STATE OF NORTH CAROLINA
BEFORE THE ATTORNEY GENERAL

Investigation of	)	
The Operations and Practices of Duke	)	
Energy Carolinas and Duke Energy Progress	)	EMERGENCY COMPLAINT
To Determine Whether Their State Corporate	)	
Charters Should Be Amended To Reduce	)	
The Impacts of the Global Climate Crisis	)	

EMERGENCY COMPLAINT BY
NC WARN, BELOVED COMMUNITY CENTER, COMMUNICATIONS WORKERS OF AMERICA LOCAL 3607, CLIMATE VOICES US, BLACK WORKERS FOR JUSTICE, THE NORTH CAROLINA CLIMATE JUSTICE SUMMIT, AND NORTH CAROLINA ENVIRONMENTAL JUSTICE NETWORK

October 7, 2015

TO THE NORTH CAROLINA ATTORNEY GENERAL, ROY ASBERRY COOPER III:

Now comes NC WARN, Beloved Community Center, Communications Workers of America Local 3607, Climate Voices US, Black Workers for Justice, The North Carolina Climate Justice Summit and North Carolina Environmental Justice Network (together "the Complainants") by and through the undersigned counsel, with an EMERGENCY COMPLAINT to the Attorney General for an investigation of the operations and practices of Duke Energy Carolinas LLC and Duke Energy Progress, Inc. ("Duke Energy"), to determine whether their state corporate charters should be enforced and amended to reduce the impacts of the global climate crisis.

Respectfully submitted this the 7th day of October.

FOR THE COMPLAINANTS

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SUMMARY

This EMERGENCY COMPLAINT to the Attorney General requires that his office begin an investigation and, as a result of that investigation, if he determines it just and necessary, bring action to the Superior Court to enforce and amend Duke Energy's corporate charter issued by the State of North Carolina. Duke Energy emits more carbon dioxide and other greenhouse gases than any other electric utility in the United States, thus it is one of the world's largest contributors to the climate crisis.

This EMERGENCY COMPLAINT is an extraordinary process, and is seldom used, but this is an extraordinary case in which it must be used. The Complainants are seeking to amend Duke Energy's corporate charter because:

1. The global climate crisis poses a severe and accelerating hazard to the well-being of every North Carolinian, especially the disadvantaged. Based on new and continuing evidence, the world's leading scientists vigorously warn that humanity must immediately begin making dramatic reductions in carbon pollution, while preparing for worsening weather extremes and rising sea levels that could make most coastal areas uninhabitable within a generation. But, despite the gravity of climate change, Duke Energy executives continue to make climate change worse by planning to operate coal-fired power plants for decades, and by continuing to build natural gas plants that can be even worse than coal in causing climate disruption during the next 20 years, a critical period for humanity. Meanwhile, initiatives to reduce emissions on a global or national scale fall far short of what the science demands is necessary.
2. The People of North Carolina have the civic responsibility – explicitly established in the State Constitution and reaffirmed by the North Carolina Supreme Court, as well as state and federal case law – to compel corporations in this state to meet basic standards for operating in the public good and public interest. The Attorney General has the authority to intervene on behalf of the People of North Carolina in order to police any corporation that abuses its power and recklessly endangers people's lives and economic well-being. The law clearly states that any corporation that disregards its responsibilities to the public established in its corporate charter may have that charter amended or forfeited.
3. Duke Energy is in violation of its corporate charter, as evidenced by a persistent pattern of criminal activity, fouling the state's air, land and water, continued injustices

against low-wealth customers, using influence to control public debate and political processes, and holding back the growth of clean energy in order to maintain monopoly control.

4. Among Duke Energy's abuses are its persistent misleading of the public, for example: Boasting of its closure of coal-fired power plants and claiming carbon emission reductions, even though the closed plants were small and rarely used and were replaced with greater pollution levels from new coal and natural gas plants; and claiming to support solar power while officially planning to generate only 4% of energy sales in the Carolinas from all renewable energy in 2029 and fighting pro-solar policies alongside the Koch Brothers and front groups.
5. The use of coal-fired electricity, with its multiple hazards, is in rapid decline in much of the US. Now is the time for this state to phase out coal plants and begin the inevitable transition to distributed, renewable energy that will add to the thousands of jobs already being created by the growing clean energy industry.
6. There is a better path forward for North Carolina than the business model that Duke Energy forces onto its monopoly captive customers. The resources are at hand to de-carbonize the state, while benefiting local economies and current coal plant workers.

We cannot wait for Duke Energy executives to act responsibly; their actions require immediate and forceful restraint. We are therefore calling on the Attorney General to exercise his constitutional authority and duty to investigate our complaint, to enforce the corporate charter and to amend it in the following ways:

1. Duke Energy shall phase out all of its 20 coal-fired generating units at its seven plant sites in North Carolina by 2020 without building additional natural gas plants;
2. Duke Energy shall stop actively blocking competition in its monopoly service areas in North Carolina; and
3. Duke Energy shall be prohibited from making political contributions, backroom deals, and other efforts to assert influence over the political process in North Carolina.

These three remedies, although not alleviating all of the abusive practices we reference in this EMERGENCY COMPLAINT, would go a long way toward making Duke Energy less harmful to families and businesses across North Carolina while creating a competitive and economically beneficial electricity marketplace. Our request is *not* that the Attorney General seek to totally dissolve or revoke the corporate charter of Duke Energy. However, the charter

granted to Duke Energy by the People of North Carolina does not, and cannot, authorize or condone corporate actions that endanger the lives of every person in the State, and that continue to fuel the global climate crisis.

URGENT NEED TO REDUCE GREENHOUSE GAS EMISSIONS

This complaint has been designated an EMERGENCY COMPLAINT because of the immediate need for Duke Energy to significantly reduce its carbon and greenhouse gas emissions in light of the severity of the climate crisis. Duke Energy claims to be the largest utility in the world and, at the same time, it is the largest emitter of carbon dioxide and other greenhouse gases of any electric utility in the United States.[1] A change in its charter to restrict Duke Energy's use of coal in its production of electricity will have a major positive impact on North Carolina, and without exaggeration, the world's future.

Abrupt Sea Level Rise and Superstorms

Four years ago, leading scientists began calling global climate change a planetary emergency as the devastation of many global communities continued to accelerate. In 2015, one of the world's leading teams of climate scientists now warns that unless dramatic reductions in pollution begin immediately, world sea levels could rise 10 feet in the next 50 years due to the melting and breaking off of ice sheets in Antarctica and Greenland, and that a newly discovered feedback caused by the ice sheet demise – the pooling of cold meltwater that disrupts natural ocean currents – is likely to fuel an alarming increase in the intensity and frequency of various types of storms. According to the team's study:

> We conclude that multi-meter sea-level rise would become practically unavoidable. Social disruption and economic consequences of such large sea-level rise could be devastating. It is not difficult to imagine that conflicts arising from forced migrations and economic collapse might make the planet ungovernable, threatening the fabric of civilization.[2]

If these warnings are even close to being on target, coastal areas around the world could

[1] M.J. Bradley and Associates, *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States*, July 2015: http://www.nrdc.org/air/pollution/benchmarking/files/benchmarking-2015.pdf

[2] James Hansen et al. "Ice melt, seal level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2℃ global warming is highly dangerous," July 23, 2015: http://www.atmos-chem-phys-discuss.net/15/20059/2015/acpd-15-20059-2015.pdf
Title page and abstract of the study have been attached as **Appendix B.**

become uninhabitable long before 10 feet of seal level rise occurs. As hurricane winds and storm surges grow stronger, coastal cities and villages could be flooded and destroyed. Impacts that are already harming North Carolina could grow exponentially worse in the very near future.

Beyond sea level rise, the climate crisis is evidenced by an increasingly hot planet. The year 2014 was the hottest year on record in terms of average global temperatures, and the first half of 2015 is, by far, the hottest on record according to the National Oceanic and Atmospheric Administration.[3] Nine of the hottest 10 years globally have been recorded since the turn of the century. Heat waves, droughts and other weather extremes are breaking records in the US and many other parts of the world while devastating people, wildlife and property. As the western US is running out of water for drinking and crops, it is also suffering its worst wildfire season, with some blazes exceeding the capacity to extinguish them despite unprecedented help by the US military and ally nations. By late August, officials had predicted some fires in the Northwest will last until the snow season.[4]

The people least responsible for carbon pollution are suffering the most from its disruptive effects. Many communities worldwide have become increasingly distressed as fundamental goods and services are no longer readily available. But that injustice will ultimately be overtaken by the reality that no one can escape from weather extremes or disruption of our food and water supplies, along with other critical social systems. Researchers at a major national laboratory recently projected that the rate of climate change will accelerate even more rapidly after 2020 regardless of short-term efforts to reduce carbon.[5] Global health leaders warn that with current warming trends, humanity is facing "very serious and potentially catastrophic effects for human health and human survival [that require] action now – and action in the next 10 years – otherwise the game could be over."[6]

Although traditionally hesitant to link global warming with particular weather events, climatologists now argue that warming air, land and oceans are making natural weather

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[3] *Truthout*, "The new climate 'normal': Abrupt sea level rise and predictions of civilization collapse," August 3, 2015: http://www.truth-out.org/news/item/32131-the-new-climate-normal-abrupt-sea-level-rise-and-predictions-of-civilization-collapse
Full study by National Oceanic and Atmospheric Administration, *Global Analysis,* June 2015: https://www.ncdc.noaa.gov/sotc/global/201506

[4] *NPR*, "Western wildfires outpace weary firefighting crews," August 30, 2015: http://www.npr.org/2015/08/30/436013183/western-wildfires-outpace-weary-firefighting-crews.

[5] *Climate Progress*, "Rate of climate change to soar by 2020s, with Arctic warming 1°F per decade," March 10, 2015: http://thinkprogress.org/climate/2015/03/10/3631632/climate-change-rate/

[6] Statement attributed to Anthony Costellos, Director of the University College of London's Institute of Global Health. *Truthout*, "The new climate 'normal': Abrupt sea level rise and predictions of civilization collapse," August 3, 2015: http://www.truth-out.org/news/item/32131-the-new-climate-normal-abrupt-sea-level-rise-and-predictions-of-civilization-collapse

extremes worse. For example, warmer air and bodies of water create more energy for hurricanes and torrential rainfalls, even as other areas experience record-breaking drought and famine. An August 2015 study by Columbia University researchers concludes that the ongoing and historic California drought is being worsened by global warming because warmer air dries out plants and soil more quickly, thus feeding the historic wildfires plaguing much of western North America.[7]

Multiple observational studies of wildlife show severe stress to plants and animals caused by climate change and other environmental assaults. A study in *The Anthropocene Review* found that, even in the early stages of climate change, "species extinctions and other changes are far more advanced."[8] A July 2015 study published in *Science* found that our oceans and marine life are destined to be "irreversibly changed" unless large carbon emission cuts begin immediately.[9] James Barry of the Monterey Bay Aquarium Research Institute in California observed, "I used to think it was kind of hard to make things in the ocean go extinct. But this change we're seeing is happening so fast it's almost instantaneous."

There is strong scientific consensus that burning of fossil fuels is the primary cause of climate disruption. In the US, there has been broad acceptance that the biggest contributor is coal burned to generate electricity, but the rapid shift to electricity from burning natural gas could make the climate problem even worse due to leakage of methane – a very potent greenhouse gas – during the mining and distribution process.[10] Well measured scientific and common sense observations of our overheating planet and disrupted natural systems have, in recent years, led climate scientists to insist that only dramatic reductions in carbon emissions can avert the worst scenarios of widespread climate catastrophe. Some climatologists have concluded that global warming, sea level rise and wildlife die-offs have already become unstoppable and will continue to accelerate. Others argue there is still a very small window of time to avoid this apocalyptic prospect.[11]

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[7] A. Park Williams et al., "Contribution of anthropogenic warming to California drought during 2012-2014," August 31, 2015: http://onlinelibrary.wiley.com/doi/10.1002/2015GL064924/full

[8] *The Anthropocene Review*, "Colonization of the Americas, 'Little Ice Age' climate, and bomb-produced carbon: Their role in defining the Anthropocene," May 29, 2015: http://anr.sagepub.com/content/2/2/117.abstract

[9] *Science*, "Sea-level rise due to polar ice-sheet mass loss during past warm periods," July 10, 2015: http://www.sciencemag.org/content/349/6244/aaa4019

[10] Robert W. Howarth, Cornell University, *A Bridge to Nowhere: Methane Emissions and the Greenhouse Gas Footprint of Natural Gas*, April 22, 2014: http://www.eeb.cornell.edu/howarth/publications/Howarth_2014_ESE_methane_emissions.pdf

[11] American Meteorological Society, *State of the Climate in 2014,* July 2015: http://ametsoc.org/SOC-2014.pdf

Because carbon lasts for decades in the oceans and atmosphere, pollution already released will continue causing damage to our environment, economies and social structures for decades even if emissions were curtailed immediately. This period will fully test humanity's ability to learn to cooperate and adapt. But unless dramatic pollution reductions begin immediately, planetary heating, with its multi-faceted damage, will move forward under its own momentum due to a variety of feedback processes already underway. This will create widespread chaos and threaten humanity's very existence.

North Carolina on the Front Line

Most of the physical and economic impacts described above are already harming North Carolina and are destined to get worse; how much worse and how quickly remain central questions. Ignoring the increasingly negative impacts will not make them go away; we cannot simply push them onto our children and grandchildren. North Carolina needs to heighten its preparation for changes along with efforts to curb emissions.

Residents of eastern North Carolina have borne the effects of increased hurricanes, tornadoes and winter storms since the 1990s and remain keenly aware of this state's geography bulging eastward into the Atlantic, along with the potential for a Sandy-like "superstorm." North Carolina's famous tourism industry is dancing a tightrope already, as spring tides and winter storms increasingly disrupt NC Highway 12 and the ferry system, and as natural coastal erosion is amplified. At any time, a major hurricane could render the barrier islands a memory.

North Carolina has seen so many droughts since the late 1990s, weather forecasters now treat it as an expected condition. The agriculture community is already seeing big changes and is preparing for the future via a new program, NC ADAPT:

> We're already having to begin adapting to changes … to cope with increasingly intense storms and downpours … That's why we [formed NC ADAPT] to share our experiences and develop solutions to increasingly erratic and unpredictable weather… [W]hat has served us well as … risk-management tools are quickly becoming irrelevant given the changing climatic conditions.[12]

[12] *The News & Observer*, "How NC farming, forestry sectors are adapting to changing climate," August 10, 2015: http://www.newsobserver.com/opinion/op-ed/article30635676.html.

When they do occur, rainfalls tend to be torrential.[13] Higher intensity storm cells spawning thunderstorms, straight-line winds and tornadoes have raked the state in recent years.

Findings by the Risky Business Project, co-chaired by unlikely allies Michael Bloomberg and Henry Paulson, reported this year that North Carolina is one of the states most vulnerable to climate change. The assessment concluded that about 30 percent of the North Carolina workforce is employed in a sector at risk from climate change; heat and precipitation changes could reduce statewide agricultural yields for crops such as corn by 21% by the 2030s; coastal storm damage could exceed $1.3 billion annually by mid-century; and, by 2030, up to $4.4 billion in coastal property is likely to be flooded at high tide.[14]

Cooperation of Nations is Failing

Leading climate scientists now argue that the international target for carbon reductions intended to hold global temperature rise to 2 degrees Celsius is wholly inadequate and, therefore, that even if a binding international agreement were reached after many years of failed efforts and in the face of vigorous opposition by entrenched fossil fuel corporations, that target would ensure unstoppable climate catastrophe.[15] Similar concerns surround the recent Clean Power Plan announced by the Obama administration. While a step in the right direction, it falls far short of what the science demands and already seems destined for years of battle before it could ever be implemented.

Though many world leaders are neutralized by corporate polluters, a number of nations and US states are moving forward. North Carolina must take responsibility for decarbonizing this state. That means asserting our sovereign control over Duke Energy. While NC WARN and allies strongly prefer to find a cooperative approach with Duke Energy – one we have publicly and privately sought over a number of years – we can await that cooperation no longer.

Former CEO Jim Rogers told stockholders in 2013 that Duke Energy is the largest corporate utility in the world, a claim confirmed in early 2014 by the Raleigh *News & Observer*. Duke Energy is headquartered in Charlotte, so it is the duty of North Carolinians to require Duke Energy to begin the rapid decarbonizing of its electricity generation. Due to Duke Energy's size,

[13] WRAL TV news reported on September 1, 2015, that 78% of summer rainfall had occurred in a 10-day period.
[14] The Risky Business Project, *Come Heat or High Water: Climate Risk in the Southeastern US and Texas*, July 2015: http://riskybusiness.org/uploads/files/Climate-Risk-in-Southeast-and-Texas.pdf
[15] *The Washington Post*, "The world's most famous climate scientist just outlined an alarming scenario for our planet's future," July 20, 2015: http://www.washingtonpost.com/news/energy-environment/wp/2015/07/20/the-worlds-most-famous-climate-scientist-just-outlined-an-alarming-scenario-for-our-planets-future/

even an announcement that it plans to decarbonize could cause a positive trend globally to avert runaway climate disruption.

The objective of North Carolina becoming proactive about climate change is not going to be achieved by replacing coal plants with natural gas plants. New fracking gas plants are even worse than coal for the climate crisis over the next crucial decades because of the well-documented leakage of methane during the mining and distribution of natural gas.[16] While Duke Energy executives would like to pretend that methane leakage doesn't count as they boast about emissions reductions, the corporation's plan to put North Carolina's energy future in the hands of natural gas is completely misguided.

National governments and industry heads have repeatedly failed to rise to the challenge demanded by climate change. At this unprecedented moment in history, we are calling on Attorney General Cooper to provide the leadership needed that just might turn the tide in favor of stabilizing our climate in time to avert widespread catastrophe.

LEGAL AUTHORITY TO ACT

The basis for this EMERGENCY COMPLAINT is provided for by the State Constitution and by General Statutes 1-515 and 55-14-30(1). The complaint presents extensive evidence that Duke Energy has disregarded the responsibilities of its state-issued corporate charter in a variety of ways, including by operating coal-fired power plants that threaten human health, safety and well-being, resulting in direct harm to the people of North Carolina.

Through the unnecessary emissions of carbon dioxide and other greenhouse gases in North Carolina by Duke Energy, public welfare is being callously and unlawfully disregarded in light of the obvious need for significant reductions. The compelling need and requests to reduce emissions by shutting down its 20 coal plants have been blatantly ignored, in part because Duke Energy, as a monopoly, has actively and maliciously fought competition in its service area, and in large part because of Duke Energy's overwhelming political power and undue influence over the state government and its many agencies.

This EMERGENCY COMPLAINT insists that the Attorney General, under the existing statutory authority, initiate an investigation of Duke Energy's reckless practices and, if the outcome of such an investigation is what we fully expect it to be, then seek an injunction in

[16] Robert W. Howarth, Cornell University, *A Bridge to Nowhere: Methane Emissions and the Greenhouse Gas Footprint of Natural Gas*, April 22, 2014: http://www.eeb.cornell.edu/howarth/publications/Howarth_2014_ESE_methane_emissions.pdf

Superior Court to halt Duke Energy's malign practices by amending its corporate charter. The Attorney General's authority and obligation as a sworn public servant of the state to act in the expressed and best interest of North Carolinians in this matter is clear and irrefutable.

