

Greater Than the Sum: Sub-national Renewable Energy Policy during the Trump Administration

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Abstract: Despite campaign promises, the Trump Administration did not encourage a surge in fossil-fuel usage across America. Instead, individual actors at the ground level worked to increase renewable energy in their own state, city, or even utility. Due to these disperse actors, it can be difficult to see the whole landscape as a sum of these parts. I surveyed these energy policies across the nation from 2016-2020 to complete this picture. Even though the federal government was unsupportive of renewable energy policies, most states saw an increase in renewable energy and a decrease in fossil fuels. Many actors showed a willingness to respond to the economic and social factors making renewables an attractive energy source that brings jobs and local industry in addition to slowing climate change. By doing so, these actors demonstrated an unusual instance where policy, economics, and social pressures combined to enact progressive policies even in conservative or moderate areas.

Energy policies vary greatly across America as states oversee generation within their own state. These policies continued to develop over the course of the Trump Administration, though not in the ways many renewable advocates feared.¹ However, because many of these actions were taken at a comparatively small scale, it can be difficult to zoom out to see how these policies fit in the context of the nation as a whole. To get the most comprehensive picture of what occurred at the ground level of American energy law and policy, I conducted a fifty-state review of the sub-national actions taken across the nation from 2016-2020.² While the following data is not exhaustive, it provides insight into many of the major actions taken at the state, local, and utility levels. The data below contains summaries and sources of the legislation, executive orders, and other actions taken to define the energy policy of states as they navigated the ever-

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¹ Cary Coglianese & Daniel E. Walters, *Whither the Regulatory "War on Coal"? Scapegoats, Saviors, and Stock Market Reactions*, 47 *Ecology L.Q.* 1, 2 (2020).

² An earlier survey of state renewable energy policies as of 2016 can be found in Daniel A. Farber, *Beyond the Beltway: A Survey of State Climate and Energy Policies* (CLEE Research Paper) (Feb. 2018), <https://www.law.berkeley.edu/wp-content/uploads/2018/02/Beyond-the-Beltway.pdf>. To determine the energy policy changes in each state between 2016-2020, I searched for executive orders and legislation affecting energy policy in each state. I also searched specifically for renewable portfolio standards, and climate targets as specific policy actions. Finally, if there were not many governmental actions at the state level I searched for utility and city-level actions. Together, these provide an idea of the energy policy within the state.

changing energy field. In this piece, I will lay out the themes running through this data, and what these themes reveal about the energy policy of the United States at large.

Although President Trump had broad policy goals to advance fossil fuels, much of the actions implementing new energy policy occurred at the state and local level during his administration.³ These sub-federal actions responded both to the administration's agenda and to climate change. Taken together, these actions reveal several patterns in the ways that government bodies use different means to achieve their energy goals. First, economics undeniably play a large role in how states form their energy policies, driving renewable energy efforts in many places but leading to resistance in some others. Second, governors have the power to influence renewable energy policies in states that have traditionally been less eager to implement climate change action, especially where the party affiliations between the state legislature and governor differed. And finally, this period saw the placement of American states into the global arena as various states filled in the historically federal role of creating interstate and global agreements. Broadly, these themes demonstrate that the lines drawn between traditionally progressive and conservative areas blur in the field of energy policy. Taken together, these actions show a nation moving together towards renewable energy even with the lack of a federal push to do so.

The role of economics on state decisions is two-fold: On one hand, many states view renewable energy as a tool in local job and industry creation; on the other hand, those with historic fossil-fuel ties sometimes make short-term decisions to prop up local industry.

³ DONALD J. TRUMP, PRESIDENT OF THE UNITED STATES, WHITE HOUSE BRIEFING STATEMENT (Aug. 13, 2019), https://trumpwhitehouse.archives.gov/briefings-statements/president-donald-j-trump-remains-committed-expanding-energy-production-increasing-manufacturing-united-states/?utm_source=twitter&utm_medium=social&utm_campaign=wh; Vicki Arroyo, *From Paris to Pittsburgh: U.S. State and Local Leadership in an Era of Trump*, 31 GEO. ENV'T L. REV. 433 (2019).

Generally, the price of renewable energy has plummeted, making it a desirable power supply.⁴ As renewables' prices declined and fossil fuel prices went up, many states have made decisions to catch the wave of money and jobs stemming from this booming industry. Framing these renewable energy initiatives as “job-creators” has allowed for broad support in unlikely places.⁵ For instance, Arkansas recently passed the Solar Access Act in 2019 to jumpstart local large-scale solar projects.⁶ The bill received bipartisan support in a conservative state to bring long-term jobs within Arkansas.⁷ Where states have been reticent to get involved, cities have taken the lead. When Georgia failed to implement sweeping renewable legislation, the City of Atlanta committed to 100 percent clean energy by 2035.⁸ As Stephanie Stuckey, a former Georgia state representative and current director for sustainability for the Southface Institute provided, “You don't lead with climate change. . . you lead with: Let's provide economic development for the entire state.”⁹ This rare instance of progressive policy and economics coinciding offers an explanation to the progressive trend in state's renewable energy policies throughout the data below.

Indeed, further actions by utilities show that “money talks” in energy policy. Wyoming, which relied on coal for 84 percent of its electricity generation in 2019, failed to respond to the

⁴ Between 2009 and 2017 the average cost of wind declined 67 percent, and solar 86 percent. Roman Mendelevitch et al., *The Death Spiral of Coal in the U.S.: Will Changes in U.S. Policy Turn the Tide?*, 19 CLIMATE POL'Y 1310, 1312 (2019).

⁵ Katrina M. Wyman & Daniella Spiegel-Feld, *The Urban Environmental Renaissance*, 108 CAL. L. REV. 305, 308–09, 328 (2020) (discussing states and cities enacting climate action to ensure growth of high-tech industry for local economies).

⁶ Wesley Brown, *Solar Access Act spurs new renewable energy projects statewide*, TALK BUS. NET (Feb. 18, 2020, 12:16 PM), <https://talkbusiness.net/2020/02/solar-access-act-spurs-new-renewable-energy-projects-statewide/>.

⁷ Katie Laning Niebaum, *Energy to spare: Solar helps power state's economy*, NW. ARK. DEMOCRAT GAZETTE (Mar. 13, 2020, 1:00 AM), <https://www.nwaonline.com/news/2020/mar/13/energy-spare/#:~:text=Last%20year%20C%20the%20General%20Assembly,party%20financing%20for%20solar%20systems.&text=Arkansas%20ranked%2018th%20among%20the,118%20megawatts%20of%20solar%20generation.>

⁸ CLEAN ENERGY ATLANTA, <http://www.100atl.com/> (last visited Feb. 24, 2021).

⁹ Jason Margolis, *How Atlanta plans to get to 100% green energy by 2035*, WORLD (Apr. 15, 2019, 11:15 AM), <https://www.pri.org/stories/2019-04-15/how-atlanta-plans-get-100-green-energy-2035>.

economic and social demands for action in the face of state and federal inaction leading to a utility taking charge.¹⁰ Wyoming has been one of the leading coal producers in the United States, though it also has potential for wind and solar development.¹¹ The state legislature, focused on the short-term local coal industry, has taken steps as far as introducing bills to impose a “reverse”-Renewable Portfolio Standard (RPS) to tax utilities for electricity produced from solar sources.¹² While this bill did not pass, it demonstrated that not only is the state unwilling to promote renewable energy but it was openly hostile.¹³ As seen throughout the data, where higher authorities fail to act, those below lead the charge. Here, Wyoming’s largest utility provider, PacifiCorp, responded to consumer pressure in 2019 and released an Integrated Resource Plan to reduce greenhouse gas emissions to 60 percent of 2005 level by 2030, a substantial decrease.¹⁴ They have also voluntarily planned to shut down twenty of their twenty-four operating coal plants by 2038.¹⁵ Economic forces, combined with consumer demand (including Facebook’s Oregon operation which aims to achieve 100 percent renewable energy), show that running through this data is a tale of economics.¹⁶ The biggest difference between policymakers was in their willingness to respond by increasing renewable energy in contradiction with the Trump Administration’s policy goals.

¹⁰ Nadja Popovich & Brad Plumer, *How Does Your State Make Electricity?*, N.Y. TIMES (Oct. 28, 2020) <https://www.nytimes.com/interactive/2020/10/28/climate/how-electricity-generation-changed-in-your-state-election.html?action=click&module=Top%20Stories&pgtype=Homepage>.

¹¹ Jeff Stanfield, *Wyo. legislators file 'reverse RPS' bill to keep utilities burning coal*, S&P GLOB. MKT. INTELLIGENCE (Jan. 17, 2017, 6:24 PM) https://www.spglobal.com/marketintelligence/en/news-insights/trending/39pz4iihdejtdealx_il6w2.

¹² *Id.*

¹³ *Wyoming SF71 Electricity production standard*, TRACKBILL <https://trackbill.com/bill/wyoming-senate-file-71-electricity-production-standard/1329313/> (last visited Feb. 24, 2021).

¹⁴ *Envisioning the Future of the West*, PACIFICORP (2019) https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/PacifiCorp_Story10_02_2019.pdf (last visited Feb. 24, 2021).

¹⁵ Catherine Morehouse, *Wyoming scrutinizes PacifiCorp coal retirement plans in 'unheard of' IRP investigation*, UTILITY DIVE (July 14, 2020), <https://www.utilitydive.com/news/wyoming-scrutinizes-pacifiCorp-coal-retirement-plans-in-unheard-of-irp-in/581541/>.

¹⁶ *Envisioning the Future of the West*, *supra* note 14.

At least eleven states, including Wyoming, have had the needle moved on their energy mixes by individual utilities committing to renewable policies beyond what was legally required of them.¹⁷ This includes other conservative states where little governmental action was taking place, including Florida, Louisiana, and Nebraska.¹⁸ In some cases, these actions went beyond setting their own emissions targets or phasing out coal. Utilities enacted programs traditionally used at the state level like net metering. Net metering, which sets the prices utilities must pay customers for their excess rooftop-solar generation, are a tool typically used by state legislatures to promote distributed energy resources, and increase renewable generation.¹⁹ Private utilities are making use of this program in Idaho, a state with no renewable targets.²⁰ Despite no state mandate to do so, the three largest three investor owned utilities implemented net-metering programs for small-scale and customer-sited renewable generation (mostly rooftop solar).²¹ While rooftop solar received some support by the Idaho Public Service Commission, this exemplifies the broader trend of utilities enacting traditionally progressive policies.²² Due to both economics and public pressure for renewables, these utilities have taken steps on their own where states and federal governments fail to act to implement popular programs.

Despite the economic advantages of renewables, a few states saw a “backslide” in their energy policy. Indiana enacted HB 1414 in 2020 to impose hurdles for utilities to retire coal-fired

¹⁷ Arizona, Florida, Georgia, Idaho, Louisiana, Michigan, Minnesota, Nebraska, Oklahoma, Wisconsin, and Wyoming all had utilities create renewable energy policies exceeding state mandates. See data below.

¹⁸ *Id.*

¹⁹ Tim Sylvia, *Idaho regulators rule that net metering rates belong to the system, not the customer*, PV MAG. (Feb. 11, 2020), <https://pv-magazine-usa.com/2020/02/11/idaho-regulators-rule-that-net-metering-rates-belong-to-the-system-not-the-customer/>.

²⁰ *Idaho Profile Analysis*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state/analysis.php?sid=ID> (Last updated Feb. 18, 2021).

²¹ *Id.*

²² Sylvia, *supra* note 19.

electricity facilities.²³ This bill was aimed to “slow the state’s shift away from coal,” and does so by forcing utilities to give the Indiana Utility Regulatory Commission at least three years notice before closing a coal facility.²⁴ Democrats against the bill criticized it for the economic implications as coal becomes economically undesirable.²⁵ State Representative Matt Pierce (D) criticized the bill, saying that it was “trying to bail out the coal industry that’s having difficult times and it’s going to be done at the expense of Indiana ratepayers.”²⁶ This was one of the rare wins for coal which aligned with the Trump Administration’s goals to prop-up the declining industry.²⁷ However, in doing so this policy goes against economic efficiency and letting market forces move the field. Luckily for ratepayers and climate activists alike, this was the minority within state policies.

Ohio also offers an interesting insight into what goes into anti-renewable policies during a time where economics suggest they should be expanding. In 2019, Ohio passed HB 6, setting off a cascade of drama.²⁸ HB 6 reduced the state’s RPS by 8.5 percent and terminated the solar carve out to encourage solar projects.²⁹ It went further to exempt large industrial customers from complying with the RPS and set the RPS to end in 2026.³⁰ In effect, the bill took away incentives to build renewable energy projects in the state.³¹ This was a definitive step backwards for renewable policy. However, the fate of this bill remains uncertain. HB 6 came under fire when

²³ Catherine Morehouse, *'Nobody's really for this bill, so why does it keep moving?': Indiana coal bill hits state Senate today*, UTILITY DIVE (Feb. 27, 2020), <https://www.utilitydive.com/news/nobodys-really-for-this-bill-so-why-does-it-keep-moving-indiana-coal/573073/>.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ Coglianesse & Walters, *supra* note **Error! Bookmark not defined.**

²⁸ David Roberts, *Ohio just passed the worst energy bill of the 21st century*, VOX (July 27, 2019, 12:00 PM), <https://www.vox.com/energy-and-environment/2019/7/27/8910804/ohio-gop-nuclear-coal-plants-renewables-efficiency-hb6>.

²⁹ Jeffrey Tomich, *Ohio rolls back RPS, boosts nuclear. Here's why it matters*, E&E NEWS (July 24, 2019), <https://www.eenews.net/stories/1060780629>.

³⁰ Roberts, *supra* note 28.

³¹ *Id.*

the federal authorities arrested Ohio's Speaker of the House Larry Householder for accepting \$61 million in bribes to ensure passage of the bill.³² This was in connection to the \$150 million within the bill to subsidize the state's two nuclear plants owned by FirstEnergy Solutions, a company poised to receive a total of \$1.5 billion in total from the actions outlined in HB 6.³³ The dynamics at play here continue to suggest that on balance, where renewable energy has received poor treatment, there may have been more at play than straight economics. Both this and Indiana's experiences show that these examples of backsliding have little to do with the renewable policies themselves, and instead should be examined at for who they will benefit. As both these examples show, it is not always the ratepayers of these states that stand to prosper.

Indeed, where state legislatures have failed to enact renewable-friendly programs, governors have. Many of the states who committed to lofty climate targets did so through governors' executive orders.³⁴ While this may have some legal implications as to the enforceability of these goals, it at least creates a state-level policy in broad strokes to signal to the public, lawmakers, and industry the direction the state is heading. Other governors have used executive orders to commit the state to more tangible goals. In 2018, Governor Murphy (D) of New Jersey committed in an executive order to join the Regional Greenhouse Gas Initiative (RGGI), an interstate carbon trading program aimed at reducing carbon emissions.³⁵ In 2020, Governor Wolf (D) of Pennsylvania released a similar executive order committing the state to RGGI over a reluctant republican state legislature.³⁶ Part of Governor Wolf's reasoning for this

³² *Id.*

³³ *Id.*

³⁴ Currently, nine states (Connecticut, Louisiana, Minnesota, New Jersey, North Carolina, Pennsylvania, Rhode Island, Virginia, and Wisconsin) have set aggressive carbon-reduction targets by governors' executive order. See Data Table below.

³⁵ *New Jersey's Clean Energy Picture*, DEP'T ENV'T PROTECTION (June 3, 2020), <https://www.nj.gov/dep/aqes/opea-clean-energy.html>.

³⁶ Pa. Exec. Order No. 2019-07 (Oct. 3, 2019), <https://www.governor.pa.gov/newsroom/executive-order-2019-07-commonwealth-leadership-in-addressing-climate-change-through-electric-sector-emissions-reductions/>.

contentious move was agency findings not only that the state's joining would reduce carbon emissions by 188 million tons, but also that joining would lead to the creation of 30,000 jobs in the state and increase their GDP by \$1.9 billion.³⁷ The policymaking positions of governors can allow for progressive programs in conservative states. In 2020, Governor Edwards (D) of Louisiana signed an executive order setting a goal for net-zero carbon emissions by 2050.³⁸ This was in the same year that the state voted almost 60 percent in favor of re-electing Donald Trump, and elected a republican majority to the state house.³⁹ While state legislatures have played an important part in setting the renewable energy policy of the US, the ability to act unilaterally has allowed democratic governors to make leaps forward in states not known for their progressive energy policy.

However, the power of the governor can also obstruct progression of renewable policies. While few states experienced a "back-slide" during the Trump Administration, New Hampshire shows an issue that can arise in a moderate state with a republican governor. Despite having a democratic-leaning legislature, New Hampshire is trailing behind other states in New England when it comes to progressive energy policies.⁴⁰ Part of this can be attributed to Governor Sununu's (R) use of vetoes to strike down progressive statutes, and the legislature's reluctance to overcome these vetoes. In addition to being the only governor in New England who didn't commit their state to the US Climate Alliance, Governor Sununu also struck down a bill moderately raising the state's RPS to 30 percent renewable energy by 2025.⁴¹ This was only a 5

³⁷ *Id.*

³⁸ La. Exec. Order No. 2020-18 (Aug. 19, 2020), <https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-18-Climate-Initiatives-Task-Force.pdf>.

³⁹ *Louisiana President Results*, CNN (Jan. 26, 2020), <https://www.cnn.com/election/2020/results/state/louisiana/president>.

⁴⁰ Lisa Prevost, *New Hampshire a regional outlier on climate, clean energy under Gov. Sununu*, ENERGY NEWS NETWORK (Jan. 8, 2020), <https://energynews.us/2020/01/08/new-hampshire-a-regional-outlier-on-climate-clean-energy-under-gov-sununu/>.

⁴¹ *Id.*

percent increase from the previously set target.⁴² He also struck down a bill increasing the project capacity for the state’s net-metering program designed to encourage larger-scale solar projects.⁴³ Thus, New Hampshire serves as an example of the obstacle a single governor can present in halting progress. Thankfully, this situation was the minority as more states experienced the opposite phenomenon described above in Louisiana. Nonetheless, this dynamic will no doubt continue as states have mismatches between the parties controlling their legislative and executive branches.

Throughout the Trump Administration, states moved to supply the demand for renewable energy not only in the United States, but the world at large. Trump’s withdrawal from the Paris Agreement left a void which allowed states to move into a space generally occupied by federal governments.⁴⁴ Many states came together to pledge to meet the carbon-reduction targets of the Paris Agreement, including Louisiana.⁴⁵ In the executive order discussed earlier, Governor Edwards (D) committed Louisiana to following the interim goals of the Paris Agreement, and emphasized the importance of following internationally-set guidelines.⁴⁶ Here, the lack of federal movement in this space allowed for states to choose to insert themselves into the international field. States saw the lack of national guidance from the Trump Administration for renewable energy as an opportunity to make their contributions to the global community to fight Climate Change.

As states entered these “uncharted” territories, they also came up with innovative ways to achieve their policy goals. For example, Vermont’s state legislature passed the innovative Global

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Sharmila L. Murthy, *States and Cities as “Norm Sustainers”: A Role for Subnational Actors In the Paris Agreement on Climate Change*, 37 VA. ENV’T L.J. 1, 17–18 (2019).

⁴⁵ La. Exec. Order No. 2020-18, *supra* note 38.

⁴⁶ *Id.*

Warming Solutions Act over their republican governor’s veto in 2020.⁴⁷ The bill pledges the state to reduce emissions to 80 percent below 1990 levels by 2050.⁴⁸ More interestingly, it also contained a cause of action to legally enforce this target and the interim targets outlined in the statute.⁴⁹ The bill allows for any person to sue Vermont if the state fails to adopt rules to meet the reduction targets, or if those rules fail to achieve them.⁵⁰ It is not entirely clear what a suit under this cause of action would look like, though it is unlikely to allow money damages. One state representative supporting the bill called it a “narrow legal remedy” to allow Vermonters to get a court order forcing the state to meet emissions targets.⁵¹ Even this is a radical action, as states are generally unwilling to open themselves up for lawsuits.⁵² In an area where enforcement and achievement is often even harder than setting targets, this may be a powerful tool to increase renewable energy in the state. Vermont’s innovation may spur other states to include cause of actions to hold their government accountable and give citizens a valuable means of enforcement.

