

**Fulmore, Janice**

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**From:** Nancy LaPlaca <laplaca.nancy@gmail.com>  
**Sent:** Sunday, May 12, 2019 4:06 PM  
**To:** Statements; Nancy LaPlaca  
**Cc:** altmannb@appstate.edu; burchetterl@appstate.edu; dixonac@appstate.edu  
**Subject:** Attached: letters for Docket E-100 Sub 157, Duke Energy IRP  
**Attachments:** Randi Burchette-NCUC letter.docx; Andrew Dixon-Lettter to NCUC .docx; Noah Altman-Letter to Ed Finley.docx

Thank you!

Nancy LaPlaca  
480-359-8442

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May 14 2019

Ed Finley (Chairman of the NCUC),

Regarding Duke Energy's proposed Integrated Resource Plan (IRP), I would like to request 1.) an evidentiary hearing, 2.) for the NCUC to consider climate change and how Duke's IRP would address it, and 3.) that the NCUC consider a faster transition to clean energy. On behalf of myself and my peers, students or otherwise, I present a bit of information to build my case for a hearing.

To start, I will present some quoted comments from NCSEA in response to Docket No. E-100, sub 157, presented before the NCUC<sup>1</sup>:

"In its 2018 IRPs, Duke failed to identify a generation resource mix that is least cost for both utility and its ratepayers."

"The central question remains: why does the future of energy look different when Duke is seeking to spend billions of dollars on the electric grid to incorporate distributed generation than when Duke is seeking approval to spend billions of dollars in traditional, centralized generation? From NCSEA's perspective, Duke wants to make two massive capital expenditures when only one is necessary."

"III. Duke's IRPs are inconsistent with Duke's other plans..." "Duke's grid improvement/modernization plans are premised upon security, resiliency and, also, the idea that the grid needs to be flexible to allow for the integration and utilization of demand-side technologies, demand response, energy efficiency, and growing renewables..." "However, Duke's Power/Forward grid modernization plans do not appear in its IRPs."

Additionally, I'd like to add this quote from NC Warn's official documentation of comments<sup>2</sup>, "Moreover, Duke Energy has consistently overestimated its growth forecasts over the years, leading to overbuilding of generation, stranded assets, and excess reserve margins."

In order to address the previously aforementioned issues, I'll present further examples of discrepancies, contradictions, and arguments against capital spending that could result in the dreaded burden of increased rates for captive customers of the monopoly.

First, I will address the complications and bad reputation that Duke has earned over the years. Nearly every headline related to environmental disasters, such as coal ash spills, carbon emissions, coal mining practices, inefficiency of equipment and practices, etc. Others refer to the regular rate hikes, poor compensation for customers that produce excess energy, and the astronomical salary of the CEO, despite rate hikes and stranded assets. Positive headlines that praise Duke's renewable energy initiative have to be taken with a grain of salt, because for every positive review, there are negative reports, including the deforestation practices used to clear land for solar farms and raising the question of why the percentages of solar generation is still so low, despite the claim that they're making such a large difference. These multifaceted issues raise many questions, but the IRPs not only ignore these questions, but make them even more opaque.

In Duke Energy's IRP, the company states its plan to lean heavily on Natural Gas plants to replace or assist coal plants in centralized generation. Not only is centralized generation wildly out of style, inefficient, and unsustainable, but natural gas as a source for energy

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<sup>1</sup> NCSEA's initial comments on Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's Integrated Resource Plans. Before the NCUC Docket no. E-100, sub 157. In the matter of 2018 Biennial Integrated Resource Plans and Related 2018 REPS Compliance Plans Pg. 2, 3, 10, and 11.