Policing Power over Corporations

The evidence provided in this complaint demonstrates that Duke Energy is derelict in its duty to ensure it is operating in the public interest. Nothing can be permitted to take precedence over the human life, livelihood and property of the people of North Carolina; Duke Energy's abuse of its corporate charter compromises all of these. The people of North Carolina must assert their sovereign power over the corporate charter of Duke Energy and demand an immediate end to the pollution of our state's environment and government. It is the responsibility of the Attorney General to intervene on behalf of the people of North Carolina in order to limit Duke Energy's reckless endangerment of people's lives and economic well-being.

Due to the evidence, some of which is provided herein, that Duke Energy is exceeding and abusing the authority conferred on it by the corporate charter issued by the state of North Carolina, the Attorney General does not have the discretion to ignore this complaint or decline to take action. Even if the Attorney General does not agree with our positions on each and every one of the indictments we present, each indictment on its own is demonstrative of the need to take action against Duke Energy's abuse of power.

The premise and authority upon which we make this complaint and insist that the Attorney General act has been established for more than a century in North Carolina. Our State Constitution contains the source of the Attorney General's power and duty, as the representative of the people, to redress this abuse of power by a corporation. Duke Energy exists solely due to the grant of a corporate charter issued by the Secretary of State of North Carolina, and all corporate entities and charters are subject to the express laws of the state. Article VIII, Section 1 of the State Constitution states:

> Corporate charters. No corporation shall be created, nor shall its charter be extended, altered, or amended by special act, except corporations for charitable, educational, penal, or reformatory purposes that are to be and remain under the patronage and control of the state; but the General Assembly shall provide by general laws for the chartering, organization, and powers of all corporations, and for the amending, extending, and forfeiture of all charters, except those above permitted by special act. All such general acts may be altered from time to time or

> repealed. The General Assembly may at any time by special act repeal the charter of any corporation.

In 1897, the NC Supreme Court explained this, stating, “By the Constitution of North Carolina all corporations (if chartered since 1868) are subject to extinction at any time, or their duration can be abridged or extended, at the will of the Legislature.” *Wilson v. Leary*, 120 NC 90, 92 (1897).

Pursuant to that constitutional power, the NC Legislature has enacted laws explicitly stating that any corporate entity is subject to involuntary judicial dissolution of its charter when it exceeds or abuses the authority conferred upon it by the corporate charter issued by the state. General Statute 55-14-30, states:

> The superior court may dissolve a corporation: (1) In a proceeding by the Attorney General if it is established that…(ii) the corporation has, after written notice by the Attorney General given at least 20 days prior thereto, continued to exceed or abuse the authority conferred upon it by law.

The legislature has granted the Superior Court broad powers to fashion appropriate remedies in a procedure for judicial dissolution. NC Statute 55-14-31(c) states:

> A court in a proceeding brought to dissolve a corporation may issue injunctions, appoint a receiver with all powers and duties the court directs, take other action required to preserve the corporate assets wherever located, and carry on the business of the corporation.

The “Official Comment” following this law further explains the statute:

> Section 14.30(1) preserves longstanding and traditional provisions authorizing the state to seek to dissolve involuntarily a corporation by judicial decree. While this power has been exercised only rarely in recent years, this right of the state involves policing action that provides a means by which the state may ensure compliance with, and nonabuse of, the fundamentals of corporate existence.

While the state ultimately has the power to dissolve a corporation; we are simply insisting this “policing” power be exercised to the extent necessary to stop the corporate conduct that is endangering the safety of all citizens.

Unmistakably, the “sovereign powers” are vested in the people of the state and are to be exercised for the good of the whole. This most fundamental premise is stated in the Declaration of Rights of our State Constitution in Article I, Section 2:

> Sovereignty of the people. All political power is vested in and derived from the people; all government of right originates from the people, is founded upon their will only, and is instituted solely for the good of the whole.

Our State Constitution further provides in Article I, Section 3:

> Internal government of the State. The people of this State have the inherent, sole, and exclusive right of regulating the internal government and police thereof, and of altering or abolishing their Constitution and form of government whenever it may be necessary to their safety and happiness; but every such right shall be exercised in pursuance of law and consistently with the Constitution of the United States.

The power and duty to act as Attorney General in policing corporations has also been established by the legislature. General Statute 1-515 states:

> An action may be brought by the Attorney General in the name of the State, upon his own information or upon the complaint of a private party, against the party offending, in the following cases: (1) When a person usurps, intrudes into, or unlawfully holds or exercises any public office, civil or military, or any franchise within the State, or any office in a corporation created by the authority of this State

This EMERGENCY COMPLAINT is our demand to the Attorney General that he police Duke Energy, to determine whether it is violating the fundamentals of its corporate existence.

Protecting the Public Good

To exist and do business with the tremendous benefits of the corporate form and as a monopoly in our state, such as perpetual existence, limited liability, and guaranteed profits, Duke Energy must meet the criteria of North Carolina law and be granted a corporate charter by the NC Secretary of State. As such, the state has the power and duty to control, and if necessary, involuntarily dissolve, the corporation to protect the health, safety and well-being of its citizens. See *Chicago Title & Trust Co. v. 4136 Wilcox Bldg. Corp.*, 302 US 120, 124,128 (1937):

> The decisions of this court are all to the effect that a private corporation in this country can exist only under the express law of the state or sovereignty by which it was created. Its dissolution puts an end to its existence, the result of which may be likened to the death of a natural person . . . How long and upon what terms a state-created corporation may continue to exist is a matter exclusively of state power.

See also *Oregon Ry. & Nav. Co. v. Oregonian Ry. Co., Ltd.,* 130 US 1, 28 (1889):

> Another important consideration to be observed…is, that while the thing to be done may be lawful in a general way, there are and must be limitations upon the means by which it is to be done or the purpose carried out, which the articles of incorporation cannot remove or violate. A company might be authorized by its articles to establish a large manufactory in a particular locality, and might be held to be a valid incorporation with sufficient powers to prosecute the business described; but such articles, although mentioning the particular place, would not empower the company, in the exercise of the power thus conferred, to carry on a business injurious to the health or comfort of those living in that vicinity.

Nothing can or should divert or evade the state's responsibility to protect the general welfare of society. Moreover, no branch of state government can deny or shirk its duty to protect the public safety and security, "such being an alienation of sovereign powers and a violation of public duty." *Washington Toll Bridge Company v. Commissioners of Beaufort*, 81 NC 491, 499 (1879).

The Unique Responsibilities of a Monopoly Corporation

Duke Energy has a monopoly in North Carolina, as evidenced in its exclusive service franchise, even though monopolies are explicitly prohibited. The State Constitution in Article I, Section 34, states "perpetuities and monopolies are contrary to the genius of a free state and shall not be allowed." The distinctive characteristics of a monopoly are (1) control of so large a portion of the market of a certain commodity that (2) competition is stifled, (3) freedom of commerce is restricted and (4) the monopolist controls prices. *American Motors Sales Corp. v. Peters*, 311 NC 311, 317 S.E.2d 351 (1984). Duke Energy is clearly a monopoly under the first three characteristics of this definition, but it is allowed to operate as a monopoly only because it is nominally regulated by the NC Utilities Commission as a public utility under the Public Utilities Act, Chapter 62 of the General Statutes.

As a regulated monopoly, Duke Energy has an exclusive franchise with little or no competition and, as a bonus, guaranteed profits. In exchange for providing Duke Energy with an exclusive utility franchise, the NC Utilities Commission has the authority to "compel [its] operation in accordance with policy of the state as declared in statute." *State ex rel. Utils. Comm'n v. Public Staff - NC Utils. Comm'n*, 123 NC App. 623, 473 S.E.2d 661 (1996). The first

declaration of policy in the Public Utilities Act, and the basis on which all other policies rely, is found in General Statute 62-2:

> (a) Upon investigation, it has been determined that the rates, services and operations of public utilities as defined herein, are affected with the public interest and that the availability of an adequate and reliable supply of electric power and natural gas to the people, economy and government of North Carolina is a matter of public policy. It is hereby declared to be the policy of the State of North Carolina:
> (1) To provide fair regulation of public utilities ***in the interest of the public***;

[emphasis added]. Specifically as it relates to the present EMERGENCY COMPLAINT, the policy of the state is also "to encourage and promote harmony between public utilities, their users and the environment." G.S. 62-2(a)(5). These are fairly simple statements but they have enormous and immediate consequences, especially in the context of whether the regulated utility is meeting these standards it is obligated to meet.

The current state policy is also to encourage and develop renewable resources. The Renewable Energy and Energy Efficiency Portfolio Standard (REPS) provisions in Senate Bill 3 (NC Session Law 2007-397) renewed this mandate by adding to the Public Utility Act's declaration of policy in G.S. 62-2(10):

> To promote the development of renewable energy and energy efficiency through the implementation of a Renewable Energy and Energy Efficiency Portfolio Standard (REPS) that will do all of the following:
> …d. Provide improved air quality and other benefits to energy consumers and citizens of the State.

Again, improving air quality and providing benefits to the citizens of the state are fundamental policies Duke Energy is required to follow, both as a corporation chartered in North Carolina and as a regulated monopoly.

The abuse of a monopoly comes into focus when considering the efforts the monopoly takes to eliminate the competitors to its monopoly market. As described below, Duke Energy is vigorously fighting renewable energy and other forms of distributed generation, in particular when a business other than Duke Energy is benefiting from the project. To maintain its exclusive service area and its profits, Duke Energy expends large sums of money for political campaigns, public goodwill contributions and public relations in order to gain political favor and promote

public policy that is best suited to further the corporation's profits. Its monopoly status has greatly benefitted Duke Energy and its shareholders for a century and, so long as it is allowed, the corporation will continue to actively block competition. As an example of such anti-competitive behavior, Duke Energy has vigorously asserted its lobbying power to prevent legislation in North Carolina and Florida that would allow competition from third party solar energy companies.

When a corporation such as Duke Energy does not live up to the standards of its corporate charter and does not protect the public interest or is not in harmony with the environment, the state is required to alter and amend its charter. As a monopoly, Duke Energy is also charged with providing benefits to the people of the state and protecting the environment, but has not lived up to this mandate. It does not warrant its protected status.

ABUSE OF POWER AND OTHER INDICTMENTS[17]

Pollution and Environmental Destruction

Through continuing use of fossil fuel powered plants, negligent management of toxic coal ash facilities and general disregard for the environment, Duke Energy's operations have led to ongoing, irreversible damage to air, land and water quality. Just a few of the most egregious examples of Duke Energy's destruction of the environment are:

- Damaging air quality and causing increased cases of respiratory illness by producing more emissions than any other electric utility in the United States;
- Recklessly mishandling coal ash facilities in the cheapest method possible, leading to a 39,000-ton toxic ash spill into the Dan River, polluted groundwater and waterways throughout the state and a $10 billion clean-up challenge that continues to lack a just solution;
- Burning coal acquired by mountaintop removal, a practice that contributes to the destruction of millions of acres of mountains and pollution of river headwaters; and
- As the top greenhouse gas emitting utility in the country, perpetuating the climate crisis by continuous burning of fossil fuels.

[17] A full referenced list of Duke Energy's abuse of power and other indictments can be found in **Appendix C.**

Corporate Crime

Duke Energy has been investigated and penalized for criminal and civil wrongdoings in multiple states. Violations have ranged from pollution, manipulation of energy markets, executive ethics scandals and fraud. The corporation's disregard for the law is demonstrative of its reckless abuse of power. Some of Duke's corporate offenses include:

- Being required to pay a $102 million penalty and being convicted on nine criminal charges for the Dan River coal ash spill and violations at other coal ash facilities, even as ongoing shareholder lawsuits suggest a "culture of lawlessness" on the corporate board;
- Being charged with $250 million in fines for serving as Enron's cohort in a market manipulation scandal that caused corporate-sponsored blackouts in California;
- Manipulating natural gas markets, resulting in a monetary penalty, a cease-and-desist order from the Securities and Exchange Commission (SEC) and an investigation that led to criminal charges against three employees;
- Felonies and ethics violations alongside state regulators in Indiana during cases related to construction cost overruns at the utility's Edwardsport coal plant; and
- Incurring $43.1 million in penalties for fraud, breach of contract and negligence for energy efficiency work performed for the San Francisco Unified School District that put schools and students at risk and was said to be "one of the most venal examples of corporate wrongdoing San Francisco has witnessed in recent memory."

Customer Injustices

Duke Energy has a long history of abusing its captured customers in order to protect or increase its profits. Many of the worst injustices disproportionately impact low-income families and small businesses. Duke Energy's business model is centered around the objective of selling more electricity and building expensive power plants, thus providing guaranteed profits. This objective is pursued in the interest of executives and other shareholders, and is at odds with the best interest of customers and the people of North Carolina. Customer injustices include but are not limited to:

- Discriminating against residential and small business customers by setting rates based on the single hottest hour of the year, when these customers use the most power and when large industrial customers are given advance notice to reduce their usage;

- Seeking to overcharge customers hundreds of millions of dollars annually for inappropriate and invalid expenses during rate cases;
- Charging $1.5 billion to Florida ratepayers in advance for a proposed nuclear power plant that was cancelled, then pocketing $150 million of that as profit;
- Trying to pass legislation that would force North Carolina customers to pay in advance for risky nuclear plants that may never be completed; and
- Operating coal-fired plants that disproportionately harm the health and well-being of low-income communities in various states.

Excessive Power and Influence

Duke Energy spends millions of dollars every year on lobbying and political and community contributions. While Duke Energy's public relations message is that this money is spent in the interest of customers, it is actually used to influence politicians and regulators, push legislation that will benefit the company, and stifle public debate. Some clear examples of Duke Energy's attempts to distort the democratic process are:

- Initiating closed-door meetings with regulators while investigations are underway;
- Using political donations, community contributions, and costly lobbying to influence legislation and public policy and appease public criticism – and attempting to charge customers for many of these donations and lobbying expenses;
- Being an active member of the American Legislative Exchange Council (ALEC) – an organization that drafts and promotes bills on behalf of corporate interests and has been linked to attempts to dismantle clean energy policies;
- Helping get a former Duke Energy employee elected as Governor of North Carolina by donating three times more money to Pat McCrory's campaigns than it did to all other gubernatorial candidates combined; and
- Due in part to Duke Energy's power over government processes, the corporation had a negative effective federal tax rate of -3.3% from 2008-2012 while earning over $9 billion in profits and receiving $299 million in federal tax rebates.

Fighting the Future

Despite the fact that clean, distributed energy is making huge advances around the world

and in other US states, Duke Energy's business plan remains dominated by building and operating large, traditional power plants. Duke Energy has aligned its interests with the Koch Brothers, ALEC and their front groups to stall the growth of solar and competition in an effort to protect this business plan as evidenced by the corporation:

- Using its lobbying power to prevent legislation in North Carolina and Florida that would allow competition from solar companies;
- Seeking regulatory measures that would make large solar projects uneconomical;
- Pursuing renewable energy projects only outside of its monopoly states, with the exception of some recent projects where Duke Energy wants to build solar in North Carolina, then sell the power out of state under the same favorable terms it denies other companies and customers; and
- Misleading the public by boasting of the company's closure of coal-fired power plants and reduction of emissions, even though the closed plants were small and rarely used and were replaced with the expensive and polluting Cliffside coal plant and natural gas plants.

Wasted Capacity

Building power plants, regardless of whether they are needed to meet demand, is how monopoly utilities such as Duke Energy and its shareholders make the greatest amount of profit. This means that the regulated utility industry is prone to wasteful practices such as overbuilding of generation capacity and avoiding investment in efficiency programs and measures in order to sell more electricity. Duke Energy – alongside other utilities in the Southeast under the monopoly model – has consistently demonstrated such wasteful practices by:

- Continuing to build unneeded power plants while projecting purchase of only 0.2% of supply needs from neighboring utilities in 2029 – even though there is a glut of electricity already in place across the Southeast;
- Limiting the progress of energy efficiency – which could eliminate the need for billions of dollars in new power plants;
- Sending $1.76 billion out of state every year to pay for coal to operate its North Carolina plants; and
- Continuing to operate coal plants that often are idly "spinning" so that they are burning coal and polluting the air but not providing any energy to customers.

ELECTRICITY MARKET TRENDS AND THE INEVITABLE DEMISE OF COAL

An Evolving Electric Industry

A growing list of trends demonstrates the rapidly changing outlook for electric utility corporations, including distributed solar, wind, energy efficiency, grid technology, shifting regulatory norms, coal's huge pollution costs and cheap natural gas. The installed cost of solar is down 50% in five years, resulting in more customers fleeing fossil fuels for clean energy, eroding utility revenues and low growth or even falling demand.[18] The utilities recognize they are in trouble, with the famous "utility death spiral" report released in early 2013 by the Edison Electric Institute. That report recognized that solar could up-end the industry, just as cell phones have with land-lines, and could cut into utility revenues by reducing the need to build more power plants.[19] Even existing nuclear plants are proving uneconomic in deregulated markets, where they must compete with wind and energy efficiency, which can easily beat the cost of new nuclear power.[20]

In Germany, the major utilities have lost a staggering 500 billion Euros in market capital by hanging on to old business models, and are belatedly getting into the renewables business.[21] Since solar generates electricity during expensive "peak" power times, such as during hot summer days, it is cutting deeply into utility sales during the periods utilities charge the highest prices. Although utilities have argued that too much new solar capacity could compromise system-wide reliability, studies of neighboring regions have shown that an increase in solar and wind capacity up to 30% of generation would not cause any significant problems.[22]

Solar jobs are growing 20 times faster than the overall economy and there are more than twice as many solar jobs (174,000) in the US as coal mining jobs (70,000).[23] The US Energy Information Administration reported that overall, fossil fuel power plant jobs were down 1% from

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[18] Lawrence Berkeley National Laboratory, *Tracking the Sun VIII: The Installed Price of Residential and Non-Residential Photovoltaic Systems in the United States*, August 2015: https://emp.lbl.gov/sites/all/files/lbnl-188238_1.pdf

[19] Lawrence Berkeley National Laboratory, *Financial Impacts of Net-Metered PV on Utilities and Ratepayers: A Scoping Study of Two Prototypical US Utilities*, September 2014: http://emp.lbl.gov/publications/financial-impacts-net-metered-pv-utilities-and-ratepayers-scoping-study-two-prototypica

[20] *Midwest Energy News*, "Why the nuclear industry targets renewables instead of gas," February 6, 2015: http://midwestenergynews.com/2015/02/06/why-the-nuclear-industry-targets-renewables-instead-of-gas/
The Wall Street Journal, "Nuclear power goes begging, likely at consumers' expense," April 17, 2015: http://www.wsj.com/articles/nuclear-power-goes-begging-1429289139

[21] *The Economist*, "How to lose half a trillion euros," October 12, 2013: http://www.economist.com/news/briefing/21587782-europes-electricity-providers-face-existential-threat-how-lose-half-trillion-euros

[22] GE Energy Consulting, *PJM Renewable Integration Study*, February 28, 2014: http://www.pjm.com/~/media/committees-groups/committees/mic/20140303/20140303-pris-executive-summary.ashx

[23] The Solar Foundation, *National Solar Jobs Census 2014*, January 2015: http://www.thesolarfoundation.org/national-solar-jobs-census-2014/

2011 to 2014, and nuclear lost a stunning 9%, while solar jobs gained 200%. Solar jobs are competitive, averaging $20 to $40 per hour for sales, installation and manufacturing positions.[24]

Minnesota and Colorado regulatory agencies have decided that long-term contracts to purchase solar are more economic than natural gas-fired electricity.[25] Utilities such as Duke Energy have quickly bought up solar companies in markets where they compete for sales or when doing so makes it possible to maintain control over the solar industry. But in its monopoly states, Duke Energy only plans to generate 4% of energy sales in the Carolinas from renewable energy in 2029 and is fighting the growth of solar alongside the Koch Brothers and ALEC.[26]

Despite Duke Energy's efforts to limit renewable energy growth in North Carolina, clean energy development has added an estimated $6.3 billion to the economy from 2007 to 2014. Clean energy provides nearly 23,000 North Carolina jobs in solar, wind, biomass, energy efficiency, geothermal and hydro. The state's generous 35% state tax credit has paid for itself, and then returned money to state coffers. Studies show that every $1 given out in tax credits has returned $1.54 in state and local tax revenues.[27] More clean energy means North Carolina would not need to import nearly $2 billion each year in coal and natural gas to run power plants.[28] In fact, Duke Energy ratepayers pay $30 to $40 each month for fossil fuels like coal and natural gas but only an average of 61 cents per month for clean energy and efficiency programs.[29]

Coal is a Dying Industry

After 100 years of domination, the US coal industry is clearly in decline. The first US coal-fired power plant was brought online in New York in 1882, and power generation from coal rose

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[24] US Energy Information Administration, "Power sector employment declines, except for renewable electricity generators," December 19, 2014: http://www.eia.gov/todayinenergy/detail.cfm?id=19271

[25] *Bloomberg*, "Solar beats gas in Colorado," August 21, 2015: http://www.renewableenergyworld.com/articles/2015/08/solar-beats-gas-in-colorado.html?cmpid=renewablesolar08252015&eid=291107350&bid=1159860
Fresh Energy, "How solar beats gas in Minnesota," January 9, 2014: http://fresh-energy.org/2014/01/how-solar-beat-gas-in-minnesota/

[26] Duke Energy Carolinas and Duke Energy Progress Integrated Resource Plans filed with the NCUC in Docket E-100 Sub 141, September 1, 2014.
NC WARN, "Why does Duke Energy hate solar in North Carolina?," July 1, 2014: http://www.ncwarn.org/wp-content/uploads/DHS-White-Paper-Final-7-1-14.pdf

[27] RTI International for the North Carolina Sustainable Energy Association, *Economic and Rate Impact Analysis of Clean Energy Development in North Carolina – 2015 Update*, February 2015: http://c.ymcdn.com/sites/www.energync.org/resource/resmgr/Resources_Page/RTI_2015.pdf

[28] NCUC Docket E-7 Sub 1072 filed March 4, 2015. From Smith Exhibit 2, page 1: Total annual cost of coal fuel for 2014 was $1.04 billion; natural gas fuel cost was $297 million. From Smith Exhibit 6, Page 1: Total fossil fuel and related costs for 2014 was $1.96 billion.

