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When the Fog of Enactment Lifts

Utilities Drive Rapid Retrenchment of Ohio's Renewable Energy Laws

In some cases, opponents can stymie policy with the potential for feedback before it has had an opportunity to grow advocates. Ohio's clean energy laws represent a case where opponents drove policy retrenchment so rapidly that feedback never strengthened advocates. As one of the last states to enact a clean energy target, Ohio's legislature was slow to act. While advocates had pushed for a renewable portfolio standard (RPS) for several years, it was only when a new Democratic governor took office in 2007 that they found success. Advocates packaged a clean energy goal as part of a large electricity restructuring law—as also occurred in Texas and many other states. This law should have driven growth in clean energy companies. But unlike Texas, there was concerted resistance to the policy from the beginning.

By the time Ohio acted, opponents had seen these laws' consequences in other states. They had learned that it was in their interest to resist clean energy targets more forcefully—and sooner. Consequently, there was much less uncertainty among opponents that an RPS would harm their bottom line. During the enactment process, utilities and large energy consumers worked to strip the policy of its teeth, removing binding targets and timetables. In this form, the bill passed the Senate. Without interim targets, advocates opposed the bill, and it seemed poised to fail. However, the Republican House Speaker took up the issue. In a broad negotiation, he reinserted a timetable for binding renewable energy targets and added a cost cap to the policy. In addition to passing an RPS, Ohio's law created significant targets for energy efficiency as well as nuclear and clean coal technologies. The fact that the clean energy target included coal showed the clout the opponents maintained—very few states counted fossil fuels in their RPS goals. Still, in 2008, Ohio looked like it was ready to begin the transition away from coal.

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However, when the clean energy targets were implemented, opponents continued to resist. At the Public Utility Commission of Ohio (PUCO), they argued that the cost cap should be interpreted in a way that would require no new renewable energy to be built.[1] The opponents were weaponizing ambiguity, arguing that legislators intended a much stricter cost limitation for the policy. This tactic was similar to the strategy used in Texas to resist solar energy targets' implementation (Chapter 5). However, because Ohio held broader negotiations over the bill—including advocates and executive branch staff in the process—there was much less uncertainty about legislative intent. Thus, this tactic to resist implementation failed. Instead, the policy went into effect with binding targets, and renewable energy began to grow in the state.

However, opponents—including utilities and industrial energy users—continued attacking the law. By 2010, a mere two years after Ohio passed its first goal, renewable energy rollbacks were on the national agenda. Conservative anti-environment groups leading the effort included the American Legislative Exchange Council (ALEC) and the Energy & Environment Legal Institute.[2] These groups, which act through networks that cross state borders, decided to target Ohio. They issued anti-renewables reports and tried to pass a model bill that would repeal the RPS.

By 2011, retrenchment was firmly on the agenda in Ohio's legislature. Both the House and Senate were Republican-controlled, and John Kasich (R) had begun his first term as governor. While the first two repeal efforts failed, in 2014 the Republican leadership decided the rollback was a priority. The opponents had succeeded in polarizing the issue along partisan lines.[3] The repeal bill (SB 310) proposed freezing the targets, which would render the policy useless.

Both advocates and opponents tried to strategically shape and communicate public opinion to the legislature. But, in this case, the opponents were more effective. Without sufficient time for the first bill to catalyze new actors, the advocates remained politically much weaker than the incumbent opponents. While advocates tried to oppose the bill through a public campaign, they were outmatched. The opponents, by contrast, brought in out-of-state groups to make hundreds of thousands of phone calls right before a crucial vote and to field biased public opinion polls. In addition to the direct policy retrenchment, opponents succeeded in passing another, under the radar change that dramatically undermined wind energy in Ohio. In a budget bill rider, the legislature increased the necessary distance between wind energy projects and property lines. This low-profile change all but halted the wind industry in the state.

When the policy went back into effect, after the two year freeze was over, the opponents continued attacking the law. They passed another bill in 2016 that would have extended the freeze for two more years, but the Governor vetoed it. Meanwhile, the utilities began to seek bailouts for their struggling coal and

nuclear plants. While the PUCO approved this funding, its decisions were overturned through the courts and the Federal Energy Regulatory Commission (FERC). But this did not dissuade the opponents. The utilities invested millions in the 2018 elections to get the bailouts and the clean energy repeal through the legislature.

In 2019, Ohio passed a bill (HB 6) that bailed out several coal and nuclear plants while gutting the state's RPS and efficiency policies. Ohio's clean energy and energy efficiency laws had saved the state billions, and helped to clean up the state's dirty air (Dimanchev et al. 2019). But these benefits were cast aside in favor of the utilities' financial interests. While the advocates attempted to overturn the bill through a referendum, the opponents mounted a significant and potentially illegal counter campaign. Ultimately, the advocates were unsuccessful in keeping Ohio's clean energy laws in place. Consequently, Ohio's grid has barely begun the transition away from fossil fuels—in 2018, the state was forty-eighth in the nation for renewable energy, with only 2% of its grid from renewables.

The Ohio case shows that opponent interest groups, working through conservative and business networks across the states, can stymie feedback before it has a chance to take hold. Given that interest groups learn from other states, they are more certain about policy consequences in late-acting states. In cases where policies undermine their interests, opponents will attack quickly. Apart from directly lobbying and building influence with legislators, opponents can also drive polarization. In Ohio, fossil fuel–dependent utilities and industries worked over several years to erode Republican support for clean energy. These long-standing industries maintained a large lobbying staff and much greater influence than the newly formed and poorly resourced advocates. In these ways, interest group opponents can block progress on clean energy.

Ohio's Coal-dominated Energy History

While Ohio may not be the first state that comes to mind for fossil fuel dependence, it has a long history with coal. Until the early 1970s, coal dominated Ohio's electricity system because of the state's large reserves.[4] Today, it relies heavily on imports from West Virginia, consuming twice as much coal as it produces.[5] The four large private utilities in the state are all wedded to coal: American Electric Power (AEP) Ohio, Duke Energy, FirstEnergy (later FirstEnergy Solutions and Energy Harbor), and Dayton Power & Light Company (DP&L). Unsurprisingly, these fossil fuel–dependent utilities are hostile to renewable energy technologies. Abundant and cheap fossil fuels also helped grow heavy

industry and manufacturing in Ohio.[6] As is the case in Texas (Chapter 5), these companies that consume large amounts of energy have similarly proven important clean energy opponents.[7] Although Ohio has begun to move away from fossil fuels, it is a slow transition with significant resistance from the utilities and large energy consumers. Even in 2015, 8 of the 10 largest power plants in Ohio were coal.[8]

This significant reliance on coal has led to environmental and health problems in the state. In the early 1970s, efforts to reduce air pollution focused on switching from coal to natural gas in the electricity sector. However, during the energy crisis natural gas prices rose and little fuel switching occurred (Hirsh 1999a). Given the state's ongoing reliance on coal, federal environmental policies have been particularly challenging for Ohio. Since 1990, when the federal Clean Air Act Amendments passed, urban areas in the state have struggled to meet national air quality standards.[9] Over the years, Environmental Protection Agency (EPA) rules and regulations have forced many coal-fired power plants in Ohio to retire. As a result of federal regulations, by 2014, Ohio had the most coal plant retirements planned or finished of any state—14% of the total US retirements.[10] Proposed changes to regulations on ozone and carbon under the Obama administration would have resulted in even more closures. Environmental policy had finally started to catch up with Ohio's polluting industries. By 2014, utilities in the state were hostile to government interventions that could further undermine their facilities' profitability.

In addition to a heavy reliance on coal, the state has two nuclear plants. Both of these plants were expensive to construct, with significant cost overruns. Built in the 1970s and 1980s, the Perry Nuclear Generating Station is one of the most expensive nuclear power plants ever built—costing $6 billion.[11] The other nuclear project, the Davis-Besse plant, suffered significant incidents and near accidents. By the 2000s, Ohio had begun investing in natural gas.[12] With the growth in hydraulic fracturing after 2011, natural gas usage grew dramatically.[13] The state's resources include the Marcellus Shale, which stretches from New York through Ohio and West Virginia, and the recently discovered Utica Shale (Gold 2014). Located in eastern Ohio, Utica was hailed as one of the "biggest discoveries in US history" in 2011, with an estimated worth between $15 and $20 billion (Gold 2014). In 2008, natural gas provided only around 2% of the state's supply; but by 2013, it jumped to 15%, and by 2018, it was up to 34%.[14] As fracking continues to expand, natural gas will likely contribute a growing share of the state's energy mix. This is a problematic trend: while natural gas is cleaner than coal, it still exacerbates climate change. Hence, Ohio has simply switched from one fossil fuel to another, rather than beginning the transition to clean energy.