<sup>2</sup> NC Warn Initial Comments. State of North Carolina Utilities Commission Raleigh, Docket No. E 100, sub 147. Before the North Carolina Utilities Commission in the matter of 2017 Integrated Resource Plans and Related 2017 REPS Compliance Plans. Pg. 3

generation is arguably worse than the use of coal. The burning of natural gas creates less carbon dioxide (CO<sub>2</sub>) than coal, yes, but the regulations in place federally are nearly nonexistent. This leads to wasteful practices, such as flaring natural gas, lack of maintenance and supervision of natural gas pipelines resulting in massive leaks, and the overall inefficiency of acquiring natural gas, especially through hydraulic fracturing (fracking). These leaks are not nearly as widely reported as those of oil and coal ash, due to the visibility and plausible deniability. A natural gas leak cannot be visibly seen or cleaned up, making it much more likely to become an even more widespread problem than it already is. A big fuss is made over oil spills, but not so much with a gas going straight into the air we breathe. Natural gas (methane) also has a higher global warming potential (GWP) and is related to things like earthquakes, water contamination, etc.<sup>3</sup> This is unacceptable and should not be considered as an alternative to coal, therefore should not be approved. The cost of the natural gas plants should go into funding an upgraded grid storage and efficiency, leaving space to incorporate focus on renewable energy generation as well. Duke has also been shutting down centralized energy generation operations, raising the question: why build more?

The answer to that lies in the overestimation of growth and energy demand. The quote above from NC Warn brings forth the observation that the plants being built/having been built never reach their intended use capacity. Some are no more than just abandoned projects, millions of dollars sitting in abandoned walls of unfinished concrete and broken promises. The bill for these projects are already being footed by rate payers through rate hikes and tax breaks. The government, as well as captive customers, are paying for these stranded assets, making for an irate population.

The Synapse Report, which contains scenario-based analyses of alternative energy resource plans for Duke, models three scenarios: the proposed Duke IRP, a Clean Energy Scenario, and an Accelerated Coal Retirement Scenario<sup>4</sup>. In the summary of Duke's IRPs, which run through 2033, intend to add more than 9,000 MW of new combined cycle and combustion turbine capacity from 2019-2033, intended to replace retiring coal plants and support increases in energy demand. On the other hand, the plan is to only add the bare minimum of renewable energy generation mandated by NC House Bill 589. The report outlines how and why the money spent on new fossil fuel plants would be better used to upgrade/update the grid and its storage capacity, including the cost effectiveness long term and the benefits passed onto ratepayers. With the model detailed in Duke's IRP, the total production of renewable energy increases, but the percentage of renewables in total energy generation barely increases. Adding more fossil fuel sources, while making no legitimate efforts to move towards renewables and disregarding the effects of climate change and greenhouse gas production, is a costly mistake that doesn't reflect the wants or needs of the consumers. The Duke IRP will only increase the percentage of renewable energy production from 4% to 7%, where the grid storage capacity will increase from essentially 0% to 1%.

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<sup>3</sup> *Environmental Impacts of Natural Gas*, Union of Concerned Scientists, Science for a Healthy Planet and Safer World

<sup>4</sup> *North Carolina's Clean Energy Future*, Prepares for the North Carolina Sustainable Energy Association, March 7, 2019, Authors: Rachel Wilson, Nina Peluso, and Avi Allison  
Also known as the Synapse Report, not created by Duke Energy or any affiliates, but presented as a summary of Duke's IRPs and proposed alternatives to Duke's IRPs.

In the Synapse Report, the proposed Clean Energy scenario would increase the total percentage of renewable energy to 21% by 2033 and increasing the storage capacity to 3% at the same time. Imported energy generation refers to customer contributions to the grid, above what they use. In the Duke IRP, by 2033, the percentage of imported energy is only at 1%, meaning they will likely continue to discourage their customers from installing their own solar energy generation systems, regardless of the growing interest in home systems. The Clean Energy scenario increases the total percentage of imported energy to 14% by 2033, further reducing the use of fossil fuels for centralized energy production and encouraging the use of rooftop solar.

Overall, according to the Synapse Report, the modeled scenario for Accelerated Coal Retirement only improves the current Duke IRP by a small margin, making it unremarkable when comparing to current proposed projections. The Synapse Report mainly focuses on the bigger, more drastic comparisons of the current Duke IRP and the Clean Energy scenario, even when it comes to health effects, medical costs, and emissions differences. The Accelerated Coal Retirement scenario has been shown to be nearly indiscernible from the current Duke IRP, making it nearly irrelevant.

