Form to Identify the Public Policy Driving Local Transmission

Date of Submittal	February 8, 2023
Submitting Company (TAG participant)	Carolinas Clean Energy Business Association (CCEBA), Clean Power Suppliers Association (CPSA), North Carolina Sustainable Energy Association (NCSEA), Southern Alliance for Clean Energy (SACE), Southern Environmental Law Center (SELC), Sierra Club
Company Contact	CCEBA – John D. Burns, General Counsel – 919-306-6906, counsel@carolinasceba.org CPSA – Benjamin L. Snowden, Counsel - 919-719-1257, bsnowden@foxrothschild.com NCSEA – Taylor Jones, Regulatory Counsel – 919-832-7601, taylor@energync.org SACE – Maggie Shober, Research Director – 615-364-5527, maggie@cleanenergy.org SELC – Richard Seide, Consultant – 513-382-8571, rseide@gridstrategiesllc.com Sierra Club – David Rogers, SE Regional Deputy Director – 919-599-9966, David.rogers@sierraclub.org
Contact Phone Number	See above
Contact E-Mail Address	See above
Identify the Public Policy – Identify the specific state, federal, or local law or regulation (including order of a state, federal, or local agency) that is driving a local transmission need.	-NC House Bill 951 (S.L. 2021-165) Section 1 (codified as N.C. Gen. Stat. § 62-110.9) -NC Utilities Commission Order Adopting Initial Carbon Plan and Providing Direction for Future Planning. Docket No. E-100, Sub 179. December 30, 2022.
Supporting Facts – Identification of any supporting facts that would show that the identified need cannot	Duke Energy's 2022 supplemental study of its proposed RZEP projects concluded that the projects will potentially allow the interconnection of approximately 3,759 MW of

be met absent the construction of additional transmission facilities.	new solar capacity in Duke's territory (2,778 MW in DEP, 981 MW in DEC). This is approximately 1,850 MW less solar than Duke's Carbon Plan Portfolio 1 (P1) requires by the beginning of 2030; 4,850 MW less than P1 requires by the beginning of 2032; 3,750 MW less than CPSA3 by mid-2030; 6,950 MW less than CPSA5 by mid-2032; and similarly less than other proposed compliance portfolios for 2030 and 2032. The NCUC Carbon Plan order also calls for 1,000 MW of stand-alone storage to be procured as part of the Near-Term Execution Plan. The 2024 NCTPC Transmission Plan will be the last opportunity to identify upgrades that can be completed by 2030.

Attach additional information as necessary.

Attachment A

This request is submitted on behalf of the Carolinas Clean Energy Business Association, the Clean Power Suppliers Association, the North Carolina Sustainable Energy Association, the Southern Alliance for Clean Energy, the Southern Environmental Law Center (including non-TAG interested party Natural Resources Defense Council), and the Sierra Club (collectively, the Participants).

The overarching purpose of this Public Policy request is to scope a study that will support the identification of additional proactive transmission upgrades necessary to comply with H.951's interim carbon reduction mandate. All proposed compliance portfolios to achieve the interim mandate require substantially more solar capacity than the existing RZEP projects are currently estimated to enable. Additionally, required upgrades for potential offshore wind additions for interim compliance are already relatively well known. Standalone storage resources, deployed at scale and in well-informed locations on the transmission grid, can serve to offset, delay, or reduce the size of needed transmission upgrades. Therefore, this request focuses on identifying transmission upgrades necessary to achieve higher volumes of solar and solar-plus-storage capacity along with varying levels of standalone storage.

The Participants recognize that the final volume and location of solar, solar-plus-storage, and standalone storage capacity necessary to meet the interim mandate and continue apace for the 2050 carbon reduction goal cannot currently be known. For this reason, the Participants recommend studying multiple locations of modeled solar capacity across at least two portfolios with aggregate solar volumes that achieve interim compliance, in order to best identify "least regrets" upgrades.[1] Similarly, the Participants recommend locating standalone storage resources with local congestion in mind, and designing the scenarios to incorporate the best available information about other types of resources and locations of resources that will be necessary to meet the carbon mandates, such as whether or not to include Bad Creek II pumped hydro as online, which Duke's P1 assumes goes online in 2033.

