

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-100, SUB 165

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
2020 Biennial Integrated Resource	)	ORDER SCHEDULING
Plan Reports and Related 2020 REPS	)	TECHNICAL CONFERENCE
Compliance Plans by Duke Energy	)	AND DENYING MOTION FOR
Carolinas and by Duke Energy Progress	)	EVIDENTIARY HEARING

BY THE PRESIDING COMMISSIONER: The Commission's Order Waiving in Part Rule R8-60(h)(2) and Giving Notice of Additional Proceedings issued on June 29, 2021, in this docket stated that:

Although the record assembled thus far is extensive and on many topics is sufficient for the Commission to make a determination whether the IRPs comply with the requirements of Rule R8-60, the Commission has identified several topics of interest in DEP's and DEC's IRPs that the Commission believes warrant additional exploration and further consideration by the Commission prior to the issuance of a final order herein. The Commission has further determined that such additional information and examination will be most efficiently obtained by additional proceedings conducted in the present docket, rather than addressing them only after the Duke utilities have filed 2021 IRP update reports pursuant to Rule R8-60(h)(2).

On June 29, 2021, NC WARN and the Center for Biological Diversity filed a motion asking that the Commission conduct an evidentiary hearing as to a series of topics contained in the DEC and DEP 2020 biennial IRPs. Several other intervenors in their comments and reply comments and a number of public witnesses who testified before the Commission at the six sessions held in April and May, 2021, also suggested or requested that an evidentiary hearing be held by the Commission on the two Duke utilities' 2020 IRPs. Commission Rule R8-60(k) provides that evidentiary hearings on integrated resource plans are a matter for the Commission's discretion and are limited in scope to those issues specified by the Commission. The Commission appreciates that the 2020 IRPs have generated considerable interest and that participation in this docket by public witnesses, intervenors, and other parties submitting comments or statements of position is at an all-time high for IRP filings. Indeed, written comments, accompanied by reports, analyses, studies, and compilations, filed in the docket run to several thousand pages. The Commission has found these submissions to be of high quality, and for that reason on most issues raised by the parties the Commission concludes that little or no additional benefit would be derived from an evidentiary hearing. The Commission therefore, in the exercise of its discretion, declines to set further evidentiary proceedings in this docket. Nevertheless, the Commission does believe there is benefit in hearing additional oral presentations, with an opportunity for Commissioners to ask questions, on three topics

identified hereafter in this Order. These presentations will be structured similarly to the technical conference on ISOP and distribution planning issues held in this docket on March 9, 2021.<sup>1</sup>

### **Structure of the Technical Conference**

The Commission has reserved two days for presentations on the issues set forth in this Order, and the conference will proceed with those issues in the sequence set forth hereafter. For each issue, DEC and DEP shall open with presentations of up to one hour, allocated between them as they determine, after which they will respond to questions from Commissioners and Commission staff. Thereafter, intervenors and participants other than the Public Staff and the Attorney General, identified and grouped in the manner set out hereafter, will be allowed up to one hour for their presentations, allocated among them as they determine best, and again followed by questions from Commissioners and Commission staff. Finally, the Attorney General and the Public Staff will each be allowed one-half hour for their presentations, followed by questions from Commissioners and Commission staff. At the conclusion of these presentations, the Commission reserves the right, in its discretion, to permit DEC and DEP to make brief responses to presentations by other participants or to questions asked by the Commission of other participants. Participants in the conference are not required to speak to all of the three issues discussed herein and may choose to limit their presentations to only one or two of them. The Commission's intent is that the presentations be well-focused and that the available time be used as efficiently as possible.

For each of the issues identified in this Order the Commission has identified intervenor parties whose written comments focus on one or more aspects of that particular issue, and those parties will be grouped together for purpose of the time allocated to intervenors other than the Attorney General and the Public Staff. The Commission has endeavored to be inclusive in this exercise, but it is possible that some intervenors may have been inadvertently and unintentionally excluded. Intervenor participants not identified in this Order as participants in the technical conference may petition the Commission for leave to participate in the presentations and, for good cause shown, the Commission may grant such leave. Intervenors NC WARN and the Center for Biological Diversity in their motion for evidentiary hearing identified several issues, other than the three set forth in this Order, as to which they requested evidentiary hearing. While the Commission declines to grant their motion and does not intend to expand the scope of the issues for the technical conference beyond the three set forth in this Order, in recognition of the motion made by NC WARN and the Center for Biological Diversity, they will be invited to participate in the technical conference, should they choose to do so, and to present on one or more of the three issues discussed herein as part of the intervenor group for each such issue.