Ohio Narrowly Enacts a Clean Energy Law

Compared to many other states, even those with a similar reliance on fossil fuels, Ohio was a late actor on clean energy policy. With a significant manufacturing sector, there were already renewable energy companies operating in the state before any clean energy law passed. These companies, like Toledo-based First Solar, were supplying technology to earlier-acting states. In 2005, a loose coalition called "Ohio Advanced Energy" began pushing for a renewable energy target. The group included First Solar as well as wind companies from Ohio's northeast and the Cleveland Foundation. Soon, out-of-state interest group networks, that had grown from earlier policies passed elsewhere, joined the growing coalition—including the American Wind Energy Association (AWEA) and the Solar Energy Industries Association (SEIA).[15] However, Republican governor Bob Taft was in office. Despite the significant renewable energy jobs that already existed in Ohio, he did not have any interest in advancing renewable energy policy. During his tenure, the coalition made little progress in getting the issue onto the agenda. The House and Senate were also Republican-controlled and disinterested. This is somewhat surprising since many Republicans were champions of clean energy at that time. But in Ohio, coal was the fuel of choice, and this long-standing industry retained strong relationships with policymakers.

When then Democratic congressional representative Ted Strickland ran for governor in 2006, the advocates saw an opportunity. Strickland had worked on energy issues while serving on the House Energy and Commerce Committee in Congress. The coalition approached his campaign, and he was receptive to the idea of an RPS. Far from an empty campaign promise, once elected, Governor Strickland appointed Mark Shanahan to lead his energy portfolio in 2007. Shanahan was a bureaucrat with a history of working on environmental policy. He had served as director of the Ohio Air Quality Development Authority since 1989. He was also a vocal critic of Ohio's coal-centric utility sector. In his new role in the administration, Shanahan began work on passing an RPS.

The administration's efforts were bolstered by ongoing conflict over how to deregulate the electricity sector. Ohio had struggled to transition to a competitive electricity market. In 2008, the law required new legislation on the issue, before utilities' plans expired at the PUCO. This pressure on the legislature to enact landmark energy legislation provided an opportunity for the governor to articulate a new vision for Ohio's coal-dominated electricity system. On August 29, 2007, Governor Strickland gave a speech at the Toledo Chamber of Commerce where he outlined his "Energy, Jobs, and Progress" plan. He was interested in promoting clean energy but in a cost-effective way and with a broader definition than just "renewables." Concerned that wind and solar could raise rates, given

the experience of early-acting states, the governor made it clear that he did not want this outcome because it would harm the state's manufacturing sector. He also argued that new job creation in Ohio could come from supporting renewable and "advanced" energy sources. The latter included clean coal, advanced nuclear, and co-generation. In this way, the governor showed some deference to the incumbent coal industry and the utilities. The speech also emphasized the need for reinvestment in Ohio's electricity infrastructure, an energy efficiency target, and net metering. Given the staid nature of Ohio's electricity sector over the prior 100 years, his ambition to radically alter the system cannot be overstated. Governor Strickland even called on Ohio to address global warming through emissions reporting and to work on carbon sequestration and clean coal. He was clearly signaling to the coal-wedded utilities that change was coming.

The legislature responded to this broad agenda by introducing a bill in late 2007 (SB 221). At the time, both the House and Senate were Republican-controlled. Senator Bob Schuler, a Republican from Cincinnati, sponsored the bill. He was a long-serving politician and a former chair of the Senate's Energy & Public Utilities Committee. He had received his largest corporate campaign contributions from FirstEnergy, Ohio's third-largest utility, in the last election.[16] Thus, it was perhaps unexpected that he would champion renewables and energy efficiency. But this would be his last term in office, meaning the repeated game of donor and candidate was over for Senator Schuler (Powell 2012). The fact that he would not have to seek campaign contributions again likely reduced the utilities' influence with the senior senator.

While the bill focused on restructuring, it also addressed the governor's priorities. It contained a clean energy goal, reforms to net metering, and a unique energy efficiency goal. The energy efficiency resource standard (EERS) was modeled after an RPS. Each year, it required a percentage increase in efficiency. Private utilities would have to comply by modestly increasing their energy savings by 0.3% in the first year and 2% in the final year. The clean energy portion of the bill was called the "alternative energy portfolio standard," with a target of 25% by 2025. It was modeled off of Pennsylvania's RPS—a policy that included a fossil fuel as a "renewable" resource. As a member of the coalition pushing renewable energy policies at that time put it,

> When we looked at other states we profiled more like Pennsylvania. We're not Colorado, we're not Vermont. There was a prevailing sense that clean coal was going to be an important part of the energy mix and fracking hadn't hit yet. And people said nuclear is emissions free and we have a couple nuke plants and maybe we want to continue to do that. So the governor's office said we want a two-tiered system.[17]

Thus, the policy split the clean energy target in two: half would come from renewable energy resources and the other half from advanced energy resources, including clean coal and nuclear. Initially, the legislation directed the PUCO to determine the specific interim targets. As often occurs when administrative discretion is granted, this strategy was likely chosen to provide the legislature with political cover (Huber & Shipan 2002). It would also allow administrators, who understood the policy in greater detail, to design the specifics.

However, opponent utilities were wise to take note of the risk in this approach. They knew that granting discretion to the bureaucrats could open them up to stronger targets if they had less influence at the PUCO compared to the legislature. The opponents pushed to rewrite the bill to eliminate the bureaucratic discretion. In response, the Senate removed the bill's language directing the PUCO to create interim targets and only left the final RPS target of 25% by 2025. This change increased the ambiguity of the bill's consequences considerably. Here we see opponents strategically trying to create a fog during enactment, giving them leverage to try to undermine the law's implementation.

From the advocates' perspective, the lack of interim targets would render the bill voluntary, allowing the utilities to delay procuring renewables. The opponents could later lobby the legislature to change the bill, claiming the targets were impossible to meet. In such a future negotiation, there would be fewer critical issues like restructuring on the table to provide leverage for advocates. And the policy's lack of effectiveness would mean that policy feedback had not begun to nurture new advocates.

The governor and his staff asked the advocates to continue supporting the bill, despite the loss of interim targets; but the coalition refused. According to one renewables lobbyist, "Eliminating the language all together was a problem because it basically made it voluntary. Strickland and Shanahan encouraged us to support that bill and we didn't. So we had a tension where we said you guys, we recognize politically you're doing the best [you can] but we're not going to endorse."[18] Regardless of the lack of support from the clean energy advocates, the bill passed the Senate unanimously, 32 to 0, on October 31, 2007.

At this point, the advocates believed the proposed RPS would do very little for Ohio. In response, Republican representative Jim McGregor introduced a new stand-alone RPS bill in February 2008 (HB 487). McGregor had an avid interest in the environment, having worked for a decade at the Ohio Department of Natural Resources before serving as a mayor for nearly two decades. He was also very concerned about energy independence. Given his record, he was assigned the chair of a new and ultimately short-lived committee, the Committee on Alternative Energy. But, Representative McGregor's bill was assigned to a different and less sympathetic committee—the House Public Utilities' Committee—where it made little progress. The RPS seemed doomed to failure,

with the advocates struggling to influence the legislature to pass a binding, ambitious target.

Early in 2008, however, Republican House Speaker Jon A. Husted decided to strengthen SB 221's renewable energy provisions. With Husted's leadership, the House put the interim benchmarks back into the bill. It also added a solar carve-out of 0.5% by 2025, with interim targets. Finally, to boost job creation in Ohio, the bill included a requirement that at least half of the renewable energy target be met with in-state resources. All of these provisions strengthened the bill's ambition and its likely impact. As the Texas case showed (Chapter 5), without a solar-specific target, the bill would not drive any new solar investment. Including the in-state requirement would help ensure that Ohio gained some of the benefits from job creation. These provisions would also help with policy feedback: creating new jobs in the state could strengthen the clean energy advocates, helping to guard against future retrenchment attempts. With these changes, advocates changed their position and supported the bill.[19]

Likely, Speaker Husted had several motivations for strengthening the bill's renewable energy provisions. Some actors involved in the negotiations believe that Husted was interested in running for higher, statewide office. Husted would go on to run for and win a position in the state Senate and later become secretary of state—a position he won narrowly.[20] In 2019, he became the lieutenant governor. As House Speaker, he was looking to prepare a résumé to bolster his chances in these races. Given that Ohio is a swing state, appearing bipartisan would help his case. He may have been interested in being able to claim he was a "job creator." As one advocate said,

> I think [Husted] was intrigued by the possibilities this new industry could bring. And he accepted that renewable energy costs were a little more, but falling. And I think he liked the politics. There was this chess match and he triangulated and got to [Democratic governor] Strickland's left on renewables and so he had us as an industry saying, "This is awesome." And all the environmental groups thought "We love Husted."[21]