[29] North Carolina Sustainable Energy Association, "Your electric bill: Better off with REPS: http://c.ymcdn.com/sites/www.energync.org/resource/resmgr/legislative/REPSCharges.pdf

steadily through the 20th Century, only starting to falter in 2007. For most of the past thirty years, coal-fired generators provided half of US electricity. That number is now down to 40%.[30] Analysts initially estimated that 30 gigawatts (GW) of coal capacity would be taken off-line due to the expense of adding pollution controls to these power plants – many of them over 50 years old – but newer numbers show 60 GW of coal plants or more retiring over the next five years (out of a total of 300 GW of US coal).[31]

The explosion in fracked shale gas production and its current low cost has displaced a lot of coal in recent years. Meanwhile, coal production costs are increasing in most places, as the easy-to-mine coal is largely depleted.[32] On top of this, pollution control to reduce mercury, sulfur and nitrogen emissions has proven expensive for many utilities, doubling or even tripling the cost of coal-fired power.[33]

Investors are quickly fleeing the coal mining industry as profits have declined 90% since 2007.[34] In May 2014, Barclays downgraded the entire US electricity sector to "underweight," noting long-term challenges including the decline in the cost of solar-plus-storage.[35] In March 2015, Moody's downgraded coal mining companies from stable to negative, expecting earnings to decline an additional 6-8%.[36] Global coal prices are at an eight-year low due to the fuel glut compounded by China's slowing demand.[37]

More challenges to coal-fired generation are from regulations taking effect that will reduce coal's obvious and enormous air and water pollution impacts. These pollution regulations – which utilities managed to postpone for decades – are finally kicking in. In addition, the cost to clean up coal ash is proving to be staggering as utilities like Duke Energy are facing the challenge of cleaning up mismanaged dump sites for the first time. Costs to comply with pollution regulations have added an average of 4 cents per kilowatt-hour to the cost of coal-

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[30] US Energy Information Administration, "Electricity from natural gas surpasses coal for first time, but just for one month," July 31, 2015: http://www.eia.gov/todayinenergy/detail.cfm?id=22312

[31] Carbon Tracker and Energy Transition Advisors, *The US Coal Crash – Evidence for Structural Change*, March 23, 2015: http://www.carbontracker.org/report/the-us-coal-crash/

[32] *Grist*, "Big Coal in big trouble as coal production costs rise," November 1, 2012: http://grist.org/climate-energy/big-coal-in-big-trouble-as-coal-production-costs-rise/

[33] The Regulatory Assistance Project, *Incorporating Environmental Costs in Electric Rates,* October 2011: www.raponline.org/document/download/id/4670

[34] Carbon Tracker and Energy Transition Advisors, *The US Coal Crash – Evidence for Structural Change*, March 23, 2015: http://www.carbontracker.org/report/the-us-coal-crash/

[35] *Business Insider*, "Barclays has the best explanation yet of how solar will destroy America's electric utilities," May 28, 2014: http://www.businessinsider.com/barclays-downgrades-utilities-on-solar-threat-2014-5

[36] Institute for Energy Economics and Financial Analysis, "Moody's changes its US coal outlook, for the worse," March 16, 2015: http://ieefa.org/moodys-changes-its-u-s-coal-outlook-for-the-worst/

[37] *Bloomberg Business*, "Coal-caked home shows danger of vietnam's cheap power," August 16, 2015: http://www.bloomberg.com/news/articles/2015-08-16/coal-caked-home-shows-danger-of-vietnam-s-cheap-power

generated electricity, and could climb as high as 9 cents, which would double or triple the precedent 3- to 4-cent cost of generating one kilowatt-hour of coal-fired electricity.[38] Most utilities realize that carbon regulations are coming that will impose fees on carbon dioxide emissions, and a mid-range estimate of $20 per ton of CO2 would add another 2 cents to the cost of a kilowatt-hour of coal-fired power.[39] These direct costs do not even begin to quantify the litany of external costs of coal such as continued damage to air and water quality, with resulting damages to public health and food supplies.

Cheap shale gas has cut significantly into coal power's market share, as the cost to purchase natural gas has been low for most of this past decade, price volatility around 2008 notwithstanding.[40] The low-power-use month of April 2015 was the first month ever in which more electricity nationwide was generated from natural gas than from coal.[41]

A recent report from former Barclays, Citigroup and Salomon Brothers analysts noted that 14 GW of coal investments were "stranded" (a term that refers to costs incurred by a utility that cannot be recovered due to shifts in the market) from 2010 to 2012, and that:

> Investors have been pushing for coal and other fossil fuel companies to face facts and adapt their business models to thrive in a carbon-constrained world…the fate of US coal should serve as a warning to investors in other fossil fuel markets worldwide who fail to prudently read a structural shift away from hydrocarbons.[42]

Adding to coal's problems, the cost of renewable energy has dropped considerably in the past five years, with installed solar photovoltaic (PV) costs down by half, and US wind costs averaging 2.5 cents per kilowatt-hour.[43] Polls all over the US show that people prefer clean energy over coal-fired power as news of coal ash spills, climate disasters and pollution-choked cities increasingly fills the airwaves.

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[38] The Regulatory Assistance Project, *Addressing the Effects of Environmental Regulations: Market Factors, Integrated Analyses, and Administrative Processes:* http://www.raponline.org/document/download/id/6455

[39] Synapse Energy Economics, *2015 Carbon Dioxide Price Forecast*, March 3, 2015: http://www.synapse-energy.com/sites/default/files/2015%20Carbon%20Dioxide%20Price%20Report.pdf

[40] *Clean Technica*, "Taking a closer look at the economic benefits of solar," December 27, 2011: http://cleantechnica.com/2011/12/27/taking-a-closer-look-at-the-economic-benefits-of-solar/

[41] US Energy Information Administration, "Electricity from natural gas surpasses coal for first time, but just for one month," July 31, 2015: http://www.eia.gov/todayinenergy/detail.cfm?id=22312

[42] Carbon Tracker and Energy Transition Advisors, *The US Coal Crash – Evidence for Structural Change*, March 23, 2015: http://www.carbontracker.org/report/the-us-coal-crash/

[43] *GreenTech Media,* "The price of US wind power at all-time low cost of 2.5 cents per kilowatt-hour," August 18, 2014: http://www.greentechmedia.com/articles/read/Price-of-US-Wind-Power-at-All-Time-Low-of-2.5-Cents-Per-Kilowatt-Hour

DECARBONIZING NORTH CAROLINA

In its comments on Duke Energy's annual Integrated Resource Plans (IRPs), NC WARN presents its updated report, "*A Responsible Energy Future for North Carolina*," as filed in the NC Utilities Commission Docket E-100, Sub 141.[44] The report compares Duke Energy's 15-year forecast for the growth of demand – forecasts that have consistently been exaggerated – and how the company intends to meet that demand, with NC WARN's competition-driven model, which projects a zero-growth scenario more consistent with market trends across the US, and which includes the elimination of all coal-fired generation without adding more natural gas plants.

Our state's goal should be to maximize efficiencies and thus minimize costs to customers. To do this, NC WARN would increase energy efficiency and renewable energy, and encourage distributed generation to place energy sources near where they are needed. Regional supply-sharing strategies should be enhanced; there is no need for all of the utilities in the Southeast to have large amounts of excess generating capacity. These steps would allow for closure of all coal-fired power plants, eliminate the need for new centralized generating plants and, as a result, decrease electricity rates and pollution.

As shown in more detail in the *Responsible Energy Future* report, the most important difference between NC WARN's plan and the utilities' is NC WARN's far more significant increase of energy efficiency and demand-side management (DSM) programs over the 15-year planning horizon. Duke Energy should be required to do far more to implement energy efficiency programs, as efficiency continues to be the most cost-effective option available.[45]

Combined heat and power (CHP) and microgrids, primarily large commercial and industrial strategies, are encouraged in the NC WARN plan, while Duke Energy largely ignores the potential for these resources. CHP is versatile and flexible and can generate power by using waste energy from commercial and industrial activities, waste gas from agricultural or sanitation facilities and other locally sourced resources.[46]

Renewable wind and solar are increased in the NC WARN report, to a degree significantly greater than the minimal renewables in Duke Energy's IRPs. Solar photovoltaic

[44] NC WARN's complete, referenced *Responsible Energy Future* report can be found in **Appendix D.**
[45] American Council for an Energy Efficient Economy, *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*, March 25, 2014; www.aceee.org/research-report/u1402
[46] NC WARN, *Combined Heat and Power in North Carolina: Replacing Large Power Plants by Putting Wasted Energy to Work*, February 2013: http://www.ncwarn.org/wp-content/uploads/2013/02/CHP-Report-FINAL.pdf

systems are a tremendous resource that can provide reliable electricity when we need it most, with costs continuing to fall steadily and with energy storage technology leading toward more "off-grid" customers. Duke Energy already has 2,000 MW of centralized pumped storage facilities in South Carolina that serve as energy storage capacity. Just a few years ago, Duke Energy officials proudly asserted that the pumped storage is perfectly positioned to smooth out the variability of more wind and solar in the Duke Energy system.[47] As added benefits, renewable energy is bringing jobs to the state and boosting the economy. There are approximately 331 solar companies in North Carolina employing 3,100 people, with a positive economic impact of $787 million *in 2013 alone*.[48]

In the NC WARN plan, wholesale purchases are a stable and essential means of meeting our energy needs, while the Duke Energy IRPs employ them minimally. All of the utilities in the Southeast region have excess capacity and this should be used to supplement each other's generation requirements, rather than to duplicate the waste of unneeded or underutilized generation. This recommendation is consistent with the regional sharing practices that have been encouraged by the Federal Energy Regulatory Commission (FERC), but mostly ignored by utilities in the monopoly-controlled Southeast.[49]

The bottom line is that there is a far better way forward, more protective of the public interest and the environment, than the Duke Energy business plan to rely heavily on coal-fired and natural gas generation far into the future. Duke Energy and the state should be implementing the prompt closure of coal plants in order to help avoid the very worst impacts of climate change.

A JUST TRANSITION FOR COAL PLANT EMPLOYEES

The Complainants are of course concerned about employment transition for the approximately 2,000 workers at the seven Duke Energy coal plant sites. The requested plant closures would be phased over time, so jobs would also be phased out over time. In closing coal plants in the past or through the Duke Energy-Progress Energy merger consolidations, Duke

[47] *The Charlotte Business Journal*, "Duke Energy spending $15 million on its hydro plant upgrades," September 10, 2010: http://www.bizjournals.com/charlotte/stories/2010/09/20/story13.html?b=1284955200%255E3956051

[48] Solar Energy Industries Association, "North Carolina solar": www.seia.org/state-solar-policy/north-carolina

[49] NC WARN filed a Rule 206 Complaint and Petition for Investigation with FERC in Docket EL15-32-000 on the issue of excess capacity and the need for regional strategies on December 16, 2014. NC WARN's Complaint is available at www.ncwarn.org/wp-content/uploads/NCWARN-Excess-Capacity-Complaint-to-FERC-and-att.pdf

Energy has offered early retirement packages, transferred workers to other plants and set up job retraining and transition services. Similar initiatives will be necessary as more plants are closed.

Even without the charter amendments we seek, Duke Energy's coal plants are inevitably going to shut down due to market trends, albeit at a much slower pace. Now is the time to begin planning, instead of waiting until it is too late like our state did during the collapse of the textile industry. The expansion of clean energy is the future; job replacement should be focused on green jobs – especially green manufacturing. New industry provides positive economic impacts for local economies and their tax base, but the effort should be focused on industries with positive environmental impacts.

In the next month, The Complainants will be asking Governor Pat McCrory and Secretary of Commerce John E. Skvarla III to form a "green ribbon" panel to establish a plan with Duke Energy of how best to replace old coal plant jobs with new green jobs. We ask the Attorney General to support this initiative.

AMEND THE CORPORATE CHARTER

As demonstrated above, Duke Energy is neither complying with the standards for a corporation chartered in North Carolina, nor the higher standards a regulated monopoly must meet. Duke Energy, through its operations and practices, has failed to meet the basic duties and responsibilities to serve and protect the health, safety and well-being of the people of North Carolina; it has not acted in the public interest or in harmony with the environment. On the contrary, Duke Energy is one of the largest contributors to climate change in the world.

The Complainants therefore urge the Attorney General to initiate an investigation of our allegations and accordingly seek judicial action to amend the corporate charters of Duke Energy Carolinas and Duke Energy Progress to include the following remedies:

1. Duke Energy shall phase out all coal-fired power plants in North Carolina by 2020 without building additional natural gas plants;
2. Duke Energy shall stop actively blocking competition in its monopoly service area in North Carolina; and
3. Duke Energy shall be prohibited from making political contributions, backroom deals, and other efforts to assert influence over the political process in North Carolina.

Although the three remedies will *not* resolve all of the problems between Duke Energy and the people of North Carolina, they will more closely align the corporate interests with those of the public and the environment.

APPENDIX A

PARTICIPATING COMPLAINANTS

PARTICIPATING COMPLAINANTS

NC WARN is a member-based nonprofit tackling the climate crisis – and other hazards posed by electricity generation – by watch-dogging Duke Energy practices and building people power for a swift North Carolina transition to energy efficiency and clean power generation. In partnership with other groups, and using sound scientific research, NC WARN informs and involves the public in key decisions regarding their health and economic well-being. NC WARN is dedicated to climate and environmental justice, thus seeks to address the needs of all of the public by intentionally including those often excluded from participation because of racism, sexism, classism, and other forms of oppression.

Address: PO Box 61051, Durham, NC 27715

Website: www.ncwarn.org

The Beloved Community Center is a community-based, grassroots empowerment oriented organization rooted in Dr. Martin Luther King, Jr.'s legacy of proactive struggles for racial and economic justice, democracy and beloved community, the BCC is committed to grassroots empowerment, especially among minorities, within the context and spirit of forging a beloved community for all residents. The mission of the Beloved Community Center of Greensboro is to foster and model a spirit of community based on Dr. Martin Luther King, Jr.'s vision of a "Beloved Community." In this spirit, we envision and work toward social and economic relations that affirm and realize the equality, dignity, worth and potential of every person.

Address: PO Box 875, Greensboro, NC 27402

Website: www.belovedcommunitycenter.org

Communications Workers of America members work in telecommunications and information technology, the airline industry, news media, broadcast and cable television, education, health care and public service, law enforcement, manufacturing and other fields. CWA Local 3607 is in Greensboro, NC.

Address: 129 Industrial Avenue, Greensboro, NC 27406

Website: www.cwa3607.org

Climate Voices US evolved from its beginnings as ArcticVoices in 2004 in response to a concern about an increasingly energy constrained world. Its mission is to encourage energy conservation and to promote the use of renewable energy in the Boone, NC region and beyond. This is done through education, community building, increasing accessibility to professional energy-related services and by developing models in practice by other communities. The initiative takes a pragmatic approach by encouraging people to prepare for their energy future as they would their financial future.

Address: 130 Poplar Grove Connector, Boone, NC 28607

Website: www.climatevoicesus.org

Black Workers for Justice believes that African American workers need self-organization to help empower ourselves at the workplace, in communities and throughout the whole of US society to organize, educate, mobilize and struggle for power, justice, self-determination and human rights for African Americans, other oppressed nationalities, women and all working class people whether employed or unemployed, union workers or unorganized. We work to build the strength and leadership of Black workers in the Black Freedom and labor movements.

Address: PO Box 26774, Raleigh, NC 27611

Website: www.blackworkersforjustice.com

The North Carolina Climate Justice Summit is a statewide gathering of youth and adults who are ready to use our heads, hands and hearts to create a just world for all. It is a space for deep dialogue, practical learning, creativity and movement building. It is a gathering that harnesses the strength of our diversity. The NCCJS is rooted in the understanding that all people have a vital contribution to make in dealing with the climate crisis. We also recognize that some people—particularly people of color and poor people--are hit first and worst by the polluting industries that are driving climate change and by the intensifying floods, droughts, hurricanes and sea level rise that result from it.

Address: PO Box 15422, Durham, NC 27704

Website: www.ncclimatejustice.org

The North Carolina Environmental Justice Network promotes health and environmental equality for all people of North Carolina through community action for clean industry, safe work places and fair access to all human and natural resources. We seek to accomplish these goals through organizing, advocacy, research, and education based on principles of economic equity and democracy for all people.

Address: PO Box 68, Rocky Mount, NC 27802

Website: www.ncejn.org

APPENDIX B

ABSTRACT OF THE STUDY
ICE MELTS, SEA LEVEL RISE AND SUPERSTORMS

Atmos. Chem. Phys. Discuss., 15, 20059–20179, 2015
www.atmos-chem-phys-discuss.net/15/20059/2015/
doi:10.5194/acpd-15-20059-2015

Atmospheric Chemistry and Physics Discussions

Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 °C global warming is highly dangerous

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Received: 11 June 2015 – Accepted: 9 July 2015 – Published: 23 July 2015

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Published by Copernicus Publications on behalf of the European Geosciences Union.

