

Campbell, Kimberley

From: Lyle Adley-Warrick <adleywarrick.l@gmail.com>
Sent: Wednesday, March 11, 2020 11:51 AM
To: Statements
Subject: E-100 Sub 157

Dear Commissioners:

Concerning Duke Energy's 2019 Integrated Resource Plan, which projects an 8% use of renewable sources for energy production by 2034: to state the matter forthrightly, that's pathetic. The current national average is 11%, but every state that Duke serves lags behind that figure. The company can do better, and should be required to do so.

Respectfully submitted,
Lyle Adley-Warrick
128 Ellington Oaks Ct.
Raleigh, NC 27603

Campbell, Kimberley

From: kathy kaufman <kknarotsky@yahoo.com>
Sent: Tuesday, March 10, 2020 1:06 PM
To: Statements
Subject: Additional exhibit to my oral testimony Docket E-100 Sub 157
Attachments: REPS and Clean Energy Standards around the US.pptx; Kaufman testimony UMC 3-9-20.docx

To whom it may concern,

I presented oral comments at the Utility Management Commission's public hearing last night, for Docket E-100 Sub 157.

Please add the attached map as an additional exhibit to my submission, a copy of which is also attached below.

Thank you very much.

-Kathy Kaufman
1305 Lucy Lane, Chapel Hill, NC 27516
919-225-3967

Testimony of Kathy Kaufman to the NC Utilities Commission

Duke Energy Integrated Resource Plan Docket E-100 Sub 157 March 9th, 2020

Thank you for your service on the Utilities Commission. My name is Kathy Kaufman. I am a Duke Energy Carolinas customer from Orange County. In late 2017 I retired from the US Environmental Protection Agency in RTP, NC, after 29 years as an air quality policy analyst. I led Clean Air Act regulatory efforts and coordinated economic analyses, including the employment analysis for the Clean Power Plan. Today I will focus on economic issues.

Duke Energy plans to build the equivalent of 30 large gas-burning power plants in North Carolina between now and 2034, the useful life of which would extend well beyond 2050. Along with the costly pipeline infrastructure to support this buildout, we ratepayers would be saddled with continually increasing costs at the same time that solar, wind and energy storage prices are rapidly falling.

Recent analysis indicates that, due to the rapid decline in the cost of renewables, the cost of clean energy generation is likely to be lower than the cost of new gas plants for 90% of the proposed construction in the U.S. by the date the plants are expected to begin operating (RMI, 2019). Also 90% of proposed new gas-fired power plants are likely to be uncompetitive by 2035.

As noted recently in Forbes, "These changes are already contributing to cancellations of planned natural-gas power generation...The need for these new natural-gas plants can be offset through clean-energy portfolios (CEPs) of energy storage, efficiency, renewable energy, and demand response."

These economic trends should give us all pause about Duke's plans for new baseload natural gas in North Carolina. Consider solar, wind, and battery storage.

Solar

Recently, with the leveled cost of natural gas now running around 4-4.5 cents/kWh, in 2019 the City of Los Angeles signed a solar power purchase agreement at 2 cents/kWh for a facility that will also include battery storage (at 1.3 cents/kWh) and is expected to supply around 7% of the city's needs.¹ This is indicative of trends around the country (and the world).

Wind

With respect to wind energy, DOE has also recognized that wind generation is cheaper than fossil fuel around the country, and that wind has long-term cost advantages.

According to the DOE, "as wind generation agreements typically provide 20-year fixed pricing, the electric utility sector is anticipated to be less sensitive to volatility in natural gas and coal fuel prices with more wind. By reducing national vulnerability to price spikes and supply disruptions with long-term pricing, wind is anticipated to save consumers \$280 billion by 2050."²

Right now North Carolina ratepayers are not benefiting from any of those savings.

