

A Responsible Energy Future for North Carolina: An Alternative to Duke Energy's 15-Year Plan

Duke Energy's proposal for the next 15 years (filed Oct. 2014): fracking gas and new nuclear power plants, more emissions, coal ash and rate hikes. We propose competition that will lead to cleaner, cheaper energy. The people of North Carolina should be able to choose our path forward. Duke Energy ignores the rapidly falling cost of solar, North Carolina's potential for wind energy, energy efficiency and emerging storage options for clean electricity. Duke is working to stop the explosion in financing options that can lower costs and make clean power more widely available.

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 legally required to ensure that utilities adopt the "least cost mix" of generation and energy-saving measures that is achievable in order to avoid undue costs for customers.

In fact, the NC Supreme Court has specified that the purpose of the IRPs is to prevent the costly overbuilding of new power plants.

Due to a 2012 merger, Duke Energy now operates two utilities that straddle the Carolinas. Together, Duke Energy Carolinas and Duke Energy Progress generate more than 95% of the electricity consumed in North Carolina. As a regulated monopoly, Duke Energy is guaranteed a large profit for its shareholders for providing the power.

In its 2014 IRP, Duke Energy relies heavily on coal-fired power far into the future, increased burning of fracking gas, and construction of high-risk nuclear plants – with negligible amounts of clean, affordable renewable energy and energy saving programs. Duke proposes to increase all renewable energy by only a miniscule 1% from its 2013 plan – from 3% to 4% – by 2029. In an age of escalating climate change, Duke Energy's approach is reckless and weak.

It is clear that Duke Energy plans to keep raising captive customers' rates by building power plants that are not needed, while attempting to lock out competition.

A \$25 BILLION FICTION

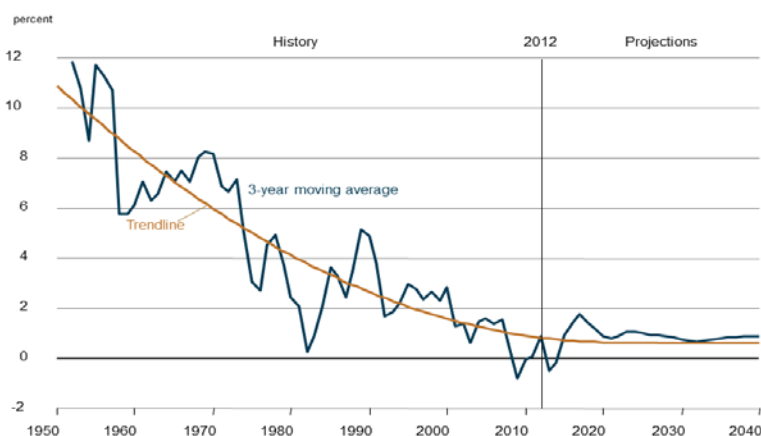
Duke Energy bases its "build more plants, raise rates" plan on a forecast of high growth in customers' use of electricity – about 1.4% each year – even though usage across the electric industry has been steady for more than a decade. Jim Rogers – Duke Energy's CEO until 2013, who remains the industry's leading spokesman – says growth will be "flat to declining," and that new power plants won't be built at all. The

U.S. Energy Information Administration (EIA) agrees that growth will be flat for the foreseeable future.

The projected growth in electricity usage is critical to determining the need for new power plants. The difference between a 1.4% increase and flat growth over the 15-year period is equal to \$25 – 30 billion worth of new power plants – if customers are forced to go this route.¹

The chart below shows the dramatic slow-down in the growth of electricity demand.²