Of course, Husted would face opposition from the utilities if he tried to strengthen the bill's renewable energy targets. But in the complex negotiation with the utilities over restructuring, these groups were more focused on other provisions. As was the case with other major electricity reforms, such as Texas's 1999 restructuring law (SB 7), the utilities and large industrial consumers were more focused on other parts of the package. This provided an opportunity to get renewable energy onto the agenda in exchange for making other concessions to electric utilities. Some argue that Husted used the RPS as a tool

in the negotiations over the restructuring bill, particularly given FirstEnergy's interests. As one political staffer involved in the negotiations put it,

> My own perspective is that Husted very craftily used his support for renewables and the RPS benchmarks as a negotiating tool to win things the utilities wanted on the rate structure side. For example, how much power the PUCO would have to review the utilities' plans and whether they would have the option to go with either market rates or standard purchase offers. And the reality of that became that all of the green energy folks went along with the RPS agreement. I don't think they ever understood that we were giving up things to FirstEnergy to protect renewables.[22]

Here we see one way the fog of enactment can operate. While advocates and opponents negotiated with politicians on the bill, it was not always clear what provisions were implicitly being exchanged during bargaining. In this case, the quote suggests that the actors with greater political influence—the utilities—had a fuller sense of the negotiation than those with less influence—the renewable energy advocates.

Not all the changes made to the bill in the House improved the clean energy policy's likely efficacy. Although the advocates succeeded in reinstating the interim targets, the House Public Utilities Committee also amended the bill to include a cost cap. A cost cap allows companies to not comply with targets if the policy costs greater than a given amount. If the provision kicks in, it halts the policy's implementation. Cost caps are one way that opponents have tried to weaken a policy, creating a mechanism that can be used during implementation to undermine a law.

Opponents put cost caps on the agenda through their influence with the legislature. Specifically, the private utility FirstEnergy, and an industry association, the Industrial Energy Users of Ohio (IEU-Ohio), pushed for this provision.[23] FirstEnergy Corporation, through its various subsidiaries served around a fifth of Ohio's electricity at the time, primarily through coal and nuclear energy. After bankruptcy, parts of the company would change its name to FirstEnergy Solutions and Energy Habor. The IEU-Ohio was established in 2003 as a network of large industrial companies that spends $3 billion on electricity and natural gas annually.[24] Its members include fossil fuel and other petrochemical companies, with some overlap with the Texas Industrial Energy Consumers, discussed in Chapter 5. The largest members include Air Liquide, Airgas, Marathon Petroleum, and TimkenSteel. The association is influential in part because of these companies' strong roles in the state's economy—collectively, the members employed more than 250,000 people, around 4% of the state's

workforce in 2018. IEU-Ohio's then lobbyist, Sam Randazzo, maintained close ties with many Republican legislators working on energy issues. The association would go on to vocally oppose Ohio's energy efficiency standards and argue that they were poorly implemented government mandates. FirstEnergy and IEU-Ohio would prove particularly adept opponents of renewable energy and energy efficiency.

In addition to the cost cap, FirstEnergy was able to convince Ohio legislators that interim targets would be inappropriate for the advanced energy target—the goal for nuclear and clean coal. They argued that it was not possible to incrementally grow the energy supply from nuclear or a carbon capture and sequestration (CCS) plant because these projects were too large, with longer planning horizons. Nuclear could take a decade to permit and build. And clean coal technology did not yet work commercially. The opponents used these facts to successfully argue that advanced resources should only be required by the final policy deadline in 2024. They claimed a long-term target would allow the utilities the time necessary to plan. But it could also create compliance problems if utilities delayed. This change greatly increased ambiguity in the law: with a policy set so far in the future, it was unlikely to bind utilities' short-term behavior. This made the policy's likely consequences much harder to predict. Eventually, this long time horizon would help opponents retrench the clean energy target.

With the compromise reached between the interest group advocates and opponents, the bill made progress. Underscoring the environmental nature of the reform, the bill passed the Ohio House unanimously on Earth Day—April 22, 2008. Clearly, Republican Speaker Husted was aiming to make an environmental statement. In its modified form, when the bill went to a floor vote the next day in the Senate, it passed unanimously. Ohio had successfully adopted a landmark clean energy goal. What this law meant, however, was not yet clear.

Implementing Ohio's Energy Targets

Once enacted, the law went to the PUCO for implementation. As commonly occurs, ambiguity gave the regulatory agency significant latitude in how to interpret the law. Interest groups would get another opportunity to battle over clean energy policy. Both the advocates and opponents intervened extensively at PUCO on the renewable energy target. Significant conflict occurred over the cost cap—the provision added in the House in response to pressure from electric utilities and large energy consumers. The language in the law stated that utilities need not comply if the "reasonably expected cost of that compliance exceeds its reasonably expected cost of otherwise producing or acquiring the

requisite electricity by three per cent or more." It was not clear how this provision would be interpreted during implementation.

Opponents wanted the law interpreted in a way that would undermine clean energy. The utilities and large energy consumers argued that if renewables cost 3% more than conventional sources, utilities need not comply. This interpretation would mean that *zero* renewable energy projects would be built for the forseeable future—the technologies were still declining in cost and just starting to become competitive with polluting fossil fuels that did not have to pay for their externalities. In effect, the opponents were arguing that it was the legal intent of the legislators to create a *voluntary* policy. Given voluntary clean energy goals' effectiveness in other states, this would have resulted in no progress on renewables. A very similar argument was used by the same kind of opponents in Texas to block their solar law's implementation.

However, advocates, including the renewable energy coalition and the governor's staff, argued that the clause meant that renewables procurement could not raise the *total* cost of the utilities' electricity supply by more than 3%. They argued that the lawmakers' intent was to spur new investments into renewables.[25] Eventually, the PUCO decided in the advocates' favor—they agreed that the legislature had intended to create a binding clean energy goal. It likely helped that a PUCO staff member was present at the final bill negotiations. According to the staffer involved in interpreting the language at the commission, "Ohio doesn't have a cap on a technology basis or utility or system wide basis. . . . That is in the original statute. [We looked at] primarily the intended language. And that was used in other states as well."[26] That staffer's direct involvement in the bill negotiations undermined the opponents' ability to create uncertainty about the enactment process and thereby weaken the policy during implementation. Additionally, the state residential utility consumer advocate, the Ohio Consumers' Counsel, backed up the advocates. According to someone who worked there at that time, "When I was [at the Ohio Consumers' Counsel], we were a strong advocate for our clients and we fought hard for them and part of what we brought was 221 and we advocated that very strongly and the utility companies did not like that."[27] By contrast, in Texas, no advocates or regulators were involved when the final bill with the solar carve-out was negotiated.

The advocates won this implementation fight. The law now had the potential to create positive policy feedback. New industries and projects could develop in Ohio, as had occurred with other states after they implemented their clean energy targets. These industries would bring in revenues for rural, conservative districts. And Republicans might find themselves supporting renewable energy policy expansion in Ohio—just as Texas Republicans did in 2005, when they invested heavily in wind energy infrastructure and doubled down on their clean energy target.

In Ohio, the first attempt to expand the state's goal came in 2010 when a bill was proposed to create property tax exemptions for advanced and renewable energy projects (SB 232).[28] Legislators hoped these tax benefits would help spur new energy projects. The law passed. With these supportive policies in place, new renewable energy capacity started to develop in Ohio. In 2010, the utilities met their first target of 0.5% of the electricity mix from renewable energy sources. The state had doubled its renewable energy installed capacity in a mere 2 years.[29] Policy feedback was starting to take hold.

However, other indicators suggested that there was growing resistance to the state's clean energy laws. While the utilities made the overall renewable energy target in 2010, they missed the solar energy requirements by 10%.[30] Solar, while more popular, remained very expensive—particularly in this northern state. In addition, some members of the public began to push back against wind energy. Wind is the most viable renewable energy resource in Ohio (Jacobson et al. 2014). However, wind was not built as fast as in Ohio as in comparable states, like Kansas, because of local resistance from homeowners and citizens. To give a sense of scale, in 2014 there were 11 anti-wind groups in Ohio compared to 5 in Kansas.[31] These anti-wind activists began to work closely with legislators, most notably Senate Republican William "Bill" Seitz, to try to make wind energy even harder to build.[32] For example, Tom Stacy and his group Save Western Ohio have been influential with politicians. His organization has also received funding from fossil fuel organizations.[33] As a consultant with the fossil fuel–funded think tank the Institute for Energy Research, Stacy drafted a number of studies on the cost of wind that have since been challenged yet were lauded by Seitz.[34] By allying with fossil fuel interests, these anti-wind groups were strengthening their resources and ties to Ohio politicians.