Focusing on the implementation of renewable energy resources and decreasing greenhouse gas emissions, I beg an evidentiary hearing with the state of the world in mind. According to the Intergovernmental Panel on Climate Change (IPCC)<sup>5</sup>, if the global average temperature increase grows to more than 1.5 degrees C, the effects of climate change may be irreversible. Already, there is a large surge in climate refugees, such as in New Orleans and other more extreme weather areas. The demand for resources will only continue to increase as world population increases and there is less inhabitable/arable/overall land to sustain it. Greenhouse gas emissions have an undeniable role in the warming of the Earth. Allowing Duke Energy and other energy producers to continue the path they're on with the use of fossil fuels and the unfair compensation of individual energy producers can only lead to more drastic needs in the future. Long term, the current rate of emissions is unsustainable and would eventually lead to extremely costly emergency repairs and upgrades. This, in addition to the track record of stranded assets owned by Duke, would only increase the rates paid by customers, who often have no choice but to contribute their business to Duke.

In order for Duke to be allowed to spend the money of their customers, they should have more forward thinking development plans that benefit customers more thoroughly in the long run. The global trend shows that there's an increasing demand for renewable energy, mainly solar, due to its accessibility, affordability, reliability, and ease of installation<sup>6</sup>. The earth receives enough sunlight to provide all of its inhabitants needs through photovoltaic technology, making it not only neglectful to harness it, but irresponsible not to. Responsibility for consequences are not only passed onto the companies, but the regulators that allowed poor behavior.

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<sup>5</sup> IPCC SPECIAL REPORT: GLOBAL WARMING OF 1.5 °C, summary for policy makers. 2018

<sup>6</sup> *WHY POLITICAL SPENDING BY REGULATED UTILITIES CAN IMPEDE THE TRANSITION TO CLEANER ENERGY SOURCES*, MAY 31, 2017, by Scholars Strategy Network. Shows how investors and shareholders benefit before the customers and ratepayers when utilities are able to spend freely, allowed by regulators.

Requiring another hearing more accessible to the public in other regions of North Carolina, such as Asheville and the western counties of the state<sup>7</sup>, is only fair and not allowing these residents to have a say in their fate is inherently classist, penalizing those that don't possess the resources to travel hours to another part of the state and being unable to voice their opinions on the matter. The second hearing allows inclusivity and provides another chance for those who were unable to attend the first hearing. Aside from being just and fair, it's also kind.

To require Duke Energy and its affiliates to make a more drastic change to renewable energy and grid storage and limit their pursuit of more fossil fueled plants would be to assist the world's fight for slowing, stopping, and reversing climate change through reductions in greenhouse gas emissions<sup>8</sup>. Climate change, the worst of man's punishments for careless activities, is something our future generations will only have to deal with more than we do, more drastically than we do if nothing is changed now.

Thank you for your time and consideration,

Respectfully,

Randi Burchette

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<sup>7</sup> Siding with the request of Senator Terry Van Duyn and other representatives in a letter to chairman of the NCUC, Ed Finley, we request a second location for a hearing based on regional policies and community involvement and representation. Letter dated March 6, 2019.

<sup>8</sup> *Climate Change and Society*, by John Urry, peer reviewed journal excerpt from *Why Social Science Matters* pg. 45-59

Mr. Edward S. Finley, Jr., Chairman NC Utilities Commission  
430 N. Salisbury Street  
Raleigh, NC 27603

Dear Members of the North Carolina Utilities Commission,

Duke Energy Progress and Duke Energy Carolinas are not doing enough in the latest Integrated Resource Plans (IRP's) to expand renewable technologies, and instead are clinging on to the promise of natural gas for the future of energy generation in North Carolina. DEP and DEC need to be investing in renewables and battery storage at a much higher rate than they currently are,<sup>3</sup> not expanding the generation of natural gas and pipelines across the state.

