

A Direct Line to Legislators and Regulators

Fossil Fuel Corporations Undermine Texas's Solar Energy Law

In 2005, Texas seemed poised to lead the nation in clean energy. As the last chapter showed, the state passed one reform after another, sinking billions of public funds into the effort. The first law spurred economic investment in renewable energy. Once the Texan renewable energy industry grew, it helped lobby for the second law—one that raised the renewable energy target and invested in supportive infrastructure. Politicians whose districts benefited from the first policy sponsored and supported the second bill. Thus, at first glance policy enactment and implementation changed the political landscape, bolstering advocates and enabling policy expansion. However, when the advocates tried to accomplish for solar energy what they had achieved for wind, opponents mounted a much larger resistance. As a result, the state only produced a quarter of its electricity from clean sources in 2018.

This chapter shows how short-lived and narrow policy feedback can be when opponents with political influence wield their power. By 2006, progress on renewable energy policy stalled in Texas. After the first clean energy target was implemented, networked, opponent interest groups gained more information about its likely effects. Opponents were likely concerned about a broad-scale movement away from fossil fuels. These commodities had formed the basis of their corporations' prosperity for decades. Utilities, fossil fuel companies and heavy industry had also learned from places with larger amounts of solar energy that this technology would not serve their interests—solar could decrease their profits from supplying electricity to the grid during shortage hours. Consequently, they doubled down on their resistance to renewable energy policies in Texas.

Although Texas's second clean energy law (SB 20)—discussed in the previous chapter—contained a specific target for solar energy, it was never implemented. After enactment, the Texas Industrial Energy Consumers (TIEC), an alliance of fossil fuel corporations and other industrial companies that rely on cheap energy, intervened aggressively to block this policy at the Public Utility Commission of Texas (PUCT). These opponents argued that a binding legal provision for solar was not the legislators' intent when passing the law. Working through established interest group networks, the opponents easily defeated progress. Eventually, these opponents would weaken Texas' policies, allowing industrial corporations to opt out of paying for renewable energy policies altogether.

As we saw in Chapter 3, fossil fuel companies often maintain a privileged position in policymaking. This is certainly the case in Texas. When clean energy opponents wanted to resist the latest policies in Texas, they did not need to use indirect tools, like the parties, the public, or the courts. With sufficient influence at the Capitol, with the governor, and with regulators, they could work directly and win. Using lobbying, contributions, relationships, and ideas, fossil fuel corporations and other industrial companies reversed the state's course on clean energy. The scale of opponents' power can easily be seen in the case of the fossil fuel industry lobbyist who frequently worked from a desk in a senator's office on Capitol Hill.¹ Which senator? The one leading the energy file, naturally. When this lobbyist wanted to oppose renewable energy policies, he need not travel far. With tight relationships across the branches of government, these opponents had the ear of the key politicians and bureaucrats. They could keep the scope of conflict small and still win.

This chapter shows that advocates can win rounds of political conflict but still fail to convert their victories into longer-term gains through policy feedback. After a mere 6 years, the clean energy industry in Texas was simply not large or established enough to rival the 100-year-old fossil fuel lobby. It had established fewer relationships with politicians and had less political influence. Advocates' ability to rely on a strong network of other interest groups was also much weaker. They had not invested sufficient time or resources into coordinating their policy efforts. When scarcity hit the industry, the coalition fragmented. Thus, it is not just a matter of the advocates winning a policy battle at some point in time. Advocates need to lock in gains to establish greater political influence than opponents. Only then will they be able to protect laws under attack by incumbent industries. In Texas, the advocates had only gained a toehold.

Feedback Begins to Falter: Ambiguity and Implementation Resistance in Texas

In the early 2000s, renewable energy technologies were still new. It was difficult to forecast their costs or clean energy laws' likely consequences. In Texas's newly liberalized electricity market, one unforeseen effect began to develop as wind projects grew in number. Beginning in 2006, negative market prices sometimes occurred in regions with large amounts of wind energy (Zarnikau 2011). This dynamic developed because of interactions between state and federal policies—a common cause of poor policy forecasting.

