New Green Deal's Effects on the US Energy Transition

Thomas N. Russo

In early November 2018, Representative-Elect Alexandria Ocasio-Cortez, the New York Democrat, supported a protest by the Sunrise Movement, a youth-driven grassroots effort to hold elected leaders accountable for a warming planet. The group wants to revive a select committee on global warming in the House of Representatives, which could produce draft New Green Deal legislation by 2020. Finally, it wants incoming Democratic lawmakers to sign a pledge that they won't accept fossil-fuel money. So far, 19 members of Congress have taken the pledge.[1]

The New Green Deal calls for Congress to comprehensively tackle climate change and income inequality. The last time Democrats even made a major move to pass climate policy legislation was in 2009 with the Waxman-Markey bill. Barack Obama picked up the theme regarding a New Green Deal from Thomas Friedman's book and made a New Green Deal a part of his 2008 platform, but the idea just never took off.[2]

Climate change is not just a partisan issue. In January 2019, Republicans Francis Rooney of Florida and Brian Fitzpatrick of Pennsylvania plan to reintroduce legislation to address climate change. Their "Market Choice Act," the landmark carbon tax bill floated last year by then-Rep. Carlos Curbelo (R-FL), will likely have to compete with other carbon tax proposals, as well as the New Green Deal, which is focused on government spending and regulation.

WHAT'S DRIVING THE NEW GREEN DEAL

Many aspects of the New Green Deal are about energy transition to a future that is greener and does not rely on oil and natural gas for heating, electric power generation, and transportation.

Most of the global energy industry, regulators, and Congress are keenly aware that the United States and the world are in the middle of an energy transition to renewables. The key aspect of the New Green Deal is the unwillingness to let such a transition take its natural course. That's because the effects of climate change appear to be more visible.

The federal government's release of the Fourth National Climate Assessment[3] on November 23,

[1] Joskelow, M. (2018, November 21). The face of the New Green Deal (she's not who you think). *Greenwire*. Retrieved from *https://www.eenews.net/greenwire/2018/11/21/stories/1060107185*.

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[2] Friedman, T. (2019, January 8). The New Green Deal rises again. *The New York Times*. Retrieved from https://www.nytimes.com/2019/01/08/opinion/green-new-deal.html.

[3] Jay, A., Reidmiller, D. R., Avery, C. W., Barrie, D., DeAngelo, B. J., Dave, A., … Winner, D. (2018). Overview. In *Impacts, risks, and adaptation in the United States: Fourth National Climate Assessment, Volume II* (D. R. Reidmiller, C. W. Avery, D. R. Easterling, K. E. Kunkel, K. L. M. Lewis, T. K. Maycock, & B. C. Stewart, Eds.). Washington, DC: U.S. Global Change Research Program; pp. 33–71. doi: 10.7930/NCA4.2018.CH1. Retrieved from https://nca2018.globalchange.gov.