Natural gas combustion, extraction, and transportation all result in the release of methane into the atmosphere. Methane is the main component of natural gas, and a major source of warming in the atmosphere. Over a 20 year period, methane has a global warming potential (GWP) 86 times higher than CO<sub>2</sub>, and over 100 years, a GWP of 34 times greater than CO<sub>2</sub>.<sup>1</sup> Fracking for natural gas can lead to groundwater contamination, surface water contamination, and the leaching of fluids into the soil.<sup>2</sup> Not every well contaminates the land around it, but the failure to properly handle materials leads to the contamination and leaching of fluids. Fracking used an estimated 70 billion to 140 billion gallons of water in the United States in 2011, for fracking in only 35,000 wells.<sup>1</sup> This works out to an average of 2 million gallons of water per well for the conservative estimate of water, to 4 million gallons of water per well. The water use behind fracking is unsustainable, and this is one of the reasons why DEP and DEC should not continue to pursue natural gas as a viable replacement for the coal power plants being phased out.

Fracking has been known to cause low-magnitude seismic events, usually under 2 moment magnitude (M), and these are not detectable on the surface. However, by disposing fracking wastewater via injection into Class II injection wells under high pressure, fracking has been linked to larger earthquakes in the United States. At least half of the 4.5 M earthquakes that have occurred in the interior of the US in the last decade have occurred in regions where fracking has increased the seismology.<sup>2</sup>

Methane leaks occur in the transmission of natural gas through pipelines, with estimates stating that the leak rate is 2.3 percent from a study done by the Environmental Defense Fund.<sup>3</sup> It has

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<sup>1</sup> Romm, Joe. "More Bad News For Fracking: IPCC Warns Methane Traps Much More Heat Than We Thought." *ThinkProgress*, 2 Oct. 2013, <https://thinkprogress.org/more-bad-news-for-fracking-ipcc-warns-methane-traps-much-more-heat-than-we-thought-9c2badf392df/>.

<sup>2</sup> "Environmental Impacts of Natural Gas." *Union of Concerned Scientists*, [www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/environmental-impacts-of-natural-gas](http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/environmental-impacts-of-natural-gas).

<sup>3</sup> Mufson, Steven. "Methane leaks offset much of the climate change benefits of natural gas, study says." *The Washington Post*, 24 June 2018, [www.washingtonpost.com/business/economy/methane-leaks-offset-much-of-the-benefits-of-natural-gas-new-study-says/2018/06/21/e381654a-7590-11e8-b4b7-308400242c2e\\_story.html?utm\\_term=.0eb6a7c2772a](http://www.washingtonpost.com/business/economy/methane-leaks-offset-much-of-the-benefits-of-natural-gas-new-study-says/2018/06/21/e381654a-7590-11e8-b4b7-308400242c2e_story.html?utm_term=.0eb6a7c2772a).

been reported that the actual amount of methane leaks are 60% higher than the official estimates provided by the EPA and the industry.<sup>4</sup> The monetary value of the methane leaked in the US is \$2 Billion, and the amount of energy lost would be able to power 10 million homes if utilized.<sup>3</sup> The entire amount of methane produced yearly is 13 million metric tons, a very significant number in the face of climate change and warming of the planet.<sup>3</sup> Methane losses must be kept below 3.2 percent for the natural gas power plants to have a lower lifecycle impact on greenhouse gas emissions than coal fired plants.<sup>5</sup> Methane is a strong greenhouse gas, and there is no need to be investing in the development of new natural gas power plants and pipelines that contribute to the release of it, when uncertainty is faced over their lifespans and the public opinion is subject to changing rapidly.

One of the greatest unknowns about continuing development in natural gas is the cost of fuel. According to the EIA, natural gas prices have slowly been increasing over the past 3 years for residential users. The price has fluctuated, with the price being \$10.38 in 2015, \$10.05 in 2016, \$10.91 in 2017, and the cost of natural gas was \$10.53 in 2018. This data is nationwide, as there is a lack of information available for North Carolina residential data in 2018.<sup>6</sup> These price fluctuations make investing in natural gas power plants riskier than it already is, because if the cost of the gas becomes too expensive, than the utilities will shy away from using the power plants until peak load. This results in money being tied up in unused projects, and could be spent now on renewables that will have a definite cost and be guaranteed to generate electricity.

