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ES233: Environmental Policy

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### Policy Assignment: Solar Power in North Carolina

#### *Executive Summary*

This paper examines the solar industry in North Carolina and the specific laws that shape it. The current growth of the solar industry is based on legislative measures, such as the state renewable energy tax credit, that provide this infant industry with the incubation it needs to establish itself in the state. As the tax credit expires at the end of 2016, the industry risks losing its increasingly important position in the state. Measures to extend the tax credit, as well as other provisions to make the state more favorable for solar business have been introduced, but not yet passed. There are a variety of different stakeholders and participants who influence the approval and application of these laws. Additionally, many issues of environmental justice and values play into the nuanced dynamics of the state's energy politics. Based on the numerous benefits of solar in NC, I recommend passing provisions to extend the tax credit and allow for third-party sales of energy.

#### *Environmental Problem*

Climate change has been widely established as a consequence of an excessive release of fossil fuels (IPCC, 2013). This phenomenon has been leading to increasingly warmer global temperatures, causing a series of environmental consequences (IPCC, 2013). Global warming is a global concern and has many implications on human health. Despite the existence of diverse

forms of sustainable energy, implementation of renewables continually fails. This suggests that our reliance on fossil fuels is largely a policy issue.

Solar power has seen major price drops and many domestic incentives (SEIA, 2015). It is a domestic energy source with good electrical capacity that does not produce harmful byproducts that cause global warming, such as CO<sub>2</sub>, methane, coal ash, or even hydraulic fracturing fluid, or nuclear waste (Walsh, 2015). Solar has also shown to be an excellent way to develop a local economy and achieve America's goal of energy independence (Lin and Fan, 2015). Due to excess influence of corporate interests in politics, biased public policy has successfully deterred the switch to renewable energies. This is exactly the case with solar energy in the state of North Carolina.

### *Policy Challenge*

North Carolina (NC), the fourth-largest solar market in the United States, currently has a high growth rate in the solar market. The market continues to grow despite the impending expiration of the NC renewable energy tax credit (U.S EIA, 2016). The residential solar market, however, remains small, mostly due to a state law that bans third-party sales of electricity (Pyper, 2015b). This law is the reason solar companies cannot offer leases, making solar power more attractive to residential consumers. The expiration of the tax credit and restrictive laws, such as the ban on third-party sale of electricity, are political barriers to a flourishing solar market. Despite these barriers, solar power is doing well in the NC commercial sector (India Energy News, 2016) (Fretwell, 2012). Now efforts need to be made to bring it into the domestic sector, while also maintaining the growth in the commercial sector.

The Energy Investment Act, a bill introduced by Republican Senators Brent Jackson, Fletcher L. Hartsell and Jeff Tarte, extends the 35% investment tax credit (ITC) for five more

years for small-scale solar installations and two more years for utility-scale installations (Senate Bill 447, 2016). The bill is currently in the NC Senate waiting to be voted on in the next session (Downey, 2015a).

Moreover, a different bill in the NC House of Representatives, The Energy Freedom Act, also awaits approval. If passed, this bill would legalize third-party sales of solar electricity in the state (House Bill 245, 2015). The bill has the potential to expand the industry to the residential sector, a demographic that the industry has not previously been able to capture due to high upfront costs (Walton, 2015). The Energy Freedom Act would allow residents to bypass the utility and buy their electricity directly from a renewable energy company, making solar a far more appealing offer than before (House Bill 245, 2015). It will also ensure that third-party system owners are eligible for net-metering (House Bill 245, 2015). NC is only one of four states in the U.S that currently does not allow third party sales of energy (Page, 2015). By passing the Energy Freedom Act, NC can let its residents choose where they get their energy and allow them to reap the benefits of the lower cost electricity from third-party sales.

### *Background*

There are many examples of past legislation aimed at clean energy, some of which are still relevant today and continue to shape the solar industry in NC. In the 1970s there was an effort to reduce American dependence on foreign fuel sources, specifically by promoting alternative energy sources. Congress passed Public Utilities Regulatory Act (PURPA, 2013), which works in favor of renewable sources by allowing independent power producers to own and run electricity generation plants. The act also forces utilities to purchase power from independent producers if those producers can produce the electricity at a lower cost than the utility can (PURPA, 2013). Applied to the solar industry today, the law lets the independent solar producers

sell their power to utilities, given that it is cheaper. However, the negative side of PURPA is that it undervalues solar energy because the Federal Energy Regulation Commission does not take into account non-price benefits of renewable energy and it does not count the extra environmental costs that fossil fuels impose on society in the form of negative externalities. This means that when calculating which form of energy is cheapest, solar does not always come out as the most cost effective choice (Walsh, 2015).

