures.

~~11. If the Interconnection Customer submitted prepayment or Financial Security reasonably acceptable to the Utility for Network Upgrades under Section 4.3.9 of the North Carolina Interconnection Procedures, the Parties agree that this pre-payment or Financial Security shall be held by the Utility as a non-refundable pre-payment for the estimated cost of Network Upgrades and Interconnection Customer expressly agrees this pre-payment amount shall be forfeited to the Utility to construct the Network Upgrades if the Interconnection Request is subsequently withdrawn. The Network Upgrades pre-payment amount shall be trued up by the Utility in the Detailed Estimated Upgrade Charges amount calculated during the Facilities Study and identified in a Facilities Study Report to be included in a future Interconnection Agreement.~~

~~12.~~11. Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

~~13.~~12. Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties.

~~14.~~ 13. No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

~~15.~~ 14. Waiver

The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, or duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

~~16.~~ 15. Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

~~17.~~ 16. No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

~~18.~~ 17. Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that

were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

~~19.~~18. Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

The obligations under this article will not be limited in any way by any limitation of subcontractor's insurance.

~~20.~~19. Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their duly authorized officers or agents on the day and year first above written.

For the Utility

Name: _____
Print Name: _____
Title: _____
Date _____

For the Interconnection Customer

Name: _____
Print Name: _____
Title: _____
Date _____

Facilities Study Agreement
Appendix A

Data to Be Provided by the Interconnection Customer with the Facilities Study Agreement

Provide location plan and simplified one-line diagram of the plant and station facilities. For staged projects, please indicate future generation, circuits, etc.

On the one-line diagram, indicate the Maximum Generating Capacity attached at each metering location. (Maximum load on CT/PT)

On the one-line diagram, indicate the location of auxiliary power. (Minimum load on CT/PT) Amps

One set of metering is required for each generation connection to the new ring bus or existing Utility station. Number of generation connections: _____

Will an alternate source of auxiliary power be available during CT/PT maintenance?

Yes _____ No _____

Will a transfer bus on the generation side of the metering require that each meter set be designed for the total plant generation? Yes _____ No _____

(Please indicate on the one-line diagram).

What type of control system or PLC will be located at the Generating Facility?

_____
_____

What protocol does the control system or PLC use?

_____
_____

Please provide a 7.5-minute quadrangle map of the site. Indicate the plant, station, distribution line, and property lines.

Physical dimensions of the proposed interconnection station:

Bus length from generation to interconnection station:

_____

Line length from interconnection station to Utility's System.

_____

Tower number observed in the field (Painted on tower leg)*:

_____

Number of third party easements required for lines*:

_____

* To be completed in coordination with Utility.

Is the Generating Facility located in Utility's service area?

Yes _____ No _____ If No, please provide name of local provider:

_____

Please provide the following proposed schedule dates:

Begin Construction	Date: _____
Generator step-up transformers receive back feed power	Date: _____
Generation Testing	Date: _____
Commercial Operation	Date: _____

ATTACHMENT ~~9~~10

NORTH CAROLINA

INTERCONNECTION AGREEMENT

For State-Jurisdictional Generator Interconnections

Effective June 14, 2019
Docket No. E-100, Sub 101

Between

Utility Name
And
Customer Name
"Project Name"

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This Interconnection Agreement ("Agreement") is made and entered into this _____ the _____ Day of _____, 20__, by _____ ("Utility") and _____ ("Interconnection Customer") each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties."

Utility Information

Utility:_____

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

Phone: _____ Fax:_____

Interconnection Customer Information

Name:_____

Project Name:_____

Attention:_____

E911 Address:_____

City:_____ State:_____ Zip:_____

Phone: _____ Fax:_____

County:_____

In consideration of the mutual covenants set forth herein, the Parties agree as follows:

Article 1. Scope and Limitations of Agreement

1.1 Applicability

This Agreement shall be used for all Interconnection Requests submitted under the North Carolina Interconnection Procedures except for those submitted under the 20 kW Inverter Process in Section 2 of the Interconnection Procedures.

1.2 Purpose

This Agreement governs the terms and conditions under which the Interconnection Customer's Generating Facility will interconnect with, and operate in parallel with, the Utility's System.

1.3 No Agreement to Purchase or Deliver Power or RECs

This Agreement does not constitute an agreement to purchase or deliver the Interconnection Customer's power or Renewable Energy Certificates (RECs). The purchase or delivery of power, RECs that might result from the operation of the Generating Facility, and other services that the Interconnection Customer may require will be covered under separate agreements, if any. The Interconnection Customer will be responsible for separately making all necessary arrangements (including scheduling) for delivery of electricity with the applicable Utility.

1.4 Limitations

Nothing in this Agreement is intended to affect any other agreement between the Utility and the Interconnection Customer.

1.5 Responsibilities of the Parties

1.5.1 The Parties shall perform all obligations of this Agreement in accordance with all Applicable Laws and Regulations, Operating Requirements, and Good Utility Practice.

1.5.2 The Interconnection Customer shall construct, interconnect, operate and maintain its Generating Facility and construct, operate, and maintain its Interconnection Facilities in accordance with the applicable manufacturer's recommended maintenance schedule, and in accordance with this Agreement, and with Good Utility Practice.

1.5.3 ~~1.5.3~~ The Utility shall construct, operate, and maintain its System and Interconnection Facilities in accordance with this Agreement, and with Good Utility Practice.

1.5.4 The Interconnection Customer agrees to construct its facilities or systems in accordance with applicable specifications that meet or exceed those provided by the National Electrical Safety Code, the American National Standards Institute, IEEE, Underwriters' Laboratories, and Operating Requirements in effect at the time of construction and other applicable national and state codes and standards. The Interconnection Customer agrees to design, install, maintain, and operate its Generating Facility so as to reasonably minimize the likelihood of a disturbance adversely affecting or impairing the System or equipment of the Utility and any Affected Systems.