The federal government's production tax credit (PTC) paid wind projects a small fee for every unit of electricity they produced. Normally, renewable energy projects bid zero into electricity markets, because without fuel costs, their marginal costs are zero. But with the federal PTC, wind developers could bid into the electricity market *below* zero and still make a profit (Zarnikau 2011). For example, if a wind generator bid –1 cent per kilowatt hour (c/kWh), it would still receive 1.5 c/kWh from the federal government, providing a net total of 0.5 c/kWh. Why would wind generators submit a negative bid? It would increase the likelihood that their energy would make it to market, being dispatched in the system the next day. Thus, it made strategic sense for wind generators to bid small negative prices. However, in some limited cases, this strategy led an entire zone of the market to have negative prices (Woo et al. 2011). The dynamic was further exacerbated by limited transmission capacity. When wind produced a surplus of energy in a given region, this oversupply fueled low or negative prices in that area (Zarnikau 2011).

Advocates and opponents competed with one another to frame this problem (Raymond 2016). Opponents focused their narrative on economic costs, while advocates focused on the benefits from job creation and economic development. Even though these occurrences were limited, opponent interest groups successfully used negative prices to advance a narrative that wind energy was costly. They worked directly with legislators and regulators to spread this idea. This view took hold as the PUCT implemented the transmission policy. Using these facts, opponents were ultimately able to change the pro-renewable narrative in Texas. Consequently, by the latter half of the decade, the idea that the government should not be “subsidizing” technologies and “picking winners” became oft-repeated phrases within the Republican Party.² Eventually, these ideas would hinder renewable energy policy in Texas.

Despite growing opposition, advocates continued to try to win policy conflicts and expand clean energy in the state. By the early 2000s, advocates set their sights on solar energy. After implementation, it became clear that Texas's

first renewable portfolio standard (RPS) was a de facto wind energy goal. Since the policy was based on a trading mechanism, only the lowest-cost technologies were developed. Solar was shut out from growth under Texas's first clean energy law.³ When advocates were working to expand the policy in 2005, they were rightly concerned that the proposed policy would not benefit any technology other than wind.⁴ In fact, Texas was overall a fairly hostile state for solar energy. It did not have—and still does not have—a net metering policy. Consequently, very little solar energy had been developed in the Lone Star State.

Advocates saw the 2005 bill as an opportunity to remedy this problem. As the bill wound its way through the legislature, the renewable energy industry and environmental NGOs worked to advocate for a solar energy policy. They wanted a specific goal for solar—a policy often called “a carve-out.” To advance this idea, they used the same strategy they had used with the 1999 bill—working from inside the negotiations and creating pressure from the outside. As one NGO advocate involved with the campaign for the solar target put it, “Basically it was the same formula as 1999. It was grassroots work aimed at the specific committee members. It was jobs analyses. It was working the rural parts of the state that would benefit from solar.”⁵ The advocates’ tactics worked. After several near misses, the final bill included a specific, 500 megawatt (MW) target for non-wind energy by 2015. Renewable energy advocates thought that this clause created a *subset* of the overall binding RPS goal, which the bill would increase.⁶ They believed that the bill’s passage would finally kick-start the solar industry in Texas.

However, advocates had less influence with legislators than their opponents. While they were involved in earlier negotiations over the bill, environmental and renewable energy groups were not invited to the table when the *final* provisions for the bill were negotiated.⁷ Opponents, by contrast, *were* at the table.⁸ Specifically, a lobbyist who represented both the Texas Association of Manufacturers (TAM) and the TIEC was present. He gave a strong voice to industrial and fossil fuel companies’ interests.

At this point, it is worth pausing our narrative to explain these crucial opponents—the TAM and TIEC—in detail. These groups were and remain highly influential in Texan energy policy. On paper, one of these groups lobbied at the legislature (TAM), while the other lobbied at the PUCT (TIEC). But in practice it is difficult to tell these groups apart. The groups relied on the same lobbyist. The groups also held largely harmonious lobbying views, supporting deregulation and opposing renewable energy and other “costly” environmental policies. And while there is no public membership list for either group, the lists that do exist in regulatory filings contain significant overlap. To understand why the TAM and the TIEC opposed solar energy specifically, we need to examine their membership in detail.