The cost of renewable energy development has decreased year-to-year since 2010, with onshore wind having fallen 23% and solar photovoltaic (PV) dropping by 73% in that timespan.<sup>7</sup> In terms of price per kilowatt hour, onshore wind costs \$0.06 per kWh, and solar PV is down to \$0.10 per kWh. The average cost per kWh of electricity generated by fossil fuels is between \$0.05 and \$0.17.<sup>7</sup> The cost associated with electricity produced by fossil fuels does not account for externalities, or the outside impacts and damages caused by the combustion of these fuels. These include the transport of fuels, air and water pollution created, fugitive emissions that are not captured in the production of natural gas, and water used.<sup>5</sup> These externalities need to be more known by the general public, and I am calling on the Commission to expand public awareness on the external costs of fossil fuel power plants, as well as end any new expansion of these plants past 2025. This ending of new development in natural gas plants needs to be

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<sup>4</sup> "The Climate Impacts of Methane Emissions." *Environmental Defense Fund*, Apr. 2012, [www.edf.org/climate-impacts-methane-emissions](http://www.edf.org/climate-impacts-methane-emissions).

<sup>5</sup> "The Hidden Costs of Fossil Fuels." *Union of Concerned Scientists*, [www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils](http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils).

<sup>6</sup> "U.S. Natural Gas Prices." *U.S. Energy Information Administration (EIA)*, [www.eia.gov/dnav/ng/ng\\_pri\\_sum\\_dcunus\\_a.htm](http://www.eia.gov/dnav/ng/ng_pri_sum_dcunus_a.htm).

<sup>7</sup> Dudley, Dominic. "Renewable Energy Will Be Consistently Cheaper Than Fossil Fuels By 2020, Report Claims." *Forbes*, 13 Jan. 2018, [www.forbes.com/sites/dominicdudley/2018/01/13/renewable-energy-cost-effective-fossil-fuels-2020/#32e41aa14ff2](http://www.forbes.com/sites/dominicdudley/2018/01/13/renewable-energy-cost-effective-fossil-fuels-2020/#32e41aa14ff2).

done as soon as possible, as the longer North Carolina waits to take action in the energy sector against climate change, the harder it will become and the greater the transition will be.

Transitioning to a 100% renewable energy will provide thousands of jobs to North Carolinians, and allow our state to be energy independent. Illinois is a good example of the job potential from renewables, as their new policy towards wind and solar is projected to create 25,000 jobs over the next decade.<sup>8</sup> Almost all of the training for these jobs is done by the unions, and the investments in renewables comes at the state level. There are programs to allow for training of workers in the installation of renewable energy systems, the development of these systems, operation, and maintenance.<sup>8</sup> If North Carolina wants to be a leader in renewables, we need to implement similar policies and to follow the models set by the top states in the country. By promoting the renewable industry, we will see job growth and investments in North Carolina, and get left behind in the push for 100% renewable energy.

North Carolinians needs the Utility Commission to encourage development of renewable energy projects across the state, and we need transparency of this process. By allowing the hearings to be livestreamed, it will create more opportunities for citizens to get involved in the process of decision making. By allowing the hearings to be open to the public, and the IRPs allowed to be heard in a public hearing, the utilities will have to be more accountable for their emissions and planning in the future. I call on the Commission to allow these hearings to be open to the public, as we have a right to know what is going on behind the closed doors in Raleigh.

Sincerely,  
Andrew Dixon  
Student,  
Department of Sustainable Development  
Appalachian State University

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<sup>8</sup> Nord, Deanna. "Renewable Energy = Economic Development and Jobs." *American Business Magazine*, 29 Nov. 2018, [www.americanbusinessmag.com/2018/11/renewable-energy-economic-development-and-jobs/](http://www.americanbusinessmag.com/2018/11/renewable-energy-economic-development-and-jobs/).



