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Key Shortcomings in Duke's North Carolina IRPs

An Issue-by-Issue Analysis: Part 1

Executive Summary

Duke Energy's proposed integrated resource plans (IRPs) for its two operating North Carolina utilities—Duke Energy Carolinas and Duke Energy Progress—outline six possible scenarios for the company to follow in the next 15 years.

Five scenarios entail significant new gas-fired power generation capacity to meet forecasted future power needs across its service territory. A sixth 'no new gas' scenario carries the highest estimated cost—almost as if Duke set it up as a strawman designed to illustrate that turning away from gas would be bad policy. Instead, it shows that the transition can indeed be accomplished without new gas generation, and the question now is just how to go about it to keep costs as low as possible.

In this series, IEEFA will examine specific aspects of the Duke proposals to highlight errors we believe policymakers in the state need to consider. Among these will be a review of Duke's growth forecasts; its assumptions regarding battery storage; and a look at its approach toward new solar and wind generation capacity.

We begin with the company's assumptions about natural gas—here, covering both the need for new gas supply, as well as the proposed construction of new combined cycle generation capacity—and how those assumptions are directly at odds with the company's 2050 net-zero carbon pledge.

Duke's Ill-Advised Gas Bet

Net-Zero Deadline of 2050 Looms Large

A careful reading of Duke's 2020 integrated resource plans (IRPs) shows clearly that the company remains wedded to a significant buildout of its gas-fired generation capacity in the years ahead, despite the looming 2050 deadline set for reaching net-zero carbon emissions. That self-imposed deadline raises significant questions regarding the economic viability of any future gas infrastructure since it would have to be retired years before the end of its commercial lifespan. Given this, North Carolina regulators should focus on two central questions: Why is the utility still planning new gas-fired generation capacity and where does it expect to get the fuel to run those new plants?

As a legacy of Duke's 2012 merger with Progress Energy, Duke's two operating utilities in North Carolina—Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP)—still submit independent IRPs to state regulators. Further complicating the issue, both North Carolina units also provide service in neighboring South Carolina, and dispatch their service territories independently despite their common corporate moniker. As noted in DEP's IRP: "DEP and DEC must plan to meet future capacity needs as individual utilities without the ability to share firm capacity."[1]

Despite these differences, both operating units are unified in their support for gas and believe it will play an integral role in the transition to a cleaner grid. The two utilities plan to add new combined cycle (CC) gas capacity in the late 2020s and into the 2030s to meet expected demand growth. The base case put forward by DEP, for example, would add two gas-fired CC units totaling 2,448 megawatts (MW) of capacity in 2027 and 2028. Meanwhile, DEC forecasts it will need at least 1,224MW of combined cycle capacity in 2035, and perhaps as much as 2,448MW.

None of this proposed gas capacity can be squared with Duke's 2050 net-zero carbon emissions pledge. The DEC plan is particularly egregious, given that the new capacity would only be able to operate for 15 years before being shut down. The early retirement would significantly raise ratepayer costs if the utility were allowed to recover its full investment in the expensive new capacity. Exact figures are unknown, of course, since the projects are still just ink on paper, but Duke's latest combined cycle gas plant, a 560MW facility in Asheville that entered commercial service in 2020, cost $817 million.[2]

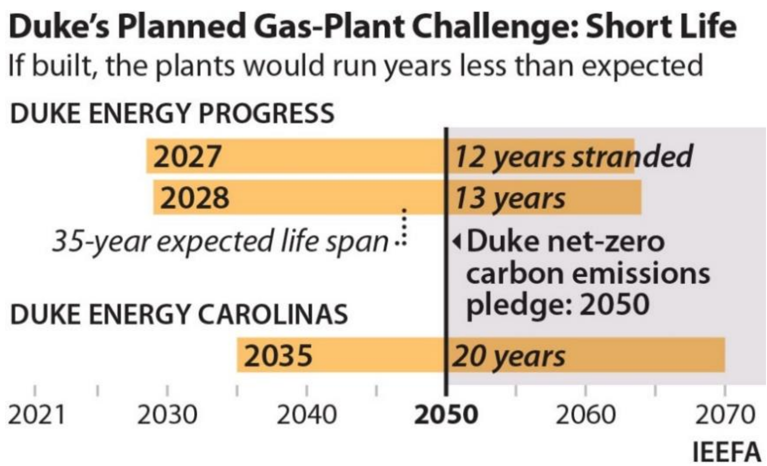
None of this proposed gas capacity can be squared with Duke's 2050 net-zero carbon emissions pledge.