The TAM is the successor network to the Texas Coalition for Competitive Electricity (TCCE). That corporate group—described in the previous chapter—lobbied for deregulation in the electricity sector during the late 1990s. In reviving this association, the group aimed to bring “heavy industry groups under one umbrella” according to an individual working with the network.⁹ Formed in 2006, with over 450 companies, it is a much larger association than the TIEC. Given Texas’s industrial makeup, the TAM membership is slanted toward oil and gas as well as chemical companies. Large corporate members include ExxonMobil, Occidental (Oxy), Temple-Inland, Huntsman Corporation, Georgia Pacific, ConocoPhillips, Dow Chemicals, Chevron Phillips, Bayer, Marathon Petroleum, Texas Instruments, Hewlett Packard, and Valero. The fossil fuel companies likely play a dominant role in setting the network’s agenda, particularly on energy policy. For example, TAM’s chair in 2012 was Bill Oswald, the government and regulatory affairs director at Koch Industries, a major petrochemical company.¹⁰

The TIEC is a similar, albeit smaller, business association formed in 1976, just after Texas established its PUC.¹¹ It is a lobbying association that grew up symbiotically with its state regulator. The group includes large energy consumers, particularly oil and gas, chemicals, and steel companies. Although they do not make their member list public and do not have a website, TIEC’s known participants include a who’s who of fossil fuel and chemical corporations: ExxonMobil Power and Gas Services, Chevron Phillips Chemical Company, Shell Oil Products, Huntsman Corporation, Valero Energy Corporation, Oxy, Air Liquide America, and Air Products and Chemicals Inc.¹² Today, the TIEC continues to intervene at PUC hearings. Its goal is to represent the interests of large, industrial energy consumers, which primarily entails trying to keep industrial electricity rates as low as possible. Similarly to the TAM, within the TIEC there is reason to believe that the fossil fuel industry takes precedent in setting the agenda on energy policy.¹³ As one person working in the energy industry stated in an interview, “I believe that fundamentally the oil and gas industry, those are the companies that drive policies within the TIEC.”¹⁴

These opponents were powerful, with a direct line to politicians. When the 2005 clean energy bill was being negotiated, both the TIEC and the TAM were influential with the legislative and executive branches. There was a particularly tight link between the Senate energy policy leader, the governor’s office, and these fossil fuel and industrial opponents. As several people noted in interviews, the lobbyist for the TIEC and the TAM maintained an extremely close relationship with Fraser’s office. One person argued he worked out of the office on occasion: “He sits in Senator Fraser’s office. There’s an empty desk that he uses. [The lobbyist and the legislator’s staffer] are extremely close.”¹⁵ Or as another person who used to be a Republican staffer put it, the lobbyist “basically just lives in

[Fraser's] office."¹⁶ Another person characterized his influence this way: "And this goes right to the issue of [the lobbyist for the TIEC and the TAM] and the amount of power he has over the PUC but also Fraser's office but also in the governor's office."¹⁷ Further, one of the lobbyists for TAM was married to a staff person in Fraser's office—a scheduler, who ultimately became Fraser's chief of staff.¹⁸ There were extremely close ties between the Republican lead on energy policy in the Senate and lobbyists for the fossil fuel industries.

These business associations provide a clear example of Charles Lindblom's (1977) privileged position of business—and, more specific to my work, the privileged position of utilities and fossil fuel companies. It is privileged, indeed, for a lobbyist to maintain an informal desk in the Capitol building. Given this lobbyist's close relationship with both legislators and regulators, numerous interview subjects argued that he was responsible for both the bill's language and its interpretation during implementation.¹⁹

Using the fog of enactment strategically, these opponents concealed what they were doing. The specific language for the solar energy requirement was as follows: "Of the renewable energy technology generating capacity installed to meet the goal of this subsection after September 1, 2005, the commission shall establish a target of having at least 500 megawatts of capacity from a renewable energy technology other than a source using wind energy." This carve-out provision referred to an earlier clause in the bill that would create the *binding* RPS goal. In addition, the bill included language that set a larger, *non-binding* stretch goal for more renewable energy: "the commission shall establish a target of 10,000 megawatts of installed renewable capacity by January 1, 2025." According to those privy to the negotiations, the word "target" was used deliberately in the solar energy requirement to make it different from the binding RPS "goal" of 5,880 MW and the same as the broader non-binding 10,000 MW "target." In short, the opponents wrote the bill so that both the non-binding target and the carve-out relied on the same legal term. This was a calculated tactic to water down the solar policy during implementation.²⁰ Opponents hoped this would provide them with ammunition during implementation to kill the solar requirement. The advocates did not understand the bill's likely consequences if it was passed as written. Without sufficient power to gain a seat at the negotiating table, advocates did not know that this was their opponents' plan—and neither did many legislators. The opponents managed to shroud the bill in a significant fog.

