As required by the North Carolina Utilities Commission and Public Service Commission of South Carolina, Duke Energy Carolinas and Duke Energy Progress recently submitted their 2018 Integrated Resource Plans, long-range planning documents detailing potential infrastructure needs to meet future electricity requirements in the Carolina's.

The accompanying analysis underscores concerns surrounding the planning decisions being made by Duke Energy, which foretell an energy future for North Carolina that is inconsistent with current trends shaping the energy industry. With a heavy reliance on natural gas and other traditional generating resources, the plans fail to account for cost-effective clean energy alternatives to the increasingly uneconomic operations of Duke's existing coal plants. For example, Duke's IRPs call for an additional build out of over 9,000 MW of new natural gas plants, but less than 5,000 MW of new renewables (namely solar PV and battery storage), from 2019 to 2033. But especially with the advent of viable battery storage technologies, renewable resources can satisfy a far larger portion of the Duke's energy and capacity needs at a lower economic and environmental cost.

The following report details a rigorous, scenario-based analysis of alternative energy resource plans for Duke Energy. It details a realistic clean energy future that provides both the energy and capacity to meet the needs of Duke's customers, while effectively meeting future reliability requirements as traditional generating resources are retired. The report was prepared by Synapse Energy Economics, a leading energy, economic, and environmental consulting firm whose clients include state utilities commissions, RTO/ISOs, local governments, and governmental associations including the National Association of Regulatory Utility Commissioners (NARUC). The report was prepared using the EnCompass capacity expansion and production cost model, which is widely used for integrated resource planning and other forecasting and analytical purposes.

Key Takeaways:

- The Synapse report models three distinct scenarios: the proposed Duke Integrated Resource Plan, a Clean Energy Scenario, and an Accelerated Coal Retirement Scenario.
- Duke's projected 2033 resource mix includes 56% (27 GW) fossil fuels, equal to its 2019 resource composition, and just 23% renewables (11 GW).
- In the Clean Energy Scenario set forth in the attached report, by 2033 gas and coal would compose 32% of Duke's capacity mix, while renewable resources, including solar PV and battery storage, would make up 49% (27.5 GW) (with existing nuclear, hydro, and energy efficiency making up the rest).
- Duke acknowledges that its current IRP development tools are incapable of modeling the full value of renewable and distributed energy resources, including storage. The Synapse model, by contrast, is capable of more accurately evaluating the costs and benefits of these resources.
- Duke's proposed IRP adds renewables only in amounts sufficient for the utility to comply with minimum legislative requirements, whereas the Clean Energy Scenario details how Duke can build more renewables at lower cost than traditional resources.

- Duke's must-run designations force coal plants to operate regardless of optimal cost considerations and require high levels of coal generation in 2033. When must-run designations are removed, economic signals dictate that coal generation drops significantly. Coal generation is markedly lower in 2019 in the Clean Energy Scenario than in the Duke IRP Scenario.
- Total production costs of a Clean Energy Scenario are far cheaper than under the proposed IRP. With the removal of must-run designations and the build out of cheaper renewable resources, total production costs of a Clean Energy Scenario are over $1.5 billion less than the proposed IRP in 2033.
- By 2033, Duke's plan emits almost 50 million tons of CO2 annually, while the Clean Energy Scenario emits just under 25 million tons. The removal of must-run coal designations leads to an immediate reduction of nearly 16 million tons of carbon in 2019.
- Under the Accelerated Coal Retirement Scenario, in which four additional coal units are retired early, EnCompass projects increased energy imports to make up for retiring generation. Production costs and emissions declines for the Accelerated and Clean Energy Scenarios are almost identical.
- The Clean Energy Scenario maintains the required 15 percent reserve margin and EnCompass projects no loss-of-load hours and sees zero hours with unserved energy, proving that the retirement of fossil fuels and build-out of renewables leads to no new system reliability issues.
- The Clean Energy Scenario provides significant health and cost savings to the people of North Carolina due to the increased utilization of existing low-pollutant nuclear and renewable resources to generate in the place of coal. By 2033, North Carolina residents could see up to $354 million in avoided health impacts due to a decrease in hospital room visits and lost work days.
- North Carolina ratepayers can expect to save between .24 cents/kWh and .48 cents/kWh through 2033, leading to a decrease in average annual electricity spending throughout the study period of 4 to 9 percent.
- Corresponding average annual electricity costs for residential customers decrease between $27 and $58 per year.

The Synapse report clearly demonstrates that the Duke IRPs have significant limitations and at the very least fail to adequately consider a full range of scenarios with respect to the economic dispatch of coal units and the deployment of additional renewable and distributed energy resources. As the Synapse report details, a clean energy future for North Carolina customers will decrease energy costs, greatly reduce harmful greenhouse gas and other air pollutants, and drive the proliferation of new renewable resources.