ACPD
15, 20059–20179, 2015

Abstract

There is evidence of ice melt, sea level rise to +5–9 m, and extreme storms in the prior interglacial period that was less than 1 °C warmer than today. Human-made climate forcing is stronger and more rapid than paleo forcings, but much can be learned by combining insights from paleoclimate, climate modeling, and on-going observations. We argue that ice sheets in contact with the ocean are vulnerable to non-linear disintegration in response to ocean warming, and we posit that ice sheet mass loss can be approximated by a doubling time up to sea level rise of at least several meters. Doubling times of 10, 20 or 40 years yield sea level rise of several meters in 50, 100 or 200 years. Paleoclimate data reveal that subsurface ocean warming causes ice shelf melt and ice sheet discharge. Our climate model exposes amplifying feedbacks in the Southern Ocean that slow Antarctic bottom water formation and increase ocean temperature near ice shelf grounding lines, while cooling the surface ocean and increasing sea ice cover and water column stability. Ocean surface cooling, in the North Atlantic as well as the Southern Ocean, increases tropospheric horizontal temperature gradients, eddy kinetic energy and baroclinicity, which drive more powerful storms. We focus attention on the Southern Ocean's role in affecting atmospheric CO_2 amount, which in turn is a tight control knob on global climate. The millennial (500–2000 year) time scale of deep ocean ventilation affects the time scale for natural CO_2 change, thus the time scale for paleo global climate, ice sheet and sea level changes. This millennial carbon cycle time scale should not be misinterpreted as the ice sheet time scale for response to a rapid human-made climate forcing. Recent ice sheet melt rates have a doubling time near the lower end of the 10–40 year range. We conclude that 2 °C global warming above the preindustrial level, which would spur more ice shelf melt, is highly dangerous. Earth's energy imbalance, which must be eliminated to stabilize climate, provides a crucial metric.

ACPD
15, 20059–20179, 2015

APPENDIX C

DUKE ENERGY'S ABUSE OF POWER AND OTHER INDICTMENTS

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POLLUTION AND ENVIRONMENTAL DESTRUCTION

Harming the air quality and health of North Carolinians
Duke Energy produces more emissions than any other electric power producer in the United States.[1] The sulfur dioxide, nitrogen oxides, mercury and carbon dioxide emitted by Duke Energy's power plants have a damaging effect on the respiratory, cardiovascular and nervous system of North Carolinians.[2] As an example, 2015 reports showed that Duke Energy's Asheville coal plant is emitting sulfur dioxide at levels considered unsafe by EPA standards, and concentrations of sulfur dioxide in the air downwind of the plant near people's homes are 3.5 times higher than levels considered safe.[3] Nearly 20,000 children and adults suffer from asthma in Buncombe County where the plant is located.[4] Air emissions also have a detrimental effect on water quality. Nearly all of North Carolina's rivers and streams have alarming levels of mercury and, as a result, many of them are under advisories against fishing from the state Department of Public Health.[5]

Recklessly mishandling coal ash facilities throughout the state and spilling over 39,000 tons of toxic coal ash into the Dan River
In February of 2014, a pipe underneath Duke Energy's coal ash pond at the Dan River plant in Eden, North Carolina failed, spilling as much as 82,000 tons of toxic coal ash into the adjacent Dan River.[6] But the utility is responsible for a decades-long decision to handle its toxic coal ash by the cheapest and easiest method possible, while using its corporate influence to dodge numerous requests to resolve problems with coal ash pits across the state.[7] Duke Energy's negligence has left the state with polluted waterways and groundwater and a potential $10 billion clean-up problem that has continues to lack a just solution. On top of that, North Carolina's water resources have been severely compromised. Toxic heavy metals have been discovered in the water supplies of 93% of citizens living near coal ash dumps, although Duke Energy disputes whether coal ash has been the cause of this contamination. The pollution in some of these areas has reached levels so high that residents are being told by the state's Department of Environment and Natural Resources (DENR) not to drink or cook with water from their wells.[8]

Attempting to dump millions of tons of coal ash on Lee and Chatham Counties
Duke Energy plans to move over 20 million tons of coal ash from multiple sites and transfer it into dumps in Lee and Chatham Counties under the veil of "mine reclamation" and "beneficial reuse."[9] This coal ash clean-up plan effectively dumps the coal ash problem onto other undeserving communities while providing little guarantee to those living near existing coal ash dumps that their land and water will ever be decontaminated. Duke Energy is trying to rid itself of future responsibility for its toxic coal ash by transferring liability of the Lee and Chatham sites to a relatively unknown, limited liability company.[10]

Continued burning of coal acquired by mountaintop removal
Duke Energy gets the majority of its coal supply from Central Appalachia, where approximately 25% of coal is extracted through mountaintop removal.[11] Mountaintop removal is a destructive mining practice that has destroyed more than 500 mountains totaling 1.2 million acres and has buried over 2,000 miles of headwater streams with mining waste and polluted many more.[12]

Lobbying to undermine the Migratory Bird Act
In 2013, Duke Energy pled guilty under the Migratory Bird Treaty Act to the deaths of over 150 protected birds at two of its Wyoming wind farms. The penalty for Duke's violation of the law was a $1 million fine. Two years later, documents linked Duke Energy to lobbying efforts to undo the Migratory Bird Treaty Act, which would open the door for individuals and companies to kill migratory birds without penalty.[13]

Continuously perpetuating the climate crisis because of reliance on fossil fuels
Duke Energy is the top-polluting utility in the country and pollution from fossil fuel power plants is one of the greatest contributors to climate change.[14] Duke Energy's coal plants in the Carolinas emitted 39,418,192 tons of CO2 into the atmosphere in 2013.[15] Duke Energy's plans to continue its reliance on fossil fuel technologies well into the future are perpetuating the severity of climate change. As the effects of climate change have and will become more devastating, Duke Energy's refusal to change course becomes even more irresponsible.

Overzealous tree "pruning"
It is understood that trimming tree limbs in order to protect power poles and lines is a necessary task undertaken by utilities. But Duke Energy takes trimming to extremes in many cities. The utility infuriated Greensboro residents in 2013 by over-pruning tree limbs and cutting down entire trees (some as old as 100 years) even though customers insist they were not a threat to power lines. Residents were also angered when Duke Energy ignored its responsibility to clean up after pruning.[16]

CORPORATE CRIME

Fines, felonies and an ongoing criminal investigation due to mishandling coal ash
Duke Energy's February 2014 coal ash spill at the Dan River was a devastating event that made clear the extent of the utility's neglect of the risks associated with its coal ash ponds. The coal ash spill resulted in Duke Energy Carolinas and Duke Energy Progress pleading guilty to nine criminal charges from the US Attorney – four as a direct result of the spill in Eden and five that resulted from further investigation into violations at Duke Energy's other coal ash facilities. The guilty plea was accompanied by $102 million in penalties.[17] The spill also resulted in several shareholder lawsuits, including an active one that accuses the corporation of undue influence on regulators and fostering a "culture of lawlessness."[18]

Enron's cohort in market manipulation scandal
In the early 2000's Duke Energy was charged by multiple entities with intentionally withholding electricity from the California market in a scheme to drive up prices and increase profits. As a result of what became known as the Enron scandal, millions of Americans faced corporate-sponsored blackouts. The California Attorney General, Federal Energy Regulatory Commission and California Independent System Operator all issued fines to Duke Energy totaling over $250 million for its participation in the scheme.[19]

Involvement in other market manipulation scandals
In 2003, Duke Energy was charged a civil monetary penalty by the US Commodity Futures Trading Commission for manipulating natural gas markets.[20] In 2005, the Securities and Exchange Commission issued Duke Energy a cease-and-desist order because the company had illegally classified millions of dollars of power and natural gas trading operations.[21] The investigation that followed resulted in criminal charges against three employees.

Felonies and ethics violations in Indiana
During the time that the Indiana Utility Regulatory Commission (IURC) was hearing cases related to costs at Duke Energy's Edwardsport coal plant, Duke Energy CEO Jim Rogers and Vice President James Turner met privately with IURC Chairman David Lott Hardy to discuss the project's cost overruns. Hardy was charged with multiple felony counts of official misconduct and fired for inappropriate behavior in the case. Turner resigned from his position at Duke Energy. In the midst of the Edwardsport ethics scandal, former IURC General Counsel Scott Storms was found guilty of ethics violations in 2011 for negotiating for employment with Duke Energy while hearing and issuing orders on Duke Energy cases.[22]

Cheating and endangering San Francisco schools
Progress Energy, operating as subsidiary company Strategic Resource Solutions, won a bid to provide energy efficiency services to San Francisco Unified School District in 1999. In 2003, the school district and the San Francisco City Attorney filed suit against Progress Energy for $300 million in damages due to fraud, breach of contract and negligence. The company attempted to overcharge for its services by inflating invoices, and the work that was performed was done negligently, leading to freezing cold classrooms for students, flooded basements at multiple schools, damage to boiler systems and even a boiler explosion at one middle school. The attorney representing the school district called the scandal "one of the most venal examples of corporate wrongdoing San Francisco has witnessed in recent memory."[23] Progress Energy ultimately settled with the school district, agreeing to pay $43.1 million.[24]

CUSTOMER INJUSTICES

Rigging rates against residential and small business customers
Duke Energy recruits big energy using customers like data centers into the state by offering them dirt-cheap rates for electricity. These large customers drive up demand for

new power plants, which result in more profits for Duke Energy. By setting rates based on the single hottest hour of the year, when homes and small businesses use the most energy and when large industrial customers are given advance notice to reduce their usage, Duke Energy is able to shift the costs of new power plants onto families and businesses and keep rates low for data centers and industrial facilities.[25]

Overcharging customers during rate cases
In Duke Energy's 2013 rate case in North Carolina, the utility was caught attempting to overcharge customers hundreds of millions of dollars annually for inappropriate or invalid expenses. Examples of these expenses include one-time merger costs, lobbying expenses, corporate jet travel unrelated to North Carolina service, an engineering assessment of Duke Energy's broken nuclear plant in Florida, sponsorships for the Charlotte Bobcats, CEO country club dues, political contributions and more.[26]

Deposit policies that penalize low-income customers
Before receiving electric service, customers must pay a deposit – the amount of which is based on a general credit check, even if the customer has good payment history with previous utilities. Customers without means are expected to come up with deposits up to twice their monthly bill, plus a hefty reconnection charge in some cases, and they must pay these charges all at once because customers do not have an option to pay deposits in installments.[27]

Charging Florida ratepayers for broken nuclear plants and a nuclear plant never built
Progress Energy Florida, now Duke Energy Florida, convinced ratepayers, regulators and legislators that building the Levy nuclear plant would be a good source of clean, low-cost power. The Florida legislature passed a law to allow the utilities to collect money from customers in advance to pay for nuclear projects like Levy. But by August 2013, before even being granted a construction license, the project had become so wrought with problems that Duke Energy shut it down. $1.5 billion is being charged to ratepayers for a plant that will never produce power, and Duke Energy pockets $150 million of that as profit.[28] Meanwhile, Duke Energy was also making the call to permanently close the Crystal River nuclear plant after Progress Energy botched a 2009 repair by taking the cheap route and self-managing the project. The Crystal River fiasco has cost Florida customers at least $1.3 billion.[29]

Gouging Indiana customers for the Edwardsport coal plant
Duke Energy's "clean coal" project in Indiana was budgeted at $1.95 billion but cost $3.55 billion. The project currently costs the average customer an extra $15 per month and more increases are expected. The plant is operating 36% of the hours of the year when it was promised to run 72%, and is not capturing any carbon emissions as originally intended.[30]

Seeking to make Florida customers pay up-front for fracking exploration
Duke Energy in Florida, along with Florida Power and Light, will seek to charge ratepayers up-front for fracking gas exploration, allowing the utilities to profit from fuel costs.[31] In June 2015, the Florida Public Service Commission (PSC) approved Florida

Power and Light's investment of $500 million annually in Oklahoma fracking operations and Duke Energy has indicated that it will seek a similar arrangement.[32]

Withholding property taxes for Crystal River power plants
In 2012, Progress Energy disputed its property tax bill in Citrus County – the location of the utility's Crystal River coal and nuclear facilities – refusing to pay $15 million of the $35 million that was owed. Duke Energy argued that pollution controls for the coal facility were overvalued and the nuclear plant should have been devalued because it was broken and not operating.[33] Appraisers and county officials disagreed with Duke Energy's position and the company's refusal to pay the full amount or come to a reasonable compromise caused a budgetary crisis for Citrus County schools and other public services.[34]

Trying to force NC customers to pay in advance for risky nuclear plants
For four years at the North Carolina legislature, Duke Energy tried to pass Construction Work in Progress legislation. Such legislation would allow the utility to charge ratepayers in advance for expensive and risky nuclear projects that might never be completed, such as the Lee Nuclear Station in South Carolina. A 2012 study demonstrated how such legislation could double North Carolinians' electric bills.[35] Meanwhile, Duke Energy has spent $449 million to seek a license for the Lee nuclear project since 2006.[36]

Duke Energy's coal-fired plants disproportionately harm low-income communities
A 2010 study estimated that Duke Energy's reliance on coal in North Carolina had a monetized cost $6.94 billion in premature deaths, $817.1 million in asthma attacks, $257.2 million in chronic bronchitis, $158.1 million in heart attacks and $16.2 million in hospital admissions.[37] A recent study shows that pollution inequality is even worse than income inequality in the US, with poor children bearing the brunt of damages. Studies show that a disproportionate pollution burden is placed on minority and low-income communities.[38]

EXCESSIVE POWER AND INFLUENCE

Merging with Progress Energy to expand the monopoly while ignoring costs to ratepayers and employees
Duke Energy's 2012 merger with Progress Energy was opposed by NC WARN and others who argued that the merger would ultimately only benefit Duke Energy, while having negative implications for the people of North Carolina.[39] The merger was expected to cut 1,800 jobs and create an even more powerful corporate entity with monopoly control over 96% of the North Carolina electricity market.[40] As the merger proceedings unfolded, it became clearer that the deal was not in customers' best interest when the implications of Progress Energy's botched nuclear projects and secret agreements to buy support for the merger from large customers came to light.[41]

Closed-door meetings with regulators
Then-Duke Energy CEO Jim Rogers openly admitted to personally negotiating with NC Utilities Commission (NCUC) Chair Ed Finley to come to terms of a settlement in the Commission's investigation of the Duke Energy-Progress Energy merger while billions of dollars remained contested and under appeal, and while Finley blocked open review of those issues.[42] Negotiations between utilities and regulators behind closed doors while an investigation remains underway completely compromises the regulatory process intended to protect North Carolina customers from large corporate utilities like Duke Energy wielding too much power.

Buying influence over the democratic process and public opinion with political donations and community contributions
Between 2008 and 2014, Duke Energy Corporation spent $4 to 7 million each year lobbying at the federal and state levels.[43] Since 2000, Duke Energy's Political Action Committee spending has exploded from less than $300,000 per election cycle to $2 million.[44] Duke Energy uses myriad tools such as contributions and sponsorships to influence legislation and public policy and appease public criticism. It then attempts to charge ratepayers for many of these expenses and lobbying costs.

Being an active member of ALEC
The American Legislative Exchange Council (ALEC) is an organization that drafts and promotes bills on behalf of corporate interests. Duke Energy is a prominent member of ALEC, serving as the state corporate co-chair in Indiana and South Carolina; a member of ALEC's Energy, Environment and Agriculture task force; and a major contributor to the organization's annual conference. ALEC is one of the primary groups responsible for attacks on clean energy policies like state REPS requirements, net metering and third party electricity sales.[45]

Helping get a former Duke Energy employee elected as Governor of North Carolina
Duke Energy and its executives contributed $98,000 to Pat McCrory's 2008 and 2012 gubernatorial campaigns – three times more than all of rest of the corporation's combined gubernatorial campaign contributions. Pat McCrory worked for Duke Energy for 28 years before being elected Governor, and still held a large amount of Duke Energy stock until he submitted to public pressure and sold his shares in May of 2013.[46]

A net taker from federal taxpayers
During the five-year period from 2008-2012, Duke Energy had a negative effective federal tax rate of -3.3% (minus 3.3%), while earning over $9 billion in profits and receiving $299 million in federal tax rebates.[47]

FIGHTING THE FUTURE

Blocking competition by actively working against solar policy
Starting in 2014, Duke Energy, alongside ALEC, the Koch brothers and state-based front groups, began to silently ramp up its attack on solar in North Carolina. Duke Energy has advocated for weakening net metering rules for rooftop solar installations

and has used its lobbying power to attempt to prevent legislation in both North Carolina and Florida that would allow competition from third party solar companies and give customers the opportunity to get rooftop solar at no up-front cost.[48] To fight off large-scale solar, Duke Energy wants to reduce the amount it pays for solar power and change standard contract terms to make solar projects uneconomical.[49] When the NCUC denied Duke Energy these requests to shackle the large-scale solar industry, the same requests appeared in multiple bills before the North Carolina legislature. Insiders in the North Carolina solar industry have struggled with Duke Energy's practice of slow-walking the process of grid interconnection for solar projects of all sizes – roof-top and large-scale.

Targeting black leaders with erroneous 'solar hurts the poor' messaging
In an effort to push back against the growth of solar power and protect the corporation's own bottom line, Duke Energy and the Koch Brothers' anti-solar campaign targeted community leaders with a message that solar electricity harms low-income communities and communities of color.[50] In reality, solar power helps all customers by reducing the utility's case to build expensive power plants and continually raise rates. Duke Energy's monopoly control over North Carolina is the only reason that Duke Energy could force its customers to pay more for dirty power as demand for electricity falls.[51] The manipulative PR led to an open letter to Duke Energy CEO Lynn Good from prominent African American pastor Rev. Nelson Johnson and NC WARN Director Jim Warren demanding that Duke Energy stop targeting black leaders with its anti-solar campaign.[52]

Pursuing renewable energy projects only outside of its monopoly home states
Duke Energy has successfully invested $4 billion in wind and solar power in states requiring competition.[53] In its monopoly-protected states, it actively limits clean energy competition in order to continue raising customer rates to build giant fossil fuel and nuclear power plants. Now, Duke Energy even wants to build solar projects in North Carolina and sell the power out of state where it can get a higher price and more favorable contract terms.[54]

Misleading the public about coal closures
Over the past six years, Duke Energy has repeatedly gotten away with major deception by trumpeting its closure of coal-fired power plants while building more coal and fracking gas plants and still claiming that its carbon emissions have trended downward since 2008. In fact, Duke Energy remains the nation's largest utility polluter and the coal plants it has closed were barely being used. The very small, old units retired across the Carolinas equal about 3,294 megawatts (MW) of available generation capacity. But the units in the Duke Energy Carolinas area generated electricity only 7% of the hours during their final year of operation, on average.[55] Duke Energy replaced those units with the 2012 opening of Cliffside 6, a large coal-fired unit with a $2.4 billion bill for ratepayers. Cliffside 6 spews around 11 billion pounds of carbon into the air annually – far more than the combined emissions during 2010 of all the coal units Duke Energy Carolinas has retired.[56] Plus, Duke Energy plans to build another 6,594 MW in gas-burning capacity – representing billions in rate hikes and more climate-wrecking methane emissions – by 2029.[57]

WASTED CAPACITY

Building unneeded power plants instead of sharing power with neighboring utilities
Utilities in the Southeast had unused generation capacity of 24% during the summer of 2014. In months of lower usage, Duke Energy's reserve generation capacity ranges up to 57% – at the time of peak demand during those months. But Duke Energy still plans to build billions of dollars in new power plants over the next 15 years. Other states in the Southeast have similar or higher levels of unused generating capacity, but Duke Energy refuses to participate in regional cooperation arrangements and plans to purchase only 0.2% of its supply needs from neighboring utilities in 2029.[58] Duke Energy and others are able to get away with this massive waste due to their monopoly control and undue influence over state regulators across the Southeast.