During implementation, the question of legislative intent became central. When the law reached the PUCT, its interpretation was contested. Was the legislature attempting to create a binding non-wind target of 500 MW in order to increase solar in the state? Or was the legislature simply signaling that non-wind resources would be a nice voluntary objective, like the broader 10,000 MW stretch target? At the PUCT, opponents argued that the solar carve-out—like

the long-term goal—was voluntary. That interpretation would make the new policy meaningless, driving no new growth in solar. Those involved in final negotiations over the bill—including the lobbyist for the TAM and the TIEC,²¹ a few Republican legislators, and their political staff—argued that the legislative intent was a non-binding target. As the TIEC asserted in its brief to the PUCT, goals were mandates, while targets were voluntary. Similarly, utilities such as Xcel Energy argued for a “soft target” approach, even while acknowledging that the PUCT had the legislative mandate to pursue a “hard target” with mandatory compliance. Other utilities, including American Electric Power (AEP) and Reliant, wrote to critique the need for additional resources from solar energy given its cost. They too promoted the idea that the solar target was voluntary. The utilities and fossil fuel companies were allied in their opposition to solar energy.

The advocates, by contrast, were unaware that this language would prove so consequential. Otherwise, they would have worked harder during the legislative session to clarify it.²² Had they realized, they might have been able to sway some politicians to pressure the lead senator to change the bill language. Given the benefits renewables had brought to many districts, these groups held some influence at the Capitol—even among Republicans. At the very least, it would have been an openly discussed issue in committees and on the floor, prior to the final vote.

When the bill went to the PUC for implementation, the advocates believed it would be binding. TREIA, BP Solar, and Vote Solar focused their regulatory comments on how to implement the mandatory target they believed the legislation clearly required. They discussed practical questions, such as how to divide up the target between utility and distributed generation projects. When opponents put the issue of legislative intent on the agenda, the advocates were surprised—and they tried to fight back. They argued that the legislative intent could be seen in different parts of the law from where the opponents were fixated. For example, they pointed out that the bill used the term “shall” and argued that “target” is a clear synonym for “goal.” They also pointed out that the non-wind carve-out referred to the part of the bill that was binding (the 5,880 MW goal) rather than voluntary (the 10,000 MW goal).

Given earlier growth in the clean energy industry through policy feedback, these advocates had some influence, and were able to expand the scope of conflict at the commission. Republican senator Todd Staples and Republican representative Roy Blake, Jr.—who had both voted for the bill—shared the advocates’ view that the law intended to create a *mandatory* solar target. They wrote to the PUCT in late 2006 arguing that the non-wind target should be implemented.²³

But the advocates were not well organized in their response. In contrast to the opponent interest groups, which worked together in an extremely

dense network, the advocates had a loose coalition. For example, the Wind Coalition—a technology-specific association—did not speak up for the solar industry, making no comment on the carve-out. While the first clean energy law had bolstered wind energy politically, it did not enable a broad coalition for clean energy or for lowering the state's carbon emissions more generally. Here we see how policy feedback can be quite narrow and particularistic.

During implementation, the executive branch gains greater political importance, with significant power to arbitrate ongoing conflict between advocates and opponents over policy. Like regulatory bodies in other policy domains, the governor is responsible for appointing commissioners to the PUCT. These commissioners were charged with resolving the ambiguity in the latest clean energy law. The PUCT initially proposed draft rules that would drive some limited, new solar.²⁴ Advocates supported this proposal while the industrial opponents dissented. Once again, the opponents had greater influence over the regulator than the advocates. The opponents—specifically, the large industrial companies working through the TIEC—likely lobbied the governor to pressure the PUC to interpret the rule in their favor.²⁵ These group maintained very close ties with the governor.²⁶ Between 2003 and 2007, Governor Perry received more campaign contributions from energy companies *than any other state politician in the country*—almost \$500,000.²⁷