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<sup>1</sup> In considering the motion the Commission also takes note of the Court of Appeals opinion in *State ex rel. Utilities Commission v. North Carolina Electric Membership Corp.*, 105 N.C. App. 136, 412 S.E.2d 166 (1992), where the Court, in addressing the character of proceedings relating to utilities' integrated resource plans, stated "...[W]e believe that the least-cost planning proceeding should bear a much closer resemblance to a legislative hearing, wherein a legislative committee gathers facts and opinions so that informed decisions may be made at a later time." *Id.* at 144, 412 S.E.2d at 170.

Parties sharing time are urged to divide the time in a way that avoids repetition. All participants should endeavor to avoid simply repeating material from their written submissions and should instead use their time to provide elaboration of or illustrations of their written positions, to direct the Commission's attention to materials or resources not included in the written comments, or to respond to points raised by other parties that were not fully addressed in reply comments. The Commission is particularly interested in participants' views on specific directives the Commission should give or specific actions the Commission needs to undertake with respect to preparation and contents of the two Duke utilities' next biennial IRP reports in 2022.

### **First Issue: Methodology for Evaluating Economic Retirement of Coal-Fired Generating Units**

The Commission's Order dated August 27, 2019, accepting 2019 IRP Update Reports stated that:

To address the issue of economic retirement of aging coal plants, in the 2020 IRPs DEC and DEP shall include an analysis that removes any assumption that their coal-fired generating units will remain in the resource portfolio until they are fully depreciated. Instead, the utilities shall model the continued operation of these plants under least cost principles, including by way of competition with alternative new resources. In this exercise the full costs of disposal of coal combustion wastes shall be included in making any comparison with alternative resources. If such analysis concludes that continued operation of the utilities' existing coal-fired units until they are fully depreciated is the least cost resource alternative, then the utilities' 2020 IRPs shall separately model an alternative scenario premised on advanced retirement of one or more of such units and shall include in that alternative scenario an analysis of the difference in cost from the base case and preferred case scenarios." Order Accepting Integrated Resource Plans and REPS Compliance Plans, Scheduling Oral Argument, and Requiring Additional Analysis, Docket No. E-100, Sub 157, at 90.

In preparing its 2020 IRPs, DEC and DEP analyzed their coal-fired generating units to determine both "economic" and "earliest practicable" retirement dates. The methodologies employed in these analyses as well as the results are discussed in the 2020 IRP Reports. These retirement dates are incorporated into the various portfolios developed for the IRPs. For example, the economic retirement dates are used in the base case portfolios while the earliest practicable dates are included in portfolios that achieve 70% carbon emissions reductions by 2030.

Intervenors have expressed concerns with Duke's coal retirement methodology and results. The Public Staff stated in its comments that "It is important that the issue of the necessity for accelerated coal unit retirements and corresponding replacement by other resources receive regulatory direction sooner rather than later." Further, the comments explain that

The Public Staff attended the A-1 Policy Group meetings, which discussed among other things, the stranded investment risk of building new carbon-emitting natural gas generation assets. Specifically, the Group discussed the likelihood that replacing coal generation with natural gas may ultimately result in stranded assets if a future carbon price is enacted. This gives rise to an argument that existing coal generation plants should continue to run for a period of time, thus deferring the need for new natural gas plants while carbon policy uncertainty is resolved . . . . Some of this uncertainty could be remedied if Duke were able to model the economic coal retirement dates endogenously in the model; in other words, instead of specifying the retirement date by a complex external analysis, the model itself could determine when to shut the plant down and replace it with new capacity. The Encompass model, which Duke intends to use going forward, has this very ability. The Public Staff recommends that Duke use economically optimal endogenous plant retirement dates in future IRPs resulting from the Encompass model.

The Attorney General's Office (AGO) used Strategen Consulting to inform its comments. The AGO stated in its comments that Duke should use a computer model to retire its coal units economically. According to the AGO, "Duke's multi-step process for selecting coal unit retirements is overly complicated. It lacks objectivity. It is not fully transparent." Further, the AGO stated that "Other utilities use computer models that determine the generation needed for grid reliability while simultaneously selecting coal retirements. In contrast, Duke's process uses flawed assumptions to select the most economic retirement dates. Duke then incorporates these pre-selected dates into a model, but by then, the process has been inexorably skewed."