Limiting energy efficiency progress
Energy efficiency is the most cost-effective method of meeting electricity demand and could eliminate the need for billions of dollars in new power plants. But in 2013, Duke Energy spent a mere 0.63% of utility revenues on energy efficiency programs. The utility continues to make minimal efforts to expand efficiency programs.[59] Duke Energy projects energy efficiency and demand side management programs accounting for only 5.1% of its energy sales in 2029.[60] Meanwhile, Duke Energy has actively blocked outside attempts to move energy efficiency programs forward – including NC WARN and allies' proposal for NC SAVE$ Energy in 2009.

Sending billions of dollars out of North Carolina for coal
Duke Energy sends $1.76 billion out of North Carolina every year to pay for coal to operate its plants in the state.[61] Duke Energy's choice to continue running its coal plants is draining ratepayer money from the North Carolina economy that could be better spent on renewable energy projects that produce local jobs and benefit the local economy.

Operating coal plants that remain 'spinning' while not producing power
Since coal plants are inefficient and unable to be turned on and off quickly, Duke Energy frequently keeps these plants 'spinning' at times when the utility is uncertain of what demand for electricity may need to be met. A spinning coal plant continues burning coal and polluting, while not providing any electricity to the grid. Although how frequently this practice takes place is difficult to quantify, it is certain to have become more prominent as Duke Energy moves toward using more and more natural gas, while still keeping its coal plants operable.

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APPENDIX D

NC WARN'S REPORT *A RESPONSIBLE ENERGY FUTURE FOR NORTH CAROLINA* AND 2015 UPDATE

A Responsible Energy Future for North Carolina

An Alternative to the Duke Energy-Progress Energy Plans for the Crucial Years 2013–2032

John Runkle
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February 2013

Prepared for NC WARN

NC WARN

CONTENTS

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This report extends previous analyses for NC WARN by the late **Dr. John Blackburn**. For more on Dr. Blackburn's invaluable contributions, see www.ncwarn.org.

NC WARN is a member-based nonprofit tackling the accelerating crisis posed by climate change — along with the various risks of nuclear power — by watch-dogging utility practices and working for a swift North Carolina transition to energy efficiency and clean power generation. In partnership with other citizen groups, NC WARN uses sound scientific research to inform and involve the public in key decisions regarding their wellbeing.

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NC WARN

A Responsible Energy Future for North Carolina:

An Alternative to the Duke Energy–Progress Energy Plans for the Crucial Years 2013–2032

"With great power there must also come — great responsibility!"[1]

SUMMARY

Each year, the North Carolina Utilities Commission (NCUC) reviews the annual Integrated Resource Plans filed by the electric utilities. In their IRPs, Duke Energy and subsidiary Progress project how they would deal with supply and demand of electricity for the next 20 and 15 years, respectively.

By law, the NCUC's standard is to find the "least cost mix of generation and demand-reduction measures which is achievable." The IRPs submitted by the now-merged Duke Energy Carolinas and Progress Energy Carolinas fall far short of that standard. NC WARN is presenting the NCUC with an alternative that is far less expensive and takes a huge step forward in addressing the critical issue of climate change.

Under the Duke and Progress plans, North Carolina would still be deriving large amounts of energy from coal, natural gas and nuclear power indefinitely. The utilities plan only minimal amounts of renewable energy or energy efficiency. Their substitution of natural gas for coal would lock in a losing path for global warming, since the methane released by fracking is an even more potent greenhouse gas than the carbon dioxide emitted by coal-fired power plants. Both utilities plan to add new nuclear units despite severe problems with other utilities' nuclear construction projects underway in the southeastern United States and elsewhere around the world.

These plans are grossly irresponsible both economically and in terms of climate impact.

In NC WARN's Responsible Energy Future, we describe a combination of cleaner, lower-cost alternatives that are available to meet North Carolina's energy needs. The utilities are using their monopoly status in our state to suppress these alternatives even as they insist on continuing to build polluting fossil fuel plants and extremely costly nuclear plants — and raising our rates repeatedly to do so.

Our plan would allow for the phasing out of all coal-fired plants in the Carolinas by the mid-2020s if not sooner, building no additional natural gas or nuclear plants, and reducing the amount of generation from existing natural gas-burning plants. Instead, we advocate an aggressive but achievable increase in energy efficiency and truly renewable energies.

Weatherization and other energy-saving programs can create thousands of jobs statewide while reducing energy demand up to 30% over the planning period. Efficiency measures, which reduce the need to generate electricity in the first place, are cheaper than any other means of meeting our energy needs. Efficiency programs that have proven successful in other states could eliminate the need for costly new power plants, leaving customers with more money in their pockets.

Solar and coastal wind energy are abundant in North Carolina and can provide large amounts of electricity with no fuel costs. Solar photovoltaic is already cheaper than new nuclear power could ever be, and will soon be cheaper than the average kilowatt now coming from the grid. Just a fraction of the wind energy off our coast would help the state meet 20% of its electricity needs and could generate up to 20,000 manufacturing jobs.

Combined heat and power (CHP), also known as cogeneration, is a well-developed and economic way to capture and use large amounts of energy that are otherwise simply emitted as waste heat from industrial, commercial and institutional facilities. On average, CHP electricity is less expensive than current grid power. This is a tremendous untapped resource that could allow thousands of facilities such as manufacturing plants, schools, hospitals and hotels to decrease their annual energy bills by 30% or more. North Carolina's technical CHP capacity is the equivalent of around ten nuclear power plants — or more than 40% of all electricity requirements.

Each of those four technologies, individually, could replace the need for at least several large power plants. Together, they would lead to a decentralized electricity grid less controlled by the Duke-Progress monopoly and less subject to outages.

Energy storage is another grossly underutilized resource. Duke Energy owns two very large pumped-storage hydro plants in South Carolina. These plants operate as enormous batteries to capture the over-generation of nuclear power that occurs on most nights in the Duke-Progress system. They would be ideal for helping to smooth out the variability of widespread solar and wind power.

At a minimum, Duke Energy's business plan will cause rates to double from 2009 levels by 2019, with increases of another 50% in the subsequent decade. Instead of spending tens of billions of dollars for highly questionable nuclear construction projects, we propose spending a fraction of that sum on energy efficiency, solar, wind and CHP. This would be far less expensive for North Carolina ratepayers, would create thousands of jobs and could fuel a rapid transition to a climate-protecting energy mix.

The Responsible Energy Future would result in 2032 CO_2 emissions 86% lower than the energy mix proposed by Duke Energy's IRP and 2027 emissions 83% lower than the mix proposed by Progress.

We as a state should no longer have to bear the economic, environmental and health costs of generating fossil fuel-based electricity, and we certainly do not need the crippling expense and near-permanent hazards of new nuclear plants.

We can no longer allow the electric utilities and overly cooperative regulators to control our energy and economic future.

In order for North Carolina to do its part to prevent climate change from reaching global tipping points, we must be engaged and insistent that the time has come to aggressively replace hazardous electricity generation with proven — and economically superior — clean-energy technologies.

INTRODUCTION

In 2013, the now-merged Duke Energy Carolinas and Progress Energy Carolinas will generate almost 95% of the electricity consumed in North Carolina, and its top priority will be to make a strong profit for corporate shareholders while doing so.[2] It would be irresponsible for the rest of us to surrender our energy, economic and environmental future to the priorities and plans of this monopoly corporation.

In February 2013, as they do every year, the North Carolina Utilities Commission (NCUC) will begin review of the annual Integrated Resource Plans (IRPs) filed by the electric utilities.[3] The NCUC's basic standard for review is to find the "least cost mix of generation and demand reduction measures which is achievable."[4] This review includes the consideration of appropriate rewards to utilities for efficiency and conservation programs that decrease utility bills — to the extent that utilities develop such programs.

Both Duke Energy and Progress Energy base their long-range plans on vigorous growth in demand for electricity, 1.2–1.6% each year, even though actual growth in electricity demand has been far lower than that for more than a decade. The forecasts are based in large part on the rosy assumptions of full economic recovery, and projections of population growth. Another problem is that the utilities plan to meet new growth in electricity demand by building polluting fossil fuel plants and extremely costly nuclear plants — while suppressing energy-saving programs and advances in solar and wind power — and raising rates repeatedly to do so.

We cannot allow the electric utilities and overly cooperative regulators to control our energy future. That is something for which the people of North Carolina need to take responsibility. We need to be responsible for the wise use of our money and the future of our state's economy. We need to be ultimately responsible for the health and welfare of present and future generations of North Carolinians, and responsible for the impacts fossil fuels have on our climate. In a state "of, by and for" its citizens, we are ultimately responsible for our own future.

The Duke Energy and Progress Energy plans are *simply irresponsible*. Building expensive power plants diverts precious resources from weatherization and other energy-saving projects that can create thousands of jobs statewide — beginning almost immediately — and lower our electricity *bills* even if our *rates* might rise modestly. The same is true for renewable energy (RE) sources, such as solar and wind, which are abundant in North Carolina and have the ability to provide reliable electricity throughout the year with no fuel costs. Customer CHP (combined heat and power, or cogeneration) is a well-developed and economic way to capture and use large amounts of energy that are otherwise simply wasted. Energy efficiency (EE), solar, wind and CHP can help to dramatically reduce fossil-fuel pollution statewide.

We cannot allow the electric utilities and overly cooperative regulators to control our energy future.

Each of those four technologies, individually, could displace the need for several large power plants. However, by using their monopoly control over state ratepayers, Duke Energy and Progress Energy are impeding all of those clean-energy advances because allowing them to grow would further destroy the case for building more high-profit fossil- and nuclear-fueled plants.

New and existing coal and natural gas plants discharge large amounts of pollution that damages our health and climate, and extraction of those fuels destroys ecosystems — including entire mountains — and communities.

NC WARN's analysis shows that, even using the utilities' ambitious growth projections, all coal-fired plants in the Carolinas can be phased out by the mid-2020s without building more natural gas and nuclear plants. Instead of new fossil fuel units, we propose an aggressive but achievable increase in the use of proven efficiency programs, a more rapid development of solar and wind power and facilitation of customer CHP. Duke Energy's two large energy storage facilities in South Carolina can help smooth out the variability of solar and wind while putting to use the near-daily over-generation of nuclear power in the Duke-Progress system.

NC WARN's analysis shows that, even using the utilities' ambitious growth projections, all coal-fired plants in the Carolinas can be phased out by the mid-2020s without building more natural gas and nuclear plants.

This approach would also provide a critically important hedge against rising prices of natural gas, against nuclear construction cost overruns and failures and against the increasing droughts that could render water-hungry coal and nuclear plants unable to deliver power.

When growth forecasts are too high, the utility monopoly invests our money in unneeded plants. For many low- and fixed-income families, raising power bills to pay for those plants forces harsh choices between basic needs: electricity versus food and medicine.

That is why we cannot allow the utilities to determine our energy future. To cede such decisions to Duke and Progress, and to regulators who are subject to corporate pressure, would be tragically irresponsible on our part.

Our primary goal is to find a realistic energy future that does away with all coal plants,

Duke and Progress plan to continue burning large amounts of coal throughout their long-term planning period.

reduces the amount of generation from existing natural gas plants and requires no new gas or nuclear plants. This report lays out one such future, and does so using a conservative approach that retains many of the questionable capacity and energy projections used by Duke Energy and Progress Energy in their IRPs.

In a future that is both economically and environmentally sustainable, our energy mix would be one of widely distributed generation — including rooftop systems — that would leave communities unburdened by large, centralized coal, natural gas and nuclear plants, and we would use all energy as efficiently and wisely as possible. We will continue to refine and advocate for our Responsible Energy Future proposal so as to realize this vision to the greatest extent possible.

THE FUTURE UNDER DUKE ENERGY AND PROGRESS ENERGY

The utilities' forecasts of generation and sales are summarized in Figure 1 (page 12) for Duke Energy and Figure 2 (page 13) for Progress Energy, with more details in

Appendix A. In both cases, projections of generation, in total and by fuel source, are taken from the IRPs as submitted to the NCUC in the fall of 2012.

Despite over a decade of very little growth in demand, and U.S. industry-wide expectations for slow demand for many years to come, Duke Energy projects a robust growth rate of 1.4% annually. In its forecast for 2032, Duke includes the impacts of energy efficiency (EE) and demand-side management (DSM) and treats them as additional sources to meet its expected generation needs.[5] Progress Energy projects a growth in demand of 1.6% annually, and then, unlike Duke, lowers its forecast to 1.2% annually to accommodate its expected EE/DSM programs.

As a result of these ambitious growth predictions, Duke Energy projects an increase of 30% in electricity sales over the 2013–2032 period — from 92,210 gigawatt hours (GWh) in sales to 133,453 GWh — in its North and South Carolina markets.[6] We believe it is clear that Duke Energy plans to continue efforts to sell electricity outside of its service area (as it attempted with Orangeburg, SC) and throughout its six-state market in the Southeast and Midwest.

Progress Energy's projections are slightly lower, with a forecasted increase of 15% over the 2013–2027 period, and sales rising from 66,066 GWh to 76,025 GWh.[7]

Duke Energy projects it will need to add 6,365 MW of new generation (the equivalent of six large nuclear reactors) during its 20-year planning period, while Progress Energy projects 4,722 MW (equivalent to five reactors) during its 15-year planning period.[8]

In the IRPs and other recent filings at the NCUC, each utility has announced plans to close many of its small, unscrubbed coal plants and older combustion turbines fueled by natural gas. Duke Energy has listed 20 combustion turbines and nine coal plants that it expects to close by 2015.[9] The expected retirement dates for the 1,080 MW in coal plants have moved up considerably when compared to the projections in past IRPs. Even though most of these units have been used very little in recent years, Duke's willingness to retire them earlier than previously planned raises questions about Duke's need for new generation.

On the other hand, Duke Energy also added the 822 MW Cliffside 6 coal-fired unit to its generation fleet in late 2012, a major step backwards in terms of carbon emissions.

Progress Energy has listed 15 small coal- and oil-fired units that it will close in the next several years, with a summer capacity totaling 1,548 MW.[10] In its IRP, Progress Energy plans to replace some of its coal units with natural gas units. However, according to former CEO Bill Johnson, Progress plans to retain its large coal units as a hedge against rising natural gas prices — which means customers would pay for a large amount of redundant generation capacity.[11]

Each of the utilities continues to retain a substantial reserve margin, in the 14–16% range, in case one or more of its other plants is not on line when needed. Neither Duke nor Progress relies on purchases from other utilities, although competitive markets, such as the PJM in Virginia and the Atlantic states, are nearby.[12]

Each of the utilities plans to add nuclear power to its generation mix in the planning period, although operational dates for the two units proposed by Duke Energy at its Lee Nuclear Station site in Gaffney, South Carolina,

New nuclear plants would cost ratepayers tens of billions of dollars.

have been repeatedly delayed in each of the past few IRPs. The delays reflect slow long-term demand, the low price of natural gas and severe problems with other utilities' nuclear construction projects underway in the southeastern United States and elsewhere around the world.[13]

The two nuclear units previously proposed by Progress Energy at its Shearon Harris site near Raleigh are no longer on the planning horizon even though millions of dollars have been invested in licensing efforts.[14] Instead, Progress Energy is now presenting its preferred plan as one including 55 MW of new "regional" nuclear in 2017, 55 MW in 2019, 221 MW in 2021 and an additional 221 MW in 2023.[15] The two smaller additions of nuclear power assume a 5% purchase of two units at SCANA's V.C. Summer plant in South Carolina, which are in early stages of construction, while the larger additions reflect a major 20% buy-in of Duke Energy's Lee Station.[16]

However, all nuclear licensing is currently delayed while the U.S. Nuclear Regulatory Commission decides what to do with the used, highly irradiated reactor fuel.[17] The only two reactors licensed in 30 years — Vogtle in Georgia and Summer in South Carolina — are experiencing additional, long construction delays and rapidly escalating costs, and their completion is far from certain.[18]

A full look at new nuclear plants is critical in a responsible energy future because they are by far the most costly — and the most risky — of all generating and energy-saving options. The cost estimate for constructing two units at Duke's Lee Nuclear Station in Gaffney, SC, exceeds $24 billion — assuming costs do not increase and schedules do not slip.[19] A 2012 study conducted by Synapse Energy Economics on behalf of Consumers Against Rate Hikes showed that the addition of the Lee Station alone, without the other plants Duke Energy is planning, could raise rates by 40% or more.[20]

Both utilities plan to add more natural gas generation because gas prices are presently very low, while new coal and nuclear plants are becoming increasingly cost-prohibitive. In its IRP, Duke Energy expects to add natural gas capacity in both conventional combustion turbines (170 MW in 2017, 800 MW in 2019, 800 MW in 2030 and 150 MW in 2032) and combined cycle units (700 MW in 2016, 700 MW in 2018, 700 MW in 2028).

Progress Energy expects to add combustion turbines (126 MW in 2016, 370 MW in 2018, 185 MW in 2019, 185 MW in 2026, 185 MW in 2027) and combined cycle (1545 MW in 2013, 787 MW in 2020, and 787 MW in 2022) which would bring its electricity from natural gas plants up to 41.7% of its total generation.[21]

Present practices, along with the size of the combined cycle additions in both IRPs, indicate that the utilities are now considering natural gas to be an around-the-clock baseload resource, and they plan to continue using combustion turbines for peak periods.

There are two disadvantages of reliance on natural gas. One is the externalized costs — such as damage to the environment and our health — of fracking, refining, transport and combustion. The other is the emission of methane. Despite claims to the contrary, the increased reliance on natural gas by Duke and Progress does very little to reduce the emission of greenhouse gases. Though *burning* natural gas emits less carbon dioxide (CO_2) than coal, various stages of

Methane emitted during fracking of natural gas is an even more potent greenhouse gas than carbon dioxide. *AP/David Zalubowski*

the natural gas fracking process leak methane, which is much more potent than CO_2 in terms of the greenhouse effect, particularly over the all-important near term.[22] Therefore, substituting natural gas for coal is not an effective means of reducing the magnitude of global warming.[23]

As part of the review of the utilities' IRPs, the NCUC needs to assess the emission of CO_2 and other greenhouse gases. Just from the burning of natural gas and coal, Duke Energy's plan for 2032 results in annual CO_2 emissions in the 81 billion pound range (with Cliffside alone adding 12 billion pounds annually), while the Responsible Energy Future proposal reduces this by 87% to 10 billion pounds. Progress Energy's plan for 2027 results in annual CO_2 emissions in the 52 billion pound range, while the Responsible Energy Future reduces this by 83% to 8 billion pounds.[24]

Substituting natural gas for coal is not an effective means of reducing the magnitude of global warming.

By greatly reducing the amount of natural gas in the mix, the Responsible Energy Future proposal also prevents large amounts of methane from entering the atmosphere.

WHAT DOES THIS MEAN FOR NORTH CAROLINA?

At a minimum, Duke Energy's business plan (based on the proposed power plant construction in the IRP) will cause rates to double from 2009 levels by 2019, with increases of another 50% in the subsequent decade.[25] This does not include any additional costs from inflation, new and upgraded transmission lines, increases in fuel prices or controls on the production of carbon and other greenhouse gases. Both Duke Energy and Progress Energy are currently seeking large rate hikes.