Nevada also came up with a unique legislative solution to help promote renewable energy and the rights of their citizens. In 2017, the state passed the “Renewable Energy Bill of Rights.”⁵³ This bill offers statutory protection to consumer’s right to self-generate and store their own energy.⁵⁴ Doing so creates long-term stability aimed at increasing investment in rooftop solar, and other distributed resources.⁵⁵ Nevada had previously ended its net-metering program in

⁴⁷ H.688 (Act 153), *An act relating to addressing climate change*, VERMONT GENERAL ASSEMBLY, <https://legislature.vermont.gov/bill/status/2020/H.688> (last visited Mar. 13, 2021).

⁴⁸ *Id.*

⁴⁹ Jane Lindholm & Emily Aiken, *Vermont Legislators Discuss Newest Climate Change Bill*, VPR (Sept. 14, 2020), <https://www.vpr.org/post/vermont-legislators-discuss-newest-climate-change-bill#stream/0>.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *See id.*

⁵³ STATE OF NEVADA PUBLIC UTILITIES COMMISSION, RENEWABLE ENERGY BILL OF RIGHTS, http://puc.nv.gov/Renewable_Energy/Renewable_Energy_Bill_of_Rights/ (last visited Mar. 13, 2021).

⁵⁴ Julia Pyper, *Nevada’s New Solar Law Is About Much More Than Net Metering*, GREENTECH MEDIA (June 16, 2017), <https://www.greentechmedia.com/articles/read/nevadas-new-solar-law-is-about-much-more-than-net-metering>.

⁵⁵ *Id.*

2015, which guaranteed prices that made rooftop solar approachable and affordable by mandating utilities buy the excess energy produced by consumers at fair-market prices.⁵⁶ After this program ended, solar advocates in the states were concerned about the viability of consumers making long-term investments based on capricious policy.⁵⁷ This right to self-generation protects consumers by ensuring that there will be no interference by the utilities to change payment schemes and mechanisms in a way that benefits utilities.⁵⁸ In some places, utilities have forced rooftop solar consumers to be connected to the grid and buy their power off the market instead of using the energy generated on their own roof.⁵⁹ By codifying these protections, Nevada becomes the first state to guarantee the right to self-generation and storage.⁶⁰ This solution to the unstable net-metering history of the state may provide the security citizens need to take the leap and invest in rooftop solar.

Overall, the data below shows a story of states stepping up to respond to the needs of their citizens and climate change to enact meaningful renewable energy policy. As discussed above, both social and economic factors played into energy policymakers' decision, no matter the level of actor. There were strides taken by states, cities, and even individual utilities to work towards a renewable future. While there are several states, motivated by short-term economics, that enacted anti-renewable policies, they were a small minority. Despite the Trump Administration's campaign promises, there was no resurgence of "clean coal."⁶¹ Instead, traditionally conservative strongholds followed renewable energy's promises of jobs and industry to enact encouraging renewable policies.⁶² No matter the motivation, these actions during the Trump Administration

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ Coglianesse & Walters, *supra* note 1.

⁶² *Id.*; Murthy, *supra* note 44.

show hope for a renewable future where progressive policies and economics overlap and allow for a global movement to make headway in local areas across the United States.

State Energy Data

Alabama

- Energy Profile 2019
<https://www.eia.gov/state/?sid=AL>
 - Natural gas: 40%
 - Nuclear: 31%
 - Coal: 19%
 - Hydro: 8%
- No RPS, but state “generally encourages renewables and efficiency”
<https://www.eia.gov/state/?sid=AL>
 - State Energy Program has an Alternative Fuels and Renewable Energy division, but they don’t have much resources (money, or informational)
<https://adeca.alabama.gov/Divisions/energy/sep/Pages/AlternativeFuelsRenewableEnergy.aspx>
 - Website mainly directs you to federal programs and non-profits
 - Also has a Building Energy Efficiency division
<https://adeca.alabama.gov/Divisions/energy/sep/Pages/Building-Energy-Efficiency.aspx>
 - Doesn’t appear to have many resources or defined programs
- Alabama Clean Fuels Coalition: Non-profit that is the “state's principal coordinating point for alternative fuels and advanced technology vehicles”
<http://www.alabamacleanfuels.org/>
 - Seems to be a part of U.S. Department of Energy's Clean Cities program and state level initiatives
 - Currently offering grants totaling \$4 Million to “fund projects to reduce levels of NOx within state of Alabama by installing EV Direct Current Fast Charging Infrastructure”
 - Interesting they frame as reducing NOx and not CO2!
- Alabama has no solar incentives (solar rebates or tax credits)
<https://www.cleanenergyauthority.com/solar-rebates-and-incentives/alabama>
 - Individual utilities like Alabama Power might work with the Federal programs
<https://www.alabamapower.com/our-company/the-environment/solar-energy/solar-costs.html>
- Alabama Wise (Worthwhile Investments Save Energy) Program
<http://www.alabamawise.org/>
 - Loan program administered by local governments to help homeowners make their homes more efficient
 - Funded by the state and US Dept. of Energy
- AlabamaSAVES
<http://www.alabamasaves.com/>
 - Operated by the Alabama Department of Economic and Community Affairs to help commercial, industrial, and nonprofit businesses with renewable energy projects
 - Funded by the state and US Dept. of Energy

Alaska

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=AK>
 - Natural gas: 47%
 - Hydroelectric: 27%
 - Petroleum: 13%
 - Coal: 10%
 - Wind and biomass: 3%
- 2019: Alaska state sets up the Power Project Fund with AS 42.45
<http://www.legis.state.ak.us/basis/statutes.asp#42.45>
 - The fund helps provide loans to local utilities, governments, and independent power producers.
 - Alaska Energy Authority has used this to fund three utility-scale solar projects and one solar thermal project
<http://www.akenergyauthority.org/What-We-Do/Energy-Technology-Programs/Solar/Alaska-Solar-Projects>
- 2019: Anchorage Assembly passes a Climate Action Plan
https://www.muni.org/departments/mayor/aware/resilientanchorage/documents/2019%20anchorage%20climate%20action%20plan_adopted.pdf
 - Creates goal of reducing GHG emissions to 80% of 2008 levels by 2050, with an interim goal of 40% of 2008 emissions by 2030.
 - Plan includes monitoring of the impacts of climate change and their effects on an environmental and human level
 - Focuses on expanding renewable generation, improving land use and transportation, treatment of waste and recycling opportunities, health responses to climate change, local food production, and forest management (adaptions for wildlife and wildfire management), and outreach.
- 2020: Governor Dunleavy has pursued some renewable projects while also pushing for more drilling, including ANWR
<https://www.alaskapublic.org/2020/09/21/alaska-gov-dunleavy-a-pro-oil-republican-is-quietly-pushing-green-energy-projects/>
 - Has pursued a hydroelectric pumped storage outside of Anchorage
 - Has had talks with Warren Buffett and Berkshire Hathaway Energy to use wind energy in conjunction with the hydro storage
 - This interest seems primarily economic as Alaska faces high costs of energy.
- 2020: Ballot Measure 1 (Fair Share Act) proposes to increase taxes on oil production revenues.
<https://www.adn.com/politics/2020/10/20/both-sides-of-the-ballot-measure-1-debate-say-voting-with-them-will-save-the-pfd-heres-whats-behind-those-arguments/>
 - Supporters hope that the bill will decrease oil drilling in the state, and help with the state's financial problems
- Cities that have committed to 100% clean energy policies:
 - Kodiak Island

Arizona

- Energy Profile (2018):
<https://www.eia.gov/state/?sid=AZ#tabs-4>
 - Nuclear: 30.5%
 - Coal: 30%
 - Natural gas: 27.8%
 - Renewables: 11.1%
- 2020: Arizona Corporation Commission (5 elected regulators who set rates and policies for utilities) proposed a 100% clean energy standard by 2050 in July
- <https://www.utilitydive.com/news/arizona-regulatory-staff-proposes-100-clean-energy-standard-by-2050/582032/>
 - Some are disappointed, and think that an emissions-based standard that would measure carbon dioxide reduced over time would be a better route to take.
 - This would replace the RPS set in 2006 for 15% renewable energy by 15%
- 2020: Consumers pushed Tucson Electric Power to move towards renewables, with their newest IRP shifting to 70% of generation capacity filled by solar, wind, and energy storage by 2035.
Article: <https://www.utilitydive.com/news/consumer-demand-prompts-aggressive-shift-toward-renewable-energy-at-tuscon/580772/>
Plan: <https://www.tep.com/news/tep-plans-clean-energy-expansion-carbon-reduction/>
 - Reduce carbon emissions to 80% below 2005 levels by 2035, and reduce water usage by 70%
 - 2,457 megawatts (MW) of new wind and solar power systems, including 457 MW that will be coming online over the next year.
 - 1,400 MW of new energy storage systems.
 - Ramp down and ultimately retire TEP's two units at the coal fired Springerville Generating Station (SGS) in 2027 and 2032.
- 2020: Arizona Public Service also responded to consumer demand to aim for 100% carbon free electricity by 2050.
Article: <https://www.utilitydive.com/news/arizona-public-service-sets-100-clean-energy-target-but-doesnt-rule-out/570870/>
Plan: <https://www.aps.com/en/About/Our-Company/Newsroom/Articles/APS-sets-course-for-100-percent-clean-energy-future>
 - 45% renewables by 2030
 - End all coal-fired generation by 2031
- 2018: Ballot measure Prop 127 defeated (in large part by utilities)
<https://www.utilitydive.com/news/aps-spent-millions-defeating-prop-127-is-a-clean-energy-compromise-ahead/542027/>
 - Would have increased the state's renewables mandate from 15% by 2025 to 50% by 2030, lost 69.3% to 30.7%.
 - Arizona Public Service spent \$30.3 million out of the \$30.7 million to defeat the proposition
 - Seemed like most of the concerns pushed by the utilities were about the economics and how much it could raise rates for consumers

- Also concerns over whether the Palo Verde Nuclear plant would remain economically feasible.

Arkansas

- Energy Profile (2019)
 - <https://www.eia.gov/state/?sid=AR>
 - Coal: 38%
 - Natural gas: 33%
 - Nuclear: 22%
 - Hydro: 7%
- Renewable Portfolio Standard: None
 - Instead, Arkansas has an Energy Efficiency Resource Standard started in 2010 by the Arkansas Public service Commission
 - <https://www.eia.gov/state/analysis.php?sid=AR>
 - Targets were updated in 2018 “with an energy reduction target of 1.2% from 2018's utility sales of electricity and a 0.5% reduction from 2018's utility sales of natural gas” for 2020-22
 - <https://www.aceee.org/sites/default/files/publications/researchreports/u1403.pdf>
 - Longer report about Arkansas on pg 40, also explores other states
- Net-Metering Program: Arkansas Public Service Commission released new Net Metering rules in July 2020
 - Article: <http://www.todaypower.com/tpiblog/renewableraynanetmeteringar>
 - This continued previous policy having utilities pay the same rate as a consumer would pay to consume the power (a 1:1 retail credit ratio)
 - Continuing the net-metering rate seems to have continued the growth of solar in the state by helping show security in the field going forward
- Solar Access Act passed in 2019
 - <https://www.arkleg.state.ar.us/Acts/Document?type=pdf&act=464&ddBienniumSession=2019%2F2019R>
 - According to one article, the passage of Act 464 helped jumpstart big solar projects
 - <https://talkbusiness.net/2020/02/solar-access-act-spurs-new-renewable-energy-projects-statewide/>
 - “Days after Act 464 was enacted into law in July, the city partnered with Ozarks Electric Cooperative of Fayetteville and TPI to hook up three solar farms and two battery storage units on 87 acres near the city’s two water treatment facilities. The installation, including 10 megawatts of sun generation and 24 megawatt-hours of on-site storage, is expected to save the city \$180,000 a year on the \$23 million project.”
 - Act itself had broad bipartisan support, and enables third-party financing for solar projects
 - Was framed as local job creator, which was demonstrated in 2016 where a 12 MW solar farm created 400 local jobs
 - <https://www.nwaonline.com/news/2020/mar/13/energy-spare/#:~:text=Last%20year%2C%20the%20General%20Assembly,party%20financing>

[%20for%20solar%20systems.&text=Arkansas%20ranked%2018th%20among%20the,118%20megawatts%20of%20solar%20generation.](#)

- Cities that have committed to 100% clean energy policies:
 - Fayetteville

California

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=CA>
 - Renewables: 48.7%
 - Natural gas: 39.5%
 - Nuclear: 11.8%
- 2018: 100% Clean Energy Act (SB 100) changed California’s RPS for a goal of 100% carbon-free energy by 2045.
Bill: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100
Article: <https://www.vox.com/energy-and-environment/2018/8/31/17799094/california-100-percent-clean-energy-target-brown-de-leon>
 - Includes interim goals of 50% renewables by 2026 and 60% renewables by 2030.
 - Part of the appeal of the bill was this flexibility where renewables were mandated for some benchmarks, but the ultimate goal is “carbon-free”
- 2019: California legislature and governor put into law various measures to address wildfire issues, including through energy-related measures.
<https://www.gov.ca.gov/2019/10/02/governor-newsom-signs-bills-to-enhance-wildfire-mitigation-preparedness-and-response-efforts/>
 - SB 70 by Senator Jim Nielsen (R- Gerber) requires IOUs to include information about consideration of undergrounding utility lines in their Wildfire Mitigation Plans.
 - SB 167 by Senator Bill Dodd (D-Napa) requires IOUs to improve their WMPs by including specified requirements to mitigate the impacts of Public Safety Power Shutoffs (PSPS).
 - SB 247 by Senator Bill Dodd (D-Napa) requires increased oversight of the IOUs’ WMPs, enhances requirements for fair wages and improves safety by ensuring a skilled and trained workforce.
 - SB 520 by Senator Robert Hertzberg (D-Van Nuys) establishes requirements for an energy provider of last resort given the increasing number of customers receiving power from entities other than IOUs.
 - SB 255 by Senator Steven Bradford (D-Gardena) requires additional reporting to the CPUC of efforts of community choice aggregators to comply with contracting diversity guidelines, and encourages other load-serving entities to participate.
 - SB 155 by Senator Steven Bradford (D-Gardena) improves CPUC oversight of renewable procurement and long-term energy supply contracts.
 - AB 1144 by Assemblymember Laura Friedman (D-Glendale) requires use of a portion of the Self-Generation Incentive Program, which provides incentives for battery storage, to provide additional benefits for community resiliency.

- AB 1584 by Assemblymember Bill Quirk (D-Hayward) supports load-serving entities' decisions to take actions that benefit the grid and recognizes resources that serve overall needs.
- SB 550 by Senator Jerry Hill (D-San Mateo) provides requirements for additional CPUC safety reviews, conducted together with the CPUC's review of utility asset transactions.
- AB 1362 by Assemblymember Patrick O'Donnell (D-Long Beach) which requires posting of information by load serving entities to increase consumer access to information about their energy bills
- AB 1513 by Assemblymember Chris Holden (D-Pasadena) makes several technical and clarifying changes to current law which concern programs under the jurisdiction of, and the authority of, the California Public Utilities Commission and other energy programs to address the increasing threat of wildfires and utility liability related to those fires.
- 2019: AB 1054 Addressed liability concerns of utility's wildfire liability, and increased CPUC oversight.
 - Article: <https://www.utilitydive.com/news/california-tees-up-wildfire-liability-bill-as-utility-consumer-groups-dive/558134/>
 - Article: <https://www.utilitydive.com/news/california-governor-to-propose-liquidity-fund-to-address-wildfire-costs/557315/>
 - Established a Wildfire Safety Division at the CPUC
 - Revised the way CPUC reviews applications by electric utilities to recover wildfire-related costs from ratepayers, creating a new process known as a "catastrophic wildfire proceeding."
 - Expands existing requirements for electric utilities to create and maintain wildlife mitigation plans
 - Now, must have plans to cover 3 year periods that are reviewed by the CPUC at least once every 3 years
 - Also, of course, sets up the Wildfire Fund Mechanism along with a Liquidity Fund and Insurance Fund Options to ensure that going forward to overhaul the cost recovery review for electric utilities
 - As part of this, also establishes safety certification protocols that utilities need to meet to participate in these funds.
- 2020: Governor Newsom issued executive order N-79-20 mandating that all new cars sold in the state of California must be zero emissions vehicles by 2035.
 - <https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-dramatically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/>
 - This is seen as a step to address the fact that transportation accounts for nearly 50% of CA's GHG emissions.
 - Includes goal of medium to heavy-duty vehicles 100% zero emission by 2045 "where feasible"
- Cities that have committed to 100% clean energy policies:
 - Berkeley, Chula Vista, Culver City, Del Mar, Encinitas, Eureka, Goleta, La Mesa, Los Angeles, Menlo Park, Monterey, Nevada City, Ojai, Oxnard, Palo Alto, Portola Valley, Rolling Hills Estates, Ventura, San Diego, San Francisco, San

Jose, San Luis Obispo, Santa Barbara, Santa Monica, Solana Beach, South Lake Tahoe, South Pasadena, Thousand Oaks, Truckee, West Hollywood, Ventura County

Colorado

- 2018 Energy Profile
<https://www.eia.gov/state/analysis.php?sid=CO>
 - Coal: 52%
 - Natural Gas: 26%
 - Renewables: 21%
- 2019: Democratic Governor Polis worked with state legislature to enact a series of clean energy bills
<https://www.utilitydive.com/news/colorado-gov-polis-unveils-roadmap-to-100-carbon-free-by-2040-signs-11-cl/555975/>
 - He was elected on a platform of having a “Roadmap to 100% Renewable Energy by 2040”
 - Focus of plan is to modernize the PUC to “consider climate impacts in its decision making, promote energy efficiency and incentivize EV buildout”
 - Article has good chart giving a summary of the clean energy bills signed by Polis (summary of highlights)
 - S.B. 19-236 “Sunset PUC”
<https://leg.colorado.gov/bills/sb19-236>
 - Codifies Xcel's 100% carbon-free by 2050 goal
 - This is worded as “100% clean energy by 2050 for utilities serving 500,000 or more customers.”
https://leg.colorado.gov/sites/default/files/2019a_236_signed.pdf
 - Directs the PUC to study value of adding distributed resources, like rooftop solar, energy efficiency and battery storage, to the grid
 - Requires IOUs retiring a generation unit to include a workforce transition in its closure plan
 - Establishes securitization measures on stranded coal assets to shift risk away from ratepayers
 - H.B. 19-1261 “Climate Action Plan to Reduce Pollution”
<https://leg.colorado.gov/bills/hb19-1261>
 - Establishes a goal of reducing economy-wide carbon emissions 90% below 2005 levels by 2040
 - Sets benchmark targets of 26% reduction by 2025 and 50% by 2030
 - Leaves retail energy rulemaking to the PUC
 - H.B. 19-1003 “Community Solar Gardens Modernization Act”
<https://leg.colorado.gov/bills/hb19-1003>
 - Increases the state's community solar cap from 2 MW to 5 MW
 - Eliminates requirement that customers can only subscribe to a community solar garden if they are in the same or an adjacent county
 - S.B. 19-096 “Collect Long-term Climate Change Data”

<https://leg.colorado.gov/bills/sb19-096>

- Allocates \$1.7 million dollars to collect carbon emission data and propose a rule to address them.
- Four separate bills addressing electric vehicles, and making public charging stations more affordable and accessible.
- 2019: Governor Polis issued first executive order, B 2019 002, “Supporting a Transition to Zero Emission Vehicles”
Order: <https://assets.documentcloud.org/documents/5688666/B-2019-002-Zev.pdf>
Article about it: <https://www.utilitydive.com/news/colorado-gov-polis-first-executive-order-advances-transportation-electrifi/546406/>
 - The Order directs \$70 million dollars received from the Volkswagen emissions settlement to establish a Zero Emission Vehicle Policy
 - Goal to have 940,000 EVs on the road by 2040, and offers \$5,000 tax credit to encourage citizens to buy them.
- 2018: Xcel generated 28% of their electricity from renewables, and plan to have 53% renewables by 2026
<https://www.eia.gov/state/print.php?sid=CO>
 - Plans to retire two coal power plants in the near future, and replace by adding additional capacity to existing natural gas generation.
- Cities that have committed to 100% clean energy policies:
 - Boulder, Breckenridge, Denver, Durango, Fort Collins, Frisco, Golden, Lafayette, Longmont, Nederland, Pueblo, Silverthorne, Pueblo County
- City Powered by 100% clean energy: Aspen