Energy Storage

According to the respected journal *Science*, in an article titled: Giant Batteries and Cheap Solar Power are Shoving Fossil Fuels off the Grid", a 2019 analysis of "more than 7000 global storage projects by Bloomberg New Energy Finance reported that the cost of utility-scale

¹ <https://www.sciencemag.org/news/2019/07/giant-batteries-and-cheap-solar-power-are-shoving-fossil-fuels-grid>

² <https://www.energy.gov/eere/wind/wind-vision>

Testimony of Kathy Kaufman to the NC Utilities Commission

Duke Energy Integrated Resource Plan Docket E-100 Sub 157 March 9th, 2020

lithium-ion batteries had fallen by 76% since 2012, and by 35% in just the past 18 months, to \$187 per MWh. Another market watch firm, Navigant, predicts a further halving by 2030.”³

In addition, in 2018, FERC issued two new regulatory orders aimed at easing incorporation of energy storage. The precipitous drop in the price of storage is paving the way for its adoption around the country.

Storage has major advantages. It can obviate the need for expensive transmission line buildout, making adoption of solar and wind resources even more of a no-brainer in terms of costs. Critically for NC, the availability of stored energy also would enable greater resilience in the face of the more frequent storms, hurricanes, and floods we will continue to face.

Jobs

According to the most recent data from the Bureau of Labor Statistics, the two fastest growing job categories in the US are solar installer and wind turbine technician. In NC alone, according to the NC Sustainable Energy Association, in 2018 there were over 43,000 clean energy sector jobs, 2/3 of which are jobs in energy efficiency and solar energy. This is far more than employed by fossil fuel electric generation, even though the majority of our energy in NC comes from fossil fuels. Imagine the employment boom we would generate by unleashing renewable energy and energy efficiency in our state.

The bottom line

Recognizing the falling costs of renewables and storage, the Governor’s Clean Energy Plan recommends a study of the costs and benefits of wholesale and retail competition for electricity, as South Carolina is currently considering. On the wholesale side, RFPs issued by US utilities have resulted in some of the lowest costs for energy in the US.

Which begs the question: Do we really want to lock in a major buildout of natural gas plants when it is clear that ever cheaper and cleaner alternatives are being taken up around the country?

If we do choose to lock an enormous natural gas buildout, it will be at the expense of NC ratepayers. Duke Energy’s new gas plants could very well end up like its coal plants, as expensive stranded assets, with NC ratepayers stuck with the bill. A number of investment firms around the country and world, given climate risks and a future driven more and more by renewable energy, are pulling back on their investments in coal and gas. So are many utilities.

Furthermore, including the full societal damages of climate change and air pollution caused by using methane gas to generate power reveals its true cost. And the true cost of natural gas power is more than double the cost of solar or on-shore wind, using US DOE statistics.