Duke Energy and Progress Energy both plan to use very minimal amounts of energy efficiency and minimal solar, wind and other RE sources — basically only what is required of them through 2021 under the state's Renewable Energy and Energy Efficiency Portfolio Standard (REPS).[26] Under the REPS, all electric power suppliers in North Carolina must meet an increasing amount of their retail customers' electricity needs by a combination of RE resources (defined under the bill as solar, wind, hydropower, geothermal and biomass) and reduced energy consumption. The REPS requirement on the electrical utilities begins at 3% of retail electricity sales in 2012, gradually increasing to 12.5% of 2020 retail sales and remaining at that level.[27] Energy efficiency measures can account for up to 25% of the requirement and thus are capped at a little more than 3% of 2020 retail sales, a truly insignificant portion of what is possible.

In addition, demand is likely to grow more slowly than the two utilities project. Carrying out the construction programs in the IRP filings would necessarily raise rates to customers, thus causing consumers, especially commercial and industrial customers who have other options, to use less and less electricity as prices increase. Such response to higher rates is what industry economists call "demand destruction." This is an important but under-considered factor for energy planning in North Carolina.

Duke Energy's business plan will cause rates to double from 2009 levels by 2019.

As rates increase, residential and small business customers would face increasing financial burdens, especially if the utilities can pressure the General Assembly into passing "annual rate hike" legislation.[28] Duke CEO Jim Rogers has testified to the NCUC that such a bill is essential to build new nuclear plants. This would allow the utilities to pass billions of

dollars for those plants on to customers while the plant is being built, even if the costs escalated or the plant is delayed or abandoned. Even without such legislation, the tens of billions needed for the nuclear plants would be highly detrimental to the North Carolina economy. We strongly believe the tens of billions in costs for the Lee Station and Progress's buy-in at the Summer Plant are very poor investments. A fraction of that sum spent on energy efficiency, solar, wind and CHP would produce far more benefit to North Carolina ratepayers.

In all, the IRPs of Duke Energy and Progress Energy are irresponsible — in terms of cost to consumers, in terms of diversifying our energy mix, and in terms of negative impacts on our state's economy, public health and the environment. The only potential beneficiaries of these *status quo* plans are utility executives and shareholders. Ironically, they too could become losers if Duke-Progress assumes that its monopoly control over its customers is invincible, and if it locks its six-state corporate future into a nuclear construction gamble while ignoring the rapid transition to clean energy in surrounding states.

WHAT WOULD A RESPONSIBLE ENERGY FUTURE LOOK LIKE?

Our analysis and projection of a responsible energy future is based on fairly conservative assumptions. For example, we have projected a very modest growth of CHP. Also, we believe the utilities' projected growth in demand for electricity to be substantially overstated as the growth rate for the past decade has been relatively flat, yet we have accepted those projections. An economic recovery does not necessarily mean an increase in electricity use; industry analysts and economists anticipate that customers will increasingly choose to use electricity more wisely, with more reliance on efficiency measures and renewable sources.

If demand fails to grow at the utilities' optimistic levels, the phase-out of fossil fuel plants could occur even more rapidly than we project. Efficiency programs that have proven successful in other states could, alone, more than accommodate any new demand and could eliminate the need for costly new power plants, leaving customers with more money in their pockets, leading to a stronger economy and more jobs.

Solar, off-shore wind and CHP are energy sources with enormous potential in North Carolina.

As noted earlier, Appendix A compares the existing generation capacity and sales of Duke Energy Carolinas and Progress Energy in 2013 with their projections for 2032 and 2027, respectively.[29] We shall now compare these to the Responsible Energy Future proposal. Pie charts comparing our plan with the future projections of Duke and Progress can be found in Figures 1 and 2 on the following pages and in Appendix A.

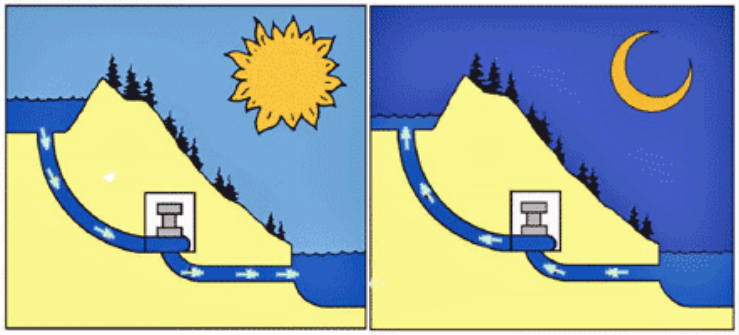
The core features of the Responsible Energy Future are:

- phasing out existing coal plants by the mid-2020s;
- eliminating the need for new natural gas plants, and phasing out several existing ones; and
- eliminating the need for new nuclear plants.

Duke's Amazing Secret: Massive Energy Storage Capacity

In northwestern South Carolina, Duke Energy operates two unusual hydro-power stations that completely disprove the widespread belief that energy cannot be stored—the key argument that old-school utilities such as Duke and Progress use to criticize solar and wind power for their variability.

Those energy storage facilities hold a key to moving the Carolinas into the age of renewable energy. Not only are they perfectly suited to smooth out variability of solar and wind power, they are valuable for storing the over-generation of Duke's nuclear capacity.



Duke Energy has two pumped storage facilities in South Carolina that could smooth out the variability of wind and solar power.

The reservoirs are massive, with a combined storage capacity of approximately 2000 MW, equal to two nuclear reactors, with critical quick-response capability. The technology used at both the Jocassee and Bad Creek pumped storage stations is well-established, though not widely used in the U.S. Here's how the *Charlotte Business Journal* explained it:

> They use excess power produced by baseload plants when demand is relatively low — usually at night — to pump water through the turbines from one lake up to a higher one to store potential hydropower. During higher-demand times, the water is run back through the turbines to produce electricity.
>
> Jocassee and Bad Creek were built to help Duke balance power production and load when Duke built its major nuclear plants. [Duke's area supervisor for the region, Reggie] King sees a good opportunity for more pump storage in Duke's future.
>
> *But King says the real impetus could come with increased use of solar and wind power. Those sources run intermittently — when the sun shines and the wind blows — and not always when the power is needed. Pairing pump storage with those renewable resources — wind power, in particular — could help reduce the disadvantage of [those] forms of energy in comparison to traditional power plants.* (emphasis added)
>
> [John Downey, "Duke Energy spending $15 million on its hydro plant upgrades," *Charlotte Business Journal*, September 17, 2010]

So it is clear that this resource is well-suited for advancing a renewable energy future, especially since Duke is considering adding even more pumped storage capacity. But Duke still resists using the pumped storage to facilitate a broad adoption of renewable energy.

This can be done through incremental programs to:

- increase energy efficiency and conservation at customer locations;
- increase solar and wind to account for 24% of total electricity sales, including both retail and wholesale sales in North Carolina; and
- develop substantial CHP (combined heat and power) facilities, also called cogeneration, for commercial, industrial and institutional customers.

Duke owns massive energy storage capacity that is perfectly suited to back up solar and wind power when needed.

Solar, coastal-area wind and CHP are abundant and available resources that can provide reliable electricity when we need it. Reliance on pumped storage[30] with limited backup from natural gas plants for peak periods cuts down on the need for more new generating plants. New storage options are being investigated globally.

An added benefit of increasing distributed power sources, as opposed to large, centralized power stations, is to reduce the large amount of electricity lost constantly through the present transmission system.

Purchases from other utilities can be planned for, and providing even 4% of total energy demand with such purchases, made when most needed, would lessen the need for costly new power plants and associated rate hikes.

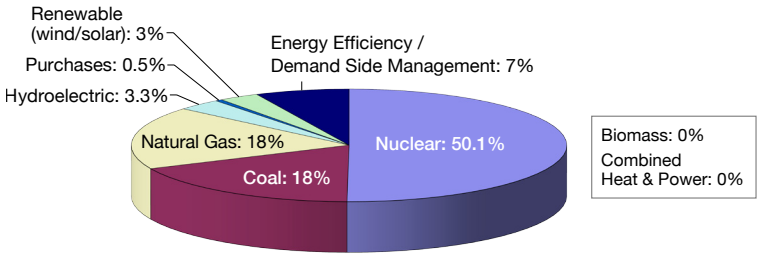
Energy Efficiency

The energy efficiency calculations in the Responsible Energy Future proposal are based on achieving gains of 2.0% annually, accumulating over the planning period. The American Council for Energy Efficiency (ACEEE) has recommended statewide efficiency standards with annual gains reaching 1.5% in 2016, rising to 2.0% by 2020.[31] The most recent of many national and state studies, a report from the National Academy of Sciences, affirms that savings of 25–31% can be accomplished by 2030. Wisconsin is now planning annual cumulative gains of 2%, and a similar rate has been proposed in Maryland's energy planning.

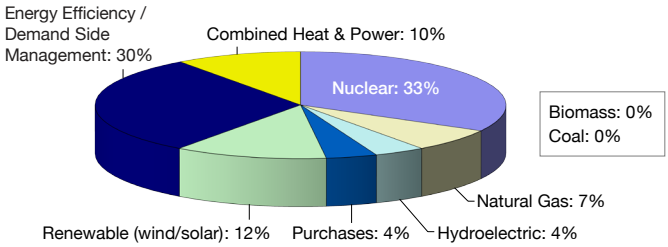
North Carolina should certainly be able to join the national trend for the responsible use of electricity. Because steady increases of 1.5% or more have been achieved in states all over the country, our goal of reductions, over the planning period, of 30% for Duke Energy and 22% for Progress Energy is reasonable.

Duke Energy Carolinas accepted the principle of a 1% annual gain in its Save-a-Watt program, starting in 2012 after a lengthy ramp-up process.[32] Duke Energy's 2008 Forefront study showed that an 18% load reduction due to energy efficiency was

Figure 1: 2032 Projected Energy Sales (Duke)



Duke Energy IRP



Responsible Energy Future

cost-effective, and this was before nuclear construction cost estimates had begun to soar.[33] Energy-saving remains an abundant and clean resource that North Carolina has barely even attempted to cultivate. We think it is time to exploit energy efficiency in earnest and do so system-wide — not only because it is the law, but because it is cheaper than every alternative, and because developing EE is far wiser than trying to build costly and high-risk power plants.

Consumers at all levels are learning to use electricity in smarter ways, buying more efficient light bulbs and appliances, replacing old water heaters and HVAC systems with new ones and weatherizing their homes. New building codes in North Carolina will make all new homes more efficient.[34]

Wind and Solar

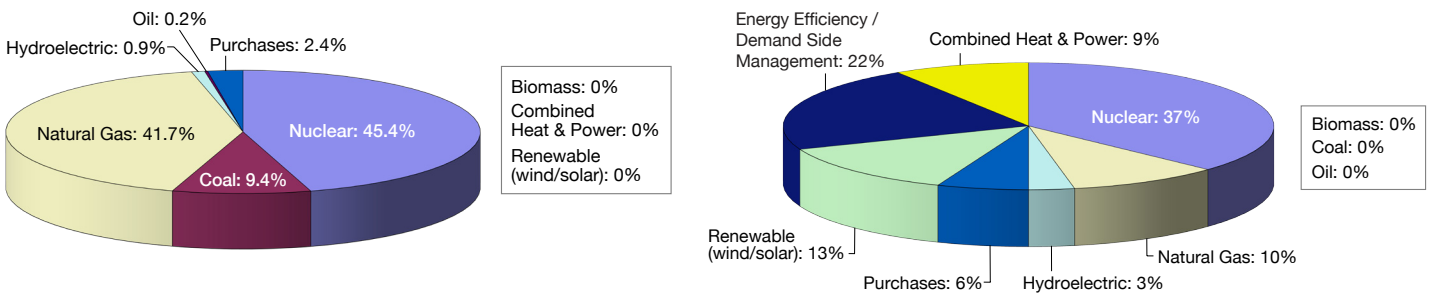
The second major contribution to the Responsible Energy Future which would contribute toward phasing out nearly all fossil fuel generation over the IRP planning horizons, while eliminating the need for new nuclear units, is a much more rapid development of renewable energy than the utilities reflect in their long-term plans. The amounts we project for wind and solar — 16 billion kWh for Duke Energy in 2032 and 10 billion kWh for Progress Energy in 2027—go well beyond present REPS requirements.[35]

Nationally in 2012, electricity from new renewable energy sources matched the generation from new conventional power plants.[36] We expect future electricity from wind and solar to far outpace all other sources in North Carolina — if Duke-Progress barriers are removed. Falling prices for solar PV equipment make it possible to install several thousand megawatts of power by the end of this decade, a vision bolstered by near-weekly news stories about additional solar installations across North Carolina that are happening despite Duke-Progress barriers. A recent study showed that *unsubsidized* commercial rooftop solar in North Carolina has the potential capacity of 3,500 MW by 2022, and *unsubsidized* residential solar has an even larger potential.[37] Together, unsubsidized residential and commercial solar could provide 9% of North Carolina's total electricity by 2022.

We expect future electricity from wind and solar to far outpace all other sources in North Carolina — if Duke-Progress barriers are removed.

To achieve the Responsible Energy Future, the development of coastal-area wind generation in North Carolina will be necessary. It is encouraging to note that Duke Energy recognizes the cost-effectiveness of wind power and since 2007 has invested more

Figure 2: 2027 Projected Energy Sales (Progress)



*Progress Energy IRP **

Responsible Energy Future

* Progress Energy does not provide details in its IRP of plans for Demand Side Management and Energy Efficiency but adjusts its projected annual energy demand growth from 1.6% to 1.2% to accommodate potential DSM or EE programs.

than $2.5 billion to build its wind and solar power businesses in the unregulated parts of its territory (the de-monopolized markets where competition exists), building a portfolio of more than 1000 MW in wind projects.[38] The importation of wind energy from Texas and the Plains states to North Carolina should remain under consideration since it may well be cheaper, even with transmission costs, than electricity from new power plants.

Just a fraction of the wind energy resources off our coast would help the state meet 20% of its electricity needs.

Of course, the greatest reserve of wind is offshore; North Carolina has more wind off its shores than any other state on the Atlantic coast.[39] There is the marketable potential for 5,000 to 10,000 MW by 2030, with a much greater long-term potential. Just a fraction of the wind energy resources off our coast would help the state meet 20% of its electricity needs. As an added bonus, according to the U.S. Department of Energy, North Carolina has the potential to gain 10,000-20,000 manufacturing jobs to support new offshore wind — a benefit that will be hindered if this state chooses not to develop wind power.[40]

Combined Heat and Power (Cogeneration)

Another large and readily available source of energy to help replace coal is the use of customer combined heat and power (CHP, also called cogeneration). CHP technology combines the on-site processes of electricity generation and heating or cooling in order to allow a wide range of facilities to use energy far more efficiently — by capturing and putting to work large amounts of thermal energy that is otherwise simply wasted into the environment.

Combined heat and power represents a tremendous untapped source of energy — and a timely opportunity to dramatically reduce carbon emissions while avoiding soaring electricity rates in the Carolinas.

Thousands of facilities in North Carolina — including industrial plants, schools, hospitals, prisons, health clubs and hotels — could decrease their annual energy bills by 30% or more by adding CHP to their current heating or electric generation systems. North Carolina's CHP technical capacity is the equivalent of around ten large power plants — or more than 40% of all electricity requirements.[41]

But despite the presence of this vast resource, North Carolina has very little CHP in place — 1,530 total MW of capacity with only about 18 MW being installed in the past 7 years.[42]

There are thousands of facilities around North Carolina with a combined CHP potential that could be equivalent to around ten large power plants.

The greatest barriers to the expansion of CHP in North Carolina are the lack of education about technology advances, and resistance by the state's electric utilities to adopt CHP-friendly policies.

DOES A RESPONSIBLE ENERGY FUTURE MAKE FINANCIAL SENSE?

Instead of expensive new power plants, we propose to strengthen efficiency programs, more rapidly develop wind and solar and foster customer CHP.

The $26 billion needed for nuclear units in the IRPs could surely be better spent. Our proposal eliminates the need to build expensive and risky nuclear plants, along with the great uncertainty about whether they could be completed. North Carolina would be spared the 18–21 cents per kWh cost of nuclear electricity and would avoid yet

more nuclear waste, for which there is no disposal plan and which will keep costing ratepayers for generations to come.

It must also be noted that in monopoly-free Ohio, Duke Energy actually *reduced* rates by up to 17% in 2011 — while presumably maintaining adequate returns for shareholders. The corporation *raised* rates in its monopoly-protected Carolinas territory by about 7% in both 2010 and 2012, mainly due to construction of power plants in spite of flat demand growth.[43]

Our plan to avoid new conventional power plants and phase out fossil fuel plants entails additional costs, although the average cost of energy efficiency is approximately 4–5 cents per kWh in the recommendations outlined below. This is substantially lower than conventional electricity generation from coal plants and much lower than new nuclear. What our state needs is a new "least cost" energy policy that puts energy efficiency first before all forms of generation.

One way to achieve this is to amend the Senate Bill 3 REPS to establish an Energy Efficiency Portfolio Standard for all customers. We recommend a 1.5–2.0% annual increase in energy savings to reach our energy efficiency goals with the following criteria:

- systematic and comprehensive EE programs that maximize the energy savings;
- appropriate performance incentives (and penalties) for Duke Energy and Progress Energy that provide a fair rate of return relative to risk;
- a strong education and outreach component that will appeal to all customers;
- economic incentives to appeal to all customers; and
- the use of best EE practices across all Duke Energy operating companies.

One of the most essential EE measures is the creation of an independently administered "Public Benefits Fund" to concentrate on low-income and fixed-income customers. These are the families that most often cannot afford EE measures. A potential administrator of the fund is the NC Housing Finance Agency (NCHFA), a quasi-state agency that is funded by a variety of sources, including allocations from the NC Housing Trust Fund.

What our state needs is a new "least cost" energy policy that puts energy efficiency first before all forms of generation.

NCHFA already has an infrastructure in place and has contracts in place with local governments, community action agencies, community development corporations and nongovernmental organizations, such as Urban Ministries, in each of the 100 counties in North Carolina. The goal is to supplement existing programs with EE programs, such as weatherization, insulation, new appliances and new HVAC systems. With energy savings and widespread job creation, and by helping avoid rate hikes from new power plants for all customers, this fund would be a win-win situation.

Photovoltaic (PV) solar is already cheaper than new nuclear, even when the various subsidies to both technologies are considered.[44] At the same time, nuclear costs are rapidly rising and uncertain, while PV costs continue to fall steadily. Recent studies show that new unsubsidized solar will be at grid parity within the next decade, i.e., solar will be as inexpensive as any existing energy source.[45] North Carolina has barely begun to realize the potential for solar energy, and it will be tragic if Duke-Progress is allowed to continue hampering the advance of rooftop and larger-scale projects.

Even Duke Energy is already generating on-shore wind power far more cheaply, per kilowatt hour, than any electricity that could

ever be generated by new nuclear plants.[46] Off-shore wind, while proving successful in other countries, is still immature in the U.S., so prices are uncertain but are believed likely to come in at the 20 cents per kWh range initially — comparable or better than new nuclear — and to decrease as the U.S. industry develops.

We need to encourage customer CHP, possibly administered by the utilities, as its average costs are approximately 6–7 cents per kWh, and paybacks for retrofit systems can be as low as 2–3 years.[47]

For planning purposes, solar and wind, efficiency and CHP represent a critical hedge against soaring nuclear capital costs and the market price of natural gas, which has suffered a three-decade history of extreme volatility.