Connecticut

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=CT>
 - Natural gas: 52%
 - Nuclear: 41%
 - Renewable: 6%
- Renewable Portfolio Standard
 - 44% by 2030 (Set in 1998)
- 2019: Omnibus Energy Bill HB 5002 passed approving extension of existing net metering program which was under threat, and raising cap from 10MW to 20MW
<https://www.utilitydive.com/news/connecticut-house-saves-net-metering-for-now-but-green-groups-want-more/555771/>
 - Renewable activists wanted the bill to go further and have 100% carbon free mandate, but failed to get it in bill
 - Includes provision allowing Commissioner of Energy and Environmental Protection to approve PPAs for up to 10MW of anaerobic digestion generation for energy providers
- 2019: Gov. Ned Lamont (D) signed executive order “directing state regulators to lay out a plan to reach 100% carbon-free electricity by 2040.”
<https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf>
 - Executive Order focused on expanding wind and solar resources

- 2019: House Bill 7156 passes setting a 2GW target for offshore wind capacity by 2026
<https://www.utilitydive.com/news/connecticut-issues-draft-rfp-for-2-gw-offshore-wind/558238/>
 - The state's Department of Energy and Enviro. Protection chose Vineyard Wind's 804 MW proposal in December 2019 to go forward
- 2020: State Legislature working on bill to address storm response and grid reliability
<https://ctmirror.org/2020/09/30/energy-bill-takes-on-storm-response-and-grid-reform-challenges/>
 - Bill pushes the PUC to adopt a framework "implementing performance-based regulation of each electric distribution company."
 - State's climate goals are listed among the metrics that the PUC should consider as part of goals for the utilities in evaluating them

Delaware

- Energy Profile (2018)
<https://www.eia.gov/state/?sid=DE>
 - Natural gas: 83.9%
 - Coal: 9.6%
 - Renewable: 2.1%
 - Petroleum: 4.4%
- 2020: Delaware lawmakers propose bill that would require utilities to promote more solar farms
<https://www.delawareonline.com/story/news/politics/2020/04/22/delaware-lawmakers-propose-more-solar-wind-farms-new-bill/3003661001/>
 - Bill would create incentives for Delaware towns, cities and counties to invest in solar farms.
 - Would then be able to sell the electricity as "Community Solar Renewable Energy Credits" and use the revenue to lower residents' utility
 - Not much movement on this, probably due to the pandemic
 - Bill ups RPS to 40% renewable sources by 2035
- 2020: Delaware transit received Fed. Transit Admin. Grant to install a solar array to power electric busses
<https://www.utilitydive.com/news/delaware-transit-agency-electric-bus-solar-array/584242/>
 - Solar energy canopy to power their existing facilities, and 14 electric busses.
- 2017: Governor Carney signs Executive Order 13 which created an offshore wind working group to examine possibilities of offshore wind projects in state
EO: <https://governor.delaware.gov/executive-orders/eo13/>
Article: <https://news.delaware.gov/2017/08/28/offshore-wind-working-group/>
 - Group is meant to focus on economic and environmental benefits of offshore wind farms
 - Also, to look at a Maryland Project in the works which offered to expand capacity for Delaware use
 - In 2018, group submitted report, and recommended against recommended against seeking procurement from the Maryland Project.

Full report:

<http://www.dnrec.delaware.gov/energy/Documents/Offshore%20Wind%20Working%20Group/Offshore%20Wind%20Working%20Group%20Report%20June%2029%202018.pdf>

- Seems to be a lack of state action, most of the state-level planning and RPS were set in the early 2000s
 - Current RPS was set in 2005 for 25% renewable sources by 2025.
<https://www.eia.gov/state/?sid=DE>

Florida

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=FL>
 - Natural Gas: 70%
 - Nuclear power: 12%
 - Renewable: 17% (Mainly biomass and solar)
 - Petroleum: 1%
- 2019: Florida Power & Light “30 by 30” plan
<http://newsroom.fpl.com/2019-01-16-FPL-announces-groundbreaking-30-by-30-plan-to-install-more-than-30-million-solar-panels-by-2030-make-Florida-a-world-leader-in-solar-energy>
 - Utility’s plan to install 30 million solar panels by 2030.
 - Includes 67% reduction of carbon emissions (as compared to national average)
 - Plans to have 40% emissions free energy generation by 2030.
 - Press release used a lot of catch phrases “capture economies of scale,” “innovative battery storage technology” but doesn’t have a whole lot of substance to the plan.
 - Others aren’t as enthusiastic, but say that its still a step in the right direction, but Florida relies too heavily on fossil fuels (natural gas)
<https://www.utilitydive.com/news/florida-power-light-aims-to-install-more-solar-panels-than-any-regulated/546275/>
 - Initial release didn’t have a capacity goal, but experts say the total installation would be 8GW to 10GW
 - ““While this is a positive jump in solar development, it's important to note this will not make FPL a leader in solar watts per customer based on their size in the Southeast or the country," SACE Executive Director Stephen Smith”
- Lawmakers have submitted bills for 100% clean energy by 2050, but failed to get legislature through.
<https://www.orlandoweekly.com/Blogs/archives/2019/08/27/florida-lawmakers-try-again-for-100-percent-clean-energy-by-2050#:~:text=Anna%20Eskamani%2C%20D%20Orlando%2C,from%20renewable%20energy%20by%202030.>
 - Rep. Anna Eskamani, D-Orlando, filed HB 97, essentially refiling an earlier bill seeking to commit Florida to 100 percent clean energy by 2050.
 - Bill's short-term goal is to have 40 percent of Florida's electricity come from renewable energy by 2030.

- Seems like a lack of cohesive state action. While there are some state energy programs, they seem to focus on the small scale, and not large scale that something like an RPS could achieve.
 - <https://www.fdacs.gov/Energy/Energy-Programs>
- Cities committed to 100% clean energy
 - Dunedin, Gainesville, Largo, Orlando, Safety Harbor, Sarasota, Satellite Beach, South Miami, St. Petersburg, Tallahassee

Georgia

- Energy Profile (2018)
 - <https://www.eia.gov/state/?sid=GA>
 - Natural gas: 41%
 - Nuclear: 26%
 - Coal: 25%
 - Renewable: 8% (Includes hydro)
- 2019: Atlanta commits to 100% clean energy by 2035
 - <https://www.pri.org/stories/2019-04-15/how-atlanta-plans-get-100-green-energy-2035>
 - This is a bold plan since in 2019 Atlanta had 6% to 8% renewable energy.
 - Plan focuses on “low-hanging fruit” like energy efficiency
 - Frames the changes as economic development for the state and new jobs
 - ““You don't lead with climate change,” said Stephanie Stuckey, a former state representative and now the director of sustainability with the Southface Institute in Atlanta... You lead with: Let's provide economic development for the entire state,””
 - <http://www.100atl.com/>
 - Plan was approved March 2019 by Atlanta City Council
 - Sierra Club breakdown: <https://www.sierraclub.org/press-releases/2019/08/atlanta-emphasizes-equitable-transition-plan-be-powered-100-percent-clean>
- Rise of Solar without Government Leadership
 - <https://insideclimatenews.org/news/14062018/georgia-solar-power-renewable-utility-scale-clean-energy-investments-2018-election>
 - This article goes through some of the recent developments in Georgia solar industry, emphasizing that the changes were mainly market driven, with little state involvement.
 - “Over the past five years, Georgia has become one of the nation's leading states for solar power, but it didn't get there in the usual way. It doesn't offer tax credits, and the legislature has never created a state renewable portfolio standard requiring utilities to sell renewable energy. There is no net-metering law to let solar homes sell excess energy back to the grid at retail prices.”
 - ““I wasn't a big supporter of solar, but the economics have drastically changed,” said State Sen. Chuck Hufstetler”
- 2019: Georgia Power (main utility in state) responded to stakeholder pressure to increase clean energy resources.

<https://www.greentechmedia.com/articles/read/georgia-power-ups-plan-for-renewables-and-storage#:~:text=Georgia%20Power%20will%20build%20enough,22%20percent%20of%20overall%20capacity.&text=Georgia's%20utility%20regulators%20approved%20a,80%20megawatts%20of%20energy%20storage>.

- New plan will build enough renewables (mainly solar) to be at 22% clean energy by 2024.
 - Final 2019 integrated resource plan calls for 2,260 megawatts of new capacity from wind, solar and biomass, which will bring those resources up to 22 percent of the utility's overall fleet capacity.
- This plan will increase renewable energy generation by 72%
- However, plan had lukewarm reception by activist
 - “Southern Alliance for Clean Energy quipped at the time, "Georgia Power’s new resource plan would have been considered bold nine years ago, but this plan is behind the times.”
- Cities committed to 100% clean energy
 - Athens, Atlanta, Augusta, Clarkston, Savannah

Hawaii

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=HI>
 - Petroleum: 69%
 - Coal: 13%
 - Renewables: 13%
- Hawaii RPS Achievement
https://puc.hawaii.gov/wp-content/uploads/2018/12/RPS-2018-Legislative-Report_FINAL.pdf
 - 2019 Report details the PUC’s belief that the state will meet their RPS requirements of 30% renewables by 2020, and 40% by 2030.
 - Emphasize that the cost of renewable energy projects are below the costs of fossil fuel projects, helping make their push to 100% by 2045 a reachable target
- 2020: Hawaii passed SB-2629 “banning” coal fired power plants by 2023.
<https://www.eenews.net/stories/1063594243/print>
<https://www.bizjournals.com/pacific/news/2020/09/25/sb2629-the-coal-ban-bill-becomes-law.html>
 - The bill does this by banning power purchase agreements for coal generated electricity by banning the issuance or renewal of PPAs when after December 31, 2022.
 - However, Hawaii’s only coal power plant on Oahu is set to retire before this ban takes place.
 - Some say that this is more of a political statement since it changes little concrete policy
 - Others say that this is showing commitment to clean energy, and will help from an environmental justice standpoint where the disposal of coal ash disproportionately affects Native Hawaiian populations.
- 2020: Hawaiian Electric backs 460 megawatts of solar and 3 gigawatt hours of batteries

<https://www.greentechmedia.com/articles/read/hawaiian-electric-picks-460mw-of-solar-nearly-3gwh-of-storage-to-replace-power-plants>

- This is seen as a move towards closing down fossil fuel plants to meet renewable energy goals.
- 2020: Hawaii clean energy groups urge state to use Distributed Energy Resources as a way to help economic recovery and meet energy goals/
<https://www.utilitydive.com/news/hawaii-groups-see-role-for-ders-in-economic-recovery-from-covid-19/575672/>
 - COVID has significantly disrupted the local distributed solar industry (a big source of jobs in Hawaii), and argue that this industry should be supported for economic reasons and to meet renewable goals
 - Many of the suggestions aim to lower red tape around these DER processes, and expand access to bolster the industry and make it work during COVID.
 - Also, this will help lower costs of energy for many
- 2019: Green Energy Money Saver Program:
<https://www.utilitydive.com/news/hawaii-launches-on-bill-financing-program-to-expand-clean-energy-access/552783/>
 - Hawaii announced a new “on-bill financing program intended to expand the accessibility and affordability of clean energy savings for homeowners, renters, small businesses and nonprofit organizations”
 - Helps promote accessibility to solar
 - Helps Hawaii meet their ambitious RPS goals
 - Only has two requirements:
 - (1) Must be in good standing with the utility (no disconnect notice for past 12 months) and
 - (2) Their investment must provide an estimated bill savings of at least 10% post-installation.
 - Program has fixed interest rate of 5.5% over 20 years
- 2015: State Legislature commits to 100% RPS by 2045
<https://governor.hawaii.gov/newsroom/press-release-governor-ige-signs-bill-setting-100-percent-renewable-energy-goal-in-power-sector/#:~:text=HONOLULU%20%E2%80%93%20Gov.,renewable%20energy%20resources%20by%202045.>
 - Act: https://www.capitol.hawaii.gov/session2015/bills/HB623_CD1_.pdf

Idaho

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=ID>
 - Hydro: 55%
 - Natural gas: 21%
 - Wind: 16%
 - Biomass+ solar: 7%
- No official Renewable Portfolio Standard or renewable goals
<https://www.eia.gov/state/analysis.php?sid=ID>

- No net-metering program by state mandate, but three IOUs that make up most of the state's energy capacity offer net metering programs for small-scale, customer-sited renewable generation.
<https://www.eia.gov/state/analysis.php?sid=ID>
 - The Idaho Public Service Commission recently had a favorable ruling for net-metering grandfathering finding that Idaho Power's net metering grandfathering program ran with the solar project, not the customer
<https://pv-magazine-usa.com/2020/02/11/idaho-regulators-rule-that-net-metering-rates-belong-to-the-system-not-the-customer/>
 - This is significant since "it makes the legacy rate untouchable on those systems until Dec. 20, 2045"
- Idaho Governor's Office of Energy and Mineral Resource offers low-interest loans for energy development project (mainly solar) that offer up to \$15k for single family houses and up to \$100k for commercial/multi-family/agricultural/Industrial loans at a 4% interest rate and 5 year repayment scheme
<https://oemr.idaho.gov/loan-program/>
 - Mainly used to encourage solar development
- Solar Residential Alternative Tax Deduction allows people to deduct 40% of the total cost of solar panel equipment + installation from income tax, for a maximum of \$5k per year or \$20k total
<https://legislature.idaho.gov/statutesrules/idstat/Title63/T63CH30/SECT63-3022C/>
- 2019: Boise City Council voted to commit to 100% clean electricity by 2035 for all homes and businesses
<https://www.idahostatesman.com/news/local/community/boise/article228808439.html>
 - Only addressed electricity, doesn't address issues like use of natural gas for in home heating
- 2019: Idaho Power, one of the biggest IOUs in the state, committed to goal of 100% clean energy grid by 2045
<https://www.idahostatesman.com/news/business/article228300044.html>
 - Cited that customer's desire for cleaner power as part of the reason for the change
- Cities committed to 100% clean energy
 - Boise

Illinois

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=IL>
 - Nuclear: 45%
 - Coal: 27%
 - Natural gas: ~10%
 - Wind: 18%
- 2019/2020: Proposed Clean Energy Jobs Act
<http://ilcleanjobs.org/wp-content/uploads/2019/10/CEJA-Fact-Sheet-September-2019.pdf>
 - Failed to pass
 - Focuses on creating solar panels and wind turbines to promote green energy and create jobs
 - Aims to get to zero emissions by 2030 and 100% renewables by 2050.

- Would involve removing Illinois from the PJM RTO
- “CEJA proposes the Illinois Power Agency "take over capacity procurement for the state" and "prioritize procurement of lower-priced clean energy and zero carbon resources””
- Seems to be some drama and uncertainty due to allegations and FBI investigations into illegal or unethical activities by utility lobbyist.
<https://www.utilitydive.com/news/investigations-of-comed-exelon-lobbying-threaten-illinois-energy-transitio/568676/>
 - “The U.S. Attorney for the Northern District of Illinois is reportedly pursuing evidence pertaining to interactions between multiple ComEd and Exelon lobbyists and executives, and a range of Chicago and state level public officials.”
 - There’s been grand jury investigations, and FBI raids, so this seems to be more dramatic than the typical bill passage
- The bill is currently still in the works, and has been updated to reflect the impact of COVID-19 “on vulnerable communities and to increase accountability among utilities.”
<https://www.utilitydive.com/news/after-comed-bribery-case-illinois-groups-push-for-changes-to-clean-energy/583029/>
 - The updated bill would “seek restitution from ComEd, in addition to the \$200 million fine the utility paid to the federal government.”
 - The state legislature reconvenes in November, there may be more movement then!
- Governor Pritzker’s plan for the Act is to take the proposed state-run capacity market off the table
<https://energynews.us/2020/08/27/midwest/illinois-governors-energy-plan-shakes-up-debate-over-nuclear-and-renewables/>
 - “Pritzker called for exploring market-based options that take into account the social cost of carbon, “including long-term damage from CO2.””
- Path to 100 Act (HB 2966 / SB 1781)
<https://www.pathto100.net/>
 - Would aim for 40% by 2030, but not in force
 - Increase solar and makes changes to net metering
- 2018: Commission approved a new RPS standard for 25% for 2025.
<https://www2.illinois.gov/sites/ipa/Documents/2018ProcurementPlan/LTRRPP-Filed-Long-Term-Renewable-Resources-Procurement-Plan.pdf>
 - Plan seems to be largely based on developing solar installments and renewable energy credits
- Cities committed to 100% clean energy
 - Chicago
 - Evanston

Indiana

- Energy Profile (2018)
<https://www.eia.gov/state/?sid=IN>
 - Coal: 75.7%

- Natural Gas: 18.8%
- Renewable energy: 5.4%
- 2020: House Bill 1414 signed into law, poses hurdle for utilities to retire coal generation <https://www.utilitydive.com/news/nobodys-really-for-this-bill-so-why-does-it-keep-moving-indiana-coal/573073/>
 - Sponsor, Rep. Soliday (Republican) defends that it is aimed to “slow the state's shift away from coal and maintain a reliable power mix.”
 - HB 1414's top-line purpose is to give the Indiana Utility Regulatory Commission (IURC) greater oversight on coal plant retirements.
 - Bill will stop utilities from retiring plants without giving the IURC 3 years notice
 - Has been widely criticized by Democrats in the state house, and stakeholders
 - ““It's pretty clear that the bill is just catering to a special interest and it's trying to bail out the coal industry, that's having difficult times and it's going to be done at the expense of Indiana ratepayers.”” -Matt Pierce, Democratic State Rep.
 - Senate bill significantly altered House version, taking out a provision that would have allowed utilities to keep up to 90 days of fuel supply on site, but extends the sunset provision. <https://www.utilitydive.com/news/indiana-passes-coal-plant-support-bill-as-democrats-removed-from-conference/573902/>
 - Final bill passed the House 55-38 and the Senate 28-21.
 - Overall, while final bill was deemed “more tame” by stakeholders, still is seen as propping up coal and counteracting market forces to retire coal.
- 2020: State regulators are taking closer looks at the self-committing coal practices of utilities after growing evidence that the practice is costing ratepayers millions of dollars. <https://www.utilitydive.com/news/indiana-regulators-decline-to-scrutinize-ipl-coal-practices-but-continue-du/579424/>
 - Indiana regulators opened a sub-docket to investigate Duke’s coal practices after the issue was raised in the utility’s latest fuel adjustment cost (FAC) application.
 - But, denied the Sierra Club’s motion to open a sub-docket on Indianapolis Power and Light
 - Due to procedural issues surrounding COVID procedures
 - Overall, both sides seems to agree that the coal plants are losing money, and costing ratepayers, but disagree over why.
- 2019: Indiana’s voluntary RPS changed the target from 4% by 2018 to a target of 7%. <https://www.in.gov/oed/2649.htm>
 - The program, Comprehensive Hoosier Option to Incentivize Cleaner Energy (CHOICE) went into effect in 2012.
 - Has goal of 10% by 2025.
- 2019: 21st Century Energy Taskforce created by House Enrolled Act 1278 <https://www.in.gov/oed/2857.htm>
 - Main purpose is to “explore the impact that fuel transitions and emerging technologies may have on the state’s electric system. The Act created the Task Force, which is tasked with identifying energy policy recommendations for the House focused on affordability and reliability of future electric utility service.

One of the inputs for the Task Force’s deliverables is a comprehensive study of the impacts of fuel transitions and emerging technologies across Indiana.”

- Comments from representatives make it clear that “climate change discussions don't belong in the task force.”
- 2018: Utilities begin to recognize that building new renewable sources in Indiana is cheaper than keeping existing coal plants open according to utility IRP.
Article: <https://www.utilitydive.com/news/even-in-indiana-new-renewables-are-cheaper-than-existing-coal-plants/540242/>
IRP: <https://www.in.gov/iurc/files/2018%20NIPSCO%20IRP.pdf>
 - Northern Indiana Public Service Co. (NIPSCO) found that it could “save customers more than \$4 billion over 30 years by moving from 65% coal today to 15% coal in 2023 and eliminating the resource by 2028.”
 - Found in preferred plan that in short-term (2019-2021) they want to initiate retirement of 4 coal-fired plants by 2023, and long term fully retire four additional coal fired plants by 2024 and other by 2028.
 - They would then replace this with solar, wind, storage, and market purchases from MISO.