1.5.5 Each Party shall operate, maintain, repair, and inspect, and shall be fully responsible for the facilities that it now or subsequently may own unless otherwise specified in the Appendices to this Agreement. Each Party shall be responsible for the safe installation, maintenance, repair and condition of their respective lines and appurtenances on their respective sides of the point of change of ownership. The Utility and the Interconnection

Customer, as appropriate, shall provide Interconnection Facilities that adequately protect the Utility's System, personnel, and other persons from damage and injury. The allocation of responsibility for the design, installation, operation, maintenance and ownership of Interconnection Facilities shall be delineated in the Appendices to this Agreement.

1.5.6 The Utility shall coordinate with all Affected Systems to support the interconnection.

1.5.7 The Customer shall not operate the Generating Facility in such a way that the Generating Facility would exceed the Maximum Generating Capacity.

1.6 Parallel Operation Obligations

Once the Generating Facility has been authorized to commence parallel operation, the Interconnection Customer shall abide by all rules and procedures pertaining to the parallel operation of the Generating Facility in the applicable control area, including, but not limited to: 1) any rules and procedures concerning the operation of generation set forth in Commission-approved tariffs or by the applicable system operator(s) for the Utility's System and; 2) the Operating Requirements set forth in Appendix 5 of this Agreement.

1.7 Metering

The Interconnection Customer shall be responsible for the Utility's reasonable and necessary cost for the purchase, installation, operation, maintenance, testing, repair, and replacement of metering and data acquisition equipment specified in Appendices 2 and 3 of this Agreement. The Interconnection Customer's metering (and data acquisition, as required) equipment shall conform to applicable industry rules and Operating Requirements.

1.8 Reactive Power

1.8.1 The Interconnection Customer shall design its Generating Facility to maintain a composite power delivery at continuous rated power output at the Point of Interconnection at a power factor within the range of 0.95 leading to 0.95 lagging, unless the Utility has established different requirements that apply to all similarly situated generators in the control area on a comparable basis. The requirements of this paragraph shall not apply to wind generators.

1.8.2 The Utility is required to pay the Interconnection Customer for reactive power that the Interconnection Customer provides or absorbs from the Generating Facility when the Utility requests the Interconnection Customer to operate its Generating Facility outside the range specified in Article 1.8.1 or outside the range established by the Utility that applies to all similarly situated generators in the control area. In addition, if the Utility

pays its own or affiliated generators for reactive power service within the specified range, it must also pay the Interconnection Customer.

1.8.3 Payments shall be in accordance with the Utility's applicable rate schedule then in effect unless the provision of such service(s) is subject to a regional transmission organization or independent system operator FERC-approved rate schedule. To the extent that no rate schedule is in effect at the time the Interconnection Customer is required to provide or absorb reactive power under this Agreement, the Parties agree to expeditiously file such rate schedule and agree to support any request for waiver of any prior notice requirement in order to compensate the Interconnection Customer from the time service commenced.

1.9 Capitalized Terms

Capitalized terms used herein shall have the meanings specified in the Glossary of Terms in Attachment 1 of the North Carolina Interconnection Procedures or the body of this Agreement.

Article 2. Inspection, Testing, Authorization, and Right of Access

2.1 Equipment Testing and Inspection

2.1.1 The Interconnection Customer shall test and inspect its Generating Facility and Interconnection Facilities prior to interconnection. The Interconnection Customer shall notify the Utility of such activities no fewer than ten (10) Business Days (or as may be agreed to by the Parties) prior to such testing and inspection. Testing and inspection shall occur on a Business Day, unless otherwise agreed to by the Parties. The Utility may, at its own expense, send qualified personnel to the Generating Facility site to inspect the interconnection and observe the testing. The Interconnection Customer shall provide the Utility a written test report when such testing and inspection is completed.

2.1.2 The Utility shall provide the Interconnection Customer written acknowledgment that it has received the Interconnection Customer's written test report. Such written acknowledgment shall not be deemed to be or construed as any representation, assurance, guarantee, or warranty by the Utility of the safety, durability, suitability, or reliability of the Generating Facility or any associated control, protective, and safety devices owned or controlled by the Interconnection Customer or the quality of power produced by the Generating Facility.

2.1.3 In addition to the Utility's observation of the Interconnection Customer's testing and inspection of its Generating Facility and Interconnection Facilities pursuant to this Section, the Utility may also require inspection and testing of Interconnection Facilities that can impact the integrity or safety of the Utility's System or otherwise cause adverse operating effects,

as described in Section 3.4.4. Such inspection and testing activities will be performed by the Utility or a third-party independent contractor approved by the Utility and at a time mutually agreed to by the Interconnection Customer and will be performed at the Interconnection Customer's expense. The scope of required inspection and testing will be consistent across similar types of generating facilities.

2.2 Authorization Required Prior to Parallel Operation

2.2.1 The Utility shall use Reasonable Efforts to list applicable parallel operation requirements in Appendix 5 of this Agreement. Additionally, the Utility shall notify the Interconnection Customer of any changes to these requirements as soon as they are known. The Utility shall make Reasonable Efforts to cooperate with the Interconnection Customer in meeting requirements necessary for the Interconnection Customer to commence parallel operations by the in-service date.

2.2.2 The Interconnection Customer shall not operate its Generating Facility in parallel with the Utility's System without prior written authorization of the Utility. The Utility will provide such authorization once the Utility receives notification that the Interconnection Customer has complied with all applicable parallel operation requirements. Such authorization shall not be unreasonably withheld, conditioned, or delayed.

2.3 Right of Access

2.3.1 Upon reasonable notice, the Utility may send a qualified person to the premises of the Interconnection Customer at or before the time the Generating Facility first produces energy to inspect the interconnection and those Interconnection Customer facilities which can impact the integrity or safety of the Utility's System or otherwise cause adverse operating effects, as described in Section 3.4.4, and observe the commissioning of the Generating Facility (including any required testing), startup, and operation for a period of up to three (3) Business Days after initial start-up of the unit. In addition, the Interconnection Customer shall notify the Utility at least five (5) Business Days prior to conducting any on-site verification testing of the Generating Facility.