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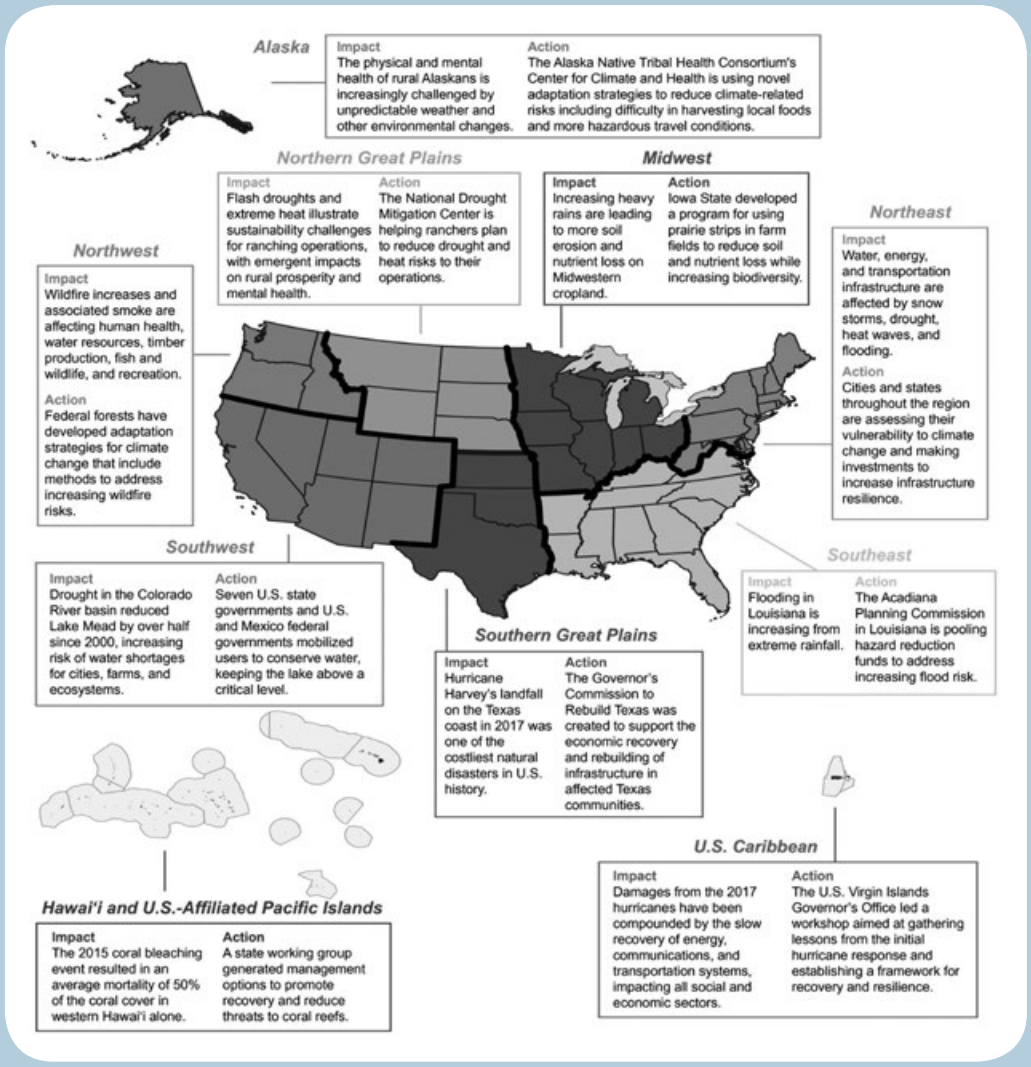
Figure 1. Regional Climate-Change Impacts and Actions



2018, summarizes the effects of climate change in detail (**Figure 1**). The assessment concluded, "The effects of climate change, including deadly wildfires, increasingly debilitating hurricanes and heat waves, are already battering the United States, and the danger of more such catastrophes is worsening."

The New Green Deal is still in its formative stage right now. However, a draft proposal says that within 10 years from "the start of execution of the Plan,"[4] the United States will be fully powered by renewable energy sources and that existing buildings will undergo extensive renovations to make them energy-efficient. There is really nothing new in the proposal other than increased visibility and urgency made possible by social media and news coverage of Representative. Ocasio-Cortez. The increased role that the federal government will play in implementation and demonizing the fossil fuel industry also distinguishes it from former efforts.

Politics aside, I'm concerned about the costs to energy consumers and possible gutting of the energy industry that has served US energy consumers fairly well over the years. However, make no mistake, in any energy transition driven by markets, there will be winners and losers. One only has to look at the projected 2019 electric power additions and retirements in **Figure 2** to see that.

[4] Draft text for proposed addendum to House rules for 116th Congress of the United States. Retrieved from https://ocasio2018.com/green-new-deal.

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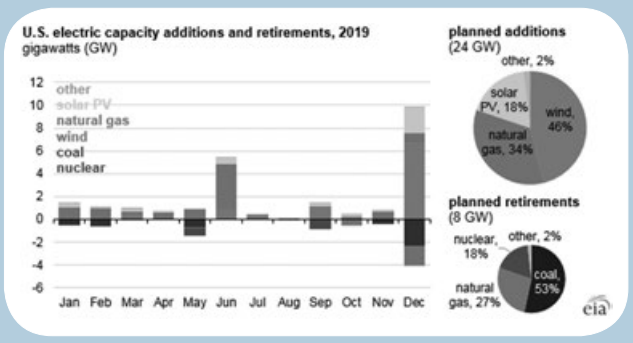
Figure 2. Projection of the Types of Electric Capacity Additions and Retirements in 2019



LOOK NO FARTHER THAN GERMANY AND THE EUROPEAN UNION

The European Union and specifically Germany can really shed some light on the effects of dramatically accelerating an energy transition through the New Green Deal.