Iowa

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=IA>
 - Wind: 42%
 - Coal: 35%
 - Natural gas: 13%
 - Nuclear: 8%
- Renewable Portfolio Standard
 - 105 MW of generating capacity for IOUs (Set in 1983), updated in 2015
<https://ilsr.org/rule/renewable-portfolio-standards/2564-2/>
- Solar Tax Credit Program: capped at \$5 million annually, but is popular
<https://www.desmoinesregister.com/story/money/business/2021/01/08/policy-changes-could-boost-10-000-job-clean-energy-sector-group-says-wind-solar-batteries/6575144002/>
 - Advocacy groups are working in 2021 to get the cap doubled, which would be a step to meet demands of the “nearly 1,500” people waiting to claim the tax credits
 - Tax credit caps at \$5k for residential projects, and \$20k for commercial
 - Has helped support \$291 million in solar investments since 2012
- 2020: Iowa surpassed their RPS to have 10,400 MW of utility-scale renewable energy generating capacity
<https://www.desmoinesregister.com/story/money/business/2021/01/08/policy-changes-could-boost-10-000-job-clean-energy-sector-group-says-wind-solar-batteries/6575144002/>
 - Advocates now working on raising the RPS to further push for renewables
- 2020: Des Moines pledges to follow a “24/7 clean energy by 2035” modeled after Google’s “round the clock” energy plan
<https://www.utilitydive.com/news/following-googles-footsteps-des-moines-pledges-247-clean-electricity-by/593456/>

- In 2020, 83% of Des Moines energy came from clean sources (well on their way)
- 24/7 plan eliminates fossil fuels from their energy chain by 2035
 - Resolution also calls to reduce the economy-wide GHG emissions 45% from 2010 levels by 2030, and net-zero emissions by 2050
- 2020: Iowa passes SF 583 to provide greater predictability for solar DER
 - <https://www.iaenvironment.org/blog/iowa-environmental-voice/sf-583>
 - Codifies net metering for the first time in Iowa, but also allows for an optional “inflow-outflow” system
 - Allows utilities to offer net metering or the “inflow-outflow” billing system to customers
 - Grandfathers in deals made before the law
 - Similar law failed to make it through both chambers in 2019, this bill had more bipartisan support
- 2019: Iowa Governor signed executive order for the state for all new purchased vehicles to be B20 approved biodiesels
 - <https://iowarfa.org/2019/12/ia-governor-signs-executive-order-directing-state-fleets-to-purchase-b20-approved-diesel-vehicles/>
 - Order is “intended to encourage diesel engine manufacturers to increase the number of engines expressly approved for B20, a fuel blend containing 20% biodiesel and 80% diesel.”
- 2020: Legislation passed to lower taxes on higher blends of biofuels
 - <https://governor.iowa.gov/press-release/gov-reynolds-signed-legislation-into-law-to-lower-taxes-on-renewable-fuels>
 - Intended to increase demand for biofuels
 - At signing, governor announced that \$7 million from the federal CARES Act funding will be directed to the State’s Renewable Fuels Infrastructure Program

Kansas

- Energy Profile (2019)
 - <https://www.eia.gov/state/?sid=KS>
 - Wind: 41%
 - Coal: 33%
 - Nuclear: 18%
 - Natural gas: 7%
- Renewable Energy Portfolio
 - <https://programs.dsireusa.org/system/program/detail/3401>
 - 15% by 2015-2019; 20% by 2020
 - Established 2009, changed to a voluntary goal in 2015
 - Based on generation instead of retail
- 2019: Kansas legislature passed a bill to commence a study on Kansas’s electricity rates
 - <https://energynews.us/2020/01/15/midwest/kansas-utility-clean-energy-advocates-hope-state-report-will-spur-legislation/>
 - Electricity rates in Kansas are high for the Midwest, so this bill was able to receive bipartisan support
 - Renewable energy advocates hope that the economics of renewables will lead to changes in the state.

- 2020: Kansas Supreme Court struck down Kansas Corporate Commission’s rule that Kansas utilities could charge customers partaking in net metering (for solar or wind) a fixed fee that “was different than their regular utility customers”
<https://dailyenergyinsider.com/news/25098-kansas-supreme-court-rules-against-fixed-fee-for-solar-customers-in-net-metering-rate-case/>
 - Court found that this was “simply price discrimination” since there was nothing justifying the higher cost to these customers
 - Supreme court was careful to say that there were other ways that charging customers more could pass scrutiny, but that this one simply did not
 - Suggested that things like time of use rates or sliding scale rates would likely work, but here there was justification besides discrimination
 - The extra charge to solar customers linking to the grid (the demand charge) reduced the rate new solar installations by about a third
<https://energynews.us/2020/01/07/midwest/kansas-solar-installations-drop-by-more-than-a-third-after-utility-adds-demand-fee/>
 - It also affected solar installers who said they had to spend more time explaining the system to customers
 - Hopefully rates will rise after the Kansas Supreme Court’s decision
- 2020: NextEra Energy secured land near Kansas City (but in Johnson County, Kansas not Missouri) for a 500 MW solar farm paired with a 500MW storage facility
<https://www.bizjournals.com/kansascity/news/2020/09/11/nextera-plans-500-mw-solar-project-in-kc-area.html>
 - Large project will help Kansas increase their solar power portfolio

Kentucky

- Energy Profile (2019)
<https://www.eia.gov/state/analysis.php?sid=KY>
 - Coal: 73%
 - Natural gas: 20%
 - Hydro (+biomass, petroleum, solar): about 10%
- 2020: Louisville committed to goal of 100% clean, renewable energy by 2040.
<https://www.sierraclub.org/press-releases/2020/02/first-kentucky-city-commits-100-renewable-energy>
<https://wfpl.org/louisville-leaps-toward-renewable-energy-future/>
 - This includes additional goal of getting municipal facilities to 100% renewable energy by 2035.
 - However, this resolution passed by the Louisville Metro Council Parks and Sustainability Committee is non-binding
 - Shows trend of Mayor Greg Fischer (Democrat) taking steps further than the state
- 2019: SB-100 was signed into law, which imposes net metering measures that will not promote solar in the state.
<https://www.kentucky.com/news/politics-government/article227854149.html>
 - The bill ultimately signed into law changed at 10pm to take away the previous pro-solar additions that ensured that the “PSC would have to consider the benefits of solar power as well as the costs, and the solar industry would be allowed to intervene in rate cases”

- Many were not happy with the late, last minute changes and rush to the governor's desk.
 - Without these protections, the PSC can determine rates under net metering, also removing the current protections that makes utilities pay the same rate they charge customers.
- 2019/2020: Solar and Renewable advocates are working to rollback SB-100 and pass an RPS for the state, but seem to be having little traction.
 - <https://kyses.org/page-1663548>
 - Coal industry seems to be ensuring state continues to keep with coal, despite high increases in energy prices for residential consumers.
 - https://www.kftc.org/sites/default/files/docs/resources/ceo_hb_196_handout_2018.pdf
- Cities committed to 100% clean energy
 - Louisville

Louisiana

- 2019 Energy Profile:
 - <https://www.eia.gov/state/analysis.php?sid=LA>
 - Natural gas: 70%
 - Nuclear: 14%
 - Renewable sources 9% (Including hydropower)
 - Coal: 7%
- 2020: Louisiana's Democratic Governor John Bel Edwards signed executive order in August to set goal of net zero GHG emissions by 2050.
 - Executive Order: <https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-18-Climate-Initiatives-Task-Force.pdf>
 - AP Story: <https://apnews.com/a214630999f06da3daf65ce30fd86649>
 - The Executive Order discussed worries about climate change, sea level rise, and importance of following IPCC guidelines
 - Interim goals are in line with Paris Agreement
 - By 2025, reduce net GHG emissions by 26-28% of 2005 levels
 - By 2030, reduce net GHG emissions by 40-50% of 2005 levels
 - However, there is no plan in place yet to meet these goals
 - Executive Order created Task Force, which will submit an interim plan in February 2021, and a full plan by February 2022.
 - Currently, Louisiana does not have an RPS
 - Seems like a lot will have to happen quickly to keep these targets
- 2019: Entergy IRP (Louisiana's largest utility)
 - https://www.entergy-louisiana.com/userfiles/content/irp/2019/ELL_IRP_2019_public.pdf
 - Commits to goal of lowering utility's carbon emission to below 50% of 2000 levels by 2030.
- Cities committed to 100% clean energy
 - Abita Springs

Maine

- Energy Profile (2019)
<https://www.eia.gov/state/analysis.php?sid=ME>
 - Hydro: 31%
 - Biomass: 25%
 - Wind: 24%
 - Natural gas: 16%
- 2020: Governor Mills announced “Maine Won’t Wait” initiative to combine climate goals with Covid-19 recovery
<https://www.maine.gov/governor/mills/news/governor-mills-welcomes-plan-combat-climate-change-announces-actions-protect-maine-people-2020>
 - “calls for decisive steps to achieve that goal, including bolstering the electric vehicle market in Maine, expanding the number of heat pumps installed in Maine homes, and transitioning to renewable energy to curb harmful greenhouse gas emissions.”
 - Sets goal for the creation of 30,000 clean energy jobs by 2030
 - Details Governor’s intention to put Maine’s climate goal to achieve carbon neutrality into law and submit it to the legislature
- 2019: Bill LD 1494 signed to:
 - Increase Renewable Portfolio Standard setting goal to 80% by 2030
 - Updated 2019 by the state legislature
 - Included creation of Climate Action Committee
 - <https://www.eia.gov/state/analysis.php?sid=ME>
 - Join Climate Target: Statewide target of 100% renewables by 2050 in 2019
<https://www.eia.gov/state/analysis.php?sid=ME>
- 2019: Maine passed LD 1711 Solar Energy Bill to establish regulatory stability and reduce costs of solar in the state
<https://www.nrcm.org/state-house/legislative-bill-tracking/maine-legislature-passes-bill-reboot-solar-energy/>
 - “The bill is designed to maximize benefits to ratepayers while making it easier for to invest in solar, especially for commercial and municipal energy consumers.”
 - Aims to help develop 400 W of distributed solar to residents, businesses and towns by calling on state PUC to approve more projects
 - Grow community scale solar by lifting the former 9 person limit on solar projects
- 2019: Executive Order 13 on Sustainability calls for state agencies to “lead by example” by increasing their energy efficiency, reliance on renewable sources, and better sustainability measures
<http://energypolicyupdate.blogspot.com/2019/12/maine-executive-order-13-on-sustainability.html>
- 2019: Executive Order signed by Governor Mills to achieve Carbon Neutrality by 2045
https://www.maine.gov/governor/mills/sites/maine.gov.governor.mills/files/inline-files/Executive%20Order%209-23-2019_0.pdf
 - This was an update to the state’s previous goal for 100% reduction of GHG emissions by 2050.

Maryland

- Energy Profile (2018)
<https://msa.maryland.gov/msa/mdmanual/01glance/html/energy.html>
 - Nuclear power: 34.1%
 - Natural Gas: 31.7%
 - Coal: 22.9%
 - Renewable: 12.5% (hydropower, solar, wind, biomass included)
- 2019 Renewable Portfolio Standard: 50% of electricity generation from renewable energy by 2030, and “conduct a supplemental study” to evaluate moving the RPS to 100% by 2040.
<https://legiscan.com/MD/text/SB516/2019>
 - Maryland Legislature passed SB-516, the Clean Energy Jobs Bill, which set these standards.
 - Also contains specific provisions setting solar to 14.5% and at least 1,200MW of offshore wind (this doubles the current offshore target)
 - However, counts waste-to-energy as an included source in the RPS
 - Political drama since Governor Larry Hogan (Republican) refused to sign the bill, which became law anyway through state law provisions.
<https://www.utilitydive.com/news/maryland-50-rps-bill-doubles-offshore-wind-target-expands-solar-carve-out/552421/>
 - Claimed that “Despite its name, this bill is not clean enough, nor smart enough, nor does it create the intended jobs within Maryland,”
 - However, claims to support the goal of 100% clean energy by 2040, and placed hope in the state’s Clean and Renewable Energy Standard (CARES)
 - “Our CARES plan will get us to zero carbon emissions, rather than just increasing the quotas for dirty energy and outdated technologies,” Hogan wrote. “This better and bolder goal is what our state should be striving for as we continue to set an example for the rest of the nation.”
<https://www.baltimoresun.com/news/environment/bs-md-renewable-energy-law-20190522-story.html>
 - The inclusion of waste-to-energy was politically contentious because of the jobs generated by the two incinerators (which have strong unions)
 - House supported keeping waste-to-energy qualified as RPS, Senate favored removal but compromised.
 - However, new Bill has a job-based focus, having provisions for job training and funding for small businesses in the clean energy field.
- Clean and Renewable Energy Standard (CARES)
 - Governor Hogan’s proposed bill to address climate change through an RPS. Submitted to Senate in January, 2020, but has not seen much movement or action.
<https://trackbill.com/bill/maryland-senate-bill-265-clean-and-renewable-energy-standard-cares/1852852/>
 - All sponsors are Senate Republicans

- Removes some of the currently eligible combustion sources (waste-to-energy), but seeks to replace with hydroelectric and nuclear power.
 - Maintains the 50% by 2030 and 100% by 2040 RPS goals.
 - Baltimore Sun breakdown of the Bill
 - <https://www.baltimoresun.com/politics/bs-md-pol-hogan-hospital-20191217-i3f27azj3rhclkbmtujveon3km-story.html>
 - While the plan removes the controversial waste-to-energy RPS inclusion, increases nuclear power
 - Hogan claims CARES bill would remove ability to use state RPS credits in other states
 - Bill doesn't have this language, Department of Energy would have to enact policy by making Clean Energy Resource Credits
 - Seems odd, these new credits would include natural gas and biomass with carbon capture to count as renewable, but would not include wind and solar projects
 - Environmental groups criticize the plan for including nuclear power and natural gas as renewable energy.
- 2019: Approved HP 77 establishing net metering in the state
 - <http://www.mainelegislature.org/legis/bills/getPDF.asp?paper=HP0077&item=4&snum=129>
 - Eliminated “gross” metering, and directed the PUC to make a net metering policy
 - Didn't specifically name solar, only looks at the difference between energy consumed and produced

Massachusetts

- Energy Profile (2019)
 - <https://www.eia.gov/state/analysis.php?sid=MA>
 - Natural gas: 66%
 - Renewables: 25%
 - Nuclear: 10%
- 2020: Governor Baker (R) announced goal to have state reach net-zero GHG emissions by 2050.
 - <https://www.utilitydive.com/news/massachusetts-governor-lawmakers-aim-for-net-zero-emissions-by-2050/570912/>
 - MA is currently on track to reach a 40% reduction from 2008 levels by the end of 2020.
 - Part of the vision for this plan is a regional Transportation & Climate Initiative to create a “cap and invest” scheme.
 - <https://www.mass.gov/info-details/transportation-climate-initiative-tci>
 - Create cap on gasoline and diesel emissions and use the auction proceeds to invest in low-emission public transport and electric vehicles
- 2019/2020: Some Legislatures are pushing for even quicker reductions than Baker's goals called for.
 - <https://malegislature.gov/Bills/191/H2836>
 - This bill, introduced in 2019 would have all electricity be renewably sources by 2035, and all energy used for transportation and heating to be renewable by 2045.

- 2020: Clean Peak Energy Standard: builds on RPS to require renewable energy during peak demand times
<https://www.mass.gov/info-details/clean-peak-energy-standard-notice-and-updates>
 - Creates new requirements and incentives to ensure renewable energy is used during peak times to build up renewable sources and storage
 - Clean peak standard will begin at 1.5% of retail electricity sales and increase by at least 1.5% each year to reach a minimum level of 16.5% of retail sales by 2030.
<https://www.utilitydive.com/news/massachusetts-clean-peak-standard-a-trailblazer-in-the-nations-clean-en/579245/>
- 2020: MA Supreme Judicial Court ruled in favor of the Department of public Utilities to allow the Power Purchase Agreement with a Quebec hydro facility to move forward
<https://www.utilitydive.com/news/massachusetts-top-court-denies-nextera-bid-to-block-states-ppas-with-hydro/584721/>
 - NextEra Energy Resources (independent power producer alleged that “hydroelectric generation was not eligible for the contracts, as it could not be provided without interruption as a “firm service.””
 - However, State Supreme Court decided saying ““We conclude that the department reasonably and realistically interpreted the firm service requirement,””
 - This decision allows the 9,554,940 MWh annual contract to go forward.
- 2019: MA selected Mayflower Wind Energy project to provide 804 MW of offshore wind capacity to comply with 2016 state law
<https://www.utilitydive.com/news/massachusetts-to-hit-16-gw-offshore-wind-requirement-with-804-mw-from-mayf/566318/>
 - Project will be located 20 miles south of Nantucket, and is expected to begin operations in 2025.
 - This project in conjunction with Mayflower Wind Vineyard Wind 1 project with 800MW will reach 1600MW mandate under Massachusetts' Energy Diversity Act of 2016, and provide about 12% of the state’s annual energy demand.
- 2018: Clean Energy Standard set to begin at 16% in 2018, with a 2% increase annually.
<https://www.mass.gov/doc/fact-sheet-massdep-electricity-sector-regulations/download>
 - This would max out at 80% in 2050
- Cities committed to 100% clean energy
 - Amherst, Cambridge, Lowell, Northampton, Windsor

Michigan

- Energy Profile (2018)
<https://www.eia.gov/beta/states/states/mi/overview>
 - Coal: 39.7%
 - Nuclear: 27.9%
 - Natural gas: 23.3%
 - Renewable: 7.7%
 - Petroleum: 1.4%
- Michigan has set RPS with a goal of 15% renewable energy for 2021.
https://www.michigan.gov/documents/mpsc/2019_Feb_15_Report_PA_295_Renewable_Energy_646445_7.pdf

- Interim goal of 12.5% for 2019 and 2020
- All of Michigan energy providers are meeting these standards
- Public Act 342 of 2016 goal of meeting 35% of the state’s electric needs through a combination of energy efficiency and renewable energy by 2025.
<https://energynews.us/2020/02/05/midwest/michigans-renewable-energy-law-levels-off-next-year-whats-next/>
 - However, there has not been a new RPS set yet to achieve this goal after the current goal levels off next year
 - This article proposes 3 options going forward (100% by 2050, Utility Planning, or Administrative Action/Smaller Bills)
 - Goes through the political will and utility/public support for these options as of Feb. 2020.
- Utility Actions: Two biggest utilities are Consumer Energy and DTE.
 - Consumer Energy:
IRP Executive Summary: <https://www.consumersenergy.com/-/media/CE/Documents/sustainability/integrated-resource-plan-summary.ashx?la=en&hash=9F602E19FE385367FA25C66B6779532142CBD374>
 - By 2040, plan to end use of coal, reduce carbon emissions by 90% 2005 levels, and meet consumers’ needs with 90% clean energy resources
 - Most of increase will be in solar
 - Plan to turn their
 - DTE:
IRP Summary: https://empoweringmichigan.com/wp-content/uploads/2019/03/IRP_Summary.pdf
 - Reduce emissions by 80% by 2040, and 50% by 2030.
 - Will stop use of coal by 2040
- Cities committed to 100% clean energy
 - Petoskey, Traverse City

Minnesota

- Energy Profile (2018)
<https://www.eia.gov/beta/states/states/mn/overview>
 - Coal: 40.6%
 - Nuclear Power: 25.6%
 - Renewables: 22.4%
 - Natural gas: 11.3%
- 2020: Minnesota Power (IOU subsidiary of ALLETE) will achieve 50% renewable energy in 2021
<https://www.utilitydive.com/news/minnesota-power-to-reach-50-renewables-in-2021-with-canadian-hydropower/579771/>
 - Just “turned on” 224-mile transmission line from hydropower producer in Manitoba, Canada
 - Permitting began in 2014