Meanwhile, the utilities delayed planning for their long-term, advanced energy targets. This other half of the state's energy goals required nuclear and coal with CCS to supply 12.5% of the grid by 2024. Unsurprisingly, given national trends, it was difficult for the state to develop either technology. Since 2008, no new coal plants were being built anywhere in the United States—let alone expensive CCS plants. Cheap natural gas had made coal uneconomic. By 2009, one of Ohio's main utilities, AEP Ohio, had started a CCS experiment at a West Virginian plant on the Ohio border.[35] But the results showed how difficult and expensive the technology would be, and the utility halted the project unexpectedly in July 2011. Nuclear power also remained very difficult to site, permit, and build across the United States. Building nuclear would likely be even more difficult in Ohio, given the state's history with the technology being both expensive and accident-prone (Ghosh & Apostolakis 2005).[36] Overall, the advanced energy targets were proving difficult.

The law's energy efficiency requirements also hit implementation snags, bolstering policy opponents' arguments. Not only did the utilities loathe the PUCO telling them what to do but large industrial consumers who were less familiar with such government oversight resented their mandated efficiency targets. To comply, industrial consumers had to either pay the utility or fund efficiency projects themselves. These opponents believed these requirements should be eliminated for a number of reasons: they were unnecessary or impossible; projects were not ideal for their business needs; and, paying the utility would help their competitors. Their frustration increased once the *easy* energy efficiency savings were exhausted. Adding to their complaints, the policy was implemented in a complex way that struck the opponents as unfair. Rather than counting how much energy was saved—kilowatt hours (kWh) reduced—the PUCO created benchmarks, and only reductions *below* these levels would count. As one representative for the industrial energy users put it,

> The[re were] lunatic decisions that were made on how to count things on energy efficiency. Instead of counting the actual amount of kWh reduction they created a hypothetical benchmark and then [reductions] counted below that. This convention is nowhere in the law, and in fact, it violates the law. And the effect was to elevate the compliance obligation.[37]

Here, we see clearly an opponent arguing that there was a difference in how the law was written and how it was later interpreted. As a result of this implementation decision, electric utilities found it difficult to comply with and profit off of the energy efficiency standards. Consequently, they wanted to eliminate the targets altogether. By contrast, smaller industrial and manufacturing companies, affiliated through the Ohio Manufacturers' Association (OMA), supported the policies because it provided funds to reduce their costs from upgrading to efficient technology.[38] These companies had less capital to invest without government support. Thus, the way the law was implemented created some advocates—those benefiting financially from the program—but also strong opponents. By the end of 2010, resistance to all three clean energy targets was growing.

Networked Opponents Target Ohio's Clean Energy Laws for Retrenchment

Ohio's renewable energy, energy efficiency, and advanced energy targets were all facing significant implementation resistance. These policies threatened the coal industry and found opposition from industrial energy users. The backlash also

occurred more swiftly because Ohio was a later actor in clean energy. By 2010, opponents had learned from clean energy laws implemented in other states. Across the country, electric utilities, large industrial corporations, and other fossil fuel companies began to strategize on how to resist these policies. Through ALEC, model bills were developed to repeal RPS policies in 2011, with the first bill circulated in 2012.

When these groups began targeting Ohio, they drew on ideas from ALEC and other right-wing networks. In 2011, the American Tradition Institute—now called the Energy & Environment Legal Institute (E&E Legal)—commissioned an anti-RPS report. E&E Legal is an anti-environment organization best known for harassing climate scientists. It received funding from fossil fuel corporations, including prominent coal companies like Peabody Energy and Arch Coal. This organization works across state lines, issuing reports attacking clean energy targets, and was involved in the legal challenge to Colorado's RPS law. In the Ohio case, the Beacon Hill Institute—a right-wing think tank—wrote the E&E Legal–funded report.[39] The report argued that the state's clean energy targets would cost ratepayers several billion dollars and result in job losses.[40] Of course, this report did not consider the health or climate costs of continuing to burn poisonous coal energy (Dimanchev et al. 2019). Instead, it considered the costs of climate action. Importantly, ALEC sent this report to all of the members of the Ohio legislature in April 2011, seeding the idea of repealing the law. There is some indication it worked. Reports that overstate the costs of renewable energy have led to significant misunderstanding among politicians. For example, in one interview in late 2014, an Ohio politician stated that wind energy would cost 22 ¢/kWh in the state.[41] In fact, Ohio wind projects were built around 4.3 ¢/kWh in 2013 (Wiser & Bolinger 2014)—five times cheaper than this politician estimated. These opponents were working through their networks to try to directly influence legislators with ideas—and their message was getting through.

Just 5 months later, in late 2011, efforts began in the Ohio legislature to retrench the state's clean energy targets. It was an attempt to stop the state from transitioning away from fossil fuels, which supplied 89% of the electricity sector that year.[42] Senator Kris Jordan, a relatively junior member from central Ohio, introduced the first repeal bill (SB 216). In 2010, Senator Jordan was listed as a member of ALEC's Energy, Environment and Agriculture Task Force. Unsurprisingly, the bill closely resembled ALEC's model legislation, "The Electricity Freedom Act."[43] This is in line with what Alexander Hertel-Fernandez (2014) has found—it is often junior members who lack capacity for independent policy generation who introduce ALEC model bills. But this first bill did not pass or even make it to the floor for a vote.[44]

Instead, Ohio seemed poised to expand its clean energy laws, through positive feedback. In September 2011, the newly elected Republican Governor

John Kasich held an energy summit where he discussed tweaking the advanced energy targets to focus on co-generation—an easier technology to build than clean coal or nuclear. Essentially, co-generation involves large industrial companies hosting power generation on site and using the steam byproduct for other purposes like heating. This method saves significant cost and energy, and through it, reduces pollution. Governor Kasich also made several statements at the summit signaling his support for wind and solar, saying that working on these technologies is "the pursuit of the future" and "our commitment to them shouldn't waiver despite the fact that their costs aren't yet where we want them to be."[45] The clean energy industry expected policy expansion or at least stability.

In response to the Governor's speech, in 2012, the legislature passed a new bill that made co-generation an eligible technology for the advanced energy target (SB 315). While there were ample opportunities during this policy revision to change or rollback the renewables requirements, the bill left those provisions intact. The bill passed both the House and the Senate easily, with wide margins, and the Governor signed it into law. This decision looked like a re-endorsement of the clean energy law in Ohio under a new Republican governor. According to one person working in the clean energy industry, "There was a sense that Kasich wouldn't change the policy going forward and people got into the market in a bigger way at that point in time."[46]

Despite this positive change to Ohio's clean energy policies, the retrenchment attempts continued in 2013. This time, the opponents had a far more seasoned and persistent political champion: Republican Senator Bill Seitz, a member of the board of ALEC, chair of the Senate Public Utilities Committee, and friend to anti-wind groups. In February 2013, Senator Seitz introduced a repeal bill (SB 58). Despite voting for the 2008 bill that established the clean energy targets, by 2011 Seitz had become the most vocal opponent of renewables in the legislature. He now worked diligently to get rid of Ohio's renewable energy "mandates."[47] Seitz, who would build up a reputation as a staunch opponent of renewables, once suggested, "We're not prepared to continue our march up State Mandate Mountain."[48] He also had strong ties to the utilities, having received significant campaign contributions from FirstEnergy and AEP from 2006 onward.[49] AEP's support for Seitz jumped sevenfold from 2008 to 2012, over the same time when he began working on the repeal effort.[50] More broadly, all the utilities increased their contributions to politicians after 2008. According to Innovation Ohio, Ohio's four electric utilities made about $2.7 million in political contributions between 2008 and 2013.[51]

Much like in Texas, this tight relationship between the legislature and interest group opponents gave electric utilities and fossil fuel corporations a direct line to legislators. In Ohio, the opponents gained a seat at a private table where the plan to repeal the RPS was being drafted. Specifically, in the summer of 2013, Senator

Seitz held several private meetings with opponents at his law office, offsite from the Capitol.[52] IEU-Ohio and several utilities—most likely FirstEnergy and AEP—were present at this meeting to develop the specific provisions for a bill that would rollback the clean energy laws. At that time, the utilities wanted to eliminate the energy efficiency standards and gut the RPS. New renewable energy capacity would undercut their ability to argue at the PUCO for long-term power purchase agreements for their uneconomic coal plants, which they had sunk large amounts of debt into. By contrast, advocates had no seat in the negotiations—Seitz did not meet with renewable energy companies or other advocates.