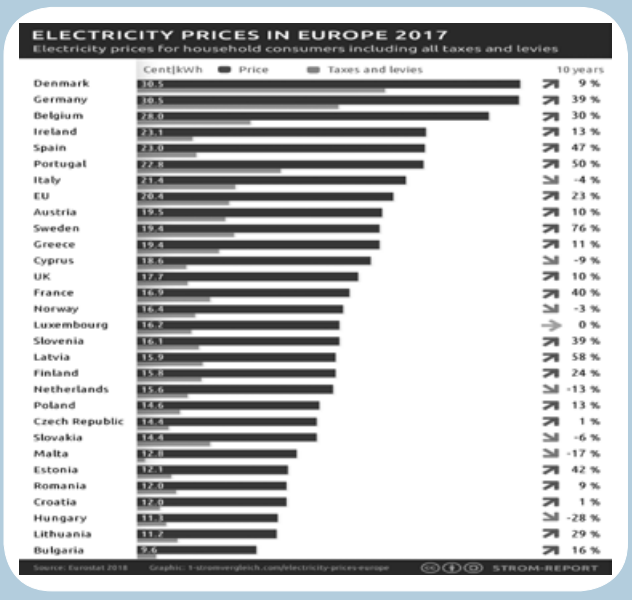
The Energiewende ("energy transition" in German) dramatically shifted Germany to decentralized renewable energy, energy efficiency, and environmental dispatch of electric power plants. The shift to renewables has been replacing nuclear energy and coal plants. Germany's declared goal in 2012 was the abolition of coal, reducing nonrenewable energy sources and the creation of an energy system based on 60 percent renewable energy by 2050.

As **Figure 3** shows, Germany and Denmark have some of the highest electricity rates in the European Union, about 30 cents per kilowatt-hour. Residential electricity rates in Germany grew by 39 percent over a 10-year period as a result of government policies and changes to the electricity market, driven by the desire to fight climate change and reduce greenhouse gases. In contrast, electricity rates vary over the United States and were 10.4 cents per kilowatt-hour in 2017.[5] Higher average electricity rates in California, Alaska, and Hawaii were 16.01 cents per kilowatt-hour, 18.88 cents per kilowatt-hour, and 25.93 cents per kilowatt-hour, respectively.

Figure 4 clearly shows that the increase in Germany's electricity prices was due to the rapid shift to renewables during the Energiewende. Other EU member countries did not follow Germany's lead and have much lower electricity rates due to lower wind and solar installations per capita and a reliance on a more diversified mix of power plants, such as coal and nuclear.

The price tag for the Energiewende is in the form of a renewables surcharge, which added another 24 percent to the average electricity price for German households in 2017 (**Figure 5**). Also, electricity prices in Germany have gradually increased from 2008 to 2017. Today, Germany is still dealing with significant challenges in operating its coal and nuclear power fleet and electric transmission system. A major challenge is reducing electricity costs, which have only decreased slightly in 2018.

Figure 3. European Electricity Prices in 2017



[5] Andrews, R. (2018, April 30). The causes of the differences between European and US residential electricity rates. *Energy Matters.* Retrieved from http://euanmearns.com/the-causes-of-the-differences-between-european-and-us-residential-electricity-rates/.

