ELECTRONICALLY FILED - 2021 October 26 4:45 PM - SCPSC - Docket # 2019-224-E - Page 1 of 4

**South Carolina Public Service Commission**

**Docket No. 2019-224-E**
**Docket No. 2019-225-E**

**Appendix VS-2**

**Carbon Stranding Briefing**

ELECTRONICALLY FILED - 2021 October 26 4:45 PM - SCPSC - Docket # 2019-224-E - Page 2 of 4

VOTE SOLAR

# Carbon Stranding Briefing:

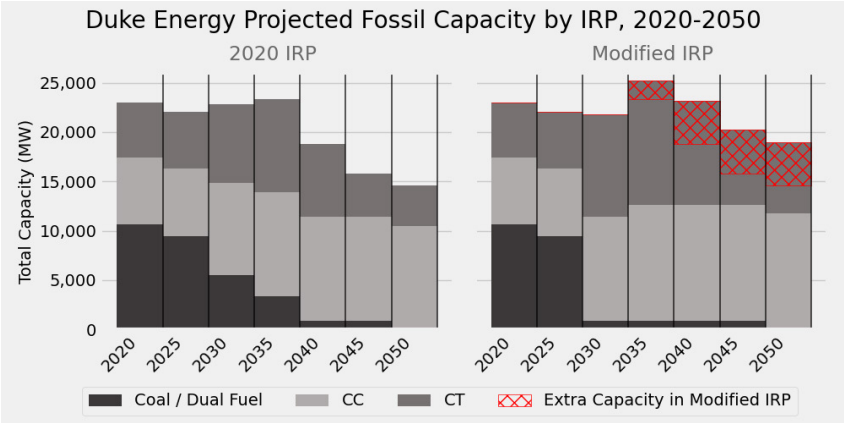
## Risks of Carbon Stranding in Duke Energy's Modified 2020 Integrated Resource Plan

Author: Tyler Fitch, Regulatory Director, Southeast at Vote Solar
Email: tyler@votesolar.org | Twitter: @ty_fi | Telephone: (704) 724 0315

As climate-related risks mount and the energy transition continues, most of the United States' largest electric utilities—including Duke Energy—have made commitments to a net-zero carbon energy system by 2050.[1] When Duke Energy's plans don't match their zero-carbon commitments, they risk early retirement for their fossil fleets, leaving ratepayers to pick up the tab. This briefing updates the original Carbon Stranding Report[2] on Duke Energy's 2020 Integrated Resource Plans (IRPs) and analyzes the potential for 'carbon stranding' in the Modified IRPs for the Carolinas that Duke Energy filed in August 2021. Despite Duke's prudent commitment to exit coal as early as possible, ***Duke's modified plans increase carbon stranding risk as the Companies contemplate building out a larger fleet of carbon-emitting gas plants.***

## Duke's Modified IRP

When the South Carolina Public Service Commission rejected Duke's 2020 Integrated Resource Plans in June 2021, it directed the utility to make several improvements and return with a Modified Plan that would better serve the public interest in South Carolina.[3]




Total fossil fuel capacity, by year, for Duke's 2020 IRP and its Modified IRP,. The red shaded area shows additional gas combined-cycle and combustion turbine capacity in the modified plan, compared to the 2020 IRP.

Duke's Modified Plan does make substantial progress in retiring the utility's fleet of

1 Gearino, D., (2020, October). "Inside Clean Energy: Net Zero by 2050 Has Quickly Become the New Normal for the Largest U.S. Utilities." *InsideClimateNews.* Retrieved at: https://insideclimatenews.org/news/30092020/inside-clean-energynet-zero-2050-utilities.

2 *See:* https://energytransitions.org/report%3A-carbon-stranding.

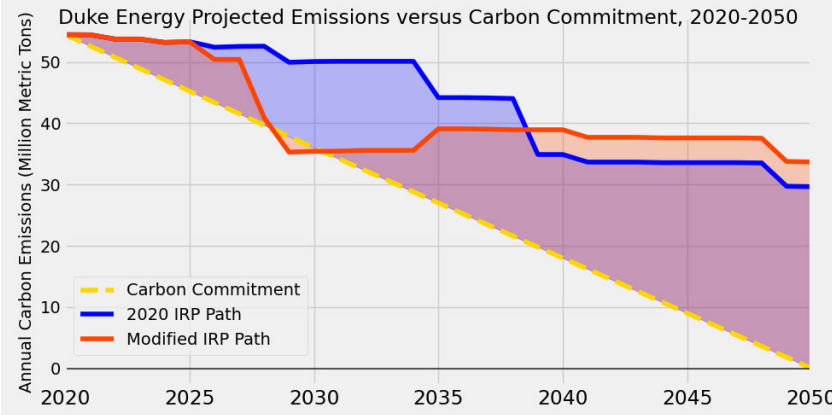
3 *See:* https://dms.psc.sc.gov/Attachments/Order/28c909bb-889f-4095-b364-1ab8359ee799.