- Utility is also in permitting process to build a 550MW natural gas plant in Wisconsin, but has bizarre holding from Minnesota Court of Appeals ordering that Minnesota state regulators must do an environmental review of the plant.
 - Makes Minnesota agency look at environmental impacts of Wisconsin
- 2020: Xcel to speed up \$3B in clean energy spending in response to Minnesota prompt on COVID-19 recovery
 - <https://www.utilitydive.com/news/xcel-to-speed-up-3b-in-clean-energy-spending-in-response-to-minnesota-prom/580164/>
 - Minnesota PUC and Dept of Commerce requested utility get involved
- 2020: Xcel is offering new electric vehicle program to help incentivize their use.
 - https://www.xcelenergy.com/environment/carbon_reduction_plan
- 2020: Xcel was approved by the state's PUC to operate 2 coal plants seasonably, only 6 months out of the year.
 - <https://www.utilitydive.com/news/minnesota-approves-xcel-request-to-operate-2-coal-plants-seasonably/581729/>
 - Got approval for operating between June-August and December-February
 - This was controversial, a report from the Union of Concerned Scientists that these coal plants operated at a \$55 million loss in 2018.
- 2019: Governor Tim Walz (D) announced proposal for 100% clean energy by 2050.
 - <https://thehill.com/policy/energy-environment/432546-minnesota-governor-introduces-goal-for-100-percent-clean-energy-by>
 - Some expressed concern, because the plan doesn't have any benchmarks before the 2050 deadline
 - Does not provide any guidelines/roadmap for how to get there
 - Also, does not appear to be put into any form of law (no executive order or legislative support)
- 2019: Governor Walz announced that the state would respond to the Trump administration's SAFE car emission rule by mandating clean car standards that exceed the proposed federal standards.
 - Article: <https://www.utilitydive.com/news/minnesota-new-mexico-propose-clean-car-rules-trump-california-auto-standards-emissions-zev/563762/>
 - State website: <https://www.pca.state.mn.us/air/clean-cars-mn-rulemaking>
 - Also joined the lawsuit challenging the agency's actions
 - State is considering adopting rules that require vehicle manufacturers to deliver vehicles to the Minnesota market that produce lower emissions of GHGs and other air pollutants. The Clean Cars Minnesota rulemaking has two parts: the Low-Emission Vehicle standard and the Zero-Emission Vehicle standard.
- 2018/2019: Xcel (state's largest utility) announced goals to reach 100% carbon-free electricity by 2050, with a benchmark goal of 80% below 2005 levels by 2030.
 - IRP: <https://www.xcelenergy.com/staticfiles/xe-responsive/Company/Rates%20&%20Regulations/The-Resource-Plan-No-Appendices.pdf>
 - Webpage summary: https://www.xcelenergy.com/environment/carbon_reduction_plan
 - Aim to do this by adding renewables, retiring coal plants, and continuing to use nuclear plants
- Cities committed to 100% clean energy
 - Minneapolis, St. Louis Park, St. Paul

Mississippi

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=MS>
 - Natural gas: 74%
 - Nuclear: 17%
 - Coal: 7%
- 2019: Mississippi PUC calls for formal long term energy planning for electric companies
<https://energynews.us/2019/06/18/southeast/mississippi-move-toward-long-term-energy-planning-could-boost-efficiency/>
 - PUC wants transparency and promotion of energy efficiency
 - Includes “all source energy planning” process which renewable advocates like since the cost of renewables have fallen to a point where they are competitive with the traditional fossil fuels
 - Also thought to help promote competition
 - Motivated in part by the failed “Kemper” plant which suffered from significant delays and increased costs to utility customers
- 2020: Mississippi Power subsidiary plans “World’s First Smart Neighborhood” with Tesla products
<https://www.utilitydive.com/news/mississippi-power-plans-smart-neighborhood-with-tesla-solar-roofs/589904/>
 - Neighborhood includes 45 initial houses, with plans for up to 150 homes
 - Installation of Tesla Solar Roof with Tesla Powerwall batteries
 - This allows storage for on-demand electricity (when no sun)
 - Houses are also set to be fitted with energy-efficient products like smart thermostats, refrigerators
 - Part of larger plan to take advantage of roofs for solar generation
- 2015/16: A 2015 net metering law allows utilities to pay reduced rates for solar power surplus from homeowners with solar panels
<https://www.dailyleader.com/2018/08/03/mississippi-law-makes-solar-power-unfeasible-for-many/>
 - Some think that the utilities pressured the legislature and PSC to limit the expansion of net metering
 - This net metering program has been thought to stifle solar installation

Missouri

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=MO>
 - Coal: 73%
 - Nuclear: 12%
 - Natural gas: 10%
 - Wind: ~5%
- Renewable Portfolio Standard
 - 15% by 2021 (IOUs) with a 2% carve-out for solar
<https://www.eenews.net/stories/1062406631>
 - Established 2008 by voter initiative
- 2018: SB 564 passes to mandate solar rebates from electric corporations for solar projects that become operational between 2019 and 2023.

<https://energy.mo.gov/resources/solar>

- Rebates apply to both new and expanded solar systems up to 25kW for residential, and 150kW
 - Rebates are on a per watt rate: \$.50/W on systems that became operational during 2019, and \$.25/W rate for those that became operational 2020-2023.
- 2020: Ameren (utility in Midwest) released Missouri IRP to accelerate transition to clean energy targets, including plans to reduce carbon emission by 50% of 2005 by 2030, and 85% of 2005 by 2040.
<https://www.power-eng.com/emissions/ameren-irp-aims-for-net-zero-carbon-by-2050/#:~:text=Ameren%20Missouri's%20IRP%20includes%20investment,of%205%2C400%20MW%20by%202040.>
 - Investments in nearly \$8 billion in renewables in the two decades
 - Includes retirement of two coal plants, one by 2028, and the other by 2042
 - By 2030, increase renewable generation by 3,100MW by 2030, and 5,400MW by 2040.
- 2020: Green Belt Express transmission line to carry Midwest wind energy to eastern markets passes key court battles in Missouri
<https://www.greentechmedia.com/articles/read/grain-belt-express-transmission-line-wins-key-battles-in-missouri>
 - Court victory allows for rehearing to try to become public utility to gain power of eminent domain to secure rights of way
 - Tried to negotiate with communities by bringing broadband internet along the transmission line as well
- Cities committed to 100% clean energy
 - Kansas City, St. Louis

Montana

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=MT>
 - Coal: 47%
 - Hydropower: 40%
 - Wind: 8%
 - Natural Gas: 2%
 - Petroleum Coke: 2%
- 2020 Montana Supreme Court found PUC violated PURPA
https://billingsgazette.com/news/state-and-regional/govt-and-politics/once-hot-solar-energy-development-fizzled-before-montana-supreme-court-ruling/article_90f74378-283b-58b8-b3ed-c276a84134ac.html
 - Supreme Court found that the Montana Public Service Commission violated PURPA by suspending the requirement that the utility NorthWestern Energy to buy from small energy generation sources
 - This was mainly aimed at solar, and pulled out from guaranteed rates (arguing they were too high)
 - FERC stepped in and ruled that the move to stop the guaranteed rates.

- 2017: Shortened contracts, and cut the rate for small projects to \$38/megawatt hour
 - This was aimed at making financing more difficult
 - Drama when PSC chairman was caught on a hot mike saying that the commission was knowingly ending small energy projects
- Went up to the state supreme court, found these actions violated PURPA
- 2019: Montana PSC voted to reject NorthWestern Energy proposal to end net metering for rooftop solar.
 - <https://www.utilitydive.com/news/montana-rejects-northwesterns-bid-to-end-net-metering-add-separate-rate-c/568116/>
 - Decided to maintain retail rate net metering until rooftop solar reaches 5% of peak load (its currently only 1%)
- 2019: NorthWestern IRP
 - <https://www.northwesternenergy.com/our-company/regulatory-environment/2019-electricity-supply-resource-procurement-plan>
 - Discusses declines in carbon emissions, claims 61% carbon free generation (mainly from hydro power)
 - Has detailed plan to retire 6 coal plants in the next 12 years
- Cities committed to 100% clean energy
 - Helena, Missoula

Nebraska

- Energy Profile (2019)
 - <https://www.eia.gov/state/analysis.php?sid=NE>
 - Coal: 55%
 - Wind: 20%
 - Nuclear: 19%
 - Hydro + Biomass: 6%
- 2020: Lincoln Electric System becomes second large utility in Nebraska to commit to a net-zero emissions goal
 - <https://insideclimatenews.org/news/03122020/inside-clean-energy-nebraska-wind-energy/>
 - Lincoln Electric system board approved goal of committing to net zero emissions by 2040
 - No interim goals or benchmarks to hit
 - This may be possible because Nebraska utilities are owned by customers or local governments
 - 2019: Omaha Public Power board (another large utility) approved goal of net zero emissions by 2050
- 2019: Nebraska passed LB 405 updating state energy codes for residential and commercial buildings
 - <https://www.utilitydive.com/news/nebraska-surprise-state-poised-to-become-midwest-building-efficiency-leade/554094/>
 - One of the strongest efficiency codes in Midwest
 - Includes a “mandatory envelope” test for buildings, which updates checklist test which was previously the code

- 2016: Property Assessed Clean Energy (PACE) financing bill to help fund the up-front costs for energy efficiency projects
<https://www.utilitydive.com/news/nebraska-lawmakers-pass-pace-bill-to-open-up-efficiency-renewable-generati-1/417418/>
 - Sets a \$5 million cap on any single bond, but allows for municipalities to fund larger projects with a referendum
 - Especially meant to help homeowners reduce their energy bills and increase property values in the long term
- 2020: Net Metering update continues the limit for net metering to 25kW installations
https://assets.website-files.com/5a26c42ac0c9b0000147937c/6005ab683635886695b9e95d_Net%20Metering%20Service%20Rider.pdf
 - Installations over 25kWs can enter into agreements with utilities (in Nebraska, all Utilities are public)
 - <https://www.eia.gov/state/analysis.php?sid=NE>
 - Summer Rates:
 - Wind generation: 5.04¢ per kilowatt-hour
 - Photo-voltaic generation: 8.94¢ per kilowatt-hour
 - Baseload generation (e.g., methane fueled): 4.65¢ per kilowatt-hour
 - Winter Rates:
 - Wind generation: 4.07¢ per kilowatt-hour
 - Photo-voltaic generation: 5.00¢ per kilowatt-hour
 - Baseload generation (e.g., methane fueled): 4.41¢ per kilowatt-hour

Nevada

- Energy Profile (2018)
<https://www.eia.gov/beta/states/states/nv/overview>
 - Natural gas: 62.8%
 - Renewables: 28.6%
 - Coal: 8.5%
- 2019: Passed SB-358 unanimously in both the House and Senate
Text of Bill: <https://www.leg.state.nv.us/App/NELIS/REL/80th2019/Bill/6651/Text>
News Article: <https://www.utilitydive.com/news/nevada-passes-bill-for-50-renewables-by-2030-100-carbon-free-by-2050/553138/>
 - Commits state to generate 100% carbon free by 2050, and generate 50% of their electricity from renewable resources by 2030
 - There was also a citizen-lead ballot initiative for the same standards
 - Expands the requirements under the state's RPS to apply to all energy providers, not just NV Energy (State's monopoly utility)
- 2017: Renewable Energy Bill of Rights
Text: http://puc.nv.gov/Renewable_Energy/Renewable_Energy_Bill_of_Rights/
News Article: <https://www.ncel.net/2018/03/15/landmark-legislation-nevadas-solar-bill-of-rights/>
<https://www.greentechmedia.com/articles/read/nevadas-new-solar-law-is-about-much-more-than-net-metering>
 - First bill of its kind to guarantee the right to self-generate and store electricity.

- Particularly relevant for solar production, and acts to protect net metering to limit solar and encourage personal solar installations.
 - Especially important since in 2015 the state ended its net-metering program, leaving the solar industry in disarray
- Nevada RPS (NRS 704.7801) was passed by state legislature in 1997
<https://www.utilitydive.com/news/nevada-passes-bill-for-50-renewables-by-2030-100-carbon-free-by-2050/553138/>
 - Currently, sets RPS at 50% by 2030.
 - For 2020, RPS is 22%
 - 2019 updates limits the amount of energy efficiency measures that can be used to meet RPS standards
 - Eliminates option by 2035, and limits to 10% from 2020-2024.
- NV Energy Compliance: Exceeded goal in 2019
 - RPS was 27.5%, which exceeded the 20% requirement
 - <https://www.nvenergy.com/cleanenergy>

New Hampshire

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=NH>
 - Nuclear: 60%
 - Natural gas: 20%
 - Biomass: 8%
 - Hydro: 7%
 - Coal + wind: ~5%
- Renewable Portfolio Standard
<https://www.eia.gov/state/?sid=NH>
 - 25.2% renewable sources of electricity by 2025
 - Set 2007, and not updated since
- 2020: Governor Sununu has been attributed to New Hampshire's lack of legislative initiatives and falling behind other New England states in progressive energy policies
<https://energynews.us/2020/01/08/northeast/new-hampshire-a-regional-outlier-on-climate-clean-energy-under-gov-sununu/>
 - Only governor in new England not to join the US Climate Alliance
 - Gov. Sununu has vetoed various clean energy bills including:
 - Raising RPS by 5.4% by 2025 to make the goal around 30% instead of 25%
 - Vetoed HB 365 to increase net metering limit for solar projects from 1MW to 5MWs to encourage large-scale solar projects in the state
- 2020: New Hampshire Utility Liberty Utilities start residential battery program
<https://energynews.us/2020/07/27/northeast/small-batteries-but-high-stakes-for-new-hampshire-home-energy-storage-pilot/>
<https://www.utilitydive.com/news/designing-liberty-utilities-new-hampshire-residential-storage-program/548940/>
 - Small utility (~40k customers in NH) is starting program to outfit 100 homes with tesla Powerwall batteries

- Program basically subsidizes these storage batteries where customers pay about \$5k for the \$13k retail value of these batteries
 - Utility retains ownership of the batteries, and will draw from the batteries to meet demand during peak hours
 - Utility hopes that this will reduce costs for customers
 - Those with batteries can take advantage of time of use rates
 - There's now a bill in the state legislature in reaction to this program to prevent utilities from owning the "behind the meter batteries" without the PUC deciding that utility ownership is in the public interest
- 2020: New Legislation directing the state PUC to "to investigate ways to enable energy storage projects to receive compensation for avoided transmission and distribution costs."

Bill: http://gencourt.state.nh.us/bill_status/billText.aspx?id=813&txtFormat=html&sy=2020

Article: <https://www.power-grid.com/der-grid-edge/new-hampshire-looks-for-ways-to-pay-battery-owners-for-benefits-they-provide/>

 - Looks to compensate battery owners for the benefits of decreased transmission and better stability
 - Help "attach a specific value to avoided transmission and distribution costs"
 - Largely seen as a step towards supporting more battery storage
- Cities committed to 100% clean energy
 - Concord, Cornish, Hanover, Keene, Plainfield

New Jersey

- Energy Profile (2018)

<https://www.eia.gov/state/analysis.php?sid=NJ>

 - Nuclear Power: 50%
 - Natural gas: 44.1%
 - Renewables: 3.1%
 - Coal: 2.5%
- 2018: New Jersey passes the Clean Energy Act to introduce sweeping changes after "stagnation" of the Chris Christie administration

State website: <https://www.nj.gov/dep/ages/oepa-clean-energy.html>

Article: <https://www.forbes.com/sites/energyinnovation/2018/06/18/new-jersey-is-now-the-united-states-hottest-clean-energy-economy/#10588ab6334f>

 - Updated the state's RPS setting a target of 50% renewable energy by 2030 with an interim goal of 35% by 2025
 - Also increased solar RPS to 5.1% by 2021
 - Established a community solar pilot program to "enable utility customers to participate in a solar energy project that is remotely located from their property"

<https://njcleanenergy.com/renewable-energy/programs/community-solar>
 - Offshore Wind: Codifies the Governor's goal of 3,500 MW of offshore wind by 2030 and reinstated an expired program to provide tax credits for offshore wind manufacturing activities.
 - This was previously Executive Order 8

- Energy Efficiency: Requires each utility to implement energy efficiency measures to reduce electricity usage by 2% and natural gas usage by 0.75%.
- Energy Storage: Codifies the Governor's goal of achieving 600 MW of energy storage by 2021 and 2,000 MW by 2030.
- 2018: Governor Murphy signed Executive Order 7 to begin process of joining RGGI <https://www.nj.gov/dep/aqes/opea-clean-energy.html>
 - Ordered the Board of Public Utilities and Department of Energy Protection to “to take all necessary regulatory and administrative measures to ensure New Jersey’s timely return to full participation in RGGI”
 - This will technically be rejoining after Chris Christie pulled the state out of RGGI <https://www.utilitydive.com/news/new-jersey-adopts-rules-to-rejoin-rggi-heading-to-100-clean-energy-by-205/557078/>
- 2018: Governor Murphy signed P.L. 2018, c.3, requiring New Jersey to join the US Climate Alliance, a bipartisan coalition of US states committed to uphold the United Nations’ Paris Climate Accord despite the federal government’s decision to withdrawal. <https://www.nj.gov/dep/aqes/opea-clean-energy.html>
- 2018: New Jersey passed Zero Emissions Credit program for nuclear plants <https://www.utilitydive.com/news/new-jersey-gov-murphy-signs-bills-creating-zero-emission-credits-for-nucle/524238/>
 - Law will “maintain nuclear power's current 40% contribution to the state's electrical needs in perpetuity.”
 - Writers were very careful to “de-link” the nuclear subsidies from the wholesale power market to avoid FERC jurisdictional challenges, but there have still been legal challenges (which as far as I can tell haven’t gone very far”
 - <https://www.njspotlight.com/2019/05/19-05-15-rate-counsel-challenges-nuclear-subsidy-in-appellate-court/>
 - This looks like the Energy Law practice problem!
 - Rate Counsel challenged award of \$300 million in ratepayer subsidies to keep 3 nuclear plants that are allegedly in danger of shutting down
 - Opposition for fears of driving prices up, and also fears that renewable goals won’t be reached is state relies heavily on nuclear
- 2019/2020: Governor Murphy issued Executive Order 28 in 2018 to direct state agencies to create new Energy Master Plan to meet their ambitious clean energy goals, released January 2020. <https://www.nj.gov/dep/aqes/opea-clean-energy.html> <https://www.utilitydive.com/news/new-jersey-outlines-sweeping-plans-to-achieve-100-clean-energy-by-2050/571195/>
 - Goal is to achieve 100% Clean Energy by 2050
 - The new plan outlines 7 areas of improvement
 - Strategy 1: Reducing Energy Consumption and Emissions from the Transportation Sector
 - Strategy 2: Accelerating Deployment of Renewable Energy and Distributed Energy Resources
 - Strategy 3: Maximizing Energy Efficiency and Conservation and Reducing Peak Demand

- Strategy 4: Reducing Energy Consumption and Emissions from the Building Sector
 - Strategy 5: Decarbonizing and Modernizing New Jersey’s Energy System
 - Strategy 6: Supporting Community Energy Planning and Action in Underserved Communities
 - Strategy 7: Expand the Clean Energy Innovation Economy
- Some see this as a response to a realization that New Jersey needed to step up their actions to meet their ambitious targets
- Outlines additional steps to meet the 7.5GW offshore wind target by 2035, and focus on energy storage.
 - Calls for the New Jersey Board of Public Utilities to "develop a consistent and transparent solicitation schedule through 2035 that supports a steady, long-term Mid-Atlantic project pipeline.
- 2020: New Jersey passed S2252/A4819 to greatly advance electric vehicles in state <https://www.utilitydive.com/news/new-jersey-sets-high-standard-with-passage-of-ev-incentive-bill-advocates/570455/>
 - Sets target of 2 million light duty EVs in state by 2035, and providing \$300 million over 10 years for rebates as incentives to consumers
 - Requirements for infrastructure as well, with 1,400 new charges (with at least 400 DC fast charges) installed statewide by 2025
 - Requires New Jersey Transit to purchase only zero emission buses after 2032, and go all electric by 2040.
- Cities committed to 100% clean energy
 - New Brunswick

New Mexico

- Energy Profile (2018) <https://www.eia.gov/beta/states/states/nm/overview>
 - Coal: 44%
 - Natural gas: 33.3%
 - Renewable: 22.7%
- 2019 SB- 489: Energy Transition Act <https://www.nmlegis.gov/Legislation/Legislation?Chamber=S&LegType=B&LegNo=489&year=19>
 - Aggressive electricity production goals
 - 50% carbon-free electricity by 2030
 - 80% carbon-free electricity by 2040
 - 100% carbon-free electricity by 2045
 - Bill has significant focus on shutting down coal plants, and supporting the communities affected by the loss of these jobs.
 - Governor’s press release: <https://www.governor.state.nm.us/2019/03/22/governor-signs-landmark-energy-legislation-establishing-new-mexico-as-a-national-leader-in-renewable-transition-efforts/>
 - Calls act a: “landmark legislation that sets bold statewide renewable energy standards and establishes a pathway for a low-carbon energy

transition away from coal while providing workforce training and transition assistance to affected communities.”