Likely with pressure from the governor, the PUCT changed its final ruling, siding with the opponents against even a modest pro-solar policy. The regulator did not mandate a non-compliance penalty, which would have increased solar under the RPS. As the commission stated in its July 2007 order, “The commission believes there is significant uncertainty about its authority to establish a separate RPS for non-wind renewable resources, but this rule should provide incentives for the development of non-wind renewable resources. If this expectation is not realized, the commission has the latitude to review the rule and amend it in the future.” It was clear even then that the incentives the commission was referring to would prove completely ineffective. No solar would be built as a result of this weak policy. It was not even worthy of the paper it was written on. The opponents had succeeded in killing Texas's solar revolution before it even started.²⁸

Ultimately, the advocates lacked sufficient influence to gain a seat at a crucial negotiating table. Shut out from the discussions, these groups succumbed to the fog of enactment. Opponent interest groups, by contrast, had very strong influence with legislators and regulators. These groups intentionally created ambiguity in the law during enactment. They then worked during implementation to interpret that ambiguity in their favor. And this was not the end of the conflict over clean energy in Texas.

Opponents Continue to Retrench Clean Energy Policy in Texas

While on paper Texas expanded its successful renewable energy policies in 2005 to include solar energy, in practice the clean energy laws faced significant implementation resistance. Consequently, the feedback dynamic was interrupted, making further policy expansion unlikely. Advocates would make several more attempts to kick-start new solar energy policy—in a state with the largest solar resources in the country but almost no solar projects. But they would never find success. Rather, in a sign of growing resistance from politically influential opponents, the legislature began rolling back Texas's renewable energy laws.

The first policy retrenchment came in 2007 when Republican representative David Swinford's bill (HB 1090) passed the legislature. This law gave large energy consumers—those connected to the transmission system—the ability to opt-out of the RPS requirement via written notice to the PUCT. Despite the change primarily benefiting large companies, including members of the TAM and the TIEC, their lobbyist did not push for the opt-out. Instead, Representative Swinford thought he could use an opt-out to appease these corporations, to get them to stop fighting the broader renewable energy goals. As one person involved with the negotiations put it, "He wanted to . . . neutralize [the large customers] so that [they] couldn't really complain about that issue anymore."²⁹ The bill pitted Swinford against Fraser, who did not want it to pass because he wanted the participation of large companies to make sure the clean energy laws didn't get "out of hand."

It proved a poor political strategy. The opt-out allowed the industrials to avoid paying for the clean energy transition—but it did not succeed in neutralizing them politically. The bill passed and was successfully implemented by the PUCT, weakening the state's renewable energy laws. Many members of the TIEC, the TAM and the closely affiliated Texas Chemical Council chose to regularly opt-out, including Occidental Energy Ventures, Valero, Shell Oil Company, Chevron Phillips Chemical Company, Temple-Inland, ExxonMobil Power and Gas Service, and Gerdau Ameristeel.³⁰ This meant that the public would have to bear more of the costs of transitioning the electricity system, while large fossil fuel corporations were free-riders.

Meanwhile, advocates' repeated attempts to establish policies to support solar failed. In the following legislative session, advocates tried to pass a new bill that would clarify the language in the 2005 law, but this effort failed. Two years later, in 2009, legislators and renewable energy advocates tried again to pass a solar carve-out under the RPS. The activity was significant enough that Senator Fraser deemed 2009 "the solar session"—a phrase trumpeted by many media

articles. While there were a wide number of bills proposed in 2009, only two made significant progress.

Once again Senator Fraser took the lead on a clean energy bill (SB 545). His plan included a goal of 3,000 MW of solar by 2020, of which 1,000 MW would be distributed generation.³¹ But unlike the previous attempts to craft a solar-specific requirement, Fraser's bill would fund solar projects through utility-based rebate programs. Since funds were collected from ratepayers, the policy would not impact the state budget. This time, the legislature went to great lengths to specify implementation details. In the bill's final version, a volumetric charge was proposed for residential and commercial customers, while industrial consumers would pay a small flat charge of \$40 a month. This structure meant that small customers rather than industrial customers would bear the brunt of the program's costs. Fearing a prolonged fight with these opponents, Fraser's office proposed these low costs to the industrials' lobbyist.³² The legislation also outlined cost caps for the rebates, ranging from \$2.40/W for small-scale projects to \$1/W for large-scale, wholesale, or industrial generation. Unlike the earlier transmission investment, this bill capped the total amount of money that could be spent on the policy. Still, there was some discretion given to the implementing agency. The bill gave the PUCT the option to extend the program if significant solar manufacturing materialized in Texas. Despite clear limits on industrial customers' costs, the TAM, the Texas Chemical Council, and the Texas Oil and Gas Association still opposed the bill. But support was also broad, from renewable energy companies like Meridian Solar to environmental groups and even one utility, Reliant. The chemical company Dow even broke with its industrial confederates to support the bill.