Mr. Edward S. Finley Jr., Chairman of the North Carolina Utilities Commission  
430 N. Salisbury St.  
Raleigh, NC 27603

Dear Mr. Finley,

I have read over Duke's Integrated Resource Plan, and I am concerned about the underinvestment in solar and wind and the confidence put in the future of natural gas. Perhaps even more concerning is the knowledge that Duke intends to continue running coal plants past 2033. This Integrated Resource Plan is not making the necessary aggressive strides toward meeting IPCC goals, and it is significantly under-investing in solar and wind. This heavy investment in natural gas and continued reliance on fossil fuels will not only be a huge detriment to the environment, but it will make it significantly more difficult for Duke Energy to meet zero-emission goals by 2050, as laid out in the latest IPCC report.

The heavy investment into natural gas is going to hurt consumers because of the externalized costs of the pipeline, both fiscal and environmental. There have been many documented cases of pipelines malfunctioning and leaking, causing devastating explosions that result in casualties and property damage. These accidents are inevitable in a future involving the continued construction of existing pipeline projects, as well as the Natural Gas pipelines that may be planned for the future. If Duke goes along with the proposed plan to make significant investment in natural gas, the failure rate of these pipelines, as well as the resulting destruction and costs, will continue to rise.

Duke is phasing out coal in favor of natural gas, but according to NC CLEAN PATH, "Methane emissions from conventional natural gas production, and especially from shale gas production, are substantially higher than those associated with coal mining."<sup>[1]</sup> Methane has the second highest radiative forcing value out of all of the Long-Lived Greenhouse Gases, and a Global Warming Potential value of 86 over a period of 20 years, making it 30 times more potent than CO<sub>2</sub> as a heat-trapping gas<sup>[1]</sup>. Although there are trends towards CC and away from coal-mining as a result of outdated infrastructure and the risks associated with coal, there are just as many, if not more, risks associated with the implementation of natural gas.

[1] NC WARN. NC CLEAN PATH 2025. 2017.  
<https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=f23578d4-8f0b-45ae-a20e-ef4ff18c3cb2>

[11] Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D.W. Fahey, J. Haywood, J. Lean, D.C. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz and R. Van Dorland, 2007: Changes in Atmospheric Constituents and in Radiative Forcing. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

The failure of natural gas pipelines is innate to their makeup and is so fully integrated into their functionality, it is not likely to be fixed any time soon. A pipeline failure investigation performed by Majid and Mohsin suggests that pipeline failure could be an extremely common occurrence, especially if these pipelines created in the future are constructed with limited oversight. The investigation found that one incident of pipe failure involved no third party interaction, and was simply a failure of design<sup>[4]</sup>. This failure was caused by a water pipe running parallel to the two natural gas pipes failing, which then sprayed high-pressure water onto the soil, creating a highly erosive mixture that eroded the natural gas lines<sup>[4]</sup>. This is the inherent constitution of natural gas infrastructure, and changing the entire pipeline system, as well as planned future pipelines, to be safer than the example above would be many times more expensive than the implementation of more aggressive deals in Solar PV, wind. If Duke Energy does go through with this planned substantial increase, there will be a tremendous load on the existing natural gas pipelines.

Natural gas is highly flammable and prone to leakage and resulting accidents. According to the Union of Concerned Scientists, "Between 2008 and 2015, there were 5,065 significant safety incidents related to natural gas pipeline transmission and distribution, leading to 108 fatalities and 531 injuries"<sup>[2]</sup>. Substantial increase to the load on existing natural gas infrastructure could lead to overpressurization of the pipes, leading to catastrophic failure, as in the case of the Merrimack Valley Gas Explosions<sup>[5]</sup>. These explosions, caused by pressure in the pipes being "12 times normal", resulted in over 8000 homes and businesses going without power, over 80 homes evacuated, and one person killed<sup>[5]</sup>. Many of the evacuated homes had significant property damage resulting from fire outbreak. A reasonable alternative to the proposed increase in natural gas investment would be significantly more investment in solar and wind power.