- 2019: Governor Michelle Grisham signed Executive Order 2019-003 to commit New Mexico to the Paris Agreement
https://www.governor.state.nm.us/wp-content/uploads/2019/01/EO_2019-003.pdf
 - State actor becoming part of the larger global community
- 2018: Public Service Co. of New Mexico (largest utility) IRP
<https://www.utilitydive.com/news/new-mexico-regulators-approve-pnm-plan-to-phase-out-coal-by-2031/544859/>

Summary of plan:
https://www.pnm.com/documents/396023/396193/PNM+2017+IRP_Executive+Summary.pdf/992f1578-8eb1-4454-a51e-7ea19cf39833

 - Goal is to eliminate coal-fired generation by 2031.
 - Replace coal with natural gas and solar
 - Nearly 70% emission free by 2031.
- These are big steps forward for New Mexico → In 2018, about coal was about 50% of energy production, with 30% natural gas.
<https://www.utilitydive.com/news/threes-company-new-mexico-joins-california-hawaii-in-approving-100-clea/550390/>
- Cities committed to 100% clean energy
 - Angel Fire, Eagle Nest, Questa, Taos, Taos County

New York

- Energy Profile (2018)
<https://www.eia.gov/beta/states/states/ny/overview>
 - Nuclear Power: 36.3%
 - Natural gas: 34.6%
 - Renewables: 27.4%
- 2020: NY passed the Accelerated Renewable Energy Growth and Community Benefit Act to streamline the siting and construction of clean energy projects as part of the fiscal 2020-2021 state budget
<https://dailyenergyinsider.com/news/24968-ny-state-passes-bill-to-facilitate-siting-construction-of-clean-energy-projects/>
 - Act creates the Office of Renewable Energy Siting within the Department of State
 - This new office will “consolidate the environmental review of major renewable energy facilities and provide a single forum to ensure that siting decisions are predictable, responsible, and delivered promptly.”
 - “The act will also establish regulations and uniform standards that encompass the environmental impacts common to large, renewable energy projects, and identify mitigation measures to address those impacts.”
- 2020: New York announced solicitation of 4,000MW of renewable energy capacity including 2,500MW of offshore wind.
Governor’s office: <https://www.governor.ny.gov/news/governor-cuomo-announces-largest-combined-solicitations-renewable-energy-ever-issued-us-combat>
Article: <https://www.utilitydive.com/news/new-york-announces-4-gw-renewables-solicitation-with-25-gw-offshore-wind/582076/>

- This is the largest-ever call for green energy in US
- “The solicitation calls for the development of Tier-1 eligible renewable energy projects that will generate at least 1.6 million MWh annually.”
- According to the Governor’s Office, this is “expected to spur approximately \$7 billion in direct investments and to create approximately 4,500 good-paying short and long-term jobs at applicable prevailing wages, helping to jumpstart and drive economic growth as part of reopening and reimagining New York State's economy.”
 - This is seen in part as the state’s COVID recovery
- 2019: Climate Leadership and Community Protection Act
 - <https://www.nyrenews.org/what-we-do>
 - NRDC breakdown of the bill: <https://www.nrdc.org/experts/miles-farmer/unpacking-new-yorks-big-new-climate-bill-primer-0>
 - NYT article: <https://www.nytimes.com/2019/06/18/nyregion/greenhouse-gases-ny.html>
 - Sets ambitious targets of 100% zero-emission electricity by 2040 and by 2050 reduction of emissions to at least 85% below 1990 levels
 - Interim goal of 70% of electricity from clean renewable energy by 2030
 - Many compared to the Green New Deal and called it a similar style
 - Also includes targets of:
 - 9,000 MW of Offshore Wind by 2035
 - 3,000 MW of Energy Storage by 2030
 - 6,000 MW of Solar by 2025
 - 22 Million Tons of Carbon Reduction through Energy Efficiency and Electrification
 - Defines equity provisions which prioritize existing and future resources towards vulnerable, impacted, historically disadvantaged and front line communities, and establishes specific supports for workers.
 - 40% of clean energy funds must be invested in disadvantaged communities
 - Creates legally binding and enforceable targets to hold state to higher standard.
- 2019: New York City Council passed law to reduce GHG emissions from large buildings
 - Law:<https://legistar.council.nyc.gov/LegislationDetail.aspx?ID=3761078&GUID=B938F26C-E9B9-4B9F-B981-1BB2BB52A486&Options=&Search=>
 - NYT Article: <https://www.nytimes.com/2019/04/17/nyregion/nyc-energy-laws.html>
 - Puts caps on carbon emissions for buildings over 25,000 sq ft – requiring a 40% overall cut in their emissions by 2030.
 - Those who don’t meet emissions caps will face huge fines
 - This will be huge cost for building owners (estimated above \$4 billion total)
 - Aim is to reduce emissions 80% by 2050.
 - In 2017, buildings were 67% of the city’s GHG emissions
- 2018: Governor Cuomo announced that New York planned to invest nearly \$1.5 billion into renewable energy projects over a five year period
 - <https://www.weforum.org/agenda/2018/03/new-york-to-invest-1-5-billion-in-renewable-energy-projects>
 - Most expected to be in the form of solar projects

- Cities committed to 100% clean energy
 - East Hampton, South Hampton

North Carolina

- Energy Profile (2018)
 - <https://www.eia.gov/state/analysis.php?sid=NC#22>
 - Natural Gas: 33%
 - Nuclear: 31%
 - Coal: 24.8%
 - Renewables: 11.2%
 - Solar: 5%
 - Hydro: 4%
 - Biomass: 2%
 - Wind: 0.4%
- 2019: North Carolina Clean Energy Plan
 - https://files.nc.gov/governor/documents/files/NC_Clean_Energy_Plan_OCT_2019_.pdf
 - Frames the issue of energy policy as economic
 - Created by the Department of Environmental Quality as directive by Executive Order No. 80 by Governor Roy Cooper (Democrat) in 2018
 - <https://files.nc.gov/ncdeq/climate-change/EO80--NC-s-Commitment-to-Address-Climate-Change---Transition-to-a-Clean-Energy-Economy.pdf>
 - Executive order sets GHG emission reduction goal of to reduce emissions by 40% from all economic sectors by 2025
 - Three Goals:
 - (1) Reduce electric power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050.
 - (2) Foster long-term energy affordability for North Carolina’s residents and businesses by modernizing regulatory and planning processes. Foster long-term energy affordability for North Carolina’s residents and businesses by modernizing regulatory and planning processes.
 - (3) Accelerate clean energy innovation, development and deployment to create economic opportunities for both rural and urban areas of the state. Accelerate clean energy innovation, development and deployment to create economic opportunities for both rural and urban areas of the state.
 - Stakeholder Pressure: Report touches on both citizens and companies pushing for decarbonization and increase of renewables.
 - “The appetite for acquiring residential roof top solar continues to be unmet as evidenced by the recent sellout of the rebates within hours of being offered by Duke Energy as part of HB589 implementation.”
- 2017: North Carolina passed the “Competitive Energy Solutions for NC” Bill (HB 589) aimed at solar and wind industry
 - Bill: <https://www.ncleg.net/Sessions/2017/Bills/House/PDF/H589v2.pdf>
 - Article: <https://www.utilitydive.com/news/north-carolina-governor-signs-solar-bill-targets-wind-moratorium-with-exec/448091/>
 - Much of the bill relates to the State’s interpretation of PURPA, and includes negotiated terms between utilities and generators

- Including a lower “avoided cost” for utilities to pay facilities that qualify under PURPA, but maintaining the 20-year PPA
 - Bill also “opened access to solar developers for lower-cost financing and set a solar deployment target of 6,800 MW by 2020.”
 - However, after Bill passed the House, Senator Brown (R) added a last-minute “wind moratorium” which put a halt to wind development
 - This is the version that ultimately passed, and Governor Cooper signed.
 - However, Governor Cooper responded by issued Executive Order 11 which instructed agencies to continue accepting wind facility bids, and continue with the permitting process to allow building to commence as soon the moratorium expired.
 - <https://files.nc.gov/governor/documents/files/EO11%20-%20Promoting%20Wind%20Energy%20Development.pdf>
- Duke Renewable Advantage Program
 - <https://news.duke-energy.com/releases/duke-energy-program-helping-n-c-customers-and-schools-expand-renewable-energy>
 - Customers (residential and commercial) can pay a \$3 monthly fee supports the generation of 250 kilowatt-hour (kWh) blocks of electricity from renewable energy resources.
- Cities committed to 100% clean energy
 - Apex, Chapel Hill, Hillsborough, Buncombe County, Orange County, Wake County

North Dakota

- Energy Profile (2019)
 - <https://www.eia.gov/state/analysis.php?sid=OH>
 - Coal: 63%
 - Wind: 27%
 - Hydro: 7%
 - Biomass: 3%
- Renewable Portfolio Standard
 - <https://www.eia.gov/state/analysis.php?sid=OH>
 - Voluntary 10% by 2015
 - Set 2007
- 2020: Counties in North Dakota banned wind farms locally to “protect” local coal industry
 - <https://www.grandforksherald.com/business/energy-and-mining/6570589-A-ban-onwind-farms-These-two-North-Dakota-counties-did-it>
 - Two counties in North Dakota placed short-term bans on construction of wind farms to ensure
 - Mercer county zoning laws to block transmission lines needed for the Garrison Butte Wind Farm
 - Tension between renewables and coal in North Dakota
- 2019: North Dakota PSC approved examining and started process to revise a rule that has been limiting farmers from initiating solar projects

<https://energynews.us/2019/04/12/midwest/north-dakota-considers-changes-to-farmland-rule-to-allow-solar-projects/>

- Will help by eliminating siting rule that doesn't allow new energy infrastructure to be built on "prime" farmland
 - Effects only 1,662 acres of land in North Dakota
- Not clear whether new rule is in effect now, or delayed due to the pandemic
- This seems generally in line with the negative treatment of wind energy throughout North Dakota, even as North Dakota receives a quarter of their energy from wind power
 - <https://www.utilitydive.com/news/north-dakota-amended-bill-seeks-to-halt-wind-development-for-two-years/436609/>
- 2019: North Dakota approves first commercial solar project
<https://morningconsult.com/2019/04/26/north-dakota-in-last-place-for-solar-takes-steps-to-move-up-the-ranks/>
 - PSC approved a 200 MW solar project, the largest in the state
 - In 2018, North Dakota had only .5 MW of solar power
 - Hostility towards solar thought to be due to the large footprint, unlike wood turbines which allow farmland to remain workable
- 2017: North Dakota's reluctance for renewable energy has caused Xcel Energy to consider separating utility operations of North Dakota and Minnesota
<https://www.utilitydive.com/news/xcel-considers-splitting-off-north-dakota-operations/505557/>
 - In 2016, North Dakota regulators denied Xcel cost recovery for a 100MW solar project totaling \$250 million
 - This caused the burden to be shifted on ratepayers in other states

Ohio

- Energy Profile (2019)
<https://www.eia.gov/state/analysis.php?sid=OH>
 - Natural gas: 43%
 - Coal: 39%
 - Nuclear: 14%
 - Renewables: 3%
- 2019: Ohio passed House Bill 6, Lots of Drama
Vox article: <https://www.vox.com/energy-and-environment/2019/7/27/8910804/ohio-gop-nuclear-coal-plants-renewables-efficiency-hb6>
E&E News: <https://www.eenews.net/stories/1060780629>
 - Changes to Ohio RPS under HB 6: got rid of Ohio's carve out for solar resources to ensure that utilities focus on solar
<http://codes.ohio.gov/orc/4928.64v1>
 - The bill reduces the target to 8.5 percent by 2026, exempts large industrial customers, and kills the standard after 2026, effectively nullifying any incentive for new renewable energy development in the state.
 - Changes to Energy Efficiency Standards: HB 6 removes the state's energy efficiency target of 22% from 2008 levels by 2027.

- Instead, allows utilities to stop compliance with the program once they achieve 17.5% (which most utilities have already achieved)
 - Subsidies for Nuclear Plants: FirstEnergy Solutions Corp. (which has bankruptcy issues) will receive \$150 million dollars to subsidize two big nuclear plants on Lake Erie (This has caused the most controversies)
 - According to the E&E News article, the utility threatened to shut down these plants without the subsidies (which are passed onto ratepayers)
 - Despite this bailout, the utility has still told regulators that the plants are unprofitable, and will likely close in the next few years (Vox article)
 - Under this, \$20 million was also divided to 6 solar projects
 - Subsidies for Coal Plants: FirstEnergy will also be receiving a monthly surcharge (\$1.50 for residential customers; up to \$1,500 for big industrials) to support old, high polluting coal plants.
 - This Bill was, unsurprisingly, very controversial
 - Vox article: HB 6 was overwhelmingly opposed by ratepayer groups, business groups, free market conservative groups, environmental groups, and Ohioans generally
 - Its only support came from its only beneficiaries: the utilities that own the bailed-out plants, the employees of the bailed-out plants, the communities where the bailed-out plants are located, and possibly President Trump, who doesn't want to see coal plants closing during his reelection campaign.
 - Lots of money exchanged hands, with benefiting utilities contributing millions of dollars to election campaigns of state legislatures and the governor.
 - Vox article goes through details
 - In July 2020, Federal authorities charged and arrested Ohio's Speaker of House Larry Householder with accepting the \$61M to ensure passage of HB 6
 - <https://www.utilitydive.com/news/top-ohio-lawmaker-charged-with-accepting-61m-bribe-in-scheme-to-pass-nucle/582055/>
 - But, in total, HB is set to give FirstEnergy \$1.5 billion.
 - September 25th 2020: Ohio Attorney General sues seeking a court order to block First Energy from receiving the subsidies laid out in HB 6 for nuclear plants
 - <https://www.utilitydive.com/news/ohio-attorney-general-sues-to-block-13b-bailout-of-former-firstenergy-nuc/585835/>
 - Ohio lawmakers are also considering repealing or replacing HB 6
 - This lawsuit is only an effort to block the direct subsidies to the two nuclear plants
 - Also trying to prohibit the lobbyists proved to be involved from lobbying for 8 years.
- 2020: Ohio Power Siting Board allowed offshore wind project to take step forward.
 - <https://www.cleveland.com/open/2020/09/plans-for-lake-erie-wind-farm-clear-a-major-hurdle-as-poison-pill-restriction-is-lifted.html>
 - <https://www.utilitydive.com/news/nations-first-freshwater-windfarm-all-but-approved-as-ohio-siting-board-re/585465/>

- The Board voted to rescind part of a previous order which would have allowed turbines to be built only if the blades didn't turn at night from March 1 to Nov. 1.
 - This would have killed the project, so this help the project move forward.
 - The project is a 20.7-megawatt pilot project called "Icebreaker Wind"
- 2019: Cincinnati released plans to install a 100 megawatt solar array.
 - <https://www.utilitydive.com/news/cincinnati-to-build-nations-largest-city-led-solar-array/568009/>
 - <https://www.motherjones.com/environment/2020/02/the-biggest-municipal-solar-farm-in-the-us-is-coming-to-cincinnati/>
 - This is being touted as the "largest municipal solar array in US"
 - It will help transition up to 30% of the city's power to renewables
 - City has 20 year PPA w/fixed cost for duration of contract with no upfront costs for the construction.
 - Mayor of Cincinnati John Cranley (Democrat) shows how democratic mayor is leading renewable energy charge while Ohio state government lags behind.

Oklahoma

- Energy Profile (2019)
 - <https://www.eia.gov/state/analysis.php?sid=OK>
 - Natural gas: 53%
 - Wind: 35%
 - Coal: 9%
 - Hydro: 3%
- Renewable Portfolio Standard
 - <https://www.eia.gov/state/analysis.php?sid=OK#:~:text=Oklahoma's%20legislature%20established%20a%20renewable,use%20renewable%20sources%20by%202015.>
 - Voluntary 15% by 2015
 - Set 2010
 - State beat the goal, having about 25.9% renewable/demand side capacity by 2015
- 2019: Oklahoma Corporation Commission made slightly more friendly rooftop solar rules for net metering
 - <https://www.governing.com/news/headlines/Oklahoma-Encourages-Renewable-Energy-with-Reimbursements.html>
 - Uses net metering, but requires utility to pay only "avoided cost" to customers and pay the wholesale rate
 - Also limits amount that a utility must buy under net metering to 125% of the customer's historical peak load
 - Customers with generation capacity over 300kW don't qualify for this net metering program, and are treated as an independent generator
 - Customers must still pay monthly service charges to connect to the grid
 - This seen as an improvement by the solar community since before, the excess power generated by rooftop solar was "donated" to the power provider
- 2019: NextEra announces plan to build a 700 MW hybrid plant in Oklahoma with the Western Farmers Electric Cooperative

<https://www.utilitydive.com/news/nextera-inks-700-mw-wind-solar-battery-project-largest-in-the-us/559693/>

- Plan includes:
 - 250 MWs of wind capacity
 - 250 MW of solar power
 - 200 MW/800 MW-hours of battery storage
- Aims to balance benefits of lower renewable costs with the challenges of intermittency
- 2020: Oklahoma has modest rebate program for renewable/efficient products
<https://okcoop.org/energy-efficiency-rebates/>
 - Includes \$200 for purchasing electric car purchase
 - \$500 for a new totally electric house with specifications like HVAC systems, electric water heater, and LED lighting
- 2020: Oklahoma Corporation Commission approved settlement that allows Oklahoma Public Service Company to add 675 MWs of wind energy
[https://www.psoklahoma.com/company/news/view?releaseID=4425#:~:text=The%20Oklahoma%20Corporation%20Commission%20\(OCC,the%20North%20Central%20Energy%20Facilities](https://www.psoklahoma.com/company/news/view?releaseID=4425#:~:text=The%20Oklahoma%20Corporation%20Commission%20(OCC,the%20North%20Central%20Energy%20Facilities)
 - Approved settlement in agreement for the three wind farms of the Northern Central Energy facilities, which has a total of 1485 MW capacity
- Cities committed to 100% clean energy
 - Cincinnati, Cleveland, Lakewood

Oregon

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=OR>
 - Hydropower: 60%
 - Natural Gas: 25%
 - Renewables
 - Coal: 2%
- 2020: Oregon shut down their last coal fired plant on October 15th, 2020.
<https://www.kgw.com/article/news/local/boardman-coal-plant-closes-oregon/283-b7eee8a4-0ec7-4c8f-88ea-9d7e42b2516b>
 - Plant shutdown was in the works for the past 10 years as part of a lawsuit from the Sierra Club
- 2019-2020: Movement to try to create a “cap-and invest” program in Oregon, though no bill has currently been passed due to procedural blockage by minority Republicans
<https://missoulacurrent.com/government/2020/03/oregon-republicans/>
 - 2020 bill, SB 1530, would “make heat trapping gas polluters purchase allowances for each ton of carbon they emit.”
 - This was a “milder” version of the bill from the previous year
 - Though Democrats hold 60% of state Senate seats, the Oregon Constitution requires 2/3 be present as quorum for floor votes.
 - So, two Republicans needed to be present to vote, but all Republicans left the statehouse for a “boycott,” and would return only if the Democrats agreed to leave HB 1530 to a ballot measure