The Participants further recognize that the 2023 Public Policy study process carries special importance, given that it represents the last study process that will be able to support the identification and commencement of additional transmission upgrades for completion by 2030.[2] For this reason, Participants note that it will be necessary to accelerate the NCTPC's standard Public Policy study process and ensure the study can be completed in 2023, in order to be considered by the Commission for its 2024 Carbon Plan order. To expedite, Participants are ready to commence work immediately with the NCTPC to reach agreement on study scope by March 2023.

[1] In addition to identification of specific low-regrets transmission upgrades, the cost information from this study can serve as a valuable input into the next Carbon Plan.

[2] The NCUC will issue its next Carbon Plan order in 2024, which will allow for the next set of proactive transmission upgrades to commence in early 2025. Assuming upgrades require approximately four years to complete, these upgrades will complete in 2029.

Specifically, the Participants propose the following scenarios to be studied. 2033 volumes are selected to align with study scope for 2033 Summer. Storage volumes for each scenario are to be determined.

Scenario	**Solar Volume**	**Locational Distribution**
Scenario 1	Duke P1 BOY 2033: 9.3 GW	Distribution A
Scenario 2	Duke P1 BOY 2033: 9.3 GW	Distribution B
Scenario 3	Duke P1 BOY 2033: 9.3 GW	Distribution C
Scenario 4	CPSA3 MOY 2033: 12.5 GW	Distribution A
Scenario 5	CPSA3 MOY 2033: 12.5 GW	Distribution B
Scenario 6	CPSA3 MOY 2033: 12.5 GW	Distribution C

These volumes are recommended because they represent reasonable estimates of how much solar will be needed for interim compliance based on existing modeled portfolios, and because the volumes will stretch the transmission system in ways that will support identification of additional high-value upgrades beyond the RZEP. If additional scenarios can be modeled, Participants recommend consideration of other solar volumes necessary for compliance from modeled portfolios, including a scenario with lower solar volume to support verification of highest value upgrades.

In each scenario:

- Account for all definite resources in the Near-Term Execution Plan (NTEP) approved by NCUC's Carbon Plan order,[3,4] including storage (1,000MW standalone, 600MW paired)
- Account for potential congestion relief benefits of new battery storage and agree on power flow modeling approach for solar versus solar-plus-storage
- Account for the use/deployment of Grid Enhancing Technologies (GETs) including Dynamic Line Ratings (DLR) and other advanced technology solutions to address operational constraints, increased energy outlet, and reduce solar curtailments.[5]
- Determine how potential new gas capacity should be accounted (e.g. if existing coal IAs are being transferred to new gas, no change may be necessary)
- Consider potential congestion relief from ERIS designation for some or all new solar procured after the 2022 procurement
- Ensure the study design allows for indentation of potential necessary uprates to the existing RZEP upgrades

[3] With respect to onshore wind, if it is feasible to identify possible locations with for 600 MW (Duke P1 volume by 2030), this should be incorporated.

[4] With respect to offshore wind, results of the NCTPC's 2020 Offshore Wind Study and any known near-term onshore transmission infrastructure development common to all wind energy areas under evaluation should be considered.

[5] Participants also recommend confirming if/how the separation of DEC and DEP as balancing authorities may affect power flow results and implications of a DEC-DEP BA merger.

With respect to locational distribution of new solar and solar-plus-storage resources, Participants recommend consideration of the following approach. Participants recognize that locational assumptions will need to be refined for purposes of the final study scope and look forward to further engagement.

Solar Locational Distribution	**Assumptions**
Distribution A: Queue-Based	Step 1: Use locations of solar projects in DISIS Phase 1 Step 2: Add incremental solar capacity in proportion to locations of solar capacity in DISIS Phase 1 Step 3: To avoid unreasonable localized impact, where excess concentrations of solar capacity exist within limited proximity, re-distribute solar capacity from those locations
Distribution B: Zone-Based	Add incremental solar capacity distributed across zones identified as higher-potential solar development areas, assuming a fixed portion of additions to each zone[6]
Distribution C: Procurement-Based	Step 1: Use locations of solar projects awarded in 2022 procurement[7] Step 2: Add incremental solar capacity in proportion to locations of solar capacity in 2022 procurement Step 3: To avoid unreasonable localized impact, where excess concentrations of solar capacity exist within limited proximity, re-distribute solar capacity from those locations

[6] See CPSA Exhibit "Pathways to 1800 MW Annual Solar Capacity Additions." https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=7b2e9732-d771-4d8d-8132-26b3d0c5467f

[7] Given that awards will not be issued until May 2023, if this scenario is to be studied, it will likely have to commence after the other scenarios.