2.3.2 Following the initial inspection process described above, at reasonable hours, and upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, the Utility shall have access to the Interconnection Customer's premises for any reasonable purpose in connection with the performance of the obligations imposed on it by this Agreement or if necessary to meet its legal obligation to provide service to its customers.

2.3.3 Each Party shall be responsible for its own costs associated with following this Article, with the exception of Utility-required inspection and testing described in Section 2.1.3, the costs for which shall be the responsibility of the Interconnection Customer.

Article 3. Effective Date, Term, Termination, and Disconnection

3.1 Effective Date

This Agreement shall become effective upon execution by the Parties.

3.2 Term of Agreement

This Agreement shall become effective on the Effective Date and shall remain in effect for a period of ten (10) years from the Effective Date or such other longer period as the Interconnection Customer may request and shall be automatically renewed for each successive one-year period thereafter, unless terminated earlier in accordance with Article 3.3 of this Agreement.

3.3 Termination

No termination shall become effective until the Parties have complied with all Applicable Laws and Regulations applicable to such termination.

3.3.1 The Interconnection Customer may terminate this Agreement at any time by giving the Utility 20 Business Days written notice and physically and permanently disconnecting the Generating Facility from the Utility's System.

3.3.2 The Utility may terminate this Agreement upon the Interconnection Customer's failure to timely make the payment(s) required by Article 6.1.1 pursuant to the milestones specified in Appendix 4, or to comply with the requirements of Article 7.1.2 or Article 7.1.3.

3.3.3 Either Party may terminate this Agreement after Default pursuant to Article 7.6.

3.3.4 Upon termination of this Agreement, the Generating Facility will be disconnected from the Utility's System. All costs required to effectuate such disconnection shall be borne by the terminating Party, unless such termination resulted from the non-terminating Party's Default of this Agreement or such non-terminating Party otherwise is responsible for these costs under this Agreement.

3.3.5 The termination of this Agreement shall not relieve either Party of its liabilities and obligations, owed or continuing at the time of the termination, including any remaining term requirements for payment of Charges that are billed under a monthly payment option as prescribed in Article 6.

3.3.6 The provisions of this article shall survive termination or expiration of this Agreement.

3.4 Temporary Disconnection

Temporary disconnection shall continue only for so long as reasonably necessary under Good Utility Practice.

3.4.1 Emergency Conditions

"Emergency Condition" shall mean a condition or situation: (1) that in the judgment of the Party making the claim is imminently likely to endanger life or property; or (2) that, in the case of the Utility, is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to the Utility's System, the Utility's Interconnection Facilities or the systems of others to which the Utility's System is directly connected; or (3) that, in the case of the Interconnection Customer, is imminently likely (as determined in a nondiscriminatory manner) to cause a material adverse effect on the security of, or damage to, the Generating Facility or the Interconnection Customer's Interconnection Facilities.

Under Emergency Conditions, the Utility may immediately suspend interconnection service and temporarily disconnect the Generating Facility. The Utility shall notify the Interconnection Customer promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Interconnection Customer's operation of the Generating Facility. The Interconnection Customer shall notify the Utility promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect the Utility's System or any Affected Systems. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the operation of both Parties' facilities and operations, its anticipated duration, and the necessary corrective action.

3.4.2 Routine Maintenance, Construction, and Repair

The Utility may interrupt interconnection service or curtail the output of the Generating Facility and temporarily disconnect the Generating Facility from the Utility's System when necessary for routine maintenance, construction, and repairs on the Utility's System. The Utility shall provide the Interconnection Customer with two (2) Business Days notice prior to such interruption. The Utility shall use Reasonable Efforts to coordinate such reduction or temporary disconnection with the Interconnection Customer.

3.4.3 Forced Outages

During any forced outage, the Utility may suspend interconnection service to effect immediate repairs on the Utility's System. The Utility shall use Reasonable Efforts to provide the Interconnection Customer with prior notice. If prior notice is not given, the Utility shall, upon request, provide the Interconnection Customer written documentation after the fact explaining the circumstances of the disconnection.

3.4.4 Adverse Operating Effects

The Utility shall notify the Interconnection Customer as soon as practicable if, based on Good Utility Practice, operation of the Generating Facility may cause disruption or deterioration of service to other customers served from the same electric System, or if operating the Generating Facility could cause damage to the Utility's System or Affected Systems. Supporting documentation used to reach the decision to disconnect shall be provided to the Interconnection Customer upon request. If, after notice, the Interconnection Customer fails to remedy the adverse operating effect within a reasonable time, the Utility may disconnect the Generating Facility. The Utility shall provide the Interconnection Customer with five (5) Business Day notice of such disconnection, unless the provisions of Article 3.4.1 apply.

3.4.5 Modification of the Generating Facility

The Interconnection Customer must receive written authorization from the Utility before making a Material Modification or any other change to the Generating Facility that may have a material impact on the safety or reliability of the Utility's System. Such authorization shall not be unreasonably withheld. Modifications shall be done in accordance with Good Utility Practice. If the Interconnection Customer makes such modification without the Utility's prior written authorization, the latter shall have the right to temporarily disconnect the Generating Facility.

3.4.6 Reconnection

The Parties shall cooperate with each other to restore the Generating Facility, Interconnection Facilities, and the Utility's System to their normal operating state as soon as reasonably practicable following a temporary or emergency disconnection.

Article 4. Cost Responsibility for Interconnection Facilities and Distribution Upgrades

4.1 Interconnection Facilities

4.1.1 The Interconnection Customer shall pay for the cost of the Interconnection Facilities itemized in Appendix 2 of this Agreement. The Utility shall provide a best estimate cost, including overheads, for the purchase and

construction of its Interconnection Facilities and provide a detailed itemization of such costs. Costs associated with Interconnection Facilities may be shared with other entities that may benefit from such facilities by agreement of the Interconnection Customer, such other entities, and the Utility.