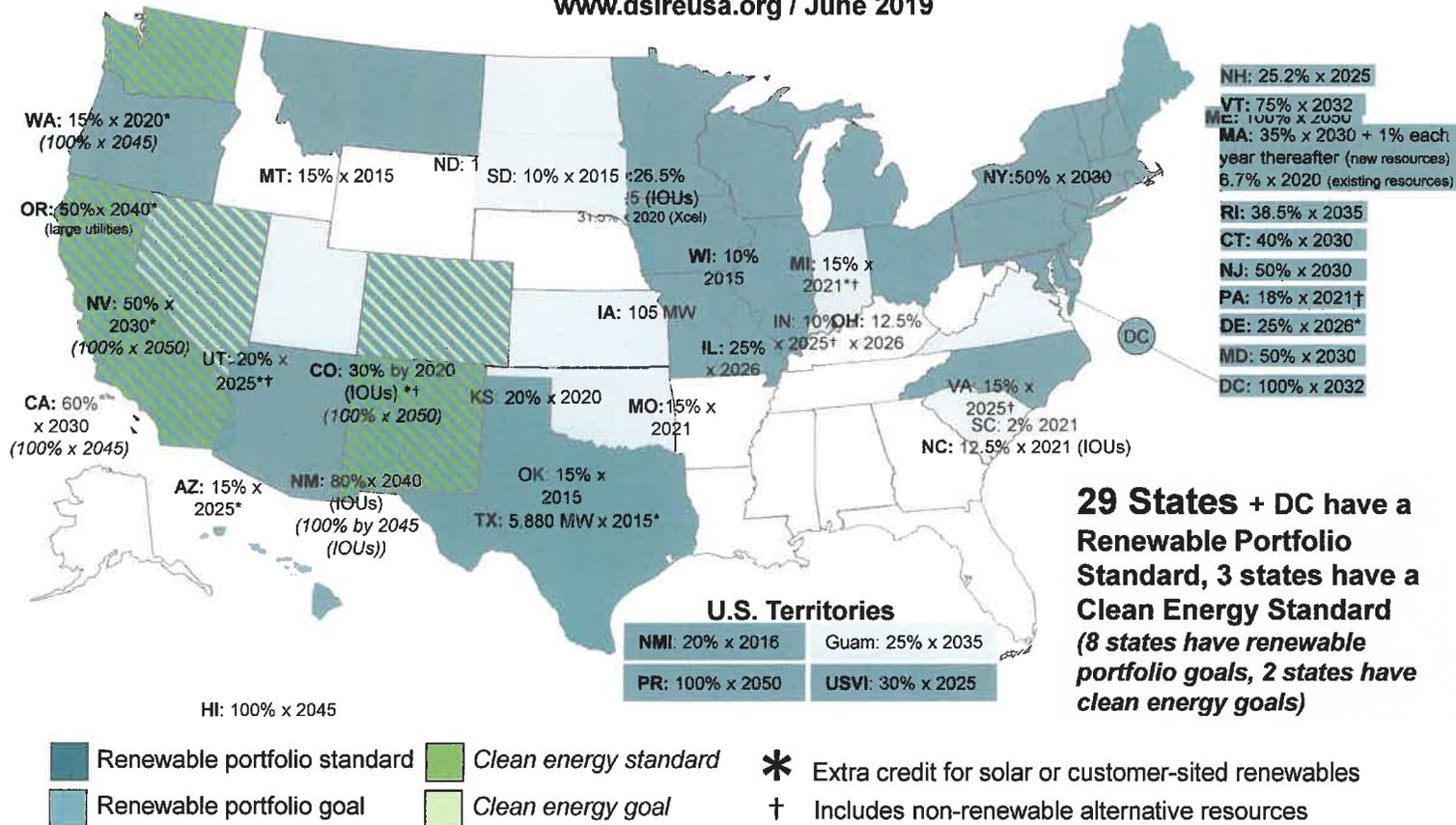
The Governor’s Clean Energy Plan, which I participated in stakeholder meetings for, calls on regulators and utilities to incorporate some of these costs in their analyses of the relative costs of different energy resources. Knowing the true costs can help you, the Utilities Commission, hold regulated power providers to lower cost sources, such as wind, solar, storage, and efficiency. Thank you.

³ <https://www.sciencemag.org/news/2019/07/giant-batteries-and-cheap-solar-power-are-shoving-fossil-fuels-grid>

Electric Power: Simple Technical Standards

Renewable & Clean Energy Standards

www.dsireusa.org / June 2019



Campbell, Kimberley

From: Marywinne <marywinne@yahoo.com>
Sent: Monday, March 9, 2020 10:49 AM
To: Statements
Subject: Docket E-100 sub 157

Dear Commissioners,

Please tell Duke Energy that their long range plan to grow the use of fracked gas will kill the environment necessary for human life. As you know, the manufacture of fracked gas produces high amounts of methane which is much more destructive than even co2.

Duke can lead us into the future by developing renewable energy sources coupled with battery storage development. Duke's plan is old 20th century. Help them lead us into the 21st century instead of condemning rate payers to massive rate increases in support what *will* become stranded assets.

Thank you,

Marywinne Sherwood

8620 Pickards Meadow Rd.

Mailing address: Chapel Hill, nc 27516 (although we live out in Orange County on a farm)

Sent from my iPad

Campbell, Kimberley

From: Keval Kaur Khalsa <keval.khalsa@duke.edu>
Sent: Sunday, March 8, 2020 5:24 PM
To: Statements
Subject: Docket E-100 Sub 157

Dear Utilities Commission members,

As I am unable to come to the Utilities Commission Public Hearing on March 9, I am writing with my vehement objections to Duke Energy's proposed Integrated Resource Plan. I write as a long-time Duke customer and concerned citizen.