The North Carolina Sustainable Energy Association and the Carolinas Clean Energy Business Association (together, NCSEA *et al.*) and The Southern Alliance for Clean Energy, the Sierra Club, and the Natural Resources Defense Council (together, SACE *et al.*) in their comments stated that the Commission should direct Duke to replace its Coal Retirement Study with a more transparent and detailed analysis that reflects the true costs of operating its existing coal fleet. These comments are informed by the modeling effort and report by Synapse (twice amended) for the joint intervenors.

Duke acknowledged in reply comments that intervenors, including the AGO and the Public Staff, expressed interest for the coal retirement analysis to be performed endogenously in a capacity expansion model. Duke stated that

Although the Companies appreciate the conceptual idea of using the capacity expansion model to perform all resource optimization in a single computational process, this approach was not practical in this case due to limitations of the capacity expansion model, the complexity of analysis, and the magnitude of the coal retirements being contemplated. Furthermore, because the Companies are switching to the EnCompass model as discussed with interested parties in the stakeholder process, DEC and DEP will also continue to evaluate the capabilities and enhancements that the new modeling software will provide with respect to co-optimizing retirements

of the Companies' coal fleet. To the extent the Companies determine the EnCompass software is able to be leveraged to better optimize coal retirement dates and replacement options, the Companies will agree to perform that analysis in the comprehensive IRP filing in 2022 . . . . The Companies believe given the capabilities of the current models, the approach used in the 2020 IRP yielded the most economic retirement dates. The Companies commit to further evaluating if EnCompass can provide the necessary functionality to accurately capture changing cost and value over time as done in the Companies' coal retirement analysis in the 2020 IRP.

The Commission notes the importance of coal retirement dates in a robust evaluation of resource plans over the IRPs' planning horizons. Selection of the economically optimal retirement dates for the Companies' coal-fired generating units is the foundation from which all of the Companies' resource portfolios, including the base planning case, are constructed. As a result, the Commission concludes that it would be helpful for the Commission to receive additional input relative to Duke's methodology for determining the "economic" retirement dates for its coal-fired generating units and the resulting dates included in the 2020 IRPs. Duke should briefly highlight the components of its coal retirement methodology, including strengths and weaknesses of their approach, especially given the capabilities of their current models. The Company should then expand on the statement that "DEC and DEP will also continue to evaluate the capabilities and enhancements that the new modeling software will provide with respect to co-optimizing retirements of the Companies' coal fleet." The Company should address how it can use the EnCompass software to better optimize coal retirement dates and replacement options.

The Public Staff, the AGO, and, jointly, the NCSEA *et al.* and SACE, *et al.* intervenors, should each expand on their comments and concerns with Duke's methodology and recommendations for Duke to model economic coal retirement dates endogenously in the model (see Public Staff's comments). This may include some limited discussion of the experience of other utilities in modeling coal retirement dates. The parties should speak directly to their understanding of what the EnCompass software might provide in lieu of the current analyses by Duke.

### **Second Issue: Potential Use of "All-Source" Procurement Process**

The Commission is next interested in hearing participants address and elaborate on their written comments concerning the possible use of an "all-source" procurement process to address the utilities' first identified need for new capacity, which in the 2020 IRPs is stated as 2026 for DEC and 2024 for DEP. More broadly, the Commission is interested in investigating the parties' positions regarding the use of "all source" procurement to meet all system needs, not merely the need for additional capacity to meet peak loads and preserve reserve margins. As articulated in Rule R8-60(g), the fundamental objective of resource planning is to identify a resource plan "... that offers the least cost combination (on a long-term basis) of reliable resource options for meeting the anticipated needs of ... [the utility's] ... system."

The Commission therefore wishes to explore further lessons learned from the use of “all source” procurements in other jurisdictions and consider the pros and cons of such a process in North Carolina as a possible way of enhancing flexibility in meeting the utilities’ near-term resource needs and otherwise meeting the capacity expansion and system reliability requirements of their short-term action plans. The Commission has reached no conclusions on this point as to the utility or propriety of an “all source” procurement requirement but desires a deeper understanding of the concept. The parties are invited to address the Commission on how such a process might work in North Carolina, who should be involved in creating and administering that process, what timetables might need to be established in order to use such a process to meet the utilities’ near-term system needs, and what additional actions or assistance might be required from the Commission for such a process to be implemented in North Carolina. In addition, the parties should be prepared to address the Duke utilities’ contention that an “all-source” procurement process requires either or both additional enabling legislation or changes to Commission rules. Intervenors Southern Alliance for Clean Energy, The Sierra Club, and the Natural Resources Defense Council all addressed the use of “all source” procurements in their written comments and are invited to participate on this issue. Participation is also invited from the AGO and the Public Staff.