4.1.2 The Interconnection Customer shall be responsible for its share of all reasonable expenses, including overheads, associated with (1) owning, operating, maintaining, repairing, and replacing its own Interconnection Facilities, and (2) operating, maintaining, repairing, and replacing the Utility's Interconnection Facilities.

4.2 Distribution Upgrades

The Utility shall design, procure, construct, install, and own the Distribution Upgrades described in Appendix 6 of this Agreement. If the Utility and the Interconnection Customer agree, the Interconnection Customer may construct Distribution Upgrades that are located on land owned by the Interconnection Customer. The actual cost of the Distribution Upgrades, including overheads, on-going operations, maintenance, repair, and replacement, shall be directly assigned to the Interconnection Customer.

Article 5. Cost Responsibility for Network Upgrades

5.1 Applicability

No portion of this Article 5 shall apply unless the interconnection of the Generating Facility requires Network Upgrades.

5.2 Network Upgrades

The Utility shall design, procure, construct, install, and own the Network Upgrades described in Appendix 6 of this Agreement. If the Utility and the Interconnection Customer agree, the Interconnection Customer may construct Network Upgrades that are located on land owned by the Interconnection Customer. Unless the Utility elects to pay for Network Upgrades, the actual cost of the Network Upgrades, including overheads, on-going operations, maintenance, repair, and replacement shall be borne by the Interconnection Customer.

Article 6. Billing, Payment, Milestones, and Financial Security

6.1 Billing and Payment Procedures and Final Accounting

6.1.1 The Interconnection Customer shall pay 100% of required Interconnection Facilities and any other charges as required in Appendix 2 pursuant to the milestones specified in Appendix 4.

The Interconnection Customer shall pay 100% of required Upgrades and any other charges as required in Appendix 6 pursuant to the milestones specified in Appendix 4.

Upon receipt of 100% of the foregoing pre-payment charges for Upgrades, the payment is not refundable due to cancellation of the Interconnection Request for any reason. However, if an Interconnection Customer terminates its Interconnection Agreement and cancels its facility, it shall be entitled to a refund of any unspent amounts that had been collected by the Utility for the Interconnection Customer's Interconnection Facilities.

6.1.2 If implemented by the Utility or requested by the Interconnection Customer in writing within 15 Business Days of the Interconnection Facilities Delivery Date, the Utility shall provide the Interconnection Customer a final accounting report within 120 Business Days addressing any difference between (1) the Interconnection Customer's cost responsibility for the actual cost of such facilities or Upgrades, and (2) the Interconnection Customer's previous aggregate payments to the Utility for such facilities or Upgrades. If the Interconnection Customer's cost responsibility exceeds its previous aggregate payments, the Utility shall invoice the Interconnection Customer for the amount due and the Interconnection Customer shall make payment to the Utility within 20 Business Days. If the Interconnection Customer's previous aggregate payments exceed its cost responsibility under this Agreement, the Utility shall refund to the Interconnection Customer an amount equal to the difference within 20 Business Days of the final accounting report. If necessary and appropriate as a result of the final accounting, the Utility may also adjust the monthly charges set forth in Appendix 2 of the Interconnection Agreement.

6.1.3 The Utility shall also bill the Interconnection Customer for the costs associated with operating, maintaining, repairing and replacing the Utility's System Upgrades, as set forth in Appendix 6 of this Agreement. The Utility shall bill the Interconnection Customer for the costs of providing the Utility's Interconnection Facilities including the costs for on-going operations, maintenance, repair and replacement of the Utility's Interconnection Facilities under a Utility rate schedule, tariff, rider or service regulation providing for extra facilities or additional facilities charges, as set forth in Appendix 2 of this Agreement, such monthly charges to continue throughout the entire life of the interconnection.

6.2 Milestones

The Parties shall agree on milestones for which each Party is responsible and list them in Appendix 4 of this Agreement. A Party's obligations under this provision may be extended by agreement, except for timing for Payment or Financial Security-related requirements set forth in the milestones, which shall adhere to Section 5.2.4 of the Standards. If a Party anticipates that it will be unable to meet

a milestone for any reason other than a Force Majeure Event, it shall immediately notify the other Party of the reason(s) for not meeting the milestone and (1) propose the earliest reasonable alternate date by which it can attain this and future milestones, and (2) request appropriate amendments to Appendix 4. The Party affected by the failure to meet a milestone shall not unreasonably withhold agreement to such an amendment unless (1) it will suffer significant uncompensated economic or operational harm from the delay, (2) the delay will materially affect the schedule of another Interconnection Customer with subordinate Queue Position, (3) attainment of the same milestone has previously been delayed, or (4) it has reason to believe that the delay in meeting the milestone is intentional or unwarranted notwithstanding the circumstances explained by the Party proposing the amendment.

6.3 Financial Security Arrangements

Pursuant to the Interconnection Agreement Milestones Appendix 4, the Interconnection Customer shall provide the Utility a letter of credit or other financial security arrangement that is reasonably acceptable to the Utility and is consistent with the Uniform Commercial Code of North Carolina. Such security for payment shall be in an amount sufficient to cover the costs for constructing, designing, procuring, and installing the applicable portion of the Utility's Interconnection Facilities and shall be reduced on a dollar-for-dollar basis for payments made to the Utility under this Agreement during its term. In addition:

6.3.1 The guarantee must be made by an entity that meets the creditworthiness requirements of the Utility, and contain terms and conditions that guarantee payment of any amount that may be due from the Interconnection Customer, up to an agreed-to maximum amount.

6.3.2 The letter of credit must be issued by a financial institution or insurer reasonably acceptable to the Utility and must specify a reasonable expiration date.

6.3.3 The Utility may waive the security requirements if its credit policies show that the financial risks involved are *de minimus*, or if the Utility's policies allow the acceptance of an alternative showing of credit-worthiness from the Interconnection Customer.