Over the more than two decades that I've been a Duke Energy customer, I have witnessed the company resist taking action that could move North Carolina into a sustainable energy present and future and do our part to mitigate climate catastrophe. The time is past due for Duke to invest in clean, cheap renewable energy and storage. This technology has already surpassed natural gas on cost, and avoids the climate-wrecking release of methane.

Drew Shindell, my colleague at Duke University and a member of the Intergovernmental Panel on Climate Change, shared the following conclusions from his research on methane in a letter to Gov. Roy Cooper dated October 10, 2019:

1. Methane has been the largest contributor to the worldwide failure to keep on an emissions trajectory consistent with a 2°C global warming target, causing 90% of the departure from such a trajectory that we have seen since 2000.^{iv} A recent paper by Robert Howarth finds that the US fracking boom is likely an important contributor to the recent surge in atmospheric methane.^v
2. Methane is a precursor to ozone, which causes air quality issues and harms human health. When you take these costs into account (using a 3% discount rate), methane does \$3,700/ton in damages compared to CO2's ~\$70/ton, giving methane 50 times the societal impact of CO2. These numbers are in the process of being refined and are certain to go up as additional evidence comes in about the damaging health effects of ozone exposure. Our most recent analyses indicate that the roughly 330 million tons of methane emitted due to human activities every year (worldwide) lead to ~165,000 premature deaths around the world, including 10,000 in the US and several hundred in North Carolina.^{vi}
3. I calculate that, accounting for both CO2 emitted directly and upstream methane, the societal damages due to climate change and air pollution raise the true cost of electricity generated using gas from the market cost of 4.5 cents per kWh (according to the US Dept. of Energy for 2018) to 12.2 cents per kWh.^{vii} That makes it more than double the cost of solar or onshore wind, based again on US DoE statistics.

^{vi} Shindell, D., J. S. Fuglestvedt, W. J. Collins, The Social Cost of Methane: Theory and Applications, Faraday Disc., 200, 429-451, doi: 10.1039/C7FD00009J, 2017.

^{vii} Ibid.

^{viii} North Carolina Clean Energy Plan: Transitioning to a 21st Century Electricity System. Policy & Action Recommendations, NC Department of Environmental Quality, October 2019, https://files.nc.gov/governor/documents/files/NC_Clean_Energy_Plan_OCT_2019_.pdf, p. 78.

Approving Duke's proposed plan to build new gas plants to burn fracked gas would be insane from any reasonable environmental or economical standpoint, as well as an egregious negligence of your duty as public servants. As many local government officials have stated in their recent letter to the Commission, "There are no economic or technical barriers to the kind of transition required by the climate crisis. The only barrier is political will."

Please reject Duke Energy's IRP as proposed and only accept a revised plan that utilizes renewable energy and battery storage and does NOT include fracked gas plants.

Sincerely,

Keval Kaur Khalsa
Professor Dance & Theater Studies
Bass Connections Mindfulness in Human Development Research Team
Duke University
Durham, NC
danceprogram.duke.edu

Campbell, Kimberley

From: Beth Hansen <hansenforest@aol.com>
Sent: Sunday, March 8, 2020 12:29 PM
To: Statements
Subject: Docket E-100 Sub 157

Dear Commissioners,

Your mission includes regulating public utilities “in the interest of the public.” The public wants cost-competitive clean energy now. The recent UN IPCC report states that we must cut global GHG emissions by 50% by 2030. And yet in their 2019 IRP, DEP is proposing to wait until 2034 or later to begin to move to a clean energy future. This is irresponsible and unacceptable.

Thank you for requiring Duke Energy to make significant changes to modeling for future IRPs. I ask you to act more aggressively to push Duke Energy to move away from its business-as-usual dependence on fossil fuels. Mandatory GHG reductions may be necessary.