Unlike Senator Jordan's proposal, Senator Seitz's bill (SB 58) was stealthy and smart. It proposed to revise rather than outright repeal the policy. It would also phase out the in-state renewable energy requirement by the end of 2018. Seitz claimed to target this requirement for repeal on two grounds: first, higher costs and, second, concerns over the provision being unconstitutional under the Commerce Clause. As a lawyer, Seitz was particularly adamant that any in-state requirement could be challenged in the courts. Although, in fact, no utility or other party had attempted to do that in Ohio. Importantly, eliminating the in-state requirement would weaken the clean energy advocates growing inside Ohio, breaking the feedback cycle.

In addition, Seitz's bill would allow industrial consumers to opt out of paying for the renewable energy requirements. This move was very similar to what occurred in Texas, allowing big companies to free ride off the public during an expensive energy transition. That said, this first bill was not exclusively hostile to renewables. It also included some provisions that would strengthen or maintain clean energy: it would allow renewables to make up any shortfalls in the 2024 advanced energy target and keep intact the renewables interim targets.

The bill made some progress in the legislature, with significant hearings in the Senate Public Utilities Committee, where Seitz was the chair. Notably, none of the utilities testified, perhaps because they had made their views known to the bill sponsor and committee chair in prior, private meetings.[53] The utilities united to support the bill behind the scenes. By contrast, industrial corporations in the state remained split on the issue. Some heavy industry, organized through the IEU-Ohio and the Ohio Energy Group, supported the bill. But, the OMA opposed it because of the proposed changes to the energy efficiency requirements.[54] The OMA's membership included smaller businesses that supported these programs they provided financial incentives to help them use less energy. This split in the industrial companies likely contributed to the bill's failure—the opponents were not presenting a united front. Further, the renewable energy advocates actively opposed the bill, drumming up significant

press. Eventually, the Republicans caucused and decided not to move forward with the it. The advocates had won this battle—but the war would continue.

Opponents Drive Partisan Polarization on Clean Energy and Succeed in Retrenching Ohio's Law

The advocates' success was short-lived, however. The next year, opponents continue to attack Ohio's clean energy laws. They were chipping away, slowly succeeding at driving partisan polarization. In February 2014, the Senate leadership decided that Republican senator Troy Balderson would lead the new bill (SB 310) rather than Senator Seitz. Senator Balderson was from eastern Ohio, where there are significant coal resources. He was also the chair of the Energy and Natural Resources Committee and vice chair of the Public Utilities Committee. Still, Senator Seitz was very involved in the process. Email records show that Senator Seitz continued to work closely on the bill with several utilities, then lobbyist Sam Randazzo at IEU-Ohio, and anti-wind activists.[55]

The opponents ensured that a number of provisions were written into the new bill that would undercut path dependence. The in-state requirement would be eliminated immediately, rather than at the end of 2018. The advanced energy target would also be cut, rather than letting renewables make up for any shortfall, as the prior bill had allowed. The bill proposed specific line items for renewables and energy efficiency on customers' bill, making the costs more visible to the public. This was an effort to expand the scope of conflict. Opponents likely thought they could use these line items to encourage customers to blame renewables for their rising electricity bills, sowing the seeds for retrenchment. Most importantly, the initial bill drafts proposed permanently freezing the policy, meaning that unless another vote occurred to restart the policy, it would stay repealed.[56] Such a change would stop policy feedback in its tracks, choking Ohio's nascent renewable energy industry. But in more subtle ways, the other proposed changes would disrupt feedback—without a requirement for in-state generation, there would likely be fewer in-state advocates pushing to keep the policy in the future.

In the lead-up to the vote in the legislature, interest group advocates and opponents both brought the public into the policy conflict. One astroturfing group calling itself "Ohioans for Sustainable Jobs," supported rolling back the RPS. This strategy of naming groups to intentionally mislead citizens on the nature of the campaign is increasingly common (Walker 2014). Utilities used the same approach in Florida to block a solar energy ballot initiative, through the astroturf group, "Consumers for Smart Solar."[57] In Ohio, the group's members

included the Ohio Chamber of Commerce, IEU-Ohio, and the Ohio Energy Group.[58] They commissioned a swiftboating-style poll that asked citizens a leading and vague question on whether the legislature should change its policy given the large shifts in energy and the economy since 2008.[59] With this wording, unsurprisingly, the vast majority of citizens supported the legislature changing the law. Grover Norquist's organization, Americans for Tax Reform, also called over 100,000 Ohioans in the 2 days leading up to the final vote, telling them to support the repeal.[60] Clearly, the opponents believed it was important to bring the public into the conflict over clean energy, to increase their influence with the legislature.

But the advocates also understood the value of drawing the public into the policy conflict as they tried to block the bill. Rather than fielding their own polls, the clean energy advocates highlighted findings from the Yale Project on Climate Change Communication, which showed that majorities of Ohioans wanted the governor, politicians, and businesses to do more on climate change, including strong support for clean energy targets. As this Ohio-specific poll found, "A majority (59%) supports requiring electric utilities to produce at least 20% of their electricity from wind, solar, or other renewable energy sources—even if it costs the average household an extra $100 a year. Comparatively few (35%) would oppose this policy" (Leiserowitz et al., 2013, 7). In this way, the advocates used research to try to demonstrate that there was strong public support for keeping Ohio's clean energy policy.[61]

But in 2013, the Senate leadership decided retrenching the state's clean energy laws was a priority. Senate President Keith Faber likely championed the bill behind the scenes. His district was in rural, western Ohio, and he became the Senate president in January 2013. He maintained strong ties with FirstEnergy and AEP, having received significant campaign funds from these utilities for over a decade.[62] The opponents had the ear of a powerful politician, and he decided to put repeal on the agenda. However, Governor Kasich still supported clean energy. He met with Senate President Keith Faber and requested changes to the bill, including modifying the renewable energy target from a *repeal* to a *freeze*, with an automatic restart after two years. The governor likely implied he would veto the bill if these changes were not made.[63] After this meeting, SB 310 was amended to create a 2-year policy freeze rather than a repeal. During this period, a study committee would investigate the issue and draft new legislation.[64] But this modification hardly reassured the advocates. A study committee would likely be made up of the same politicians who passed the bill. Meanwhile, given policy uncertainty, clean energy businesses in the state would shrink. This would make it easier to repeal the clean energy law two years later, when the freeze concluded.

Arguing that a similar bill had involved significant hearings the year prior, Republicans quickly moved this new bill through the committee *without any testimony*, sending it directly to the Senate floor. This is the same tactic seen federally in 2017 when Republicans rushed bills on healthcare and tax reform to floor votes without hearings. In Ohio, clean energy advocates argued that the lack of hearings on a new bill was unfair. Despite the opposition, SB 310 passed the Senate in early May 2014 by a margin of 21 to 12.

By this point, partisan polarization had grown substantially: only three Republicans voted against the repeal bill. Given that Ohio had struggled to build renewable energy in the state, few rural Republicans saw the benefits it could bring their communities in terms of jobs and local revenue. Several individuals inside and outside of the legislature suggested that the Republican leadership in the Senate leaned heavily on their members to support the bill. As one former political staffer stated, "the Republican caucus used campaign money to get the vote. They threatened to not support them in primaries. Faber said if you don't vote for this bill we will not support your campaign."[65] Why did the Republican leadership do an about-face in a few short years? Likely, interest group opponents had persuaded them to make clean energy retrenchment a high priority. They were using campaign funding to drive polarization on the issue, as similarly occurred in Kansas. But in this case, there was no established renewable energy industry available to field its own political action committee (PAC) to support Republicans willing to break ranks with the party.

After the bill cleared the Senate, there did not initially appear to be enough votes in the House to pass the bill, with the Republican caucus coming up short. A coalition of renewable energy advocates—including the Ohio Advanced Energy Economy along with several consumer advocacy groups—attempted to change the 2-year freeze to a 1-year freeze. The advocates tried a number of strategies to block the bill: fielding a television ad, issuing a report, and getting mayors across the state to sign letters asking the legislature to keep the standards.[66] Businesses represented another prominent coalitional partner, with manufacturers such as Honda and Honeywell fighting for the energy efficiency policies.[67] The wind energy association AWEA, which had a lot to lose from this law, focused its lobbying on changing the legislation to a 1-year freeze.[68] But these efforts failed.

Eventually, the bill passed the House at the end of May 2014, just after the state primary elections were over, by a narrower vote of 55 to 42. Although the vote was largely along party lines, six Republicans opposed the bill and three Democrats supported it. Thus, while partisan polarization had grown, it was not a perfectly sorted issue. But the fact remained that the opponents won. When the bill passed, Senator Seitz was quick to point out to the advocates in a public memo that by failing to support his bill the year prior (SB 58), they had ended

up with a worse outcome (SB 310).[69] Advocates lobbied the governor to veto the legislation. For example, the national Evangelical Environmental Network delivered a petition with more than 14,000 signatures.[70] But the advocates did not succeed in influencing Kasich's decision. He signed the law in June 2014 with a spokesperson from his office stating that it was a "balanced" approach. Ohio was the first state to directly repeal its clean energy policy, through this freeze. After SB 310 passed, Kansas would go on to repeal its binding RPS, and West Virginia its voluntary RPS in 2015. Other states, like North Carolina, New Hampshire, and Colorado fended off retrenchment attempts during the same time period.