ELECTRONICALLY FILED - 2021 October 26 4:45 PM - SCPSC - Docket # 2019-224-E - Page 3 of 4

aging, expensive coal-fired plants—but those retirements come at a cost. **The modified IRPs also include a new gas-fired combined-cycle plant and 5+ new combustion turbines.** All in all, the Companies' plans include multiple additional gigawatts of carbon-emitting plants compared to the original plans, at an additional cost of several billion dollars to ratepayers.

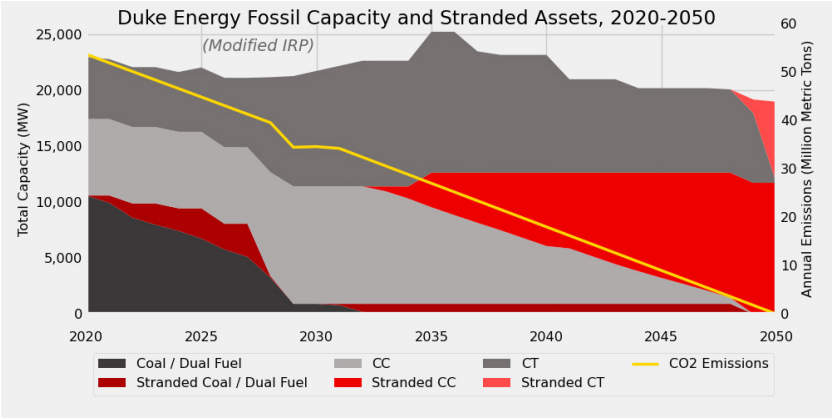
## What does that mean for emissions?

The plans' emissions are projected through 2050, based on investment decisions and the actual capacity factors and emissions of Duke's plants as they are used today. The Modified Plans still lead to Duke emitting about 30 million metric tons of carbon per year—a substantial shortfall compared to Duke's net-zero commitment. **While the retirement of coal briefly puts the portfolio in line with Duke's commitment, the planned buildout of even more carbon-emitting gas plants reverses the decline and results in even greater long-term emissions than the original IRP.**

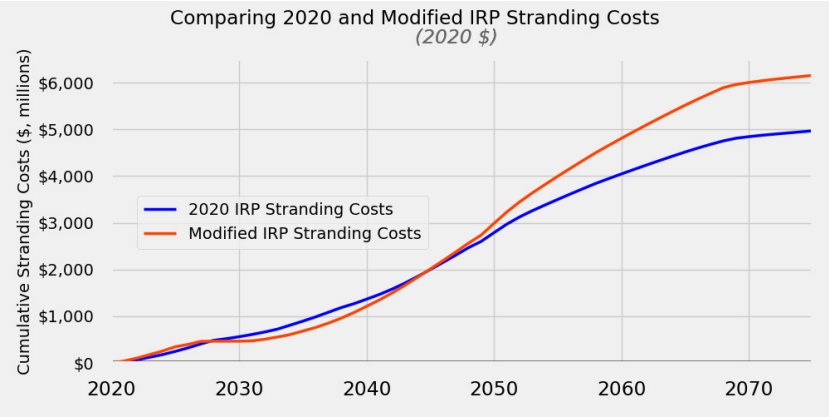



## Risk of Carbon Stranding

Carbon stranding analysis shows the retirement pressure that carbon-emitting plants would be under if Duke complies with its carbon commitments while pursuing its proposed investment plan. In the graph to the right, areas shaded in red represent carbon-emitting capacity that would be retired early to comply with carbon commitments. While coal retirement briefly stops carbon stranding in the late 2020s, it sets up early retirement for nearly the entire fleet of combined-cycle gas turbines through the 2040s. Because combustion turbines operate very little over the course of a year, they are largely allowed to operate as normal until the end of the 2040s. Still, **this analysis shows over 10 gigawatts of combined-cycle gas-fired plants built in the 21st century are at risk of becoming stranded.**



ELECTRONICALLY FILED - 2021 October 26 4:45 PM - SCPSC - Docket # 2019-224-E - Page 4 of 4




The carbon stranding analysis also projects annual costs to ratepayers. The analysis finds that, while the modified IRP creates some stranding cost relief in the late 2020s and early 2030s, **stranded costs over the long term are over $1 billion greater for the modified IRP compared to the 2020 IRP, due to more gas-fired infrastructure becoming obsolete.** In total, the modified IRP could lead to stranding costs over **$6 billion** over the next few decades, which is equivalent to a bill of **$1,100 due today, for every residential Duke customer in the Carolinas.**

Families in the Carolinas shouldn't need to pay extra to make up for expensive and short-sighted investment plans by Duke Energy. Cost-effective solar power and battery storage can form the cornerstone a of a broader, de-carbonized grid, providing valuable resources and building the way toward a more climate-resilient grid. A grid plan in the public interest should embrace, rather than ignore, carbon commitments and take advantage of cost-effective technologies available today to help meet those goals. **Utilities must acknowledge climate risks and plan accordingly–incorporating not just the physical impacts of climate change, but also the inherent risks in building new carbon-emitting power. Regulators can do their part to ensure that these risks are being prudently integrated into utilities' plans, ensuring the plans serve the public interest and build toward a climate-resilient future.**