- This stopped the votes on over 100 other bills as well.
 - They performed a similar walk out was performed, though a deal was cut why the Senate President by tabling HB 2020 to bring back Republicans to pass other laws.
 - The bill is an updated version of HB 2020, which was hailed as a potentially landmarked bill, but failed to pass through the legislature.
 - <https://www.vox.com/energy-and-environment/2019/6/5/18650155/climate-change-oregon-carbon-cap-trade-california>
- 2020: Executive Order 20-04 Set Energy Efficiency Goals for New Residential and Commercial Construction
 - <https://www.oregon.gov/bcd/Pages/energy-eo.aspx>
 - These updates to the building code create energy efficiency goals for 2030, “representing a 60 percent reduction in new building annual site consumption of energy from the adopted 2006 Oregon codes”
- 2019: HB 2618 makes available \$1.5 million dollars of solar rebates for two years
 - <https://www.oseia.org/latest-news/solarrebatepasses>
 - <https://olis.leg.state.or.us/liz/2019R1/Measures/Overview/HB2618>
 - 25% of program set aside for low-income rates
 - Can also include storage
 - Residential low-income projects can access a rebate of up to \$5,000 or 60% of the project, whichever is less
 - Other residential projects can access a rebate of up to \$5,000 or 40% of the project, whichever is less
- 2019: Amendments to HB 2496 1.5% Green Energy Technology program.
 - <https://www.oregon.gov/energy/energy-oregon/Documents/GET-2020-Updates-Summary.pdf>
 - This amends law to include battery storage and efficiency improvements as counting towards the 1.5% Green Energy Technology program
 - Current law requires that public entities spend 1.5% of public building construction costs on green energy technology.
- 2019-2020: After the 2018 “green wave” many were optimistic that Oregon would also be able pass the Clean Energy Jobs Bill
 - <https://www.forbes.com/sites/energyinnovation/2019/01/22/oregons-clean-energy-jobs-bill-an-economic-engine-and-a-decarbonization-catalyst/#1ef65ed4512d>
 - The Clean Energy Jobs Bill would reduce statewide emissions up to an estimated 80% by 2050 while reinvesting hundreds of millions of dollars in permit proceeds into projects that reduce emissions and benefit the state’s communities.
 - Not yet passed
- Cities committed to 100% clean energy
 - Milwaukie, Portland, Multnomah County

Pennsylvania

- Energy Profile (2019)
 - <https://www.eia.gov/state/?sid=PA>

- Natural Gas: 43%
- Nuclear: 36%
- Coal: 17%
- Renewables: 4%
- 2019-2020: Governor Wolf (Democrat) committed to joining RGGI with Executive Order
 EO: <https://www.governor.pa.gov/newsroom/executive-order-2019-07-commonwealth-leadership-in-addressing-climate-change-through-electric-sector-emissions-reductions/>
 Article: <https://www.utilitydive.com/news/coal-heavy-pennsylvania-to-join-northeast-carbon-cap-and-trade-program/564333/>
 - This seems to be a contentious issue, with the state not officially joined yet.
 - In September, 2020 the Pennsylvania Environmental Quality Board (EQB) voted 13-6 to launch a formal rulemaking process required for the state to join RGGI
 - <https://www.utilitydive.com/news/in-contentious-vote-pennsylvania-takes-formal-step-towards-joining-regiona/585278/>
 - The analysis by the state's Department of Environmental Protection (DEP) found that joining RGGI would reduce carbon emissions by an estimated 188 million tons between 2022 and 2030, produce a net increase of more than 30,000 jobs and boost Pennsylvania's gross state product by \$1.9 billion.
 - In July 2020, the State House of Representatives passed HB 2025, which "clarifies that the Department of Environmental Protection (DEP) does not have authority to join the Regional Greenhouse Gas Initiative (RGGI) or similar state or regional greenhouse gas cap-and-trade programs unless authorized by the General Assembly."
<https://www.utilitydive.com/news/pennsylvania-house-oks-bill-curbing-states-ability-to-join-rggi-in-ongoing/581282/>
 - Republicans in the state house said that every other state that joined RGGI involved the state legislature, not executive, taking action
 - Further argue that participation in RGGI requires a carbon tax, which requires legislative action
 - Governor Wolf Vetoes the Bill September 24, 2020
<https://www.governor.pa.gov/newsroom/gov-wolf-vetoes-bill-that-ignores-dangers-of-climate-change/>
 - In vetoing, said that “Addressing the global climate crisis is one of the most important and critical challenges we face.”
 - Emphasized that allowing the bill to become law would harm public health and welfare due to the effects of CO2
 - “Given the urgency of the climate crisis facing Pennsylvania, the Commonwealth must take concrete, economically sound, and immediate steps to reduce greenhouse gas emissions. Allowing this legislation to become law would effectively deny that climate change is an urgent problem that demands prudent solutions.”
- 2018/2019: Pennsylvania passed Act 58 in 2018, which allows the Pennsylvania PUC to approve alternative rate mechanisms
<https://www.utilitydive.com/news/pennsylvania-utilities-push-back-on-prescriptive-ratemaking-regulation/541345/>

- Defines 4 specific mechanisms: revenue decoupling, performance-based rates, formula rates and multiyear rate plans
 - But, allows utilities to be innovative in using DERs and other efficiency technologies
 - Seems to be trying to garner innovation
- In 2019, the Pennsylvania PUC adopted a Distribution Rates Policy Statement that enumerates factors to be considered when utilities propose alternative ratemaking mechanisms and rate designs in distribution base rate proceedings. <https://www.utilitydive.com/news/pennsylvania-regulators-outline-criteria-for-alternative-rate-proposals-to/558640/>
 - Hope this will “remove barriers and provide incentives to utilize energy efficiently, encourage development of cost-effective distributed energy resources, and encourage more efficient use of our energy distribution infrastructure”
- 2019: Governor Wolf issued executive order establishing statewide carbon reduction goal <https://www.governor.pa.gov/newsroom/governor-wolf-establishes-first-statewide-goal-reduce-carbon-pollution-pennsylvania/>
 - Established goals of: 26% reduction of GHG emissions from 2005 levels by 2025, and 80% reduction of GHG emissions from 2005 by 2050
 - Created the GreenGov Council to “serve as a central coordinating body to promote the implementation of the executive order”
 - Established secondary performance goals to:
 - Reduce overall energy consumption by 3 percent per year, and 21 percent by 2025, as compared to 2017 levels.
 - Replace 25 percent of the state passenger car fleet with battery electric and plug-in electric hybrid cars by 2025.
 - Procure renewable energy to offset at least 40 percent of the commonwealth’s annual electricity use.
- Cities committed to 100% clean energy
 - Ambler Borough, Cheltenham Township, Conshohocken Borough, Downingtown Borough, East Bradford, East Pikeland Township, Haverford Township, Kennett Township, Narberth Borough, Norristown Borough, Philadelphia, Phoenixville Plymouth Township, Radnor Township, Reading, Schuylkill Township, Springfield Township, State College, Tredyffrin Township, Upper Merion Township, Uwchlan Township, West Chester Borough, West Vincent, Whitmarsh Township

Rhode Island

- Energy Profile (2018) <https://www.eia.gov/beta/states/states/ri/overview>
 - Natural gas: 93.1%
 - Renewable: 5.9%
 - Petroleum: 1%
- 2020: Governor Raimondo signed an Executive Order committing RI to achieving 100% renewable energy by 2030. <https://governor.ri.gov/documents/orders/Executive-Order-20-01.pdf>

- Mentioned RI's joining of the US Climate alliance in 2017
- Mention of being member of RGGI
- In 2017, Governor signed Executive Order to increase clean energy portfolio tenfold by December 2020, to 1,000 MW
 - And is on track to meet it
- Delegates Office of Energy Resources to provide the Governor with a specific and implementable action plan to achieve this goal, due by December 31, 2020.
- This replaces Resilient Rhode Island Act (2014) which set GHG reduction goals of 10% below 1990 levels by 2020, 45% below 1990 by 2035, and 80% below 1990 by 2050.
- This Executive Order seems to be a good step, since much of their energy plans date back to 2015 or 2016.
- Rhode Island RPS: incremental, with an end target of 38.5% renewable energy in 2035 for production of electricity. This program was created in 2004, and updated in 2016. <http://www.energy.ri.gov/policies-programs/ri-energy-laws/renewable-energy-standard-2004.php>
 - Current RPS for 2020 is 16%, with 1.5% yearly increase

South Carolina

- Energy Profile (2018) <https://www.eia.gov/beta/states/states/sc/overview>
 - Nuclear: 56.2%
 - Coal: 20.4%
 - Natural gas: 18.2%
 - Renewable: 4.9% (Including Hydro)
- RPS: Voluntary target of 2% by 2021 <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx#ca>
- 2020: South Carolina PSC rejected Dominion Energy's three-year IRP for failure to include enough renewable-friendly projects and failure to include coal-retirement plan
- <https://www.utilitydive.com/news/south-carolina-directs-dominion-to-model-early-coal-fleet-retirement-pre-2/592107/>
 - PSC pushed back against the utility's failure to include demand-side management, no renewable additions before 2026, and no coal retirement before 2028.
 - PSC wants the utility to change their IRP to correct this, and make inclusions of these specific policies
 - Partly, regulators want to see compliance with the Energy Freedom Act passed a year earlier
 - Submitted IRP would reduce net-metering rates, which solar advocates say is against the policy goals of the EFA.
- 2019: "South Carolina Energy Freedom Act" (H. 3659, R. 82)
Act: https://www.scstatehouse.gov/sess123_2019-2020/bills/3659.htm
Article: <https://www.utilitydive.com/news/south-carolina-unanimously-passes-solar-bill-to-lift-2-net-metering-cap/554490/>
Article: <https://charlestonbusiness.com/news/energy/78048/>
 - Major policy impacts: eliminates the net metering cap for rooftop solar and allows independent power producers to sell power to the grid.

- Seems to help a lot to increase consumer access to solar, especially by lifting the net metering cap.
 - Bipartisan support to expand and increase solar: economics & resiliency
 - SC as a “model for how bipartisan clean energy legislation can be accomplished in a conservative state.”
 - Outlines how clean energy became a bipartisan issue:
 - “Clean energy has become a bipartisan issue in South Carolina, Tynan said, for three reasons: it lowers energy bills; it reduces air pollution and water pollution; and it helps jumpstart and further transition the state into the 21st century.”
 - <https://energynews.us/2019/07/25/southeast/commentary-with-energy-freedom-act-south-carolina-takes-steps-toward-resilience/>
 - Focusses on resiliency, and frames with the hurricanes that have effected SC in recent years
 - Goes in depth about the actual bill, and the policies it promotes
- 2019 Updates to the State Energy Plan
 - Status of Top Recommendations: <http://energy.sc.gov/files/view/III%20Top-Tier%20Recommendations%20Status%20Summary.pdf>
 - Natural Gas infrastructure: Expand as energy option across state
 - Integrated Resource Planning Process: Public Service Commission to ensure that utilities consider both environmental and economic costs
 - Building Energy Codes: Efficiency for buildings owned by state government
 - Environmental Equity Assessment
- Cities committed to 100% clean energy
 - Columbia

South Dakota

- Energy Profile (2019)
 - <https://www.eia.gov/state/analysis.php?sid=SD>
 - Hydro: 45%
 - Wind: 24%
 - Coal: 21%
 - Natural gas: 11%
- Renewable Portfolio Standard
 - <https://www.eia.gov/state/analysis.php?sid=SD>
 - Voluntary 10% by 2015
 - Set 2008
 - While many utilities met the goal, they noted “barriers included lack of transmission capacity for renewable projects, intermittent supply, competition from natural gas, and physical locations away from transmission lines and markets”
- 2020: South Dakota amended zoning law to clarify permitting for energy projects
 - <https://knowledgecenter.csg.org/kc/content/south-dakota-amends-its-siting-laws-try-untangling-varying-county-special-conditional-use>

- Makes more definite rules for both agricultural and energy activities by clarifying zoning at a county level for “special permitted use” (used for agriculture) and “conditional use” (which includes larger energy projects)
 - This also clarifies the procedures for conditional use permits, including the need for county approval and public hearing
 - Also “tightens” appeals process, limiting appeals to those “who are “aggrieved persons,” defined as “someone directly interested in the outcome [who] suffered or would suffer an actual injury” and limits those appeals to a 21-day window.”
- 2018: South Dakota added limited solar incentives
 - <https://puc.sd.gov/Publications/solarfaq.aspx>
 - State offers a property tax credit, allowing residential solar installations to exempt either \$50k or 70% (whichever is greater) from their real property tax for installations less than 5MWs
 - No net metering policy, must be negotiated with the utility
 - States that policymakers decided against a net metering program for the state because it encourages “above market” payments for energy
 - However, all electric utilities under state PUC regulation must interconnect with and purchase from small solar facilities (under 100kW), and the rates must be filed with and approved by the PUC
- 2019: Enacted law which helped clarify the PUC’s ability to expedite permitting process for solar and wind energy
 - <https://legiscan.com/SD/bill/SB15/2019>
 - Meant to tear down some of the “unnecessary regulatory burdens” for these projects
 - PUC still must make decisions ensuring for public safety

Tennessee

- Energy Profile (2019)
 - <https://www.eia.gov/state/?sid=TN>
 - Nuclear: 43%
 - Coal: 23%
 - Natural gas: 20%
 - Hydro: 12%
- 2019: TVA board approved a 20-year IRP that plans to add up to 14GW of new solar capacity by 2038
 - <https://www.utilitydive.com/news/tva-board-approves-long-term-plan-adding-14-gw-solar-by-2038/561571/>
 - This was met with some criticism from renewable energy advocates since the IRP calls for up to 18.4GW of new natural gas capacity
 - Board generally dismissed solar and wind as intermittent, generally dismissing storage as a viable option
- 2019: TVA resists implementing a net metering program to encourage rooftop solar
 - <https://www.timesfreepress.com/news/breakingnews/story/2019/apr/11/study-says-solar-power-double-south-2022-tva-still-solar-blocker-region/492411/>

- TVA implemented “duel metering” system in which TVA “buys all the power owners generate on site, and requires those same customers to buy all the power they consume from TVA through their the local power company at retail rates.”
 - Did this claiming that under TVA Act, they must have the lowest rates feasible, and that this is a part of that mission
- 2017: State lawmakers passed a year moratorium on new wind turbine installations in the state
 - <https://www.knoxnews.com/story/money/business/2017/06/14/100-m-wind-project-suspended-following-tennessee-moratorium/395310001/>
 - This put over \$100 million wind project at Crab apple wind farms on hold
 - Seems to have been targeting this specific wind farm east of Nashville that would include 23 turbines
 - Sponsor of the bill Republican Representative Cameron Sexton “said residents of a nearby retirement community worried about losing value on their homes and that the windmills would be noisy or harm wildlife.”
- 2018: State lawmakers pass House Bill 1731, which ends the year-long moratorium for turbine installation, but isn’t particularly friendly to turbine installation
 - Article: <https://www.wind-watch.org/news/2018/04/09/tennessee-house-of-representatives-passes-bill-regarding-wind-farms/>
 - Bill: <https://legiscan.com/TN/bill/HB1731/2017>
 - Republican Representative Cameron Sexton also introduced the bill with the intent to protect “personal and adjacent property owners’ rights when it comes to the placement of wind turbines.”
 - Bill allows for county governments to create their own regulations for wind farms
 - This decentralizes the wind regulation of wind facilities, may allow for NIMBY-ism

Texas

- Energy Profile (2018)
 - <https://www.eia.gov/beta/states/states/tx/overview>
 - Natural gas: 41.9%
 - Coal: 29.2%
 - Renewable: 18.2%
 - Nuclear: 10.7%
- 2020: Austin Texas sets goal for 100% carbon free electricity generation by 2035
 - <https://austinenergy.com/ae/about/environment/environmental-excellence>
 - Main goals listed are:
 - Achieving 100% carbon-free electricity generation by 2035.
 - Saving 1,200 megawatts through energy efficiency and demand response by 2030.
 - Acquiring 375 MW of local solar generation by 2030.
 - Supporting private-public partnerships that assist in the transition to electric transportation.
- 2019: Texas leads the nation in wind-powered generation and produced about 28% of all the U.S. wind-powered electricity in 2019.

<https://www.eia.gov/beta/states/states/tx/overview>

- Texas wind turbines have produced more electricity than both of the state's nuclear power plants since 2014.
- 2019: Topics of renewable and clean energy seemed to not be gaining ground in state legislature
<https://www.kut.org/post/3-big-takeaways-texas-energy-and-environment-years-legislative-session>
 - House Bill 3557, passed by the legislature and signed by the Governor in 2019, “increases penalties against protesters who engage in certain types of civil disobedience around so-called "critical infrastructure.”
<https://legiscan.com/TX/bill/HB3557/2019>
 - This was seen to directly target and stop protests around pipelines
 - Texas Public Policy Foundation (conservative think tank) is lobbying hard to further proposals this session to draw back or cut some of the very incentives and federal subsidies that helped the industry establish itself.
<https://www.kut.org/post/battle-over-renewable-energy-takes-shape-texas-capitol>
 - Strategy has been to increase NIMBY sentiment from those who live near solar and wind resources
- Some are concerned that about Texas’s grid reliability due to reliance on wind and solar
<https://www.eenews.net/stories/1061839839>
 - During times of peak power demand, roughly 12% of the ERCOT region's capacity for next summer may be tied specifically to wind and solar, according to projections. And the share for those renewables under peak demand conditions is slated to top 19% in 2022.
 - “From what ERCOT sees specifically in its forecasts, the contribution from wind during times with peak demand is slated to rise from 7,041 MW in 2020 to 9,041 MW in 202”
 - One report prepared for the grid operator looked at potential conditions and described an economically optimal reserve margin of 9% and a possible market equilibrium reserve margin of 10.25%.
- 2017: Georgetown, Texas, a city of 50,000 became the largest city to claim it ran on 100% renewable energy
<https://www.utilitydive.com/news/road-to-100-how-the-shale-boom-broke-georgetown-texas-renewables-spell/567775/>
 - Contracted: “One for natural gas — 20 MW from Mercuria — and three for solar and wind — 20 MW of wind from AEP's South Trent wind farm, 144 MW from the Spinning Spur wind farm and 154 MW of solar from the Buckthorn solar project.”
- 2017: Texas had 26,045 MW of additional renewable energy capacity (24,381MW of which was wind) in 2017 relative to 1999.
<https://programs.dsireusa.org/system/program/detail/182#:~:text=Texas's%20RPS%20mandates%205%2C000%20megawatts,renewable%20energy%20capacity%20by%202025.>
- Cities committed to 100% clean energy
 - Denton, Red River
- Cities powered by 100% clean energy
 - Georgetown

Utah

- Energy Profile (2018):
<https://www.eia.gov/state/analysis.php?sid=UT>
 - Coal: 66%
 - Natural gas: 16%
 - Renewables: 11% (Mostly solar and hydro)
- Energy Profile (2016)
http://www.swenergy.org/Data/Sites/1/media/documents/publications/factsheets/2018-fact-sheets/sweep-ut-factsheet-2018_final.pdf
 - Coal: 77%
 - Natural gas: 19%
 - Renewables: 4%
 - These numbers show pretty quick shift in reducing coal and increasing renewables.
- Renewable Portfolio Standard:
 - Voluntary renewable portfolio goal of 20% renewables by 2025.
<https://programs.dsireusa.org/system/program/detail/2901>
- 2019: Utah State Legislature passed the Community Renewable Energy Act (HB 411)
Bill: <https://le.utah.gov/~2019/bills/static/HB0411.html>
Article: <https://www.solarpowerworldonline.com/2019/12/20-utah-communities-commit-100-percent-renewable-energy-by-2030/>
 - This bill allows Utah municipalities that are serviced by Rocky Mountain Power to be supported to achieve a net-100% renewable energy portfolio by 2030.
 - Currently Committed Include: Park City, Salt Lake City, Moab, Summit County, Cottonwood Heights, Holladay, Salt Lake County, Oakley, Kearns, Kamas, Millcreek, Francis, Ogden, Grand County, Orem, West Jordan, Springdale, Alta, Coalville and West Valley City.
 - <https://www.utilitydive.com/news/a-red-state-template-for-100-renewables-utah-bill-unites-rocky-mountain-p/573692/>
 - This article emphasizes how an 80% Republican government managed to commit 30% of Utah's population to 100% renewable energy by 2030.
 - Considered radical since at the time 80% of electricity production came from fossil fuels.
 - Goes through story of the HB411 legislation
 - Seems as though it was mainly through community organizing and pressure on both the major public utility in the state (Rocky Mountain Power) and the state government
 - "Under those talks, RMP seemed to realize that supporting the cities' transition would allow it to take advantage of low-cost renewables to meet growing customer demand,"
 - Once the utility was on board with the idea, they were able to push the state legislature to act.
 - 2020: Over 24 communities have signed onto the Community Renewable Energy Act plan
<https://www.sltrib.com/news/politics/2020/01/13/least-utah-cities/>