After closing the Asheville plants, DEP is not planning to close another coal plant for 9 years, burdening customers with the high operating costs and the global community with the high carbon emissions from coal plants. Utilities across the country are closing coal plants early. DEP must do the same. Thank you for requiring Duke to remove the modeling constraint that their coal plants must continue to operate. Please consider requiring Duke to account for the environmental costs of GHG emissions from coal and natural gas in their planning.

My biggest concern is DEP’s reliance on natural gas to replace coal and to provide additional capacity over the next 15 years. DEP is planning to meet 78% of its new resource capacity over the next 15 years with natural gas. According to the IRP, natural gas will provide 57% of the generation capacity in 2034, way up from 35% today. And the useful life of these new natural gas plants would extend decades beyond 2034. Natural gas is not a clean fuel. Besides releasing carbon dioxide when burned, recent studies reported in the media show that natural gas fracking and transport are contributing an alarming amount of methane, a major driver of climate change, to the atmosphere. I thank the Commission for requiring that DEP include the NC Clean Energy Plan’s goal for 60-70% GHG emission reductions by 2030 in IRP modeling of their resource mix. Please consider requiring Duke to include an accounting of the methane produced in fracking and transport of natural gas in their future planning.

From an economic perspective, natural gas is no longer a lowest-cost bridge fuel between coal and renewables in the US. According to the Rocky Mountain Institute, the costs of renewables have plummeted by 80% in the past 10 years. In 2019 the cost per MWh of building and operating gas plants equaled that of clean energy portfolios of renewables, storage and demand reduction strategies. From 2020 on, new gas plants will cost increasingly more than clean energy as clean energy costs continue to decline. So DEP’s continued reliance on natural gas will not save customers money. In fact, if new gas plants are constructed, DEP’s customers may well have to pay for the stranded costs of early retirement of these plants. Your mission includes promoting “least cost energy planning.” It is hard to see how their IRP can be least cost.

DEP is planning very little solar beyond what is required for HB 589 over the next 5 years. The IRP calls for an addition of only 1,624 MW of solar over 15 years compared with 7,852 MW of natural gas. And after 2024, additions drop to an average of only 64 MW per year.

Thank you requiring DEP to consider battery storage in future IRPs. The falling costs of battery storage are leading many utilities to move to solar + storage. This combination can reduce the need for gas peaker plants to deal with fluctuating production and demand. DEP has not made any commitment to storage as an alternative to more natural gas plants in their IRP. Please ensure that DEP develops realistic future cost estimates for solar and storage for their modeling.

DEP only interconnected 450 MW of third party solar in 2018 with almost 10 times more in the queue. DEP does not have any incentive to interconnect third party solar. This is a long-standing problem. Please consider ways to modernize and speed up the interconnection process for third party solar.

Your regulations reflect a 100 year old business model which incentivizes selling more power over energy efficiency. DEP’s IRP includes energy efficiency projects for compliance with NC REPS but no further commitment to energy

efficiency. Prioritizing low income weatherization would be a win for the environment and for low-income customers who struggle to heat and cool their homes.

Thank you.
Beth Hansen
3722 Amber Drive
Wilmington, NC 28409
DEP customer

Campbell, Kimberley

From: Cathy Holt <cathyholt@gmail.com>
Sent: Wednesday, March 4, 2020 10:18 PM
To: Statements
Subject: Docket E-100 Sub 157

To the NC Utilities Commission:

I am writing because I believe that Duke Energy's plan for a mere 8% renewable energy by 2034 is irresponsible and unconscionable given the climate emergency we are facing. Renewable sources of energy are now cheaper than using fracked gas, so even from a financial viewpoint, Duke's plans make no sense. As a ratepayer, I am facing constant rate hikes due to Duke's irresponsible behavior of putting their shareholders' interests above the common good. Please demand that Duke generate power from ALL renewable sources by 2030, as the Sunrise Movement counsels!