Figure 4. European Electricity Prices versus Installed Wind and Solar Capacity

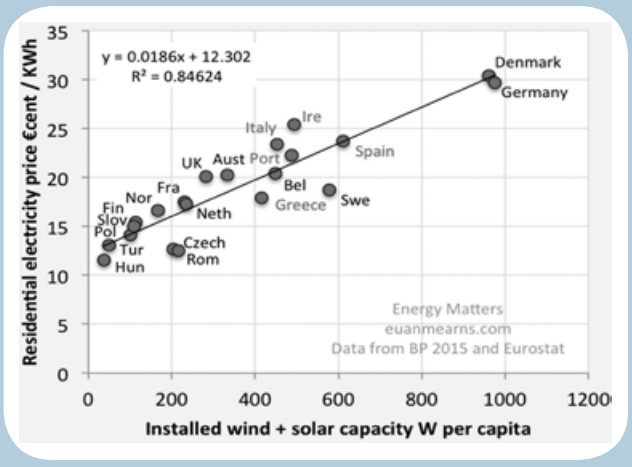


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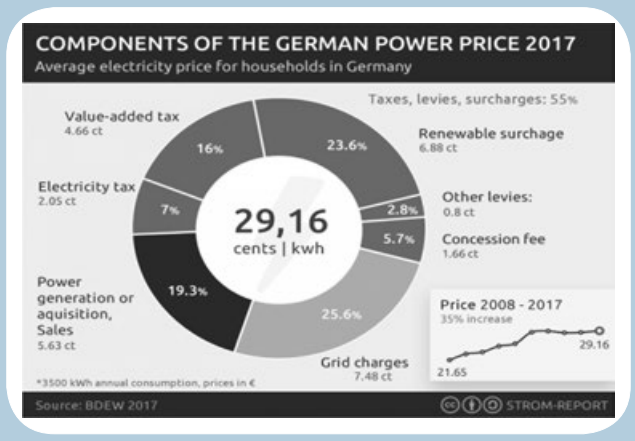
Figure 5. Components of the German Power Price 2017



GOING FORWARD

From the above, it's very clear that the United States can also accelerate its energy transition through the New Green Deal or by letting energy markets and new technologies (electric cars, grid storage, and other innovations) dictate the pace. Assuming that Congress wants to accelerate the energy transition via the New Green Deal, I recommend that they take the following steps to ensure that they make a "knowing decision," minimize damage to existing energy markets, and ensure that US energy consumers have access to reliable and inexpensive energy consistent with our environmental values.

Educate new members of Congress, don't ostracize or compartmentalize issues

Progressive members of the new Congress probably have a steep learning curve when it comes to understanding energy infrastructure, markets, and the environmental impacts associated with renewables.

The notion that renewables have no adverse effects on the environment is a myth. Proponents of renewables merely look the other way or believe that any adverse effects from renewables are the cost of fighting climate change. A few examples follow.

The operation of onshore wind projects kills thousands of birds and bats every year. Offshore wind projects, which are being aggressively advocated by coastal states, will add to these mortality numbers. Also, the construction of submarine electric transmission lines to transmit the power onshore will adversely affect marine mammals and coastal environments during construction. Utility-scale solar projects also have relatively large environmental footprints and can affect species in those environments. Even electric battery storage projects have environmental consequences associated with the manufacture and disposition of the batteries.

New members of Congress may also be totally unaware that the oil and gas industry are inextricably linked to renewable energy production. According to an International Energy Agency Report about petrochemicals,[6] the materials used to manufacture wind turbines, solar panels, and electric vehicles depend on petrochemicals. Common products like plastic and solar film come from ethane and other natural gas liquids and gases that are processed/refined by natural gas processing plants and refineries, respectively.[7] Absent replacements for these petrochemicals, it's nearly impossible to eliminate fossil fuels from the economy or renewable energy sector.

The above commodities and electricity are also sent to markets and customers by infrastructure—pipelines, trains, barges, trucks, and power lines that affect the public. Statutes like the National Environmental Policy Act (NEPA) will not exempt renewable energy projects from an environmental review. Therefore, the success of the New Green Deal in accelerating the energy transition will probably take longer than supporters think.

For example, it took five years from conception to construction to authorize the first offshore wind project, Block Island (30 megawatts with only six wind turbines), due to compliance with NEPA and other environmental laws passed by Congress over the years. Today's renewable projects are often larger. Thus, no matter how supportive the public may be for the energy transition part of the New Green Deal, the public will generally oppose and litigate projects that affect their local communities and special interests.

I don't advocate the creation of a Select Committee for a New Green Deal. Instead, I believe this should be incorporated into the House Energy and Commerce Committee for several reasons. First, to facilitate an energy transition with minimal cost to consumers, Congress cannot afford to compartmentalize the issue through standing committees.