### **Third Issue: Grid Impacts of Different Resource Portfolios**

Commission Rule R8-60(i)(5) states that each utility shall include in its biennial IRP a list of transmission lines and other associated facilities (161 kV or over) which are under construction or for which there are specific plans to be constructed during the planning horizon, including the capacity and voltage levels, location, and schedules for completion and operation. The utility shall also include a discussion of the adequacy of its transmission system (161 kV and above).

The Commission recognizes and appreciates the expanded discussion by DEC and DEP in the new chapter on Grid Requirements included in the 2020 biennial IRPs, which was offered partly in response to the Commission’s August 27, 2019 Order. Of particular interest is the discussion by the Duke utilities of transmission projects needed to facilitate carbon reduction targets and to support several of the alternative resource portfolios modeled in the IRPs. As noted in the IRPs, the portfolios presented included different assumptions for coal plant retirement dates along with a varying array of demand and supply-side resource requirements to reliably serve load over the planning horizon. The Duke utilities conducted high-level assessments to estimate the associated necessary transmission network upgrades for retiring the existing coal facilities and integrating each scenario’s requisite incremental resources, including combinations of some or all of the following resources: solar, solar-plus-storage hybrid facilities, stand-alone battery storage, pumped-hydro generation/storage, onshore wind, offshore wind, increased off-system purchases, and dispatchable natural gas facilities.

According to the Duke IRPs, the resources required to reliably serve customer load under each portfolio impact each Company’s existing transmission system. Every portfolio requires upgrades to the Duke utilities’ transmission systems, some of them quite substantial. Further, some upgrades would require substantial transmission upgrades to third parties’ transmission systems interconnected to the Duke utilities’ transmission grids.

For example, the high-level assessment conducted to determine the transmission network upgrades needed to enable the interconnection of new resources for the 70% CO2 Reduction: High Wind portfolio resulted in an estimate of about \$4.6 billion for DEP transmission network upgrades. Estimates for transmission network upgrades to import offshore wind energy were based on prior North Carolina Transmission Planning Collaborative (NCTPC) assessments. The IRPs stated that an update of these NCTPC assessments is in progress and may result in materially different network upgrade costs.

The suggestion by several commenting parties that the Duke utilities expand their import capabilities as a potential complement to or even as an alternative to the development of new resources is another example of the way in which resource planning and transmission planning intersect. The Duke utilities conducted a high-level evaluation of increasing import capability into the DEP and DEC area transmission systems. The Duke IRPs suggest that the costs of such transmission interface projects would be substantial, and they canvass a series of risks to the system in relying on significant incremental import capability for future resource planning needs. These are important considerations in the composition of the future resource mix, and the Commission finds that it would benefit by acquiring a more complete understanding of these considerations. The Commission outlines below the parties' statements on these issues and requests that the parties be prepared to answer questions related to these statements as well as expand upon these statements as appropriate.

In addition, the Final Report on the NCTPC 2020-2030 Collaborative Transmission Plan was issued on January 15, 2021. The Commission is interested in reviewing the final report and requests that the Duke utilities file that report in this docket. The Commission also concludes that it would be helpful at the technical conference for the Duke utilities to summarize the major components of the report and discuss in detail how the work of the NCTPC informs development of the IRPs.

Turning to the comments of intervenors, NCSEA and CCEBA filed as an exhibit to their comments the report entitled "Transmission Issues and Recommendations for Duke 2020 IRP" (Grid Strategies Report). According to the NCSEA and CCEBA comments, the report addresses inadequate and inappropriate assumptions in Duke's IRP regarding transmission planning, which the report asserts fail to capture the benefits of optimized and least cost transmission planning. The Commission seeks further explanation and requests NCSEA and CCEBA to summarize their specific recommendations to the Commission based on the findings in the Grid Strategies Report.