But the opponents did not rest satisfied with this result. They came back to attack the policy in another, less overt way. That same year, Ohio made a second, lower-profile change to its clean energy policy through a House budget bill (HB 483). As is typically the case, it covered a variety of topics. Unusually, the bill included a provision that changed the required distance from a wind turbine to a property line—the so-called setback rule. A setback is a zoning requirement that defines how far a wind turbine has to be from a property line or building. In Ohio, before 2014 the setback rule was 1.1 times the height of the wind turbine to the nearest property line, averaging 550 feet. The 2014 budget bill changed the setback to 1,125 feet from the turbine to the property line. In practice, this would almost triple the distance required, often requiring 1,300 feet from the property line. Under this new policy, almost all of the existing wind projects *could not have been built*. For example, AWEA estimated that under these new rules, the largest wind project in Ohio would only have 12 turbines rather than 152.[71]

Why would a politician add this poison pill to a budget bill? Some believe that Senate President Keith Faber introduced this amendment because of anti-wind protestors in his district.[72] Alternatively, Senator Faber may have seen an opportunity to build his relationship with the utilities and receive greater campaign contributions from FirstEnergy and AEP in future elections.[73] Regardless of the reasons for the Senate president pushing this policy, it was another significant blow to the clean energy advocates. Governor Kasich could have line-item vetoed this provision in the budget bill, as he did with other items that year—but he signed the wind setback into law in June 2014. Signing these two bills suggested that Governor Kasich was not nearly as pro-renewables as he had first appeared. It is possible that utility and industrial interest groups had increased their influence over his office. Utility contributions to Governor Kasich increased from the 2010 elections to the 2014 elections.[74] David Koch himself even gave $12,155 to support Kasich's re-election, just 6 weeks prior to the governor's approval of these bills.[75]

Unsurprisingly, since this law was enacted, wind projects in Ohio have halted. Existing projects with prior approval still moved forward, but they had to

proceed more slowly since any project changes would put them under the new rules. According to an AWEA report, this policy has cost the state over $4.2 billion in lost economic activity.[76] This estimate is credible, given that neighboring states like Indiana and Michigan have invested three to four times as much in wind energy. By 2018, only around 1% of Ohio's electricity supply was from wind energy.[77] Short of a new law to change these setback rules, wind energy will remain undeveloped in Ohio.[78] Given that this is likely the best renewable energy resource the state has, this law is extremely problematic for decarbonization.

Together, these two changes to Ohio's renewable energy policies represented a significant policy retrenchment. The interest group opponents had managed to influence legislators, weakening the advocates by directly attacking their industry. As one renewable energy advocate put it at the time, "It's getting close to being death by a thousand cuts. If the RPS resumes [after the study committee] and we can get something on setbacks, which we're working on, we all survive. But, whatever happens on this has to be the end. They've got to leave us alone. You can't keep changing the market rules."[79] The renewable energy industry has suffered job losses since these changes in 2014. By one estimate, more than 1,400 jobs were lost in the wind energy industry between 2015 and 2016, a change attributed to increasing uncertainty in the state's legal framework for renewable energy.[80] Utilities also did little to invest in renewable energy projects in the state, instead buying renewable energy certificates (RECs) from out of state. This meant that few renewables were built. Clearly, policy feedback had failed in Ohio.[81] And unfortunately, the opponents did not leave the advocates alone. The attacks on clean energy only continued.

Utilities Gut Ohio's Clean Energy Laws to Bailout Coal Plants

After the latest law was implemented, the Energy Mandates Study Committee was formed to evaluate Ohio's clean energy laws. Most of the politicians on the committee had voted for the rollback, including senators Seitz and Balderson. The committee members also had strong ties to the opponents, having received over $800,000 in campaign contributions from utilities, and coal, oil and gas companies.[82] As he had done when drafting the repeal bills, Seitz worked closely with industry lobbyists, writing that "[lobbyists and he] should be meeting as a small group to figure out what that [EMSC] report is going to say."[83] He also suggested the report include misinformation on climate science.[84] Unsurprisingly, the final report, delivered in 2015, recommended an indefinite extension of the RPS freeze. The report also exaggerated the costs associated

with renewables and omitted many benefits, leaning heavily on research from Koch Industries-funded organizations.[85]

This report fueled further attacks on Ohio's clean energy laws. In 2016, two bills (SB 320 and HB 554) aimed to eliminate or weaken the state's clean energy goals. The usual suspects sponsored these bills, including senators Seitz, Balderson and Faber. Both AEP and FirstEnergy advocated for these bills.[86] Although one bill passed, Governor Kasich vetoed it. In 2017, a bill that would make the renewable targets voluntary passed the House easily (HB 114). The Senate version of that bill compromised with the advocates: it reduced the RPS to 8.5% by 2022, and agreed to reverse some of the wind energy setback restrictions. However, Seitz, who had now become the majority leader in the House, opposed this bill that would have kick-started the wind energy industry.[87] The bill failed to pass out of committee.

While these debates over the state's clean energy laws raged on, utilities began a campaign to bailout their failing coal and nuclear plants. Cheap natural gas had caused wholesale power prices to fall in Ohio's power markets. This made it difficult for some of the utilities' plants to compete. A few coal plants in particular were struggling: the Ohio Valley Electrical Corporation (OVEC) plants, and FirstEnergy's Sammis plant. Originally constructed in the 1950s, OVEC now manages two coal plants in Ohio and Indiana—Kyger Creek and Clifty Creek—with a combined 2.3 gigawatts (GW) of capacity. In 2006, the plants underwent large retrofits so that they could continue operating, taking on $820 million in new debt. This was a common decision at that time, leading many utilities—private and rural electric cooperatives alike—to take on coal debt. Given this investment in the OVEC plants, the utility co-owner signed a contract in 2011 that would keep the plants open until 2040. The contract stipulated that no owner could exit the agreement unless all parties chose to shut down the plants. This created a bind for the owners—the principal owner, AEP, as well as FirstEnergy, which had a smaller stake—when the plant began losing money. These weren't the only plants struggling to turn a profit as cheap natural gas flooded the market. FirstEnergy also operated the 2.2 GW Sammis coal plant and the states' two nuclear plants, which were also losing money.

After making these bad investments, the utilities were stuck with a problem: how would they pay for the debt they had in these plants, while the plants were losing money? Beginning in 2014, both FirstEnergy and AEP requested PUCO approve additional charges for ratepayers to cover their investments that were no longer market-competitive. The IEU-Ohio and the Ohio Consumers' Counsel opposed these efforts.[88] Environmental groups, including the Sierra Club, launched a "No Coal Bailouts" campaign that involved running ads and collecting petition signatures.[89]

Meanwhile, the clean energy opponents began negotiating directly with the advocates, to try to find a deal that the PUCO could approve under a 2008 FERC waiver. FirstEnergy reached an eight-year deal in late 2015 with some stakeholders that would bailout its nuclear plants, and the OVEC and Sammis coal plants. Clean energy advocates opposed this deal, since it would subsidize polluting sources. Around the same time, AEP reached an eight year agreement with the Sierra Club and PUCO staff to exchange a bailout for eventual conversion or closure of the coal plants, and building 900 MW of renewable energy.[90] These agreements worked their way through the PUCO process, and were both approved in early 2016. Many groups opposed these decisions, including other environmental groups and the OMA. Rival generators who wanted to compete in the Ohio market challenged these decisions, requesting that FERC rescind its waiver that allowed these agreements. In April 2016, FERC rescinded the waiver, rejecting these deals on the grounds that they distorted competitive markets.[91]

Instead, in late 2016, PUCO approved a $600 million "distribution modernization rider" for FirstEnergy. While this was funding ostensibly for upgrading the grid, the PUCO imposed no requirements or oversight. The advocates were concerned the money would be used to bailout the utility's coal plants. In response to this decision, environmental and consumer groups took the PUCO to court. In June 2019, the Ohio Supreme Court ruled that FirstEnergy did not have specific plans to modernize the grid and rejected PUCO's decision. Yet the court did not force FirstEnergy to pay back the $440 million in subsidies it had already collected from ratepayers.[92] During this period, FirstEnergy also sought Trump administration support; however, FERC rejected a DOE coal bailout plan in 2018 that would have benefited the utility.[93] Meanwhile, AEP secured a limited bailout through the PUCO for part of the OVEC plants.