Thank you,
Cathy Holt
Asheville, NC

Campbell, Kimberley

From: Jenna Waggoner <waggonerjk@gmail.com>
Sent: Wednesday, March 4, 2020 6:26 PM
To: Statements
Subject: Docket E-100 Sub 157

Duke Energy has not provided substantial evidence that their "Grid Improvement Plan" would improve anything other than their bottom line, and the satisfaction of their shareholders. We don't need to bury power lines at a cost of \$2 million per urban mile when it would cost \$300,000 per mile to equip included homes and business in each mile stretch with a large capacity battery (e.g. Tesla Powerwall). That's a savings of 85%! Why Duke continues to pursue fossil fuels and fracked gas in an age when solar + storage would not only be good PR for them (for once!), but is also becoming more and more cost effective is beyond my understanding.

Duke energy is a *utility*; they provide a necessary service (and a service residents cannot disconnect from, depending on where you live, despite owning solar panels and batteries to meet your own electric usage). So we're forced to belong to their customer base. We have no choice of any other company providing this necessary service, and we have no choice to opt out. It's like being born to abusive parents: you had no choice in the matter, and you repeatedly suffer at their hand.

I continue to shake my head at Duke's mismanagement of its responsibility. Coal ash. Fracking. More gas plants. I simply can't believe how much public trust they sacrifice in the name of increased revenue. Given so much bad publicity, they have a *huge* chance to show some good faith and join the movement already started by the rest of the country. And yet they propose a whopping 8% of their total power in 2034 to be from renewable energy. This, from a state with ample coastline and rivers for hydropower, plenty of wind (thanks, storms!) for wind power, and plenty of sun for solar PV systems.

I strongly urge the commission to wholly reject Duke's unnecessary, overly costly Integrated Resource Plan that is a slap in the face to its customers.

-Jenna Waggoner

Campbell, Kimberley

From: JC Markatos <markatos@mindspring.com>
Sent: Wednesday, March 4, 2020 3:57 PM
To: Statements
Subject: Docket E-100 Sub 157

Duke Energy's Integrated Resource Plan constitutes a fraudulent bait-and-switch for electric vehicle owners.

People buying electric cars, now and in the coming years would be cheated out of avoiding fossil fuel.

Duke Power's plan to build more fossil fuel infrastructure to deliver and burn Frack Gas will force electric car owners to continue damaging the biosphere with both methane and carbon dioxide, in spite of those citizens' best efforts!

The claims being made by Duke executives and hired accomplices who convince the public of their sincerity in meeting climate challenges are instead setting us back, even as the rising ocean temperatures and all the other dangers are intensifying.

Jerry Markatos
180 Haw Tree Lane
Pittsboro, NC 27312

Campbell, Kimberley

From: Mt Ulla Gardens Webster <wdonaldcjr@gmail.com>
Sent: Wednesday, March 4, 2020 3:42 PM
To: Statements
Subject: E100 Sub 57

Duke Energy should be taking a lead in reducing use of fossil fuels. Instead they reluctantly clean up coal ash sites and move toward more fracking.

As a longtime stock owner I feel Duke needs to clean up its messes and move toward renewables.

It is time the USA ends its addiction to fossil fuels.

Betsy Webster
14230 NC-801
Mount Ulla, NC 28125

Campbell, Kimberley

From: Tiffany Robins <tiffanywilde@gmail.com>
Sent: Wednesday, March 4, 2020 2:58 PM
To: Statements
Subject: Duke 2034 plan

Duke should be half or more with receiving energy from renewable energy. They are ridiculous. They have too much power and are destroying the environment.

Campbell, Kimberley

From: Darrell Garner <garnerde@charter.net>
Sent: Wednesday, March 4, 2020 2:46 PM
To: Statements
Subject: Docket E-100 Sub 157

Duke Energy can do much, much better in its use of renewable energy in the future than is being proposed. Duke should be a leader in the production of renewable energy but is instead focusing on natural gas production. Its time Duke Energy and the Utilities Commission stood up for the people of NC and reduced the dependence on fossil fuels in the near & distant future. Duke's plan should be rejected with specific instructions to increase 3x its reliance on renewables for energy production.

Darrell Garner
H & F: 828-264-8554
C: 828-964-0458

"In essentials unity, in non-essentials liberty, and in all things charity."
Marco Antonio de Dominis (1560-1624)



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