Article 7. Assignment, Liability, Indemnity, Force Majeure, Consequential Damages, and Default

7.1 Assignment

7.1.1 The Interconnection Customer shall notify the Utility of the pending sale of an existing Generating Facility in writing. The Interconnection Customer shall provide the Utility with information regarding whether the sale is a change of ownership of the Generating Facility to a new legal entity, or a change of control of the existing legal entity.

7.1.2 The Interconnection Customer shall promptly notify the Utility of the final date of sale and transfer date of ownership in writing. The purchaser of the Generating Facility shall confirm to the Utility the final date of sale and transfer date of ownership in writing

7.1.3 This Agreement shall not survive the transfer of ownership of the Generating Facility to a new legal entity owner. The new owner must complete a new Interconnection Request and submit it to the Utility within 20 Business Days of the transfer of ownership or the Utility's Interconnection Facilities shall be removed or disabled and the Generating Facility disconnected from the Utility's System. The Utility shall not study or inspect the Generating Facility unless the new owner's Interconnection Request indicates that a Material Modification has occurred or is proposed.

7.1.4 This Agreement shall survive a change of control of the Generating Facility' legal entity owner, where only the contact information in the Interconnection Agreement must be modified. The new owner must complete a new Interconnection Request and submit it to the Utility within 20 Business Days of the change of control and provide the new contact information. The Utility shall not study or inspect the Generating Facility unless the new owner's Interconnection Request indicates that a Material Modification has occurred or is proposed.

7.1.5 The Interconnection Customer shall have the right to assign this Agreement, without the consent of the Utility, for collateral security purposes to aid in providing financing for the Generating Facility, provided that the Interconnection Customer will promptly notify the Utility of any such assignment. Assignment shall not relieve a Party of its obligations, nor shall a Party's obligations be enlarged, in whole or in part, by reason thereof.

7.1.6 Any attempted assignment that violates this article is void and ineffective.

7.2 Limitation of Liability

Each Party's liability to the other Party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission in its performance of this Agreement, shall be limited to the amount of direct damage actually incurred. In no event shall either Party be liable to the other Party for any indirect, special, incidental, consequential, or punitive damages of any kind, except as authorized by this Agreement.

7.3 Indemnity

7.3.1 This provision protects each Party from liability incurred to third parties as a result of carrying out the provisions of this Agreement. Liability under this

provision is exempt from the general limitations on liability found in Article 7.2.

7.3.2 The Parties shall at all times indemnify, defend, and save the other Party harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the other Party's action or inaction of its obligations under this Agreement on behalf of the indemnifying Party, except in cases of gross negligence or intentional wrongdoing by the indemnified Party.

7.3.3 If an indemnified Party is entitled to indemnification under this Article as a result of a claim by a third party, and the indemnifying Party fails, after notice and reasonable opportunity to proceed under this Article, to assume the defense of such claim, such indemnified Party may at the expense of the indemnifying Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

7.3.4 If an indemnifying Party is obligated to indemnify and hold any indemnified Party harmless under this Article, the amount owing to the indemnified Party shall be the amount of such indemnified Party's actual loss, net of any insurance or other recovery.

7.3.5 Promptly after receipt by an indemnified Party of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in this Article may apply, the indemnified Party shall notify the indemnifying Party of such fact. Any failure of or delay in such notification shall not affect a Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Party.

7.4 Consequential Damages

Other than as expressly provided for in this Agreement, neither Party shall be liable under any provision of this Agreement for any losses, damages, costs or expenses for any special, indirect, incidental, consequential, or punitive damages, including but not limited to loss of profit or revenue, loss of the use of equipment, cost of capital, cost of temporary equipment or services, whether based in whole or in part in contract, in tort, including negligence, strict liability, or any other theory of liability; provided, however, that damages for which a Party may be liable to the other Party under another agreement will not be considered to be special, indirect, incidental, or consequential damages hereunder.

7.5 Force Majeure

7.5.1 As used in this article, a Force Majeure Event shall mean any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire,

storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

7.5.2 If a Force Majeure Event prevents a Party from fulfilling any obligations under this Agreement, the Party affected by the Force Majeure Event (Affected Party) shall promptly notify the other Party, either in writing or via the telephone, of the existence of the Force Majeure Event. The notification must specify in reasonable detail the circumstances of the Force Majeure Event, its expected duration, and the steps that the Affected Party is taking to mitigate the effects of the event on its performance. The Affected Party shall keep the other Party informed on a continuing basis of developments relating to the Force Majeure Event until the event ends. The Affected Party will be entitled to suspend or modify its performance of obligations under this Agreement (other than the obligation to make payments) only to the extent that the effect of the Force Majeure Event cannot be mitigated by the use of Reasonable Efforts. The Affected Party will use Reasonable Efforts to resume its performance as soon as possible.

7.6 Default

7.6.1 No Default shall exist where such failure to discharge an obligation (other than the payment of money or provision of Financial Security) is the result of a Force Majeure Event as defined in this Agreement or the result of an act or omission of the other Party. Upon a Default, the non-defaulting Party shall give written notice of such Default to the defaulting Party. Except as provided in Article 7.6.2, the defaulting Party shall have five (5) Business Days from receipt of the Default notice within which to cure such Default.

7.6.2 If a Default is not cured as provided in this Article, the non-defaulting Party shall have the right to terminate this Agreement by written notice at any time until cure occurs, and be relieved of any further obligation hereunder and, whether or not that Party terminates this Agreement, to recover from the defaulting Party all amounts due hereunder, plus all other damages and remedies to which it is entitled at law or in equity. The provisions of this article will survive termination of this Agreement.

Article 8. Insurance

8.1 The Interconnection Customer shall obtain and retain, for as long as the Generating Facility is interconnected with the Utility's System, liability insurance which protects the Interconnection Customer from claims for bodily injury and/or property damage. The amount of such insurance shall be sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the

generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. This insurance shall be primary for all purposes. The Interconnection Customer shall provide certificates evidencing this coverage as required by the Utility. Such insurance shall be obtained from an insurance provider authorized to do business in North Carolina. The Utility reserves the right to refuse to establish or continue the interconnection of the Generating Facility with the Utility's System, if such insurance is not in effect.