However, the advocates did not present a united front during this legislative session. One major advocacy group, the Solar Alliance, chose to back a secondary bill (SB 541), which Democratic senator Kirk Watson from Austin had sponsored. When he was the mayor of Austin, Watson had worked on the solar issue with its municipal utility, Austin Energy. His bill more closely resembled a traditional RPS, with a goal of 1,500 MW of additional, non-wind resources by 2020—only half the target in Fraser's bill. There were also incentives for made-in-Texas equipment and new requirements for municipal utilities to increase their renewables. Despite being in the minority party, Senator Watson—a persistent and capable politician—managed to get his bill on the calendar in both the Senate and House. Like Fraser's bill, Watson's had many supporters, primarily environmental and renewable energy advocates. But unlike Fraser's bill, utilities, like Reliant, did not support it. And like Fraser's bill, the TAM registered opposition.

Both bills made progress in both chambers. But neither passed because an unrelated voter ID controversy hung the end of the legislative session, killing

all the bills that remained that year. The outcome left significant bad blood between the bill sponsors and the solar advocates. Overall, the solar community was poorly organized. Solar industry associations' member companies had few operations in Texas and few prior relationships with legislators, resulting in poor lobbying. Unlike the wind industry, there had been no policy feedback from the RPS to spur the solar industry's political influence.

After this flurry of legislative activity on solar, Governor Perry gave a keynote address at a TREIA event in November 2009. He endorsed renewables broadly, while at the same time arguing against mandates and "picking winners and losers." Shortly thereafter, the PUCT once again took up the issue of non-wind renewables, issuing a strawman proposal in December 2009. The proposal would require that 500 MW of power come from non-wind renewables, with only 50 MW of solar power by 2014. Advocates, including TREIA and SunPower, worked with the commission; but the process dragged on for over a year while the fossil fuel lobby continued to oppose solar-specific requirements. Unable to come to a decision, the PUCT once again deferred to the legislature for direction.³³ But when the solar issue was taken up again in the 2011 session, it no longer had traction. By this time, polarization on clean energy had grown at both the state and federal levels (see Figure 1.1), leaving renewables associated with the Democrats. Republicans increasingly argued against renewable energy "mandates." This dynamic only intensified with the bankruptcy of Solyndra in August 2011. With this growing partisan divide, again no solar bill passed in 2013.³⁴

Explaining Opposition to Solar Energy in Texas

Why did these industrial and fossil fuel corporations oppose policy that would spur solar energy? This question is more difficult to answer than it first appears. First, the solar carve-out in the 2005 bill was small—500 MW is less than 1% of Texas's electricity system. It would not dramatically raise electricity prices. Second, industrial consumers connected to the transmission system had already secured the right to opt out of the RPS requirements in 2007. These provisions gave them a clear avenue to avoid cost increases under the Watson bill, and in the case of Fraser's bill, their monthly charge for solar would only be \$40. Surely, this small monthly expense did not justify the much higher lobbying expenses. These corporations would not face substantial costs under a solar-specific policy. In the words of a former Republican staffer "[industrial companies that are members of the TIEC and the TAM] care partly about electricity prices rising. And that's part of the answer. But, as renewables mature and become price competitive, that's less and less of the answer."³⁵

Instead, large industrials' interests are more clearly understood by paying attention to their energy assets. While all of these companies are large energy consumers, it is easily observed that many are also energy *producers*. Many members of the TIEC and the TAM maintain their own natural gas generation infrastructure. As one Republican political staffer described industrial companies' opposition to renewables, "There's no question—they have interests in the energy sector. More recently they have become their own qualified scheduling entities, QSEs, out of ERCOT [the Electric Reliability Council of Texas]." For example, as of December 2017, Shell Energy had eight QSE-registered plants, ConocoPhillips had four, Oxy had two, and Gerdau Ameristeel had one. More broadly, in 2017 several members of TIEC and TAM were on the list of the 100 largest electricity producers in the United States, including ExxonMobil, Oxy, and Dow Chemicals.³⁶

In deregulated electricity markets, generators compete directly with one another. Given how Texas's electricity system operates, generators make larger profits when there is supply scarcity that leads to high prices for "peaker plants"—facilities that operate in peak hours and can cycle up and down quickly. These kind of plants are typically natural gas generators (Dinca et al. 2007). Generators' profits further increase when natural gas prices are low but electricity market prices are high, as has happened since the shale gas boom.