Figure MT-29. U.S. electricity demand growth in the Reference case, 1950-2040

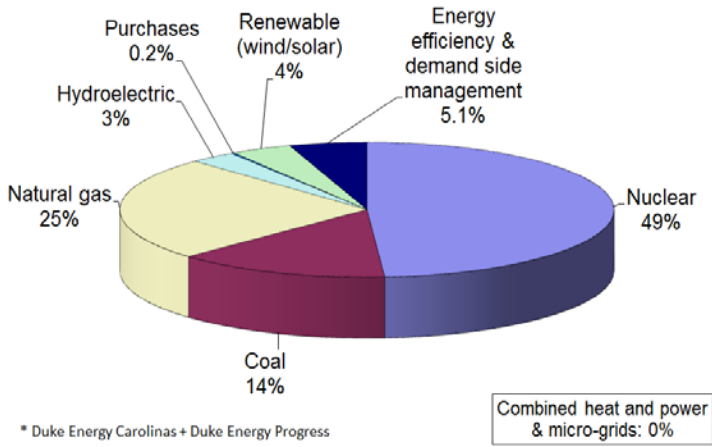


A SAFER, CHEAPER PATH

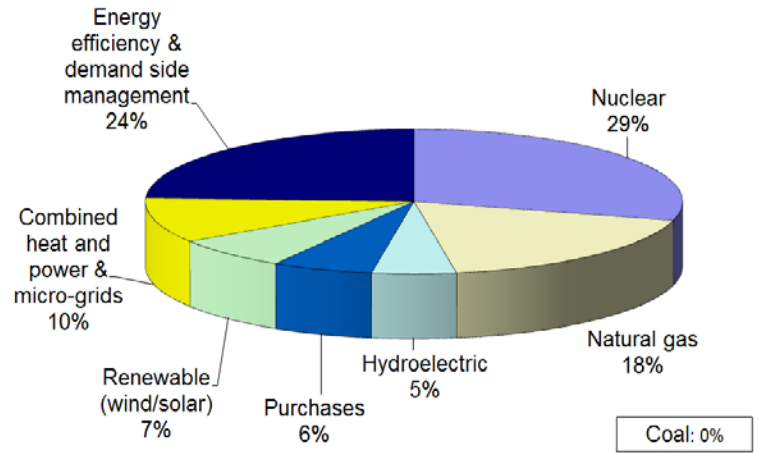
In response to Duke Energy's 2012 IRP, NC WARN created an alternative *Responsible Energy Future*. The analysis showed that, even using Duke Energy's exaggerated growth projections, all coal plants in the Carolinas can be phased out and no natural gas and nuclear plants need to be constructed. (See the report and NC WARN's comments on both the 2012 and 2013 IRPs at ncwarn.org.)

In our early 2014 update, NC WARN adjusted our proposal to reflect the flat demand with a greater adoption of renewable energy, energy efficiency and combined heat and power. This would allow all coal plants and most of the natural gas plants to be closed down.

Duke Energy's NC-SC Projection: 2029 Electricity Sales*



NC WARN's Alternative: 2029 Sales



There are also a few game-changers coming into play. The cost of solar is down dramatically, and investment in solar and clean energy is exploding in parts of the U.S. that allow solar to compete. Despite this quickly-changing market, Duke Energy plans to build even more natural gas plants and plans to build a 550-mile, \$4.5 billion fracked gas pipeline from West Virginia to North Carolina.³

Many studies have shown that fracked gas (natural gas) is just as bad as coal – and maybe worse – in creating greenhouse gas emissions.⁴

We don't need more fracked gas in North Carolina. We need more clean energy. When all the costs of

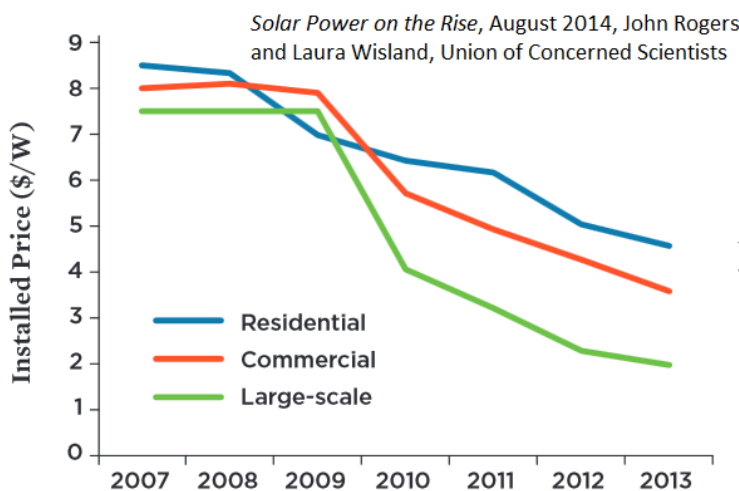
dirty energy are taken into account, clean energy is economically superior.⁵

THE COST OF SOLAR IS DOWN DRAMATICALLY

The cost of solar continues to fall. The 5-year decrease in the "levelized" cost of solar PV – key because it reflects the total cost of power over the solar installation's lifetime – is 78%.⁶ A recent analysis by research firms, including U.S. national labs, shows the clear decline in the cost of solar PV.