8.1.1 For an Interconnection Customer that is a residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be a standard homeowner's insurance policy with liability coverage in the amount of at least $100,000 per occurrence.

8.1.2 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility no larger than 250 kW, the required coverage shall be comprehensive general liability insurance with coverage in the amount of at least $300,000 per occurrence.

8.1.3 For an Interconnection Customer that is a non-residential customer of the Utility proposing to interconnect a Generating Facility greater than 250 kW, the required coverage shall be comprehensive general liability insurance with coverage in the amount of at least $1,000,000 per occurrence.

8.1.4 An Interconnection Customer of sufficient credit-worthiness may propose to provide this insurance via a self-insurance program if it has a self-insurance program established in accordance with commercially acceptable risk management practices, and such a proposal shall not be unreasonably rejected.

8.2 The Utility agrees to maintain general liability insurance or self-insurance consistent with the Utility's commercial practice. Such insurance or self-insurance shall not exclude coverage for the Utility's liabilities undertaken pursuant to this Agreement.

8.3 The Parties further agree to notify each other whenever an accident or incident occurs resulting in any injuries or damages that are included within the scope of coverage of such insurance, whether or not such coverage is sought.

Article 9. Confidentiality

9.1 Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated "Confidential." For purposes of this Agreement all design, operating specifications, and metering data provided by the Interconnection Customer shall be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such.

9.2 Confidential Information does not include information previously in the public domain, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be divulged in an action to enforce this Agreement. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under this Agreement, or to fulfill legal or regulatory requirements.

9.2.1 Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.

9.2.2 Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision.

9.2.3 All information pertaining to a project will be provided to the new owner in the case of a change of control of the existing legal entity or a change of ownership to a new legal entity.

9.3 If information is requested by the Commission from one of the Parties that is otherwise required to be maintained in confidence pursuant to this Agreement, the Party shall provide the requested information to the Commission within the time provided for in the request for information. In providing the information to the Commission, the Party may request that the information be treated as confidential and non-public in accordance with North Carolina law and that the information be withheld from public disclosure.

Article 10. Disputes

10.1 The Parties agree to attempt to resolve all disputes arising out of the interconnection process according to the provisions of this Article.

10.2 In the event of a dispute, either Party shall provide the other Party with a written notice of dispute. Such notice shall describe in detail the nature of the dispute.

10.3 If the dispute has not been resolved within 20 Business Days after receipt of the notice, either Party may contact the Public Staff for assistance in informally resolving the dispute, or the Parties may mutually agree to continue negotiations for up to an additional 20 Business Days. In the alternative, the Parties may, upon mutual agreement, seek the assistance of a dispute resolution service to resolve the dispute within 20 Business Days, with the opportunity to extend this timeline upon mutual agreement. If the Parties are unable to informally resolve the dispute, either Party may then file a formal complaint with the Commission.

10.4 Each Party agrees to conduct all negotiations in good faith.

Article 11. Taxes

11.1 The Parties agree to follow all applicable tax laws and regulations, consistent with North Carolina and federal policy and revenue requirements.

11.2 Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Agreement is intended to adversely affect the Utility's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

Article 12. Miscellaneous

12.1 Governing Law, Regulatory Authority, and Rules

The validity, interpretation and enforcement of this Agreement and each of its provisions shall be governed by the laws of the State of North Carolina, without regard to its conflicts of law principles. This Agreement is subject to all Applicable Laws and Regulations. Each Party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.

12.2 Amendment

The Parties may amend this Agreement by a written instrument duly executed by both Parties, or under Article 12.12 of this Agreement.

12.3 No Third-Party Beneficiaries

This Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the Parties, and the obligations herein assumed are solely for the use and benefit of the Parties, their successors in interest and where permitted, their assigns.

12.4 Waiver

12.4.1 The failure of a Party to this Agreement to insist, on any occasion, upon strict performance of any provision of this Agreement will not be considered a waiver of any obligation, right, or duty of, or imposed upon, such Party.

12.4.2 Any waiver at any time by either Party of its rights with respect to this Agreement shall not be deemed a continuing waiver or a waiver with respect to any other failure to comply with any other obligation, right, or duty of this Agreement. Termination or default of this Agreement for any reason by Interconnection Customer shall not constitute a waiver of the

Interconnection Customer's legal rights to obtain an interconnection from the Utility. Any waiver of this Agreement shall, if requested, be provided in writing.

12.5 Entire Agreement

This Agreement, including all Appendices, constitutes the entire agreement between the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, between the Parties with respect to the subject matter of this Agreement. There are no other agreements, representations, warranties, or covenants which constitute any part of the consideration for, or any condition to, either Party's compliance with its obligations under this Agreement.

12.6 Multiple Counterparts

This Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.

12.7 No Partnership

This Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the Parties or to impose any partnership obligation or partnership liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

12.8 Severability

If any provision or portion of this Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the Parties shall negotiate in good faith to restore insofar as practicable the benefits to each Party that were affected by such ruling, and (3) the remainder of this Agreement shall remain in full force and effect.

12.9 Security Arrangements

Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All Utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.

12.10 Environmental Releases

Each Party shall notify the other Party, first orally and then in writing, of the release of any hazardous substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Generating Facility or the Interconnection Facilities, each of which may reasonably be expected to affect the other Party. The notifying Party shall (1) provide the notice as soon as practicable, provided such Party makes a good faith effort to provide the notice no later than 24 hours after such Party becomes aware of the occurrence, and (2) promptly furnish to the other Party copies of any publicly available reports filed with any Governmental Authorities addressing such events.

12.11 Subcontractors

Nothing in this Agreement shall prevent a Party from utilizing the services of any subcontractor as it deems appropriate to perform its obligations under this Agreement; provided, however, that each Party shall require its subcontractors to comply with all applicable terms and conditions of this Agreement in providing such services and each Party shall remain primarily liable to the other Party for the performance of such subcontractor.