With the advocates using the courts and FERC to block or limit the coal bailouts, the utilities continued to try to work with the legislature to secure money for their stranded costs. In 2017, a bill was introduced that would subsidize the OVEC plants (HB 239). The bill's sponsors had received significant campaign contributions from utilities. Further, the sponsors' written testimony to the House Public Utilities Committee matched the content provided by the utilities, suggesting strong influence from the opponents.[94] As usual, Seitz supported the bill. Representatives from AEP, DP&L, Duke Energy, and the Ohio Electric Cooperatives, all testified in support throughout 2017. The advocates, including EDF and the Sierra Club, testified in opposition.[95] This narrow bill, which would only bailout the OVEC plants, failed. Other similar bills also did not make progress. After failing to secure these bailouts, on March 31, 2018, FirstEnergy Solutions, a subsidiary of FirstEnergy that managed its unprofitable generation plants, filed for bankruptcy.

But the clean energy opponents did not stop trying to pass these bailouts. To gain greater influence with the legislature, the utilities worked over many years to build up their relationships with Republican politicians and to change the makeup of the legislature and governor's office. In the lead up to the 2018 election, FirstEnergy Solutions spent at least $2.7 million on lobbyists and PR firms.[96] As part of this effort, the company hired groups with close ties to Mike DeWine, who was running for governor at the time—a position he would win. In the 2018 election, FirstEnergy Solutions gave large campaign contributions to both the Democratic and Republican gubernatorial candidates, spending almost $350,000 on this race alone.[97] Given it was a tight election—only 3.7 points separated the candidates—the company was hedging its bets.

The opponents' bets quickly paid off. Once Governor Mike DeWine took office, he appointed Sam Randazzo—who had worked as a lobbyist for IEU-Ohio for many years to undermine the state's clean energy laws—to be chairman of the PUCO. This role also made him the chair of the Ohio Power Siting Board, which made decisions on wind farms. Previously, Randazzo had represented groups attempting to block wind farms in front of this board.[98] While advocates argued this represented a clear conflict of interest in his nomination, Randazzo nevertheless assumed the role. While Randazzo would be unlikely to approve coal plant bailouts, given his history of advocating for industrial energy consumers, he would no doubt work to undermine the clean energy laws, which he had worked for many years to rollback.

Even more importantly, FirstEnergy Solutions backed Larry Householder in the 2018 elections.[99] At the time, he was a state representative vying for the role of House speaker in a tight race. Here, the utility took an unusual approach to secure their preferred outcome: not only did they support Householder, they also backed all the other House candidates who would support him. It total, the utility gave over $184,000 to more than a dozen representatives who supported his candidacy.[100] The bankrupt company wanted to be sure that they would have the votes necessary to finally pass a bailout for their ailing plants in 2019. And private equity played a role here as well. The hedge funds that had bought these distressed assets likely wanted to ensure they made a profit, regardless of the cost to the climate. As one advocate put it, "the real owners of FirstEnergy Solutions are hedge funds, who are gamblers. They see distressed assets and they put in $60 million into lobbying to get a return for $1 billion [if they get their bailout bill passed.]"[101] This bet would pay off.

After Householder secured the speakership in 2019, the opponents finally found success in gutting the RPS and energy efficiency policies through a new bill (HB 6). This bill took a much broader tack: it would weaken the RPS, eliminate the efficiency standard, make wind energy even harder to build, and bailout the state's ailing nuclear plants. Notably, the nuclear bailouts required no

transparency on the part of FirstEnergy Solutions, in terms of what they would be doing with these new ratepayer funds. The company's requested funding and timelines fluctuated continuously, suggesting that perhaps not all the nuclear bailout funds were as necessary as FirstEnergy Solutions claimed. Yet, the legislature showed no interest in ensuring the utility would use the bailout funds for their nuclear plants alone.

Rhetorically, clean energy opponents in the legislature, such as Representative Seitz, argued that they *had to eliminate* the RPS and energy efficiency laws alongside the bailout in order to keep rates the same. It did not matter to the opponents that the efficiency law had likely saved ratepayers $5.1 billion in less that an decade. Since industrial energy consumers opposed it, it had to go.[102] The bill also planned to eliminate the RPS solar carve-out the next year, in 2020. This would kill what little incentive was left to build in-state generation, given that the setback laws had decimated the wind industry. It would choke off the renewable energy companies' funding, breaking the small momentum for renewables in Ohio. The bill also proposed lowering the RPS targets while eliminating any clean energy requirement after 2026. Without an ongoing RPS target, the utilities would not need to build new renewables through long-term contracts: they could just buy cheap RECs to comply for the coming years, and stop after 2026. And in a more subtle way, the bill changed what part of the system had to comply. As one advocate put it: "It is not just that the RPS is reduced from 12.5% to 8.5%. The bill also removes the industrial load from calculating the RPS. With the industrial load comprising about 33% of the load, this means an 8.5% RPS is more like a 5.5% RPS."[103] This was the same approach we saw in Texas (Chapter 5)—industrial energy users were not going to pay their fair share in the energy transition.

The initial bill did not include any funding to bailout the OVEC or Sammis coal plants. With all the benefits flowing to FirstEnergy Solutions, AEP did not support this plan. However, likely because of AEP's lobbying, a new version was introduced that gave generous funding to bailout the OVEC plants. As one journalist put it: "they put in the coal bailout to get AEP, Duke, and DP&L on board. Because AEP when that bill was first filed, their press person said that they were really sort of in opposition to the bill. . . . There's no doubt that this was to bring the utilities on board."[104] With all the utilities in support, the bill began to make swift progress. To make matters worse, the advocates struggled to secure their own lobbyists, even those who had previously worked for them. FirstEnergy Solutions had put them on retainers, even if they were not doing any work.[105] The opponents' goal was to keep the state's best lobbyists tied up, so that they couldn't support the advocates' efforts to kill the coal bailout.

Throughout the process, the clean energy opponents tried to spin the bill as a boon for clean energy. In a truly Orwellian doublespeak, the bill was called the

"Clean Air Program," even while it bailed out coal plants and gutted the RPS and energy efficiency laws. To give themselves cover, the bill contained $140 million for solar—but this modest sum was for plants that had *already been approved*. The funding would drive no additional clean energy. The $1.1 billion for FirstEnergy Solutions' existing nuclear plants was an order of magnitude bigger. How did the coal bailout stack up by comparison? The language made this difficult to estimate, because the bill deferred to the PUCO to set the amount that would cover the utilities' losses each year. This ambiguity was no doubt intentional on the part of the legislators and utilities, providing them cover. It was not clear to anyone how large the coal plant subsidies would end up being—as usual, the fog of enactment was operating.

What is my best estimate for the coal bailout? Notably, the residential monthly charge for the coal plants was almost twice as large as the charge for nuclear and solar. Some analysts argued these coal plant would lose $50–60 million a year, putting the total coal plant subsidies around $600 million by 2030.[106] However, the bill allowed the utilities to carry forward losses and get compensated later. Given the losses that FirstEnergy Solutions was projecting from the OVEC plants in its bankruptcy proceedings, the costs for these two plants could be much higher: around $1.7 billion.[107] And that figure is only for the Ohio private utilities out to 2030. Overall, the OVEC coal plants could lose an estimated $5.3 billion if they continued to operate until their planned retirement in 2040.[108] And these figures do not take into consideration the large negative externalities from the plant, through air pollution related deaths or climate impacts (Dimanchev et al. 2019). This bill gave a billion dollar lifeline to an economic and environmental loser. It was trying to hide a lump of coal inside a giant legislative package that was thinly wrapped in clean energy.

With the coal bailouts in the bill, the House passed it 53 to 43 in a bipartisan vote. However, the utilities had less influence in the Senate, which was not as willing to fund the bailout or support further attacks on wind energy. The Senate lowered the amount that the utilities could collect for their ailing coal plants, and delayed the subsidies for a year. They also rejected the plan to allow townships to block wind energy. With these changes, the bill passed in the Senate by a vote of 19 to 12, again with a bipartisan split on either side.

This version was returned to the House, where Householder scheduled a last minute vote. The bill passed by a narrower margin of 51 to 38 in July 2019. Notably, it would not have become law without support from Democrats. The nine Democrats who voted for the bill in the House included members with ties to FirstEnergy Solutions, from districts near the Sammis coal plant or the nuclear plants. Other supportive Democrats were from districts near AEP's headquarters in Akron, Ohio. Further, several unions lobbied in support of the bill, given the existing workforce at the nuclear and coal plants. After a decade of attacks on

the clean energy laws, there were few clean energy advocates or jobs in the state to contest these opponents. These Democrats would rather side with the utilities and the unions than nurture a new clean economy, even if it meant subsidies for coal. Just six days after the bill was passed, Governor DeWine signed it into law.