In October 2014 Deutschebank reported that solar had reached grid parity (cost-competitive with traditional power plants) in 10 states, and would reach grid parity in 36 of 50 U.S. states by 2016.⁷

FIGURE 3. The Falling Price of Solar PV by U.S. Sector, 2007–2013



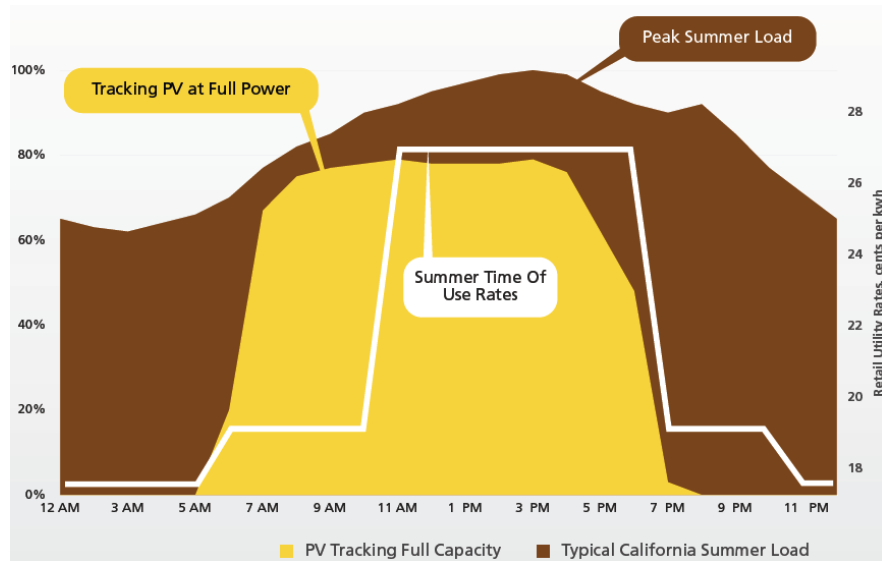
Prices for PV systems in the United States have dropped by 50 percent or more in recent years, with the sharpest declines for large-scale projects.

NOTE: In Figures 3 and 5, "Commercial" includes all small-scale non-residential installations. "Large-scale" cost data for 2007–2009 include systems larger than 100 kilowatts.

SOURCES: GTM RESEARCH AND SEIA 2014A; GTM RESEARCH AND SEIA 2013; GTM RESEARCH AND SEIA 2012; BARBOSE ET AL. 2011; BARBOSE, DARGHOUTH AND WISER 2010; GTM RESEARCH AND SEIA 2010; WISER, BARBOSE, AND PETERMAN 2009; WISER ET AL. 2009.

Solar has additional value since it adds electricity to the grid at costly peak power times, saving Duke Energy and its customers the expense of having to build new power plants to meet peak demand.⁸

A September 2014 analysis shows utility-scale solar is cost-competitive with coal and natural gas.⁹



Solar Meets Critical Peak Power Demand

Graph from Stephen Lacey, "This Looks Like a Job for Solar PV," thinkprogress.org, July 25, 2011.

Data sources: For summer peak load shape – California Independent System Operator (CAL-ISO); For time of use rates – Pacific Gas and Electric Company (PG&E); For PV Tracking Output – Solaria Corporation.

INVESTMENT IN CLEAN ENERGY IS EXPLODING

According to the International Energy Agency (IEA), solar could be the dominant source of electricity in the world by 2050.¹⁰ Investment in clean energy in North Carolina and the U.S. has been exploding.

Global investment in clean energy was \$254 billion in 2013, while the U.S. invested \$48.4 billion.¹¹

An estimated \$2.6 billion was invested in clean energy projects in North Carolina between 2007 and 2013, supported by state funds of \$135.2 million. Private investment was twenty times that of state incentives.¹²

Despite the enormous potential of solar in North Carolina, Duke Energy is working overtime to kill policies that make clean energy easier, cheaper for customers and more widespread.

In the 2014 Avoided Cost docket currently before the NC Utilities Commission, NC's large-scale solar industry is at risk from Duke Energy's proposal to significantly reduce the amount paid for solar and to further stall the already burdensome approval process for independent solar projects.¹³

The effort to reduce the amount paid for solar is taking place in many different states as many utilities, including Duke Energy, seek to kill the growth of clean solar power.¹⁴

NC WARN's UPDATED 2015 RESPONSIBLE ENERGY FUTURE

Our updated *Responsible Energy Future* calls for North Carolina to achieve the following by 2029:

- 7% renewable energy, 24% energy efficiency, and 10% combined heat and power, as a percentage of total electricity sales;
- phase out all coal-fired power plants;
- no new natural gas or nuclear plants; and
- close the dirtiest natural gas and most dangerous nuclear units.