This would only provide an echo chamber for advocates of the New Green Deal with little to show for it. It would also provide a safe haven for policies vested in the status quo in the existing House Energy and Commerce

[6] IEA. (2018, October 5). *The future of petrochemicals*. Paris: Author. Retrieved from https://webstore.iea.org/the-future-of-petrochemicals.

[7] Russo, T. (2019, February). Gas from shale drilling to face strong headwinds next decade. *Natural Gas & Electricity, 35*(7), 24–27.

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Committee. By inviting Representative Ocasio-Cortez and other new members to join the House Energy and Commerce Committee, the issue and need to accelerate the energy transition can be thoroughly vetted. Being members on the committee will also give new members a crash course about the existing challenges in siting energy infrastructure, fostering competitive markets and delivering low-cost electricity and natural gas to the consumers they represent. This task is not easy when you actually have to supply the country with energy and move it toward a more sustainable energy future.

The House Energy and Commerce Committee also has oversight over the Department of Energy, the Federal Energy Regulatory Commission, and other agencies that deal with energy infrastructure and markets. These agencies need clear guidance of congressional intentions and can ill afford wrestling with competing goals and objectives of two separate committees.

Grid storage is the key

The significant growth in renewables in the United States is due to decreased costs as a result of IRS investment tax credits (ITCs), and state renewable portfolio standards that require electric utilities to incorporate renewable power into their electric power generating portfolios. The ITC has been a significant factor in this growth.

Grid storage technologies such as electric batteries and closed-loop pumped storage hydro will also play a critical role in meeting the goals of the New Green Deal or the ability to accelerate the current energy transition to renewable and electric vehicles. Without the deployment of utility-scale grid storage, it's going to be nearly impossible to attain the goal of the New Green Deal without increasing the cost of electricity to US consumers.

Grid storage developers and those companies that want to build hybrid renewable and grid storage projects are seeking guidance from members of Congress about whether or not the ITC is applicable to grid storage projects.[8] The IRS issued a letter determining that new storage projects can access the credit when installed with new ITC-eligible technologies. If passed, the Energy Storage Tax Incentive and Deployment Act would apply to utility-scale battery projects as well as smaller residential systems.[9]

If it is passed, then the tax credits, combined with FERC's Order 841 to allow grid storage projects to participate in regional electricity markets, will be a very positive development.[10] The 2019 ITC is 30 percent, but drops to 26 percent, 22 percent, and 10 percent in 2020, 2021, and 2022, respectively. Some members of Congress are also proposing to eliminate the credit entirely.

Legislators should not assume Big Oil and Gas are enemies

Many new members of Congress and advocates of the New Green Deal may think fossil fuel companies will not support the New Green Deal.

While the costs and the pace of the plan may be an issue, many energy companies do recognize that a significant energy transition is already taking place and are planning for it. Those plans often include investments in electric vehicle charging technologies and companies and a shift from oil to gas. I view these as strategic hedges and a way for these companies to reposition themselves. The timing of the plan is an issue for every company and new entrant in the energy space, including automobile manufacturers who are shifting resources to electric vehicles.

A good example of working with the oil and gas industry is the work that the Natural Resource Defense Council and Google are doing to identify and reduce natural gas (methane) leaks. That program was highlighted at the North American Gas Forum in October 2018. Also, ExxonMobil reportedly broke with the energy industry and actually supports the proposed Environmental Protection Agency methane rules.

CAREFUL EXAMINATION REQUIRED

Congress and the states should carefully weigh the costs and benefits of accelerating the current energy transition via the New Green Deal. They should do so by incorporating any plan into the existing House and Senate Energy Commerce Committees. Compliance with NEPA and existing environmental laws, along with well-functioning energy markets, will ultimately determine the pace and success of any planned energy transition.

[8] Walton, R. (2018, November 27). Storage industry pushes for clarity on tax credit eligibility. *UtilityDive*. Retrieved from https://www.utilitydive.com/news/storage-industry-pushes-for-clarity-on-tax-credit-eligibility/542947/.

[9] H.R. 4649/S. 1868.

[10] FERC. (2018, February 2). *FERC issues final rule on electric storage participation in regional markets.* News release. Retrieved from https://www.ferc.gov/media/news-releases/2018/2018-1/02-15-18-E-1.asp#.XDkLZc83mqA.

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