The conflict between natural gas and solar generators arises because solar technologies shave the number of peak hours in a year. This competition is seen clearly in market-based electricity systems with high solar penetration (Hirth 2016). Similarly, the federal PTC allows wind energy to bid negative prices, which suppresses the market price. Consequently, natural gas generators in deregulated markets lose revenues when solar or wind generation increases, putting their interests directly at odds with increased renewable energy. Or, in the words of another advocate who struggled to understand the lengths that opponents had gone to block renewables,

These companies [that were members of the TIEC and the TAM] saw this as a substantial cost that they did not wish to bear. . . . And the realization I think finally began to dawn on the natural gas guys that wind was starting to cut into their profits and solar was certainly going to cut into their profits. Because under a deregulated electricity system, the most valuable hours are peak. They began to think to themselves: 'We make almost all our money, in a deregulated market, on the 200 hours when it's hotter than hell. And if solar gets deployed successfully, that's when it's going to make the most energy and it's going to take our profits away.'"³⁷

In other words, these industrial corporations with generating assets had learned from earlier laws implemented elsewhere that renewable energy was not in their interest. It's not surprising that opponents would not have known about this earlier. Renewable energy technologies were very new when Texas adopted its RPS law in 1999. And the relationship between renewable energy technologies, deregulated electricity markets, and federal subsidies was unclear.

Even today, this dynamic in market-based electricity systems is generally underappreciated. Take, for instance, how natural gas is often viewed as the complement to renewable energy technologies because it can theoretically adapt flexibly to intermittent sources. While this may be true from a technical perspective, it is not the case politically or economically. As one former Republican staffer put it, "There's always been talk about how natural gas and renewables are friends . . . but natural gas wants to run everything: vehicles and electricity and manufacturing and everything."³⁸ More broadly, fossil fuel companies no doubt fear a societal movement away from dependence on their product (Leonard 2019). They do not want to support a clean energy transition that could render their business model worthless.

Texas's Failure to Enact a Net Metering Laws and Ongoing Fragmentation Among Advocates

This pattern of failed policy expansion is not limited to Texas's clean energy goals. The state has also failed to expand rooftop solar—so-called distributed generation—through an effective net metering policy.³⁹ Texas was one of the first states to act on net metering, passing a rule through the PUCT in 1985 (Stoutenborough & Beverlin 2008). However, implementation proved problematic. The PUCT failed to enforce the law requiring generation to be bought at the retail price. As a result, utilities exhibited anticompetitive behavior and actively resisted solar net metering customers. For example, they did not allow small-scale generators to connect to their grid on the grounds that the systems were not properly insured. In 2007, a bill was passed (HB 3693) that made the net energy metering (NEM) situation worse by using language that stipulated that utilities *may* purchase electricity from customers rather than *shall*. More recently, the state has failed to update its net metering policy and provide a clear framework for distributed generation solar.⁴⁰ As a result, the state is widely seen as being without a binding net metering policy.

In Texas, politicians often assume that the market will provide an option for customers who want to install solar if it makes sense economically. However, much like the chicken-or-egg problem with transmission capacity, in practice,

the system is caught in an unfortunate equilibrium. Customers will not install solar if they cannot be assured that they will be compensated fairly; and therefore, few customers exist to incentivize companies to offer attractive net metering plans. This dynamic may be overcome in the future if electricity retailers see value in locking in customers through longer-term contracts. But it could be overcome more quickly if the PUCT set a clear framework for net metering and the solar carve-out.

Instead, on solar, Texas is free-riding off the efforts of other states. Once solar technologies are cheap enough, large-scale merchant plants will be built and will bid into the competitive electricity market. This dynamic began to unfold in 2014 when a large First Solar plant was announced. However, it is unlikely that significant numbers of these plants will be built in the near future since this first plant used panels that cannot be warrantied and, therefore, have lower values. While a market-based approach is consistent with the political rhetoric in Texas, it remains flawed. If *all* of the US states acted like Texas, there would be little renewable energy built, little innovation through learning and even less action on climate change.