The Public Staff stated in its comments that the number of permutations of generation types, geographic locations, timing, and capacity within generation scenarios and between scenarios can be significant, making their study complex. According to the Public Staff, the capacity expansion models used by the utilities in their IRPs trade off transmission specificity for reduced model complexity. The Public Staff stated that it is simply not possible at this time to solve a long-term capacity expansion model with sufficient generator site specificity and the typical power flow analyses to support detailed proposed transmission investments. The Public Staff believes the utilities can continue to improve the planning process without becoming too granular and time intensive. Further, the Public Staff stated that it believes future IRPs can improve how costs for required

imports and exports are assigned to each portfolio, which the utilities acknowledge may be necessary to accommodate some future resource mixes. According to the Public Staff, the generic interconnection costs that are included in the existing capacity expansion model do not fully capture required transmission investments, and the evaluation of larger scale system impacts is critical to ensuring that capacity expansion portfolios presented in the IRP represent optimal solutions. The Public Staff recognizes that it would be too complex to include detailed power flow analyses associated with future capacity expansion plans and is open to input from the utilities and intervenors on how to address this concern in future IRPs.

Duke stated in its reply comments that the Companies' future transmission investment requirements are dynamic and correlated to the timing of planned coal unit retirements as well as the type and location of replacement generation. Duke further stated that as more certainty is known regarding the timing of replacement and incremental resources, the options considered with respect to type and location, as well as capability (Megawatts, MVA), definitive transmission studies can be performed resulting in more accurate network upgrade cost estimates. In addition, further refinements around cost estimates for off-system capacity purchases will be included in future IRPs to the extent off-system purchases are contemplated in the plan.

Finally, Duke stated in its reply comments that no action is needed in response to the NCSEA/CCEBA Grid Strategies Report today and that future policy support would be needed to promote significant transmission expansions outside of least cost resource planning. Further, Duke noted that the Grid Strategies Report comments on the critical importance of transmission assumptions in the Companies' 2020 IRPs and suggests the "optionality provided by a strong electric transmission network is significant and will not be captured to the benefit of customers with incremental, least cost expansion planning, especially if planning models are based on known commitments and do not reflect expected conditions for the future." Duke stated that the Companies do not dispute the importance of a strong electric transmission network but disagree with the Grid Strategies Report's assertion that the Companies should deviate from least cost planning for their native load customers in order to significantly expand their transmission systems to increase import capability or support large-scale new renewable generation. According to Duke, DEC and DEP are bound to adhere to least cost integrated resource planning under the Public Utilities Act and NCUC Rule R8-60 as a component of their IRPs' evaluation of resource options. If the Commission or the General Assembly wishes for DEC and DEP to deviate from these statutes to plan for the transmission investment needed to facilitate an integrated least cost resource planning portfolio, then a change in energy policy will be needed. The Commission requests that Duke discuss the basis for this statement at the Technical Conference in order to clarify its position.

IT IS, THEREFORE, ORDERED as follows:

1. That the Motion for Evidentiary Hearing filed by NC WARN and by the Center for Biological Diversity is denied. NC WARN and the Center for Biological Diversity are invited to participate in the technical conference on the three issues identified in this Order and will participate as part of the group of intervenor parties identified herein;



2. That a technical conference shall be held on September 30 and October 1, 2021, starting at 9:30 a.m., in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina, on the three issues identified in this Order. At this time the Commission anticipates that persons wishing to participate in this conference will appear in person, but further guidance concerning remote participation by electronic means may be forthcoming as circumstances require;

3. That in addition to participation by the Duke utilities, by the AGO, and by the Public Staff, participation in the technical conference is invited from The North Carolina Sustainable Energy Association and the Carolinas Clean Energy Business Association (together, NCSEA *et al.*); The Southern Alliance for Clean Energy, the Sierra Club, and the Natural Resources Defense Council (together, SACE *et al.*); NC WARN; and the Center for Biological Diversity in the manner and pursuant to the framework as set forth herein; and

4. That intervenors in this docket who are not identified in this Order as participants may petition the Commission for leave to participate in conference presentations not later than September 8, 2021, stating the issue or issues as to which they wish to participate and briefly explaining how their participation will assist the Commission in its evaluation of the issues identified in this Order.

ISSUED BY ORDER OF THE COMMISSION.

This the 24th day of August, 2021.

NORTH CAROLINA UTILITIES COMMISSION

A handwritten signature in black ink, appearing to read "Joann R. Snyder". The signature is written in a cursive, flowing style.

Joann R. Snyder, Deputy Clerk