Similarly, the NCUC must begin factoring drought and heat waves into future planning that relies on nuclear and coal plants, both of which are dependent on enormous amounts of cool water. EE and RE are a critical hedge against a drier, hotter Southeast.

We as a state should no longer have to bear the economic, environmental and health costs of generating fossil fuel-based electricity, and we certainly do not need the crippling expense and near-permanent hazards of new nuclear plants. The bottom line is that our proposed approach can provide an annual savings for North Carolina electricity customers. Many energy efficiency measures are less expensive than the rates we are paying now; solar and wind are cheaper than new nuclear and could soon be at grid parity; CHP is less expensive than new plants, especially if natural gas prices increase. Compared to the Duke-Progress scenario, our plan would create more jobs spread more evenly across the state. There are already contractors who are well positioned to advance all these clean energy fields. The final, crucially important advantage of our plan is that it would be a major step in controlling climate change.

Our proposal comes much closer than the utilities' IRPs to being the "least cost mix of generation and demand-reduction measures" required by the law. Our Responsible Energy Future promotes a good economy and jobs, provides us all a healthier place to live and gives us a means to do our share in implementing solutions to global warming. In order for North Carolina to do its part to forestall global climate tipping points, we must be engaged and insistent that the time has come to aggressively replace hazardous electricity generation with proven clean-energy technologies. Reaching the critical carbon-reduction goals that science is demanding is an urgent challenge to which North Carolina must rise with vigor. There really is no time to lose.

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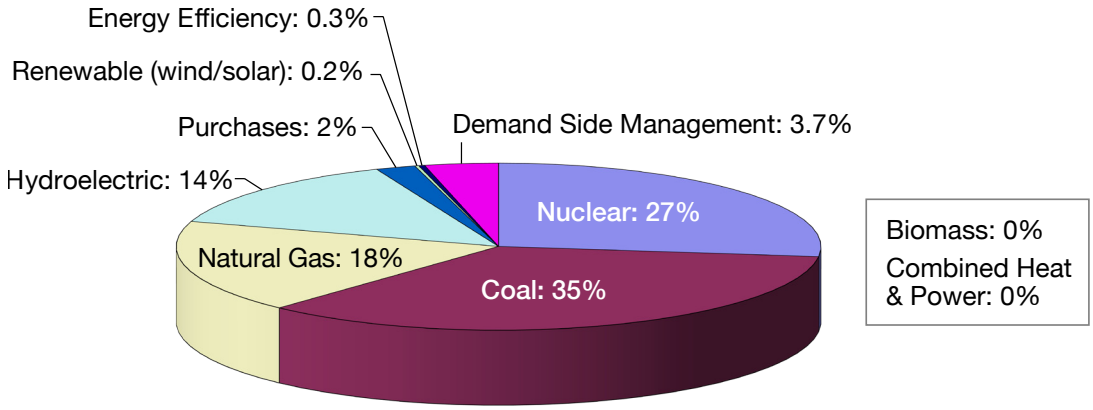
APPENDIX A: COMPARING NC WARN'S RESPONSIBLE ENERGY FUTURE TO THE LONG-TERM PLANS OF DUKE AND PROGRESS

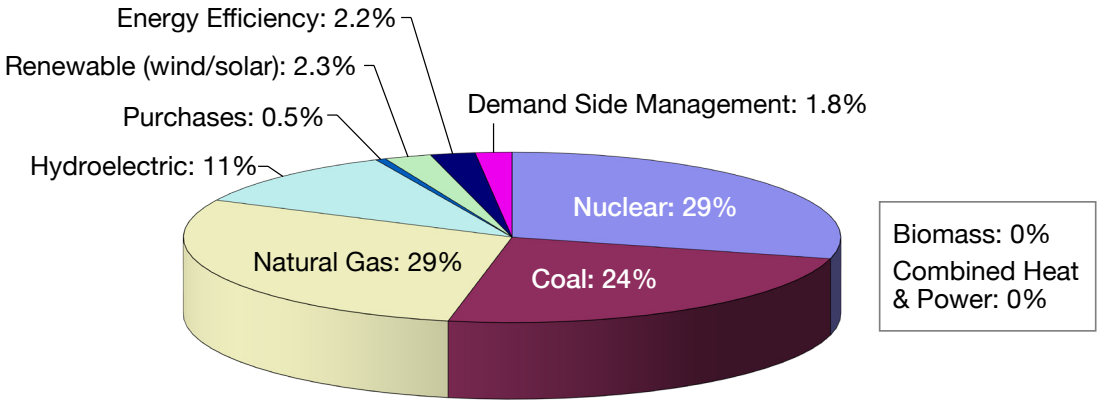
The pie charts on the following pages represent the percentages of total capacity and energy (sales) accounted for by the various energy sources in the Duke IRP, Progress IRP and Responsible Energy Future proposal. The data are for all of the utilities' service areas across both North and South Carolina. Table 1 below shows the utilities' total predictions for capacity (in megawatts) and for energy (in gigawatt hours), demonstrating how much each company intends to grow in the next two decades.

Table 1. Utility capacity and energy predictions

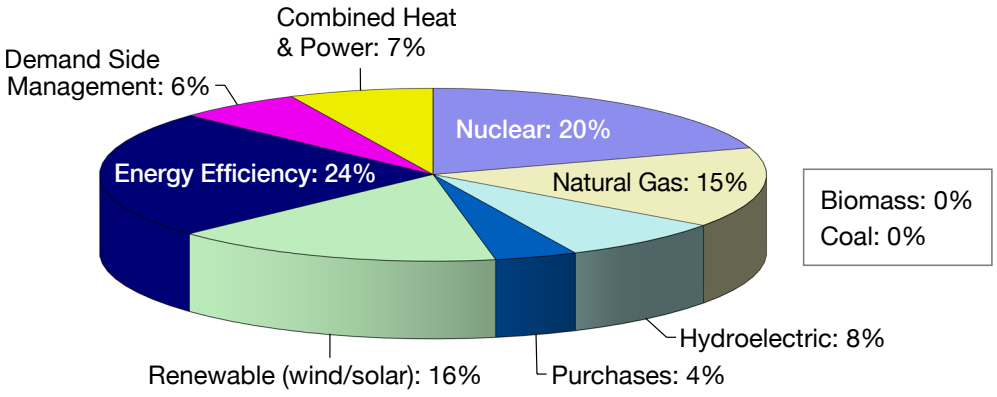
	Capacity	Energy
Duke 2013	18,107 MW	92,210 GWH
Duke 2032 (from IRP)	25,905 MW	133,453 GWH
Progress 2013	12,400 MW	66,066 GWH
Progress 2027 (from IRP)	14,600 MW	76,035 GWH



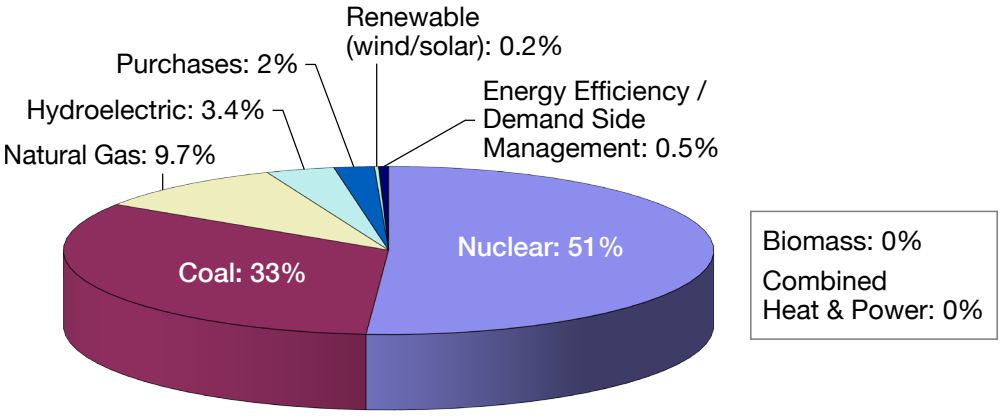
Duke Energy 2013 Capacity



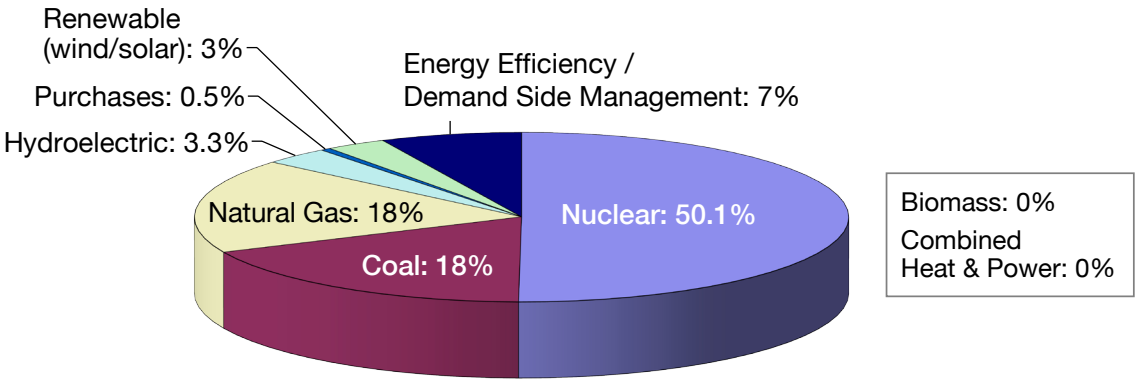
Duke Energy IRP: 2032 Capacity



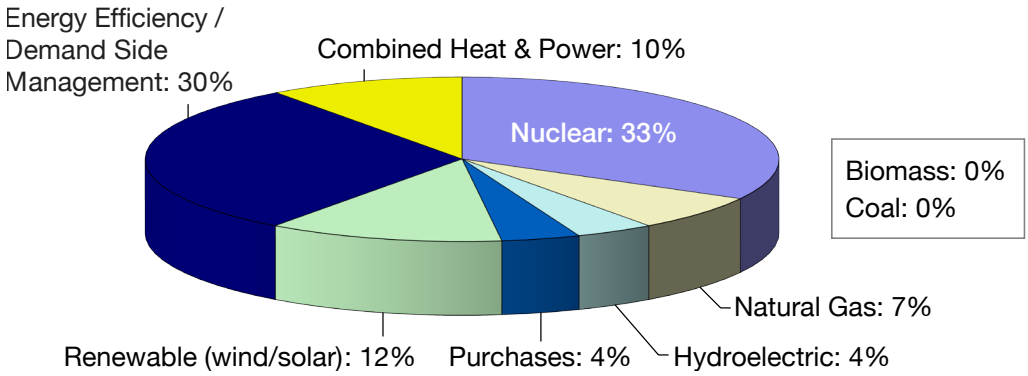
Responsible Energy Future: Duke Energy 2032 Capacity



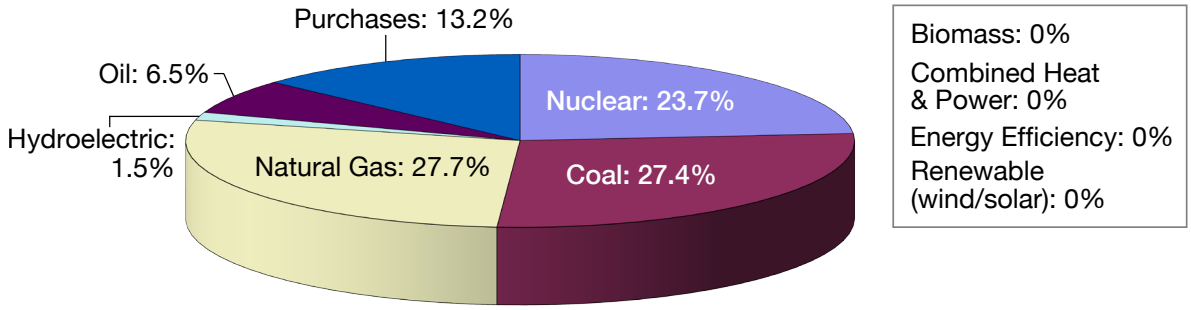
Duke Energy 2013 Energy



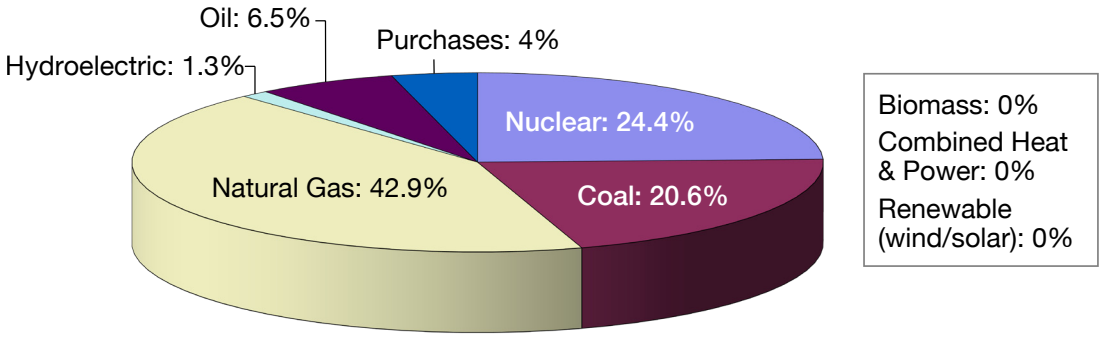
Duke Energy IRP: 2032 Energy



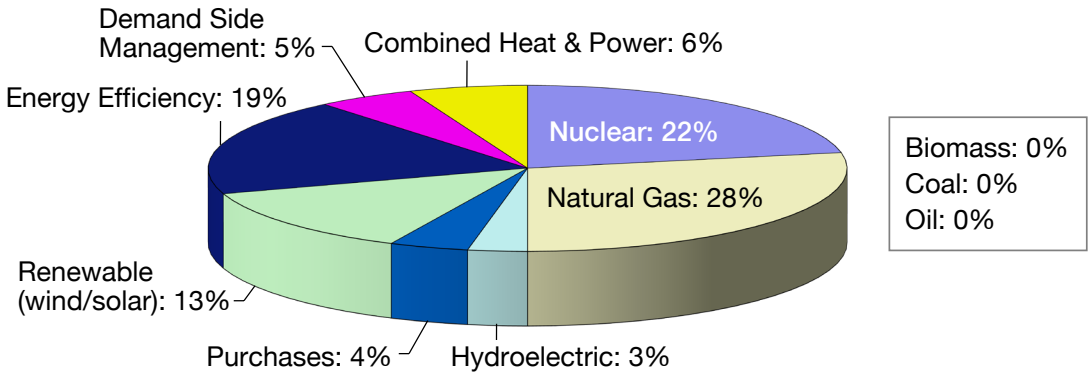
Responsible Energy Future: Duke Energy 2032 Energy



Progress Energy 2013 Capacity

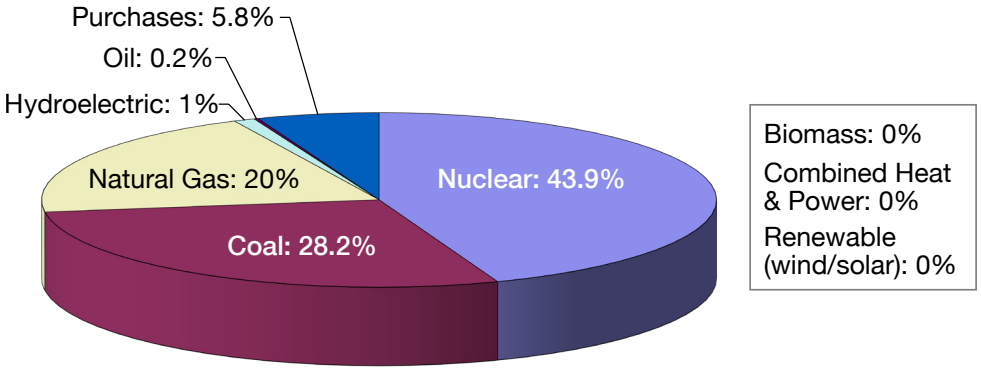


Progress Energy IRP: 2027 Capacity

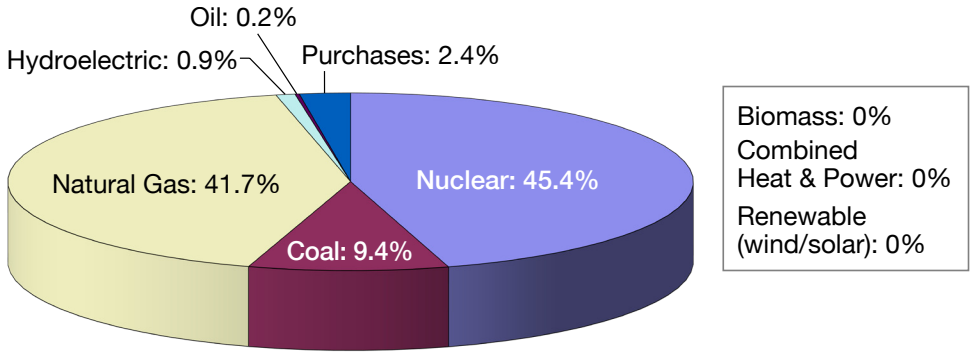


Responsible Energy Future: Progress Energy 2027 Capacity

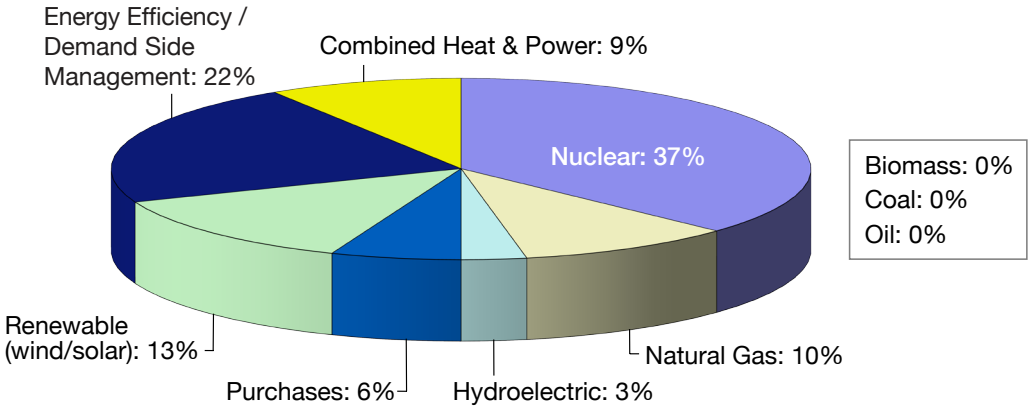
Note: Progress Energy does not provide details in its IRP of plans for Demand Side Management and Energy Efficiency but adjusts its projected annual energy demand growth from 1.6% to 1.2% to accommodate potential DSM or EE programs.



Progress Energy 2013 Energy



Progress Energy IRP: 2027 Energy



Responsible Energy Future: Progress Energy 2027 Energy

Note: Progress Energy does not provide details in its IRP of plans for Demand Side Management and Energy Efficiency but adjusts its projected annual energy demand growth from 1.6% to 1.2% to accommodate potential DSM or EE programs.

APPENDIX B: METHOD FOR DERIVING CO_2 EMISSIONS FIGURES ON PAGE 9

Based on the energy generation predicted by Duke Energy Carolinas and Progress Energy Carolinas in 2032 and 2027, respectively, and the proposed energy mix laid out in the utilities' IRPs and NC WARN's Responsible Energy Future, we calculated the amount of electricity, in megawatt hours, that would be supplied by each fossil fuel source.