On a state level, the solar industry has been molded by the North Carolina Utility Commission (NCUC), which comes up with the avoided cost rate that each utility is required to pay developers for solar electricity. Furthermore, NC was the first state to adopt Renewable Energy and Energy Efficiency Portfolio Standards (REPS) in 2007, which promote renewable energy by making utilities get a certain amount of the energy they sell from renewable sources (REPS, 2012). The statute also compensates utilities for the benefits of renewables sources (REPS, 2012).

As a part of REPS, the state also has a net-metering law. This benefits the solar industry by allowing customers to return surplus electricity from solar panel to the grid, thereby reducing the cost (REPS, 2012). However, this policy has a lot of barriers in place that make it more difficult to apply to smaller residential customers (Pew, 2014).

Since the solar industry is an infant industry, there was a state tax credit put in place (Renewable Energy Tax Credit, 2016). When this is taken away there will need to be a transformation into a more mature industry. The state and federal tax credits allowed companies to build themselves in order to attract investors. It reduced costs and allows companies to have larger projects in order to get the benefits of economic of scale. This has been perhaps the most

effective policy to establish solar as a strong and dominant domestic power source (Walsh, 2015).

From 2007 to 2013, NC's revenue from clean energy projects totaled to \$2.67 billion, a number almost 20 times greater than the state incentives of \$135.2 million (RTI, 2013). Even with the upcoming federal investment tax credit expiration in 2016, the industry will continue to make \$523 million in annual revenue from 2017 to 2023 (Pew, 2014). Additionally, NC surpassed 8 states in solar jobs ranking by adding 1,700 solar jobs in 2013, now ranking number ten in the country (Pew, 2014).

### *Participants and Stakeholders*

As the industry continues to grow in the state, solar power has garnered a wide variety of participants and stakeholders. Many companies are coming to NC to benefit from the renewable energy laws and prevalent sun. For example, Apple set up three twenty-megawatt solar farms in NC powering its data center (Goldenberg, 2014). Furthermore, many large and influential companies have even endorsed the Energy Freedom Bill; these include Wal-Mart, Target, and Volvo (Pyper, 2015b). Companies like Wal-Mart benefit greatly from third party ownership. Wal-Mart, in particular, puts up solar on its buildings anywhere third party ownership is available (Trabish, 2015).

Because of the bill's many economic, social, and environmental benefits, it has gained bipartisan support in the legislature (Walton, 2015). The bill has 26 co-sponsors, who are a mix of Democrat and Republican (House Bill 245, 2015). However, the bill has also gained a lot of opposition, primarily that of energy giant Duke, a corporation with that essentially has a monopoly on the NC energy market (Downey, 2015b). Duke has significant ties in the state government. This includes incumbent Governor Pat McCrory, who, as a former Duke employee

has received large sums of money from the company's political action committee (PAC) (Kromm, 2016).

Duke's control over NC is threatened by the potential scope of the solar industry. Analysts at Greentech Media are predicting that over 60% of residential solar installations will still be third-party owned in 2015 (Pyper, 2015b). Solar Energy Industries Association (SEIA) reports that NC is currently the fourth in the U.S. for installed solar capacity (SEIA, 2015). Additionally, there was almost 13 times as much solar installed in 2014 than in 2010 (Page, 2015).

Duke Energy, in its home state of NC, fuels its energy capacity with predominantly coal, at 31%, followed by nuclear, at 28% (Kotch, 2016c). Duke plans to rapidly expand its natural gas operation since it has recently merged with Piedmont Natural Gas (Kotch, 2016c). Duke wants to construct up to 15 new natural gas plants in North and South Carolina alone. The utility is projecting a 36 percent increase in electric generation from natural gas in NC by 2031 (Duke Energy, 2016). Expansion of the solar market, particularly through the legalization of third-party sales by the Energy Freedom Act, has the potential to harm Duke's super-profits.

Despite restricting solar expansion in NC for years, Duke was forced by the REPS energy distribution requirements to take part in the solar industry. In a press release, the company announced that it would invest \$300,000 in solar panels for ten NC schools (Kotch, 2016c). Duke was widely appreciated for its actions in promoting solar, particularly in an educational environment (PR Newswire, 2016). However, Duke did this as a part of a civil penalty imposed on the company in a \$5.4 million settlement from 2015 with the Environmental Protection Agency and other environmental groups due to Clean Air Act violations (Henderson, 2015).

Although the utility displayed a seeming interest in the solar industry, Duke's actions and underlying intentions suggest the company is still opposed to solar expansion.