The same is true for DEP's proposal: Plants brought online in 2027-2028 would be retired years before the end of their useful lives to comply with the company's 2050 net-zero pledge. In turn, that would unfairly raise costs for ratepayers, given that Duke normally assumes an operating life of at least 35 years for its combined cycle gas units.

The best solution would be to require the utility to expand its installed solar capacity more quickly, pursue offshore wind and combine those projects with battery storage. If Duke proceeds with its gas plant proposals, regulators at least should force the company's shareholders to bear a proportional share of the burden of the new gas units. For example, if the utility would normally use a 35-year recovery period for its investment, then it should only be able to recover 15 years of the cost from ratepayers for the DEC capacity slated to come online in 2035, with shareholders footing the bill for the remainder. Similarly, Duke's recovery of the

[1] Duke Energy Progress. Integrated Resource Plan, 2020. April 2020, p. 161.
[2] Duke Energy Progress. Duke Energy Progress customers receiving 560 megawatts of cleaner energy from new natural gas power plant in North Carolina. July 22, 2020.

planned DEP units should be capped at 66%, with shareholders forced to cover the rest of the cost. The rationale for this is simple: Duke has explicitly stated through its net-zero pledge that this capacity will be stranded as of 2050. As such, ratepayers should only be liable for their share of the plants until that time.



Beyond its planned continued reliance on new gas generation capacity, Duke also assumes that it will be able to secure the gas to run the new plants—perhaps an even more fanciful proposition than plans for the capacity itself.

In both IRPs, this almost identical paragraph appears:

> *"DEP and DEC still need additional firm interstate transportation service to support existing and future gas generation in the Carolinas despite the cancellation of the project... Additionally, incremental firm interstate transportation service* ***is assumed to be procured*** *for any new combined cycle natural gas resource selected in the generation portfolios in this IRP along with firm transportation service cost estimates."*[3]

This is an enormous risk, particularly given the company's costly experience with the Atlantic Coast Pipeline. The two principal backers of the pipeline, which was announced in September 2014, were Duke, with a 47% stake in the project, and Dominion, the Virginia-based energy company, which controlled 48%. The remaining 5% was owned by AGL Resources, a subsidiary of Southern Company.

The 600-mile pipeline was touted by its backers as a means of bringing new gas supplies from the Marcellus region of West Virginia to the Southeast, particularly the Carolinas and Virginia. The project was hotly contested as unnecessary, and ultimately canceled in July 2020. By that time, the construction had been delayed years, and its cost had ballooned from $4.5 billion to more than $8 billion. More important, the energy landscape had changed, with renewables becoming the

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[3] Duke Energy Progress, *op. cit.*, p. 196. (Emphasis added).

cheapest available resource and both Duke and Dominion having committed to 2050 net-zero carbon pledges.

Dominion, pushed by the adoption of Virginia's Clean Economy Act in 2020, has moved substantially faster than Duke to acknowledge this new landscape. It pivoted quickly to a planned expansion of new renewable resources, and told state regulators in March 2020 that a "significant build-out of natural gas generation facilities is not currently viable."[4]

Duke has not moved as rapidly, but the memory of the $1.6 billion charge it took last summer after the project's cancellation should serve as an enduring and expensive reminder that new interstate gas pipelines are no longer viable in a world counting down to net zero. In financial terms, there is no way Duke could initiate a new project; get it permitted, approved by state regulators and built; and recover its investment in 29 years.

The other option—hoping an interstate pipeline company will come forward with plans to build such a pipeline—is equally out of touch with the new energy realities. Pipelines need market assurance, and that is increasingly uncertain. As Moody's Investors Service noted in a gas sector review last year: "Long-term challenges to natural gas infrastructure are increasing."[5] And the segment of the gas industry most at risk are the pipelines, Moody's continued: "New pipeline development faces the most challenges."

"Long-term challenges to natural gas infrastructure are increasing."

– Moody's Investors Service

Another potential problem for pipeline developers is the possibility that the Federal Energy Regulatory Commission (FERC) will begin taking a more aggressive stance in vetting the commercial viability of new pipeline proposals. As IEEFA showed in a December report, FERC has this oversight authority but has chosen not to use it, relying instead on developers to self-certify the need for a project. This is important because, once certified, developers have the right to use eminent domain powers to secure land for their projects. However, the commission has begun a review of its existing pipeline certification process and it could choose to become more deeply involved in studying the actual long-term need for new interstate pipeline projects.

Given these growing risks, it is clear that Duke should no longer be planning any additional combined cycle gas generation anywhere in its Carolina service territories.

[4] Virginia State Corporation Commission. PUR-2020-00035. May 13, 2020, p. 10.
[5] Moody's. Shifting environmental agendas raise long-term credit risk for natural gas investments. September 30, 2020.

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