Despite claiming that they would maintain the union contracts at their plants, FirstEnergy Solutions filed a scheduled update to the bankruptcy proceedings just 12 hours after the final bill passed. In this update, the utility walked back their commitment to union contracts, including pensions. Given how closely he was working with FirstEnergy Solutions, it's possible that Speaker Householder rushed the vote, knowing that this bankruptcy update could cost him votes in the House. Union workers such as the International Brotherhood of Electrical Workers and the Teamsters, who supported the bailout bill, were blindsided. As one advocate put it, "The unions got duped, because after they supported the legislation, [FirstEnergy Solutions] said we are going to gut the pensions. So I think the Democrats and the labor unions were duped."[109]

Days after the law was signed, FirstEnergy Solutions also revealed they had cancelled plans to close the Sammis coal plant slated to retire in 2022. While they claimed this was not because of funds from the nuclear bailout, a representative from their company also said, "House Bill Six is really designed to support our nuclear plants, and all the money from that would go to those nuclear plants. . . . But at the same time, it would make our company economically healthy enough that we would be able to look at other investments like investing in the Sammis Plant."[110] Given that the law does not require FirstEnergy Solutions to open up its books to the PUC, to ensure that all the funds from the bailout are necessary to keep the nuclear plants operating, this is hardly reassuring. The timing of these decisions suggest that the bailout was not just helping keep the OVEC coal plants open, but the Sammis coal plant as well. It was a bill to save three large coal plants from closing.

After this crushing loss, the clean energy advocates organized to try to stop the law from going into effect. Under Ohio law, within 90 days of a governor signing a bill into law, signatures can be collected to put a referendum on the ballot to reverse that law. The advocates were trying to bring the public into the debate, giving ratepayers a chance to stop the new charges and the gutting of the state's RPS and energy efficiency laws. But the opponents did not rest. Dark-money groups—including Protect Ohio Clean Energy Jobs, Generation Now, and Ohioans for Energy Security—tried a range of tactics to stop the referendum, such as targeting Facebook users to withdraw their signatures.[111] While the groups aiming to block signature collection have not disclosed their funding sources, evidence points clearly to an affiliation with FirstEnergy Solutions.[112] These groups used highly questionable tactics, including lying to the public. Some ads implied that the Chinese government was attempting to control

Ohio's electricity.[113] This falsehood was repeated by senior legislators, including Speaker Householder. The fight became so contentious that petition collectors experienced violence and intimidation, allegedly from Generation Now-backed "petition blockers."[114] In the wake of this fervent opposition, by the time the deadline came, the advocates had failed to gather enough signatures. While there was a lawsuit pending at the time of this writing, it did not look good for the advocates. The billion dollar coal bailout would likely proceed as planned. After using such questionable tactics to secure this bill, in late 2019, FirstEnergy Solutions announced it would rebrand as Energy Harbor—perhaps a move to strip itself of all that bad publicity.

Conclusion

Ohio was a late actor on renewable energy policy—so late that networked utilities and other fossil fuel interest groups had begun resisting these policies by the time the state passed its first law. Unlike Texas in the late 1990s, there was no longer high uncertainty about clean energy policy or technologies. By 2008, it was clear that renewables threatened coal and natural gas. For this reason, fossil fuel–dependent companies—including utilities and industrial energy users—began to resist renewables more quickly in Ohio. There was no fog of enactment operating in the Ohio case. During negotiations over the enabling legislation, opponents tried to weaken the policy. When this failed, they tried to resist the law during implementation, arguing that the provision that the opponents had ensured was in the law—a cost cap—should be interpreted to slow down renewables. Again, they failed. Initially, there was broad, bipartisan support for clean energy in the Buckeye state.

To make progress on retrenchment, opponents began strengthening their relationships with politicians. They gave significant campaign contributions to key legislators like the Senate president and the chair of the Senate Public Utilities Committee. They also wrote reports that claimed the law was expensive, sending these documents to all the legislators. By this time, opponents had mobilized across the country through ALEC and other right wing networks to undermine clean energy, drafting model bills. These strategies paid off, increasing the opponents' political influence. When it came time to craft the retrenchment legislation, these actors met with the lead opponent in the legislature in private meetings off-site, where they discussed specific bill language. Members of the public who resisted wind turbines in their backyards similarly cultivated tight relationships with legislators, including the Senate president.

By contrast, the advocates struggled to mobilize the public against retrenchment or resist partisan sorting in the Republican Party. As a result, two significant

bills passed in 2014 that dramatically undermined Ohio's support for clean energy. These legal changes stymied the budding renewable energy industry by freezing the policy, eliminating the in-state requirement, and changing setback rules for wind turbines. All these changes undermined the momentum the Ohio clean energy industry was gaining, and significant job losses followed. Instead of building new renewable energy projects in the state—as was required before the rollback—utilities simply bought RECs, a practice which drove little new investment. Since then, Ohio has continued to fuel its electricity system with fossil fuels, increasing natural gas while stalling clean energy development.

After these laws passed, utilities began lobbying state and federal policymakers to bail out their failing coal plants. While they managed to secure some funding for coal through the PUCO, clean energy advocates successfully challenged these decisions through the courts and FERC. Meanwhile, attacks on the clean energy laws continued. After the RPS freeze ended, Seitz worked to extend it again. While the opponents did not publicly take positions, a number of lobbyists with AEP and FirstEnergy advocated for weakening Ohios' clean energy policies behind closed doors.[115] Eventually, in 2016 the legislature passed a bill that extended the freeze for another two years (HB 554), but Governor Kasich vetoed it. These constant attacks created significant uncertainty for the renewable energy industry. Why invest in renewables if there will be no requirements in a year?

The attacks continued in 2019, when the Ohio House passed a bill (HB 6) that subsidized coal and nuclear plants while eliminating the renewable energy and energy efficiency requirements. While the Senate version kept some of the RPS on paper, in practice it gutted the program: eliminating the solar energy carve-out, not requiring ongoing renewables after the program's last year, and not requiring industrial users to comply.

One of the darkest parts of this story is that the politicians and lobbyists leading these climate delay efforts rose in power over time. Balderson went on to be a Congressman. Seitz became the majority leader in the House. Randazzo became the Chair of PUCO. And Faber became Ohio's state auditor. Everyone involved in the effort to pass the worst energy policy in the country got promotions.

This case underscores that policies must catalyze enough advocates to challenge incumbent opponents. In Ohio, the initial RPS policy failed to grow a renewable energy industry large enough to rival the political influence of longstanding opponents. Instead, the industry was small and poorly organized when the retrenchment bills were proposed. As a lobbyist for the industry put it,

> There are a lot of Republican legislators, who when 58 [the first repeal bill] crashed, said they would be fine with that. You have a whole bunch of legislators who are in the middle and two or three who have a real

> agenda. [Those legislators] have close ties to ALEC and FirstEnergy and AEP and that's their job to have close ties with them. The wind industry is a cottage industry of lobbying. There's 3 or 4 of us. There's like 18 lobbyists for FirstEnergy and that's one utility. We feel like we're holding this together with a thread. We have two wind farms in Ohio and we have great ties to legislators from those areas. But FirstEnergy has transmission and distribution over the top one-third of the state, and AEP on the southern and eastern side. Why would they listen to us when AEP says we have employees in your district and an office and we have issues? And we say there's a company called Iberdrola based in Spain and they have a wind farm in NW Ohio. They're kind of like, who? I don't have a problem with you. But I don't know who you are.[116]

As this quotation clearly illustrates, the policy feedback process takes time. Relationships with legislators do not happen overnight. Advocates must grow large enough to wield sufficient political influence. Opponents in Ohio ensured that there would not be enough time for this shift in power to occur—they moved swiftly to retrench the clean energy law.

Thus, timing is a crucial element for feedback. Early-actor jurisdictions are more likely to create path dependence in policy because the fog of enactment is likely to be operating. When a policy is new, opponents are less likely to understand its consequences. But when late states follow leaders, they can see the effects from policies implemented elsewhere. In the Ohio case, the utilities and industrial energy users had watched other states pass renewable energy laws. They understood the stakes and resisted these policies more forcefully from the beginning. We can see that if opponents move swiftly to retrench laws, they can interrupt policy feedback. When laws are quickly reversed, not enough time has passed to redistribute political resources. In such a case, incumbent opponents will remain disproportionately empowered compared to advocates. Under these conditions, policy feedback and path dependence are unlikely. Incumbent opponents can crush advocates before they have had time to establish the political influence necessary to fight back.