In spite of Duke's opposition to pro-solar provisions, the public appears to strongly favor a booming solar industry. Polling conducted by Conservatives for Clean Energy showed 77.3 percent of Republicans, 78.8 percent of Democrats, and 83.3 percent of unaffiliated voters think lawmakers should pass legislation allowing third party energy sales (Fleming, 2015). Moreover, the polling also showed that 90 percent of Democrats, 87 percent of Independents and 82 percent of Republicans support policies that encourage renewable energy options in general (Fleming, 2015). Prominent socially conservative leader and NC Christian Coalition Chair, Ash Mason, commented, "North Carolina families, schools, churches and businesses should have access to the best energy options that the market has to offer...It's time to remove outdated and unnecessary barriers in order to enable North Carolinians to invest in solar technology on their property" (Trabish, 2015). Liberals, conservatives, Democrats and Republicans can join forces for a stronger economy based on renewable energy. These statistics indicate that solar power in NC is not an issue divided on bipartisan lines, but rather is an opportunity to unite two sides of the spectrum in order to benefit the state.

#### *Relationship to 2016 Election*

The 2016 election was particularly important in deciding the future of solar in NC. With the impending expiration of the state and federal tax incentives and new bills waiting approval in the House and Senate, the outcome of this election has many implications on the future of solar in NC. The race was primarily between Republican incumbent Pat McCrory and Democrat Roy Cooper. Cooper has called his victory, leading with fewer than 4,500 votes (Wheeler, 2016).

Governor McCrory has not accepted his defeat and has issued a recount of votes, displaying the difficulties associated with major leadership change within a state (Wheeler, 2016).

If Governor McCrory had won again and maintained his seat, he would have hindered the process of adopting the Energy Freedom Act and the Energy Investment Act. Governor McCrory, who worked for Duke for 29 years, has significant ties to Duke Energy, which resists the development of the solar industry. The McCrory campaign has received over nine million dollars from the Duke PAC and over \$300,000 in direct contributions for his 2008 and 2012 gubernatorial campaigns (Sturgis, 2015). McCrory has expressed his opposition to the Energy Freedom Act, and as the state tax incentives for renewable energy come to an end at the end of 2016, that would have dire consequences for the solar industry (Kotch, 2016a). Without expansions on the tax incentives and the failure to pass the Energy Freedom Act, the state's current success in solar could considerably fall (Pyper, 2015).

Additionally, McCrory has other concerning "Big Energy" connections that have characterized his time in office. He receives considerable funding from the Koch Brother's Super PAC, "American's for Prosperity" (Kromm, 2016). He is also the chairman of the Outer Continental Shelf Governors Coalition and has been promoting oil drilling off the Atlantic Coast (Sturgis, 2015). Furthermore, he has a history of being extremely biased towards Duke Energy. For example, after the Duke's 2014 coal ash spill in the Dan River, McCrory pulled strings to shift the cleanup costs on to ratepayers and covered up the serious hazards the spill presented to local drinking water (Sturgis, 2015).

Cooper, on the other hand, does not promote the interests of the fossil fuel industry. For instance, after the Duke coal-ash spill, Cooper opposed the coal ash clean up procedures that burdened the citizens and promised to "continue to oppose the efforts of utilities to pass on to



ratepayers the costs of expenditures like coal ash cleanup” (Cooper, 2016). Additionally, Cooper supports further solar market expansion, stating, “Eastern N.C. can harness the emergence of solar to create new jobs” (Cooper, 2016). The solar industry will certainly benefit from a McCrory loss and a Cooper win.

### *Alternatives and Analysis*

With the upcoming expiration of the ITC at the end of 2016, analysts are predicting a slowing of investments and additions to solar capacity (Clean Economy Rising). After the expiration, analysts predict a \$900 million decrease in investments, which is a 53 percent decrease from last year (Reports start up RIT). They are also predicting an additional drop in investment of about \$400 million in 2017 after the expiration of the federal tax credits (RTI, 2013). With these decreases in investment, there will be dire implications for jobs and tax revenue. Without the state or federal ITC, NC becomes less welcoming of solar energy developers and companies that were previously relying on the hospitable policies to benefit their business and the local economy (Trabish, 2015).

These negative effects can be avoided with an extension of the state and federal ITC. The ITC has been greatly beneficial for the state; according to a report for the NC Sustainable Energy Association, state and local governments have recovered \$1.93 for each dollar spent on the Renewable Energy Investment Tax Credit (SEIA, 2016). A further extension of this provision, as detailed in the Energy Investment Act, will certainly continue to contribute to the state.

At the moment, a NC law banning the third party sales of electricity is considerably holding back the solar industry. On a national level, third party ownership accounted for over 70% of all U.S. residential solar installations in 2014 (SEIA, 2015). If third part electricity sales

become legal in NC with the passing of the Energy Freedom Act, the solar industry would see a sharp rise in residential sector solar (Pew, 2014).