The IRP claims to be aiming for the "least cost mix" generation, however the current plan of energy mix does not hold true to that plan. According to the EIA, the levelized cost of onshore wind is less than that of combined cycle natural gas generation<sup>[6]</sup>. Additionally, Duke turned down a 500 MW wind buy over the transmission cost concerns, however the same company is spending millions of dollars to lobby in favor of fossil fuels and pay for infrastructure investment

[2] UCS. "The Hidden Cost of Fossil Fuels". 2017. <https://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils>

[4] Majid, Z.A. & Mohsin, R. Arab J Sci Eng (2012) 37: 1083. <https://doi.org/10.1007/s13369-012-0236-z>

[5] M. Valencia; M. Rocheleau. "Pressure inside Columbia Gas pipes was 12 times higher than normal". 09/2019. <https://www2.bostonglobe.com/metro/2018/09/17/officials-will-create-foundation-help-speed-gas-explosion-recovery-effort-merrimack-valley/lallvKvqXUvCS67ZNvZuVM/story.html>

[6] EIA. "Electricity Generation Outlooks". 02/2019. [https://www.eia.gov/outlooks/aeo/pdf/electricity\\_generation.pdf](https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf)

[7] Walton, R. "Duke nixes 500 MW wind buy over transmission cost concerns". 2018. <https://www.utilitydive.com/news/duke-nixes-500-mw-wind-buy-over-transmission-cost-concerns/527871/>

[8] NC WARN. "Groups Begin Legal Action to Ban Duke Energy Influence Spending - News Release from NC WARN". 11/2018. <https://www.ncwarn.org/2018/11/groups-begin-legal-action-to-ban>

transporting oil and natural gas<sup>[7][8]</sup>. Duke Energy could be investing in clean energy that will save money for ratepayers while also being inexpensive in the short term, namely stronger investment in grid scale PV, and in the long term, saving rate payers money and not requiring the same costs of pulling resources from the ground and transporting them<sup>[9]</sup>.

Duke Energy is a corporation capable of making smart and strong investments in solar and wind, and have the opportunity to lead the way for other utilities in making sustainable investment planning for the consumer that takes into account the necessity for renewables for the future, as laid out by the latest IPCC report<sup>[10]</sup>. Total production costs in the Clean Energy Scenario would cost \$1.5B less than the proposed scenario in 2033, as well as emitting 16 billion fewer tons of carbon<sup>[11]</sup>. If Duke Energy can reach out to other parts of the United states and make concrete deals for wind energy investment, similar to the one that was recently scrapped, and make significantly greater investment in solar, which is now possible thanks to the massive costs reductions in recent years. If Duke were to make these changes to the IRP, it is possible that other large utilities would be pressured to follow the same model, and Duke energy would be ahead of the curve in meeting the goals laid out by the IPCC, while simultaneously reducing company costs and consumer costs. It is estimated that the Levelized Cost of Electricity for both onshore wind and solar coming into effect in 2021 will be less than the cost of advanced cc<sup>[6]</sup>.

Duke Energy is currently only planning to invest in wind and solar to the extent that it is necessary to broadcast the message that renewables are on the way, but this limited investment does not meet the needs of those affected by the continued usage of fossil fuels; front-line communities who are being impacted today by the polluted rivers in North Carolina, now toxic as a result of coal ash. The current 15 year energy mix forecast does a disservice to frontline communities affected by the malpractice of the fossil fuel conglomerates and will result in enormous externalized costs for many ratepayers. If Duke Energy does not change course for the future and make smart investments in renewables, the burden of the costs of climate change will be placed on the energy consumer. I urge the Utility Commission to listen to the people, and help make this the turning point for a sustainable energy future.

[9] Ouzts, Elizabeth. "Critics challenge Duke Energy's long-range plan. Will it make a difference this time?". 03/2019. <https://energynews.us/2019/03/28/southeast/critics-challenge-duke-energys-long-range-plan-will-it-make-a-difference-this-time/>

[10] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp.

Thank you for your consideration of my viewpoint on this matter, and I hope I can see this change happen for the benefit of everyone directly or indirectly affected by the influence of Duke Electric.

Sincerely,

Noah Altman

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