In the case of Texas, policy retrenchment and implementation resistance have created problems for renewable energy advocates, leading to fragmentation and conflict in their political coalition. In 2015, TREIA changed its name from “Association” to “Alliance,” signaling lowered resources. Similarly, a new solar association was established in mid-2014, the Texas Solar Power Association, in essence competing with the Solar Alliance and TREIA. Advocates’ inability to work together does not bode well for their ability to change laws in the future.

Conclusion

Many believe that Texas is a clean energy leader, given its early success in wind energy. But a closer look at the facts suggests a much more complicated story. Fossil fuel corporations and other heavy industries have spent the past decade blocking progress in the Lone Star State. Working through a dense network, and with extremely strong ties with the key legislator on the energy file, these opponents learned from earlier policies’ implementation and successfully blocked the RPS from including a new technology. Consequently, in Texas, we see an initial period of policy expansion, followed by a period of implementation resistance and later of policy retrenchment.

This case also demonstrates how the fog of enactment can be used intentionally as a weapon against groups with less information. On the solar energy provisions, opponents kept their resistance hidden during enactment, creating ambiguity in the draft bill. Consequently, the advocates left that legislative

session believing the language had one meaning; the opponents left with a prefabricated argument that it held another. Opponent interest groups wanted advocates to believe they had made progress while they intended to resist the law during implementation.

Texas's opponents are not unique in using this strategy. In Nevada, solar advocates worked to protect net metering after a 2016 court ruling threatened the policy. Advocates felt they had notched a win with a compromise agreement that net metering customers would receive 95% of the retail rate for exported solar energy. The compromise also firmed up rate design rules to ensure that these customers would not be treated as a separate class. But that didn't stop opponents from trying to create ambiguity in the legislation's provisions. Rather than respecting the 95% retail rate provision through monthly calculations, opponents argued that this system should be applied on a unit-by-unit basis. This threatened to decrease returns for net metering customers. After protests and a public campaign challenging the decision, Nevada governor Brian Sandoval signed a bill in 2017 that reinstated net metering at near full retail rates.⁴¹

In Texas, the change in the interpretation of the bill during implementation had both climate and technological impacts. Texas's renewable energy laws helped spur existing inexpensive technologies—wind energy—but did nothing to incent solar as a newer, more costly technology. In this way, this case also shows that policy feedback can be narrow. We might expect a renewable energy law to broadly catalyze new industries. But, in practice, it only catalyzed the least expensive technology. Unlike the fossil fuel industry, clean energy advocates failed to work across technological boundaries and build a broader coalition with greater power and influence. Consequently, Texas has not capitalized on its significant solar resources nor contributed to innovation in solar photovoltaic technology. In part, this has occurred because, without a stable NEM policy, solar companies are largely absent from the state. Without these players, there are few actors to advocate.

Texas continues to lag behind in solar. Despite having the largest resources, it was only ranked sixth in the nation overall for solar installations in 2018.⁴² Municipal utilities, like Austin Energy, and local electric co-ops, which operate outside the deregulated system and do not have RPS requirements, have driven much of the recent growth in solar.⁴³ They have taken advantage of lower-cost solar and have supported customer adoption of distributed generation in some cases.⁴⁴ With hindsight, Texas could have easily met the 2005 goal that was never implemented. It also could have easily surpassed Fraser's failed 2009 bill, which aimed to have 3,000 MW of solar by 2020—in 2019, this target was met. Opponents resisted even these unambitious policies. Had these laws been passed or implemented, Texas would be further along in solar energy today.

Solar has come to Texas late—only after other states, like California, have paid for the costs of innovating the technology.

It is also notable that while Texas's government has supported clean energy, the state's policy ambition has consistently been weak. Advocates pushed for higher targets but lost out to opponents in negotiations. Thus, policy goals were met years ahead of schedule. As a result, the feedback dynamic was weaker than we might expect with a more ambitious policy. This case can help us understand policy feedback when incumbents are politically powerful. Laws may empower new interest groups, but not enough to rival opponents. Under these conditions, opponents may continue to hold greater influence over politicians. As a result, they are more likely to win organized combat by deploying direct tactics like lobbying, contributions, relationships, and ideas. If opponents successfully resist laws during implementation, they can disrupt policy feedback, causing advocates to lose resources. As their coalitions fragments, this can kick off a downward spiral for both advocates and policy.