12.11.1 The creation of any subcontract relationship shall not relieve the hiring Party of any of its obligations under this Agreement. The hiring Party shall be fully responsible to the other Party for the acts or omissions of any subcontractor the hiring Party hires as if no subcontract had been made; provided, however, that in no event shall the Utility be liable for the actions or inactions of the Interconnection Customer or its subcontractors with respect to obligations of the Interconnection Customer under this Agreement. Any applicable obligation imposed by this Agreement upon the hiring Party shall be equally binding upon, and shall be construed as having application to, any subcontractor of such Party.

12.11.2 The obligations under this article will not be limited in any way by any limitation of subcontractor’s insurance.

12.12 Reservation of Rights

The Utility shall have the right to make a unilateral filing with the Commission to modify this Agreement with respect to any rates, terms and conditions, charges, or classifications of service, and the Interconnection Customer shall have the right to make a unilateral filing with the Commission to modify this Agreement; provided that each Party shall have the right to protest any such filing by the other Party and to participate fully in any proceeding before the Commission in which such modifications may be considered. Nothing in this Agreement shall limit the rights of the Parties except to the extent that the Parties otherwise agree as provided herein.

Article 13. Notices

13.1 General

Unless otherwise provided in this Agreement, any written notice, demand, or request required or authorized in connection with this Agreement (Notice) shall be deemed properly given if delivered in person, delivered by recognized national courier service, sent by first class mail, postage prepaid, or sent electronically to the person specified below:

If to the Interconnection Customer:

Interconnection Customer:_____

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

E-Mail Address:_____

Phone:_____ Fax:_____

If to the Utility:

Utility:

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

E-Mail Address:_____

Phone:_____ Fax:_____

13.2 Billing and Payment

Billings and payments shall be sent to the addresses set out below: If to the Interconnection Customer:

Interconnection Customer:_____

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

E-Mail Address:_____

If to the Utility:

Utility:

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

E-Mail Address:_____

13.3 Alternative Forms of Notice

Any notice or request required or permitted to be given by either Party to the other and not required by this Agreement to be given in writing may be so given by telephone, facsimile or e-mail to the telephone numbers and e-mail addresses set out below:

If to the Interconnection Customer:

Interconnection Customer:_____

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

Phone:_____ Fax:_____

E-Mail Address:_____

If to the Utility:

Utility:

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

Phone:_____ Fax:_____

E-Mail Address:_____

13.4 Designated Operating Representative

The Parties may also designate operating representatives to conduct the communications which may be necessary or convenient for the administration of this Agreement. This person will also serve as the point of contact with respect to operations and maintenance of the Party's facilities.

Interconnection Customer's Operating Representative:

Interconnection Customer:_____

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

Phone:_____ Fax:_____

E-Mail Address:_____

Utility's Operating Representative:

Utility:

Attention:_____

Address:_____

City:_____ State:_____ Zip:_____

Phone:_____ Fax:_____

E-Mail Address:_____

13.5 Changes to the Notice Information

Either Party may change this information by giving five Business Days written notice prior to the effective date of the change.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their respective duly authorized representatives.

For the Utility

Name:_____

Print Name:_____

Title:_____

Date:_____

For the Interconnection Customer

Name:_____

Print Name:_____

Title:_____

Date:_____

Glossary of Terms

See Glossary of Terms, Attachment 1 to the North Carolina Interconnection Procedures

Description and Costs of the Generating Facility, Interconnection Facilities, and Metering Equipment

Equipment, including the Generating Facility, Interconnection Facilities, and metering equipment shall be itemized and identified as being owned by the Interconnection Customer, or the Utility. The Utility will provide a best estimate itemized cost, including overheads, of its Interconnection Facilities and metering equipment, and a best estimate itemized cost of the annual operation and maintenance expenses associated with its Interconnection Facilities and metering equipment.

One-line Diagram Depicting the Generating Facility, Interconnection Facilities, Metering Equipment, and Upgrades

This agreement will incorporate by reference the one-line diagram submitted by the Customer on _____, dated _____, with file name "_____" as part of the Interconnection Request, or as subsequently updated and provided to the Company.

Milestones

Requested Upgrade In-Service Date:_____

Requested Interconnection Facilities In-Service Date_____

Critical milestones and responsibility as agreed to by the Parties:

The build-out schedule does not include contingencies for deployment of Utility personnel to assist in outage restoration efforts on the Utility's System or the systems of other utilities with whom the Utility has a mutual assistance agreement. Consequently, the Requested In-Service Date may be delayed to the extent outage restoration work interrupts the design, procurement and construction of the requested facilities.

	Milestone	Completion Date	Responsible Party
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)	Expand as needed		

Signatures on next page

Agreed to for the Utility:

Name:_____

Print Name:_____

Date:_____

Agreed to for the Interconnection Customer:

Name:_____

Print Name:_____

Date:_____

Additional Operating Requirements for the Utility's System and Affected Systems Needed to Support the Interconnection Customer's Needs

The Utility shall also provide requirements that must be met by the Interconnection Customer prior to initiating parallel operation with the Utility's System.

Utility's Description of its Upgrades and Best Estimate of Upgrade Costs

The Utility shall describe Upgrades and provide an itemized best estimate of the cost, including overheads, of the Upgrades and annual operation and maintenance expenses associated with such Upgrades. The Utility shall functionalize Upgrade costs and annual expenses as either transmission or distribution related.