Duke Energy IRP 2032 energy plan

24,021,540 MWh coal (18% of 133,453,000 MWh)
24,021,540 MWh natural gas (18% of 133,453,000 MWh)

Progress Energy IRP 2027 energy plan

7,146,350 MWh coal (9.4% of 76,025,000 MWh)
31,702,425 MWh natural gas (41.7% of 76,025,000 MWh)

Responsible Energy Future 2032 energy plan for Duke Energy

0 MWh coal (0% of 133,453,000 MWh)
9,341,710 MWh natural gas (7% of 133,453,000 MWh)

Responsible Energy Future 2027 energy plan for Progress Energy

0 MWh coal (0% of 76,025,000 MWh)
7,602,500 MWh natural gas (10% of 76,025,000 MWh)

Based on the Environmental Protection Agency's (EPA) average air emissions data, we calculated the pounds of CO_2 produced in each energy plan. The EPA estimates that the average emissions of a coal-fired power plant are 2,249 lbs/MWh of CO_2 and the average emissions of a natural gas plant are 1,135/MWh of CO_2.[48]

Duke Energy IRP 2032 estimated air emissions (in lbs of CO_2)

54,024,443,460 from coal (2,249 x 24,021,540 MWh)
27,264,447,900 from natural gas (1,135 x 24,021,540 MWh)

81,288,891,360 lbs CO_2 total

Progress Energy IRP 2027 estimated air emissions (in lbs of CO_2)

16,072,141,150 from coal (2,249 x 7,146,350 MWh)
35,982,252,375 from natural gas (1,135 x 31,702,425 MWh)

52,054,393,525 lbs CO_2 total

Responsible Energy Future 2032 estimated air emissions for Duke Energy (in lbs of CO_2)

0 from coal (2,249 x 0 MWh)
10,602,840,850 from natural gas (1,135 x 9,341,710 MWh)

10,602,840,850 lbs CO_2 total

Responsible Energy Future 2032 estimated air emissions for Progress Energy (in lbs of CO_2)

0 from coal (2,249 x 0 MWh)
8,628,837,500 from natural gas (1,135 x 7,602,500 MWh)

8,628,837,500 lbs CO_2 total

Based on the calculations above, the Responsible Energy Future proposed for Duke Energy would result in 2032 CO_2 emissions 86% lower than the energy mix proposed by Duke Energy's IRP. The Responsible Energy Future proposed for Progress Energy would result in 2027 CO_2 emissions 83% lower than the energy mix proposed by Progress Energy's IRP.

NOTES

1. Attributed to Voltaire and others.
2. The only other electricity suppliers are Dominion Power in the Northeast and TVA in western North Carolina. Even though Duke Energy and Progress Energy have merged at the holding company level, they plan to manage separate operating companies in the Carolinas for several years. In addition to their own service areas, they supply electricity to the membership cooperatives and the ElectriCities. It should also be noted that NC WARN and at least one other party, the City of Orangeburg, SC, have appealed the merger in court.
3. The IRPs are filed in NCUC Docket E-100, Sub 137 (available at http://www.ncuc.net, "Docket Information," "Docket Search").
4. North Carolina General Statutes 62-2(3a).
5. EE measures reduce the amount of energy required to provide products and services, either through conservation or by using less energy to get the same job done. DSM is the effort to change the patterns of how and when customers use electricity, such as shut-off measures during peak periods.
6. Duke Energy IRP, p. 93.
7. Progress Energy IRP, pp. 29–31.
8. Duke Energy IRP, pp.16 and 93; Progress Energy IRP, p. 25.
9. Duke Energy IRP, p. 55.
10. Progress Energy IRP, p. B-6. Some of Progress Energy's plants on the retirement list may be converted to natural gas plants.
11. John Murawski, "Progress Energy phases in natural gas," *The News and Observer*, 3 August 2011. http://www.newsobserver.com/2011/08/03/1386815/progress-phases-in-natural-gas.html.
12. It is interesting to note that one of the Federal Energy Regulatory Commission's requirements for accepting the merger between the two utilities was that major transmission lines would be constructed connecting to the PJM network. Order Accepting Revised Compliance Filing, as Modified, and Power Sales Agreements; 139 FERC ¶ 61,194 (June 8, 2012).
13. Peter Detwiler, "New Centralized Nuclear Plants: Still an Investment Worth Making?" *FORBES*, 15 January 2013 http://www.forbes.com/sites/peterdetwiler/2013/01/15/new-centralized-nuclear-plants-still-an-investment-worth-making/.
14. Progress Energy, Updated Schedule for Transmittal of Information Supporting the Environmental Review, to the Nuclear Regulatory Commission, November 14, 2012; NRC ADAMS Accession No. ML12321A039.
15. Progress Energy IRP, p. 25.
16. Progress Energy IRP, pp. 4–5.
17. NRC, Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation, 77 Federal Register 277, p. 65137; *New York v. NRC*, 681 F.3d 471 (D.C. Cir 2012).
18. Summary of Dr. William Jacobs, nuclear monitor, testimony to Georgia Public Service Commission, 12 December 2012, available at http://www.ncwarn.org/2012/12/nuclear-construction-project-in-free-fall-duke-at-risk-too-news-release-from-nc-warn/.
19. One of the best estimates for the price of new nuclear plants is from the Levy nuclear project proposed by Duke-Progress in Florida, a state that requires periodic cost updates. The project has quadrupled from initial estimates, with the price of each of two nuclear units now exceeding $12 billion, for a total of $24.1 billion, although a license to construct is still years away. See Florida Public Service Commission recommendations, 7 November 2012. http://www.floridapsc.com/agendas/archive/121126cc/121126.html.
20. Synapse Energy Economics, *Risk to Ratepayers: An Examination of the Proposed William States Lee III Nuclear Generation Station, and the Implications of "Early Cost Recovery" Legislation*, December 10, 2012; see summary at http://www.consumersagainstratehikes.org/consumer-alliance-warns-of-a-doubling-of-electricity-rates-under-duke-energys-business-plan/.
21. Progress Energy IRP, pp. 25 and 28. As a result Progress Energy expects its energy to be generated 87% by nuclear and natural gas in 2027, raising questions of sustainability and fluctuating fuel prices.
22. According to a recent Cornell Study, methane pound for pound could have an impact on climate change that is 105 times greater than CO_2. Robert W. Howarth,et al., "Methane and the greenhouse-gas footprint of natural gas from shale formations," *Climatic Change*, 106, no. 4 (2011): 679-90. Available at http://www.sustainablefuture.cornell.edu/news/attachments/Howarth-EtAl-2011.pdf.
23. Jeff Tollefson, "Methane leaks erode green credentials of natural gas: Losses of up to 9% show need for broader data on US gas industry's environmental impact", *Nature* 493, no. 7430 (January 2, 2013). References data from National Oceanic and Atmospheric Administration (NOAA) researchers. Available at http://www.nature.com/news/methane-leaks-erode-green-credentials-of-natural-gas-1.12123.
24. Figures derived using EPA data on average CO_2 emissions from burning coal and natural gas. See Appendix B for details

25. This estimate is based in large part on the findings in the report by Synapse Energy Economics (see footnote 20 above). The timing of the cost impacts for nuclear construction depends on whether Duke Energy can obtain authorization of tracking construction work in progress (CWIP), the annual rate hike bill, from the N.C. legislature, which would move the risks of construction cost overruns, and project cancellation, to the ratepayers. Other variables in the estimate of rate increases include whether the Lee Station stays on-time and on-budget. Because of the way Duke is allowed to allocate costs, most of the rate increases would be borne by residential customers and small businesses if the project proceeds.
26. The REPS was established in 2007 in the comprehensive rewrite of utility law known as Senate Bill 3, passed as NC Session Law 2007-397.
27. NC Utilities Commission, *Annual Report Regarding Renewable Energy and Energy Efficiency Portfolio Standard in North Carolina*, 27 September 2012, available at http://www.ncuc.commerce.state.nc.us/reports/repsreport2012.pdf.
28. See http://www.consumersagainstratehikes.org/ for information on the Annual Rate Hike Bill and its consequences.
29. These data are for all sales of the two utilities in North Carolina and in South Carolina, because each utility system, which has sales and generation in both states, is run as a unit and not as separate systems in each state. The merged Duke Energy and Progress Energy are likely to more closely integrate their operations over the next five years, including transmission and distribution, which would allow sharing the benefits of storage options.
30. Duke Energy's pumped storage facilities at Jocassee and Bad Creek have a combined capacity of 1,765 MW with plans to add an additional 300 MW by 2019. At the plants, water is pumped from one reservoir to a higher one, usually in the night, to store potential hydropower to use during intermediate and peak periods. For more information, see http://www.duke-energy.com/power-plants/pumped-storage-hydro.asp. See also Downey, John. "Duke Energy spending $15 million on its hydro plant upgrades," *Charlotte Business Journal*, 17 September 2010. Available at http://www.bizjournals.com/charlotte/stories/2010/09/20/story13.html?b=12849552005E3956051.
31. ACEEE, *North Carolina's Energy Future: Electricity, Water, and Transportation Efficiency*, Report No. E-102, March 2010, http://www.aceee.org/sites/default/files/publications/researchreports/E102.pdf.
32. NCUC Docket E-7, Sub 831 (available at http://www.ncuc.net/, "Docket Information," "Docket Search").
33. Forefront Economics, Inc., *Duke Energy Carolinas DSM Action Plan: North Carolina Report*, August 2007. Available in NCUC Docket No. E-7, Sub 831(Save-a-Watt), Exhibit 1 to Testimony of Duke witness Stevie, filed April 4, 2008 (available at http://www.ncuc.net, "Docket Information," "Docket Search").
34. http://www.energycodes.gov/adoption/states/north-carolina.
35. This level of renewable energy is at the same level proposed by NC WARN in its previous comments on the 2010 and 2011 IRPs, filed on February 11, 2011 and October 7, 2011 in NCUC Docket E-100, Sub 128 (available at http://ncuc.net, "Docket Information," "Docket Search").
36. According to the Federal Energy Regulatory Commission's *Energy Infrastructure Update*, renewable energy projects — including solar, wind, hydroelectric, geothermal and biomass — made up almost half of all new power generation installations in the U.S. in the first 10 months of 2012. http://www.kcet.org/news/rewire/government/the-renewable-revolution-in-american-energy.html.
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NC WARN

Building people power for climate & energy justice

A Responsible Energy Future for North Carolina

Updated March 2015

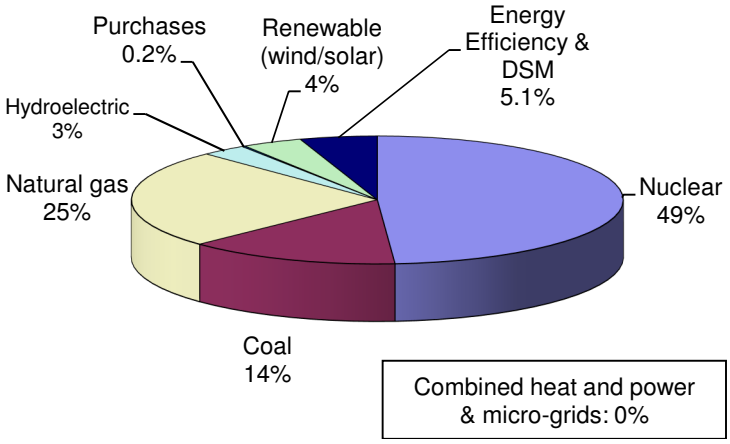
Each year Duke Energy must file a 15-year plan for meeting electricity demand in North Carolina – where it has monopoly control. In reviewing these integrated resource plans or IRPs, the NC Utilities Commission is required to ensure the "least cost mix" of generation and energy saving measures that is achievable – and the NC Supreme Court has specified that the IRPs are intended to prevent the costly overbuilding of new power plants.

Duke Energy's business model in its monopoly states is to prevent competition, build new power plants that are not needed, and force customers to pay for them through increased rates. In its latest IRP, Duke Energy continues to ignore rapid and profound changes in the electricity marketplace, and excludes the external costs of its economic choices, such as carbon emissions, health and crop damage, depletion of groundwater, and coal ash in our rivers.

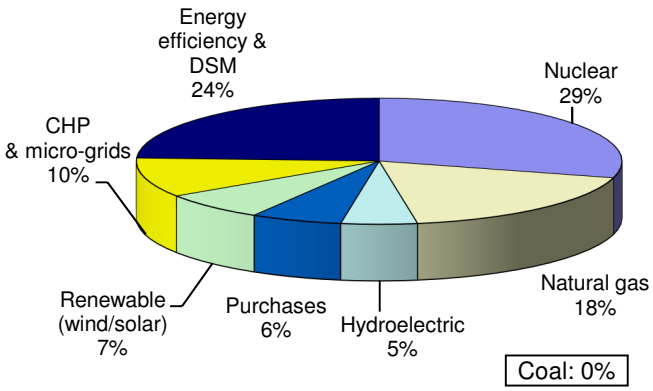
If the Commission approves Duke's latest 15-year plan, filed last October, it approves a status quo threatening to bankrupt North Carolina's economy and continue polluting our air and water.

NC WARN proposes an alternative, responsible energy plan that would phase out all existing coal-burning power plants and eliminate the need for new power plants, replacing them with energy efficiency, solar energy, combined heat and power (CHP), and other forms of distributed generation, along with strategic purchases from other utilities in the Southeast. This summary covers Duke Energy's service area in North and South Carolina and is based on our most recent filing with the Commission in the IRP docket.*

Duke Energy 2029 Plan



Responsible Energy Future



EXAGGERATED GROWTH OF ELECTRICITY SALES

In the Carolinas, Duke's two utilities base their 15-year plans on the projection that electricity usage will increase 1.4% each year. Thus Duke Energy Carolinas and Duke Energy Progress plan 6,673 megawatts of new power generation capacity – the equivalent of eight large power plants.

NC WARN's Responsible Energy Future forecasts zero growth in usage, an assumption supported by data from the US Energy Information Administration and the American Council for an Energy Efficient Economy (ACEEE), among others – and by actual growth for the past decade.

The difference between Duke's aggressive growth forecast and a zero growth scenario is over $25 billion in costs to North and South Carolina customers over the 15-year planning period.

A GLUT OF CAPACITY IN THE SOUTHEAST

Despite huge amounts of excess power generation capacity (dozens of large plants sit idle most of the year), Duke and other southeastern utilities keep building more plants instead of buying power from each other as federal regulators have urged. In December 2014 NC WARN filed a complaint with those regulators, arguing that electricity customers are being gouged by billions in unwarranted rate increases because Duke Energy and others are protected monopolies that thwart competition and wield undue influence over state regulators.

There are no justifiable reasons why Duke Energy and the others should continue building power plants while choosing not to share power between them.

DUKE ENERGY'S PLAN IS TOO EXPENSIVE

Duke Energy continues planning to build two proposed units at the Lee Nuclear Station in South Carolina, even though they are by far the most expensive option, with estimates exceeding $24 billion. Similar projects underway in Georgia and SC suffer huge delays and cost overruns. These extremely risky plants are being pursued only because the utilities in those two states are allowed to automatically pass on construction costs to customers in advance.

Much of Duke's plan relies on increasing use of large natural gas-burning plants. These plants are also costly. The 750-megawatt combined cycle natural gas plant under construction near Anderson, South Carolina will cost in excess of $1 billion that will be charged to customers in both Carolinas. Additional disadvantages are the pollutants – particularly methane, a greenhouse gas 20 times more potent than carbon dioxide – and other externalized costs of the fracking, refining, transport, and combustion of natural gas.

Although Duke Energy boasts – deceptively – about closing some small, little-used coal-fired plants, coal is still a major component of Duke's long-range plans. The company sends more than $1.7 billion dollars out of the state each year to purchase coal for power generation in the Carolinas.

A BETTER PATH FORWARD: MORE ENERGY EFFICIENCY AND DISTRIBUTED GENERATION

Unlike Duke Energy's "build plants, raise rates" business model, the Responsible Energy Future NC WARN proposes is competition driven; the primary goal is to maximize efficiencies and thus minimize costs to ratepayers and curb carbon and other pollution. The most significant differences are outlined below:

- Increase energy efficiency and demand-side management programs (DSM) from 5.1% in the 15-year Duke Energy plan to 24% in NC WARN's Responsible Energy Future (REF) plan.
- CHP and microgrids are able to replace 10% of energy demand in the REF plan, while neither is included in Duke Energy's forecasts.
- Renewable wind and solar is increased to 7% of energy in the REF plan, far greater than the 4% of energy in the Duke Energy plan.
- Wholesale purchases in the REF plan make up 6% of energy sales compared to a negligible 0.2% in the Duke Energy plan.

The Responsible Energy Future allows for closure of all coal-fired power plants, eliminates the need for new centralized generating plants and, as a result, decreases rates and pollution. A recently released report by ACEEE shows that utility energy efficiency programs remain the best value for North Carolina's energy dollar.

Distributed renewable energy

A significant component of the Responsible Energy Future plan is for renewable energy to account for 24% of total electricity sales in North Carolina by 2029. In October Deutschebank reported that solar is now cost-competitive with traditional power plants in ten states, and will reach such "grid parity" in 36 states by 2016. Further development of storage technology is poised to bolster the rapid growth of distributed renewable energy such as wind and solar.

Combined heat and power & on-site generation

Up to 10 conventional power plants could be replaced by the development of CHP systems for commercial, industrial, and institutional customers, as well as publicly-owned facilities that use both heat and electricity.

In the US, CHP represents nearly 10% of total generating capacity and the Oak Ridge National Lab made the case for scaling up the use of CHP to 20% of US generating capacity by 2030. The limited amount of CHP capacity in the Carolinas is a result of private industry investments – not receiving any support from Duke. This represents a virtually untapped resource for North Carolina.

Gradually, the US market is moving toward on-site power generation by large customers – and soon, it appears, smaller customers – using "microgrid technologies" that put power generation where it is needed, using a combination of power sources and on-site storage.

WHAT DOES THIS MEAN FOR NORTH CAROLINA?

At a minimum, Duke Energy's business model will cause rates to double from 2009 to 2029. As rates increase under the Duke Energy plan, residential, small business, local government and other customers will face increasing financial burdens. For many low-income families, this may mean choosing between electricity and food or medicine. NC WARN's approach can save North and South Carolina electricity customers an estimated annual savings of more than $1.6 billion.

In addition to keeping rates lower, another advantage of the Responsible Energy Future plan is its positive economic benefit for North Carolina. A 2013 study by the NC Sustainable Energy Association showed that there are now 18,404 workers in clean energy in North Carolina, bringing in $3.6 billion in revenue.

North Carolina has the workforce, business infrastructure and public support in position to ramp up the use of renewable energy, energy efficiency and CHP, and move this state forward in the clean energy revolution. The Responsible Energy Future is a plan that promotes job creation, economic fairness, and a healthier place to live, all while helping to slow climate change.

*The IRP reviewed by the NC Utilities Commission is the 15-year plan for the combined Carolinas service area. About 70% of Duke Energy's service area is in North Carolina, while the remaining approximately 30% is in South Carolina. More information can be found on http://www.ncuc.commerce.state.nc.us/ by searching for docket number E100 Sub 141.

NC WARN is a member-based nonprofit tackling the accelerating crisis posed by climate change – along with the various risks of nuclear power – by watch-dogging Duke Energy practices and working for a swift North Carolina transition to energy efficiency and clean power generation. In partnership with other citizen groups, NC WARN uses sound scientific research to inform and involve the public in key decisions regarding climate and energy justice.