A transition to cleaner energy will benefit our economy and our health. Eliminating coal from North Carolina's energy mix and reducing the use of natural gas keeps the \$1.7 billion for out-of-state coal in our state's economy, while drastically reducing the climate-harming pollution pumped into the atmosphere and coal ash stored next to our rivers and groundwater. Ramping up clean energy sources promotes economic development; a 2013 census estimates the clean energy industry employs 18,404 workers in the state and brings in \$3.6 billion in revenue.¹⁵

It is clear that a balanced mix of distributed power (putting electricity where it is needed) and energy efficiency is the most reliable, cost effective and readily available path over the next 15 years.

DISRUPTIVE CHALLENGES FOR UTILITIES; MORE CLEAN ENERGY FINANCING OPTIONS

Meanwhile, there are many “disruptive challenges” in the electric utilities business, such as the growing opposition to carbon-producing power, the demise of the nuclear renaissance, rapid advances in utility-scale batteries and the emergence of solar energy as a cost-effective option. Some have pronounced these rapidly changing market conditions the “corporate death spiral,” a process already severely harming the largest European utilities. Duke Energy’s plans suggest its executives are ignoring these industry-wide changes, and we cannot allow them to drag North Carolina’s economy down.

A transition by Duke Energy toward a business model that embraces new advances in the industry such as distributed energy and energy efficiency, instead of one that relies on massive, unneeded centralized power plants, could be a national, if not international,

game-changer to reduce the drastic impacts of climate change.

If the Utilities Commission approves Duke Energy’s 2014 IRP as proposed, it approves a status quo that will strangle North Carolina’s solar and clean energy industries and continue polluting our air and water. There is much at stake for North Carolina, and for each one of us; the status quo is no longer acceptable.

State law requires the Utilities Commission to consider NC WARN’s *Responsible Energy Future* plan. The bottom line is that our approach can provide an estimated *annual* savings for NC electricity customers of more than \$2 billion.¹⁶ It is a responsible energy future, one that promotes a good economy and jobs, and will provide us all with a healthier place to live while implementing solutions to climate change.

November 2014

¹ The most recent estimate of the cost of a single nuclear unit is in the \$13 – 15 billion range, including escalation, financing costs, initial fuel, contingencies and reserves. www.bellbend.com

² http://www.eia.gov/forecasts/aeo/MT_electric.cfm

³ http://www.chathamstartribune.com/news/article_52a705bc-32b8-11e4-8f80-0019bb2963f4.html

⁴ http://www.eeb.cornell.edu/howarth/publications/Howarth_2014_ESE_methane_emissions.pdf

⁵ <http://thinkprogress.org/climate/2011/02/16/207534/life-cycle-study-coal-harvard-epstein-health/>

⁶ <http://www.solarserver.com/solar-magazine/solar-news/current/2014/kw39/lazard-lcoe-analysis-costs-of-pv-continue-to-drop-solar-power-is-increasingly-cost-competitive-with-traditional-energy-sources.html>

⁷ <http://www.resilience.org/stories/2014-11-04/investment-in-solar-stocks-crushed-big-oil> *Investment in Solar Stocks Crushed Big Oil*, by Deborah Lawrence, 11/5/14.

⁸ <http://thinkprogress.org/climate/2011/07/25/278369/this-looks-like-a-job-for-solar-pv-heat-wave-causes-record-breaking-electricity-demand/>

⁹ <http://www.scottmadden.com/insight/807/renewables-becoming-cost-competitive-other-challenges-remain.html>

¹⁰ <http://uk.reuters.com/article/2014/09/29/us-solar-iea-electricity-idUKKCN0HO11K20140929> *Solar could dominate electricity by 2050: IEA*, Reuters, 9/29/14

¹¹ Investments in clean energy in 2013 were lower than 2012, due to falling solar costs and policy uncertainty. <http://about.bnef.com/press-releases/clean-energy-investment-falls-for-second-year/>

¹² http://c.ymcdn.com/sites/www.energync.org/resource/resmgr/Resources_Page/NCSEA_econimpact2014.pdf, ES-1.

¹³ www.ncwarn.org/dukehatessolar See satirical 30 second video

¹⁴ <http://www.greentechmedia.com/articles/read/Duke-Buying-500M-of-North-Carolina-Solar-to-Mixed-Reviews>

¹⁵ North Carolina Sustainable Energy Association, *Economic Impact Analysis of Clean Energy Development in North Carolina-2014 Update*, pages ES-1 and ES-2: http://c.ymcdn.com/sites/www.energync.org/resource/resmgr/Resources_Page/NCSEA_econimpact2014.pdf

¹⁶ <http://www.ncwarn.org/wp-content/uploads/Sum-Update-FINAL-4-18-14-Resp-En-Future-2014.pdf>