Duke Energy Carolinas, LLC
and
Duke Energy Progress, LLC

Attachment 2

Stakeholder Participation in Stakeholder Meetings #7-#10

Stakeholder Meeting 7- January 29, 2020

Number of Registered Attendees	Stakeholder Group Represented
1	Birdseye Energy
1	Calpine Power Management
1	Candela Renewables
1	City of Homestead, FL
1	City of Wauchula, FL
1	Community Energy
1	Consolidated Asset Mgmt Svcs
1	Core Energy
1	Coronal Energy
3	Cypress Creek Renewables
4	Disney
1	Dominion Energy
19	Duke Energy
1	Ecoplexus
3	ElectriCities
1	Energy Intelligence Partners
1	EnergyUnited
1	Exelon Corp
2	First Solar
3	Florida Municipal Electric Association
1	Florida Power and Light
1	Geenex Solar
1	GreenGo
1	Heelstone Energy
2	Holocene Energy
1	John Laing Group
1	Johnson Development
1	Lincoln Clean Energy
1	Lockhart Power
2	Navigant Consulting
1	NCCEBA
3	North Carolina Electric Cooperative
1	Pine Gate Renewables
5	Public Staff- North Carolina Utilities Commission
1	Renew Petra
2	Seminole Electric Cooperative
1	Soltage
1	Solterra Partners
2	South Carolina Solar Business Alliance
1	Southeast Solar Power

2	Southern Current
2	Strata Solar
82	**Total**

Stakeholder Meeting 8- March 10, 2020

Number of Registered Attendees	Stakeholder Group Represented
1	Advanced Energy
1	American Electric Power
1	Beaufort Rosemary
1	Booth & Associates
1	Brooks Pierce
2	Calpine Power Management
1	Candela Renewables
1	City of Ocala, FL
1	City of Starke, FL
1	Community Energy
1	Consolidated Asset Mgmt Svcs
1	Core Energy
1	Cypress Creek Renewables
3	Disney
2	Dominion Energy
28	Duke Energy
3	Ecoplexus
2	ElectriCities
1	Energy Intelligence Partners
1	EnergyUnited
1	First Solar
1	Florida Municipal Electric Association
1	Florida Municipal Power Agency
1	Geenex Solar
1	Heelstone Energy
1	John Laing Group
1	Johnson Development
1	Lockhart Power
2	McGuire Woods
1	NCCEBA
1	NextEra Energy
3	North Carolina Electric Cooperative
1	Pine Gate Renewables
1	Pristine Sun
5	Public Staff- North Carolina Utilites Commission
1	ReneSolaPower
1	Renew Petra
1	Self-Employed, Environmental Engineering Consultant
3	Seminole Electric Cooperative
1	Soltage

2	South Carolina Solar Business Alliance
1	Southern Current
1	TECO Energy
87	**Total**

Stakeholder Meeting 9- March 20, 2020

Number of Registered Attendees	Stakeholder Group Represented
1	Advanced Energy
1	Birdseye Energy
1	Booth & Associates
2	Brooks Pierce
1	Calpine Power Management
1	Candela Renewables
1	City of Ocala, FL
1	City of Starke, FL
2	Community Energy
1	Core Energy
3	Cypress Creek Renewables
4	Disney
2	Dominion Energy
28	Duke Energy
3	Ecoplexus
1	ElectriCities
1	Energy Intelligence Partners
1	EnergyUnited
1	First Solar
1	Florida Municipal Electric Association
1	Florida Municipal Power Agency
1	Florida Power and Light
1	Florida Reliability Coordinating Council, Inc.
1	GreenGo
1	Heelstone Energy
1	John Laing Group
2	Johnson Development
1	Kissimmee Utility Authority
1	Lockhart Power
2	McGuire Woods
1	NCCEBA
1	NCSEA
1	NextEra Energy
3	North Carolina Electric Cooperative
1	O2 EMC
1	Piedmont Electric Membership Corp
2	Pine Gate Renewables

5	Public Staff- North Carolina Utilities Commission
1	ReneSolaPower
1	Renew Petra
1	Self-Employed, Environmental Engineering Consultant
2	Seminole Electric Cooperative
1	Soltage
1	Solterra Partners
2	South Carolina Office of Regulatory Staff
2	South Carolina Solar Business Alliance
2	Southern Current
4	Strata Solar
3	TECO Energy
1	Town of Sharpsburg, NC
1	TransAlta
106	**Total**

Stakeholder Meeting 10- April 9, 2020

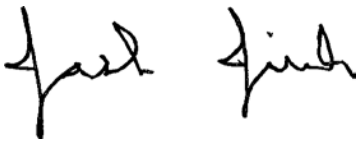
Number of Registered Attendees	Stakeholder Group Represented
1	Advanced Energy
1	Birdseye Energy
1	Blue Ridge Energy
2	Booth & Associates
1	Brooks Pierce
1	Candela Renewables
1	City of Homestead, FL
1	City of Kings Mtn., NC
1	Commonwealth Edison Company
3	Community Energy
1	Consolidated Asset Mgmt Svcs
1	Core Energy
3	Disney
2	Dominion Energy
32	Duke Energy
3	Ecoplexus
2	ElectriCities
1	Energy Intelligence Partners
1	EnergyUnited
3	First Solar
1	Florida Municipal Power Agency
1	Florida Power and Light
1	Florida Reliability Coordinating Council, Inc.
1	Gainesville Regional Utilities
1	Geenex Solar
1	GreenGo
2	Heelstone Energy
1	John Laing Group
1	Johnson Development
2	Lockhart Power
1	McCarter & English
2	McGuire Woods
1	Monarch Private Capital
1	Narenco
2	NCCEBA
2	NextEra Energy
2	North Carolina Electric Cooperative
1	North Carolina Electric Membership Corporation
5	Public Staff- North Carolina Utilities Commission
1	O2 EMC

1	OPD Energy
1	Piedmont Electric Membership Corp
2	Pine Gate Renewables
1	ReneSolaPower
1	Renew Petra
1	Self-Employed, Environmental Engineering Consultant
1	Seminole Electric Cooperative
1	Soltage
1	Solterra Partners
2	South Carolina Solar Business Alliance
2	Southern Current
5	Strata Solar
1	Town of Sharpsburg, NC
1	TransAlta
113	**Total**

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's and Duke Energy Progress, LLC's Queue Reform Proposal, in Docket No. E-100, Sub 101, has been served by electronic mail, hand delivery, or by depositing a copy in the United States mail, postage prepaid, properly addressed to parties of record.

This the 15th day of May, 2020.



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