Environmental justice plays an important role in the potential passing of the Energy Freedom Act. A local 28-year old non-profit environmental organization by the name of North Carolina Waste Awareness and Reduction Network (NC WARN) put up solar panels on top of a Greensboro church for free and began selling the energy back to the church at a far lower rate than Duke Energy would charge (Kotch, 2016b). This church served mainly African-American and lower income communities and also had a history of social justice activism (Davis, 2016).

When compared to Duke's annual revenue of \$23.5 billion in 2015, NC WARN's budget is extremely small, at about \$1.1 million. The money that Duke would lose because of NC WARN's arrangement with the church was diminutive when compared to its revenue; however, this did not stop the utility from pushing the NC Utilities Commission to fine NC WARN \$1,000 per day for selling energy to the church (Somers, 2015). In April of 2016, the utilities commission officially fined NC WARN \$200 per day, which forced the non-profit to end its arrangement with the church. In May of 2016, NC WARN filed an appeal in which it maintains that it was not competing with Duke by acting as a public utility, an act which is currently against state law (Quinn & Runkle, 2016). This was the start of a legal battle that has the potential to define the future of solar power in NC.

Duke has been leading ad campaigns in African-American and lower income communities in an attempt to convince them that expansion of the solar industry will affect them negatively (Johnson). These claims are largely false; many studies show that increased solar would actually greatly benefit lower income communities (Pew, 2014) (RTI, 2013). Unjustly

targeting low-income communities takes away their potential to gain from a booming solar industry.

Prominent African-American leader in NC, Reverend Nelson Johnson, wrote an open letter to Duke CEO asking the company to stop aiming its anti-solar message at the African-American and lower income communities (Johnson, 2015). The Reverend expresses his concern about Duke's "tactics targeting pastors and other civic and political leaders with [its] claim that rooftop solar harms people with low incomes and people of color, as well as [its] aggressive lobbying against the new Energy Freedom Act that would open the door to third party solar competition in this state, thereby helping the same low-wealth communities" (Johnson, 2015).

In a legal battle such as this one, the outcome is not as important as the potential influence it may have on legislation. This case can clear the way to further development of the solar industry and even friendlier renewable energy laws by raising awareness, mobilizing community action, and challenging Duke. Furthermore, it opposes Duke's highly influential position in NC politics. NC WARN and Faith Community Church are challenging Duke in the face of a state government that has historically favored the energy giant (Davis, 2016). Duke enjoys several privileges in NC, as it works with a Governor who is heavily biased towards the utility. With a change in governorship from 2017 and this ongoing legal battle, Duke's favorable position in NC politics may finally come to an end.

The issue of solar in NC also concerns values. Regardless of the several studies that show the economic and social benefits of expanding solar capacity in the state, it is important to take into account the future of the country and the earth as a whole. The continued use fossil fuels for

economic gain comes at the expense of future generations that must deal with the dire environmental consequences of climate change (IPCC, 2013).

In an interview with Utility Dive, the original sponsor of the Energy Freedom Act, Republican Representative John Szoka commented, “When I was elected in 2012, I was an opponent of solar...[but then] I was convinced by the numbers and the facts that my position on solar was based on emotion and not on facts, so I changed my position" (Trabish, 2015). Climate change has become a controversial topic in the United States, with a large number of climate deniers, funded by fossil fuel companies, opposing the rise of renewable energy. At a time like this, it is important to acknowledge the power of working together across partisan boundaries and mobilizing against the interests of the fossil fuel industry.

### *Recommendation and Conclusions*

Given the many benefits of the solar industry in NC, my recommendation is passing the Energy Investment Act and the Energy Freedom Act. Both these actions are incredibly important in continuing to grow the solar industry in NC. Additionally, it would most favorable for the solar industry if after the five-year extension of the state ITC under the Energy Investment Act, there were an eventual phase out of the ITC rather than a sudden expiration.

Taking into account environmental justice, solar offers many benefits for lower income communities that are often marginalized and forgotten by giving them more control over their electricity. Environmental values also matter in this case; the U.S. must decide what role it will play in the global response to climate change. Is the country going to focus on natural gas and continue to emit large amounts of green house gases into the atmosphere, or will it make a genuine effort to implement renewable energy as early as possible? Will the U.S. continue to be

dominated by large energy corporations with strong ties in the government, or will it work in favor of lower and middle class individuals?

According to a report by the International Energy Agency, on a global scale, if the solar industry continues to grow under proper policy, solar generated energy could be the principal source of electricity by 2050, ahead of even fossil fuels (IEA, 2014). On a smaller scale, in the state of NC, the policies detailed in this report have the potential to make a huge difference and move the state, the country, and the world closer to this vision.

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