- Gives update that people are still generally in support of the bill
- However, does mention that people can opt out of the service even if their community has signed on.
- 2020: Solar tussle over rates Rocky Mountain Power will pay customers for rooftop solar for the excess power they put back into the grid
<https://www.sltrib.com/news/environment/2020/03/06/utahs-largest-power/>
 - Utah's incentive program expired in 2018, and now the Utah Public Service Commission is deciding the rate Rocky Mountain Power(RMP) has to pay those who have excess rooftop solar.
 - Solar advocates want a higher rate than RMP is proposing to continue encouraging rooftop solar
 - This puts the Public Service Commission in the middle, since RMP wants to pay 1.5 cents per kilowatt-hour, while Vote Solar (a solar advocacy group) submitted a proposal of 22.6 cents per kilowatt-hour.
 - This is an ongoing issue, with a public hearing in October, and a decision by the Public Service Commission by the end of the year.
- 2019: Salt Lake City Climate Positive 2040 Plan
<https://www.slcc.gov/sustainability/climate-positive/>
 - Updated to move goal of net-100% clean energy to 2030 from 2032
 - Also goal of 50% renewable electricity for municipal operations by 2020
 - 80 X 2040: 80% Reduction in Community Greenhouse Gas Emissions by 2040, Compared to 2009 Baseline
- Cities committed to 100% clean energy
 - Alta, Bluffdale, Castle Valley, Coalville, Cottonwood Heights, Emigration Canyon, Francis, Holladay, Ivins, Kamas, Kearns, Millcreek, Moab, Oakley, Ogden, Orem, Park City, Salt Lake City, Springdale, West Jordan, West Valley City, Grand County, Salt Lake County, Summit County

Vermont

- Energy Profile (2019)
<https://www.eia.gov/state/?sid=VT>
 - Hydro: 51%
 - Biomass: 18%
 - Wind: 16%
 - Solar: 14%
- Renewable Portfolio Standard
https://publicservice.vermont.gov/renewable_energy#:~:text=Beginning%20in%202017%20the%20Vermont,2017%2C%202.2%25%20in%202020
 - 55% by 2017; 75% by 2032
 - Established as voluntary in 2005, turned standard in 2015
 - Beginning in 2017, added to say include 10% distributed generation target by 2032
- 2020: Vermont Legislature passed Global Warming Solutions Act over Governor Phil Scott's veto. Bill creates cause of action to sue state for failing to reach these targets
 Bill: <https://legislature.vermont.gov/bill/status/2020/H.688>

Article: <https://www.vpr.org/post/vermont-legislators-discuss-newest-climate-change-bill#stream/0>

- Bill creates 23-member Climate Council to develop plan
- Targets:
 - 26% below 2005 levels by 2025
 - 40% below 1990 levels by 2030
 - 80% below 1990 levels by 2050
- Cause of Action: “Any person may bring a cause of action if [Agency of Natural Resources] ANR fails to adopt or update rules as required, or if ANR does adopt rules but those rules are insufficient to achieve the required GHG emissions reductions”
 - According to one Representative Selene Colburn, this is meant to be a narrow legal remedy for Vermonters to be able to get court order to make Vermont get on track for the goals
- Bill passed House and Senate, and was vetoed by the Republican Governor Phil Scott
 - House narrowly voted to override the veto by 103: 47 with 101 needed
 - Senate voted to overturn with bigger margin, 22:8
- 2014: City of Burlington reached 100% renewable energy sources including hydro
<https://www.wired.com/story/what-would-it-take-to-run-a-city-on-100-percent-clean-energy/>
<https://www.politico.com/magazine/story/2016/11/burlington-what-works-green-energy-214463>
 - 2017: Vermont PUC Recent articles that look at Burlington, and how they could help inform decisions by other cities setting climate targets
- enacted tough noise standards for wind developments in accordance with a 2016 bill.
<https://www.greenbuildingadvisor.com/article/vermont-sets-new-noise-rules-for-wind-turbines>
 - Limits noise to: “42 decibels in the daytime and 39 decibels at night, measured 100 feet from residences nearest to the turbines.”
<https://www.greenbuildingadvisor.com/article/vermont-sets-new-noise-rules-for-wind-turbines>
 - Considered some of the strictest in the country
 - This may be emblematic of the resistance to wind in the state, with the Dairy Air project (only wind project which was in development in the state) halted
<https://www.windpowerengineering.com/proposed-vermont-wind-project-halts-development-citing-hostile-political-environment/>
 - “Project partner David Blittersdorf cited a current political environment that is hostile to wind energy as the leading cause for this step”
 - There have been no new wind projects in Vermont under Gov. Scott, and the three that were in progress have died
- 2020: Green Mountain Power pilots new program to allow customers to buy other customers distributed energy
<https://www.utilitydive.com/news/green-mountain-powers-pioneering-steps-in-transactive-energy-raise-big-que/571964/>

- “Pioneering” customer-to-customer transaction that allows customers to opt into more renewable energy by purchasing from the surplus energy produced by other customers in the grid
- Works through “Pando online marketplace, customers can select a fixed premium price of about \$0.03/kWh over their retail rate to purchase enough additional renewables to match 100% of their usage, he said.”
- Cities powered by 100% clean energy
 - Burlington

Virginia

- Energy Profile (2018)
 - <https://www.eia.gov/beta/states/states/va/overview>
 - Natural gas: 53%
 - Nuclear: 31%
 - Coal: 10%
 - Renewable: 7%
- Overview by Vox about Virginia’s clean energy initiatives, making Virginia out to be the leader of the South, and emphasizing that these changes all happened quickly after Virginia Democrats gained a majority in the House and Senate
 - <https://www.vox.com/energy-and-environment/2020/3/12/21172836/virginia-renewable-energy-100-percent-clean>
 - In 2017, the GOP majority legislature specifically forbid Virginia from joining RGGI, so these moves show how a change in leadership greatly affected the energy policy of the state.
 - <https://www.sierraclub.org/press-releases/2019/04/general-assembly-blocks-important-climate-legislation-for-va>
 - This change allowed Virginia to pass the Virginia Clean Economy Act and join RGGI
- April, 2020: Virginia legislature passed, and Governor Northam signed the Virginia Clean Economy Act (VCEA)
 - <https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1526>
 - Sets RPS for the state’s two largest investor-owned utilities (Dominion Energy and Appalachian Power Co.) under a series to step-stone interim targets
 - Dominion must get to 100% carbon-free electricity by 2045
 - Appalachian Power Co. must get to 100% carbon-free electricity by 2050
 - Requires utilities to incorporate the social cost of carbon when considering new fossil fuel investments
 - Shuts down all of Dominion’s biomass plants by 2028, almost all its coal plants by 2030, and the rest of the state’s fossil fuel power plants by 2045.
 - “The General Assembly passed a law that would give state regulators control over the timing and finances of coal plant closures, to ensure that they benefit ratepayers. Dominion fiercely opposed the bill; it was the first Dominion-opposed bill to get out of the Senate in years.”
 - Creates a Percentage of Income Payment Program: caps the amount they pay for electricity to a set percentage of their income.
 - Sets specific targets for energy storage capacity

- Dominion to secure 2,700 MW of energy storage by 2035
 - Appalachian Power Co. 400 MW by 2035
 - Raises net metering cap to 6% for rooftop solar
- July, 2020: Virginia joined RGGI
https://www.rggi.org/sites/default/files/Uploads/Press-Releases/2020_07_08_VA_Announcement_Release.pdf
 - The key to joining was SB 1027 Clean Energy and Community Flood Preparedness Act passed in April 2020 which established cap-and-trade program
<https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+SB1027>
 - The Bill directs the Department of Environmental Quality to participate in a cap-and-trade auction program to reduce carbon emissions from electric power generators.
 - VCEA also instructs state agencies to develop carbon cap-and-trade program
 - Virginia will officially join RGGI on January 1, 2021.
<https://www.deq.virginia.gov/Programs/Air/GreenhouseGases/CarbonTrading.aspx>
 - Revenues from the auctions will be directed toward the Virginia Community Flood Preparedness Fund and energy efficiency programs for low-income Virginians.
- 2019: Governor Northam issues Executive Order 43 committing to 100% carbon-free energy by 2050, and 30% renewable electricity production by 2030.
<https://www.governor.virginia.gov/media/governorvirginiagov/executive-actions/EO-43-Expanding-Access-to-Clean-Energy-and-Growing-the-Clean-Energy-Jobs-of-the-Future.pdf>
 - Emphasizes more reliance on solar, on and offshore wind, and energy efficiency
- Cities committed to 100% clean energy
 - Arlington, Blacksburg, Fredericksburg, Floyd County

Washington

- Energy Profile (2018)
<https://www.eia.gov/state/analysis.php?sid=WA>
 - Hydropower: 69%
 - Natural gas: 9%
 - Nuclear: 8%
 - Coal: 5%
 - Wind: 6%
- 2019: Washington enacts SB 5116 for Clean Energy Transformation Act (CETA)
 Bill: <https://app.leg.wa.gov/billsummary?BillNumber=5116&Initiative=false&Year=2019>
 Article: <https://www.vox.com/energy-and-environment/2019/4/18/18363292/washington-clean-energy-bill>
 - Sets Three major targets for utilities:
 - (1) 100% Carbon neutral by 2030
 - Eighty percent of their power must come from “non-emitting electric generation and electricity from renewable resources.”
 - This language leaves flexibility to rely on nuclear, and natural gas with carbon capture and storage

- (2) Must eliminate electrical production from coal by 2025
 - (3) 100% self-generated clean energy by 2045
 - Bill includes a rolling cost-cap: “costs directly attributable to the clean energy requirement — that is, the incremental costs of compliance — cannot exceed 2 percent of the previous year’s electricity revenue.”
 - Bill grants the state’s “Utilities And Transportation Commission (UTC) the authority to shift utilities from a return-on-capital model to a performance-based model.”
 - Adds new considerations to regulatory compact:
 - Social Cost of Carbon – Requires utilities adopt Obama’s EO 12866 \$68 per ton of carbon in their decision making process.
 - Public Interest and Equity – “equitable distribution of benefits, reduction of burdens to vulnerable communities (the bill also requires a Cumulative Impact Analysis to identify such communities), short-term and long-term public health and environmental benefits, and energy resilience and security.”
 - Energy Assistance – Requires utilities to make funds available for “energy assistance” to low income households. Includes bill reductions for weatherization, energy efficiency, and distributed energy resources
 - Establishes tax incentives for clean energy projects based on job-quality criteria
 - 50% tax exemption for projects that “make a good-faith effort at “procurement from and contracts with women, minority, or veteran-owned businesses; procurement from and contracts with entities that have a history of complying with federal and state wage and hour laws and regulations; apprenticeship utilization; and preferred entry for workers living in the area where the project is being constructed.””
 - 75% tax exemption for “projects that meet the above criteria and also “compensate workers at prevailing wage rates determined by local collective bargaining.””
 - 100% tax exemption for “projects “developed under a community workforce agreement or project labor agreement,” as certified by the Department of Labor and industries.”
 - These tax incentives were made with input from renewable energy developers, builders, and construction unions
 - Vice Article praises the bill, saying “It aligns the interests of utilities, energy developers, and unions behind the project of equitable decarbonization. They all benefit from it. That makes them allies in the fight, rather than at loggerheads, as they have so often been in the past.”
- 2020: Washington passed several clean energy bills
 - <https://www.cleanenergytransition.org/post/washington-2020-legislative-session-clean-energy-policies-wrap-up>
 - HB 2311 Climate Pollutants Limits: Bill updates Washington’s GHG emissions targets in line with most recent scientific recommendations
 - Requires start to reduce GHG emissions to 45% below 1990 levels by 2030, 70% below 1990 levels by 2040, and net zero, or 95% below 1990 levels by 2050.

- Also encourages carbon sequestration on public lands
 - HB 2405 Commercial Property Assessed Clean Energy and Resilience Program (C-PACER): encourages energy efficiency improvements and renewable energy by allowing commercial building owners to obtain low-cost, long-term financing for energy efficiency improvements and renewable energy installations.
 - Loan repaid through voluntary tax assessments (no public funds)
 - SB 5811 ZEV Mandate: Washington adopted California’s EV standard, and expanded the standard to stricter by including medium duty vehicles in the 2035 deadline.
- 2020: Avista Energy announces launching of a “micro-transactive grid”
 - <https://www.utilitydive.com/news/microgrid-of-the-future-emerges-in-washington-as-avista-preps-transactive-d/581644/>
 - Location in Spokane Washington
 - Aims to increase market participation for Distributed Energy Resources
 - Enables trading between business and buildings
 - “The two buildings each include a pair of battery storage systems: a 500 KW / 1,500 KWh battery and a 167 KW / 337 KWh battery. A rooftop solar array on the buildings provides 100 KW each. The buildings also utilize advanced energy management systems that can monitor and control 60 individual loads.”
- Cities committed to 100% clean energy
 - Edmonds, Spokane, Whatcom County

West Virginia

- Energy Profile (2019)
 - <https://www.eia.gov/state/?sid=WV>
 - Coal: 92%
 - Renewables (hydro +wind): 5.3%
 - Natural gas: 2.1%
- 2020: Passage of SB-583 creates utility solar program in the state
 - <https://www.wvpublic.org/news/2020-03-24/passage-of-utility-solar-bill-expands-renewables-in-w-va-for-some>
 - Bill allows the states two utilities (FirstEnergy and American Electric Power) to each install up to 200 megawatts of solar arrays in 50 megawatt increments.
 - Requires the state PSC to approve projects in 150 days
 - However, the bill was amended to try to avoid displacing coal
 - Bill doesn’t require utilities to do anything, so many advocates are not as excited
 - Many other more renewable friendly bills failed to pass.
 - Allows utilities an accelerated cost recovery, which is limited to \$1000 per month
 - <https://www.jdsupra.com/legalnews/the-dome-report-2020-west-virginia-38628/>
 - Became effective June 2020.
- 2020: Solar supporters fail to pass bill legalizing third party solar installations
 - <https://www.wvpublic.org/news/2020-01-09/solar-supporters-make-economic-case-for-legalizing-third-party-installation#stream/0>
 - West Virginia state law makes Power Purchase Agreements to allow third party solar installations illegal, which limits rooftop solar opportunities

- Proponents argue that it would allow at least 13 megawatts of more solar, and create 400 jobs.
- Failed to pass
- 2020: Solar supporters failed to pass the MOJO act, which would have incentivized solar on reclaimed coal mines
<https://www.wvpublic.org/news/2020-03-24/passage-of-utility-solar-bill-expands-renewables-in-w-va-for-some>
 - Never made it out of committee
- Since repealing their RPS in 2015, no new RPS has been put in place.
<https://www.nrel.gov/solar/rps/wv.html#:~:text=West%20Virginia%20repealed%20its%20Renewable,customers%20up%20to%202%20MW.>
- 2020: Senator Joe Manchin has been urging FERC to keep Longview Power’s coal plant online despite bankruptcy declared in April 2020
<https://www.utilitydive.com/news/manchin-presses-ferc-to-keep-west-virginia-coal-online-as-advocates-questi/580403/>
 - Plant was heading to bankruptcy before the COVID pandemic, though Manchin is trying to spin it as COVID-related
 - In reality, the plant admits that pressure/prices of natural gas and the mild winter set them towards bankruptcy before COVID, though the pandemic didn’t help.

Wisconsin

- Energy Profile (2018)
<https://www.eia.gov/beta/states/states/wi/overview>
 - Coal: 54.2%
 - Natural gas: 20.9%
 - Nuclear: 16.8%
 - Renewable: 7.8%
 - Petroleum: 0.3%
- 2019: Governor Evers (Democrat) signed Executive Order committing Wisconsin to 100% carbon free energy consumption within the state by 2050.
https://content.govdelivery.com/attachments/WIGOV/2019/08/16/file_attachments/1268023/EO%20038%20Clean%20Energy.pdf
 - To do this, created the Office of Sustainability and Clean Energy
 - One of the enumerated goals is to comply with the Paris Agreement
- This is big step, Wisconsin’s current RPS sets a statewide goal of 10% renewable electricity by 2015, and has not been updated.
<https://psc.wi.gov/Pages/Programs/RpsCompliance.aspx>
 - In 2018, including voluntary renewable programs, the state had 10.77% of retail electricity coming from renewable sources.
 - 2018 Compliance Report on webpage
- There doesn’t seem like a concrete state level plan currently in place, but utilities seem to be on board.
<https://www.cleanwisconsin.org/our-work/energy/carbon-free-by-2050/>
 - WEC, Wisconsin’s largest energy utility, has committed to net carbon neutrality by 2050, and 70% below 2005 levels by 2030.
 - <https://www.wecenergygroup.com/home/generation-reshaping-plan.htm>

- Plan to invest more into renewables, while phasing out coal.
- Cities committed to 100% clean energy
 - Eau Claire, La Crosse, Madison, Middleton, Monona

Wyoming

- 2018 Energy Profile
 - <https://www.eia.gov/state/analysis.php?sid=WY>
 - Coal: 86%
 - Wind: 9%
 - This is seen as rapid increase from 10 years ago
 - 3/5 of electricity generated exported out of the state
 - “Reverse RPS”: State legislature still seems hostile to renewable energy
 - https://trib.com/business/energy/bill-to-penalize-utilities-for-renewable-energy-returns-to-wyoming-legislature-quickly-fails/article_aafdd7cd-5012-5b8d-bf94-28341cea657f.html
 - “lawmakers proposed a bill this week that would have penalized utility companies for using renewable energy sources to supply electricity to ratepayers.”
 - This would have created a penalty for using source off of approved list, which included coal, oil, and natural gas but excluded utility-scale solar and wind.
 - “The House Appropriations Committee also introduced a bill to impose a \$1-per-megawatt-hour excise tax on electricity produced from solar energy sources this week.”
 - Seems as though Coal lobbies + community reliance on coal for jobs has made the legislature unwilling to move away from coal production
 - This type of bill has been introduced before:
 - <https://www.greentechmedia.com/articles/read/wyoming-bill-creates-reverse-rps>
 - This has led to the state’s largest utility provider, PacifiCorp, to respond to consumer pressure and set renewable goals. (Also serves Utah, Oregon, Washington, Idaho & CA)
 - PacifiCorp Integrated Resource Plan:
 - https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/PacifiCorp_Story10_02_2019.pdf
 - Committed to reducing GHG emissions by 60% of 2005 levels by 2030
 - “From 2018 to 2020, we will have increased the percentage of zero-carbon energy resources in our portfolio by 70%.”
 - Working with specific big consumers to meet clean energy goals
 - Facebook operations in Oregon to achieve 100% renewable for the company.
 - Mainly through expansion of solar
 - IPS includes voluntarily shutting down 20 out of their 24 coal plants by 2038.
 - <https://www.utilitydive.com/news/wyoming-scrutinizes-pacificorp-coal-retirement-plans-in-unheard-of-irp-in/581541/>

- These coal plants are limited to Wyoming, but the Wyoming Public Service Commission opened investigation into the plan citing public interest concerns
- Criticize plan because it follows other state's RPS, and therefore forces other state laws on Wyoming

Additional Resources

Graphic representation of change of electricity source over time:

- <https://www.nytimes.com/interactive/2020/10/28/climate/how-electricity-generation-changed-in-your-state-election.html?action=click&module=Top%20Stories&pgtype=Homepage>
- Great resource to see beyond the current electricity source

Map showing states that have RPS, and basic info by state

- <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>

Map showing states and cities with climate targets for 100% clean energy (current up to April 2020)

- <https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/>
 - Note this misses states that have made climate goals that fall below 100% clean energy