

The Impact of Community Solar Legislation on Equitable Community Solar Access Within the United States

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ABSTRACT

Community solar has been identified as a way for low-moderate income (LMI) households to access renewable energy while alleviating household struggles with energy burden. However, community solar legislation can both help and harm the efforts of community solar projects to reach LMI communities. This paper examines if community solar legislation makes community solar more accessible to LMI households across the United States. To answer this question, I created a dataset and codebook for passed and failed community solar legislation across all 22 states and territories that have passed community solar policies. I compared the number of policies that considered LMI participation with the total number of pieces of legislation, finding that only a slight majority of states and policies had LMI considerations. Comparison of failed legislation found no significant correlation between why policies fail in each state. However, comparison of two significant types of legislation showed that community solar policies with LMI requirements built into the legislation were more beneficial to community solar programs than community solar policies that gave community solar rulemaking to state public utilities commissions (PUCs). The findings indicate a need for states to focus their legislative efforts on community solar policies that will directly consider allocations for LMI households. More research needs to be done into the amount of state-funded research that exists for community solar, as well as the rules made by various PUCs in regards to community solar.

KEYWORDS

Low-moderate income (LMI), energy policy, energy burden, public utilities commission, shared solar

INTRODUCTION

As the world shifts towards more sustainable energy practices, barriers to renewable energy are a cause for concern. Looking at solar energy in particular, installations can cost consumers thousands of dollars. On top of this, research shows that solar power isn't effective without a location that receives ample sunlight (Reichelstein and Yorston 2013). Even if households wanted to install solar on their rooftops, there are financial and geographical factors that may hinder them. A 2022 survey reflects this reality: while 8% of households already have solar installed, 39% of homeowners are considering installing solar (Nadeem 2022). The contrast between those who have solar and those who want it is large, also indicating that solar installations are a hard decision to commit to.

In recent years, the business model of community solar has become popular due to its ability to circumvent the barriers to using solar energy. Community solar, in legislation, is often defined as a solar electric generation facility that is located in or near a community served by a qualifying retail utility where the beneficial use of the electricity generated by the facility belongs to the subscribers to the community solar garden. The distribution of solar energy ensures a larger benefit to the community overall than private solar installations do (Awad and Gul 2018). Adding to the physical benefits of community solar, the social perception of the community solar model is generally positive. Due to the placement of projects within a community, instead of on individual property, news about projects are more likely to spread through word of mouth and motivate other community members to join (Peters et al. 2018). As a whole, the benefits of community solar promise to help individuals and communities alike. However, there are a few ambiguities within the system that have the potential to become problematic. For one, recent research has shown that the word "community" within community solar is often undefined, with commercial businesses receiving the benefits of community solar as opposed to actual community members (Ptak et al. 2018). This highlights the communities being left out of community solar.

Community members, more specifically low-income members of communities, are often excluded from the opportunities that community solar brings. Low-income households in shared solar developments are oftentimes marginalized (Yenneti and Day 2015), which suggests that community solar may not benefit low income households. Research into the barriers of entry into

community solar shows that low-moderate income (LMI) households require more education and overall work to participate in and receive the benefits of community solar (Hirsch Bar Gai et al. 2021). Community solar legislation can both contribute to or complicate the experiences of LMI customers with community solar. Community solar developers often wait for legislation that enables or incentivizes community solar to build projects in those states (Augustine and McGavisk 2016). However, some policies actively limit LMI access to community solar resources by creating barriers for community members to qualify as a community solar customer (Scheel 2021). Without a holistic analysis of United States community solar policy, there is no way to know how and why current policy within the U.S. is struggling to meet accessibility needs.

Aside from the struggles of community solar policy to provide adequate support for LMI customers, pushback from different entities can also cause community solar bills to fail; this prevents any support for community solar or allocations for low-moderate income customers in the first place. Community solar poses a threat to traditional, centralized energy generation, which can receive pushback from utilities and public utilities commissions (PUCs) (Hirsh Bar Gai et al. 2021). Additionally, community solar projects are often owned and developed by third-party entities, which stand to benefit more from community solar legislation than utilities (Hirsh Bar Gai et al. 2021; Peters et al. 2018; Augustine and McGavisk 2016). As such, community solar bills can often be blocked by utility companies or PUCs. On the flip side, community solar advocates can also push too hard for more comprehensive community solar legislation, which leads to bill failure as well (Spiegel 2014). Examining the common factors that cause community solar legislation to fail may give us more insight on why community solar isn't as accessible as it seems at first glance.

In this study, I am seeking to investigate if community solar legislation makes community solar more accessible to low-moderate income (LMI) households across the United States. First, I analyze if community solar policy in each state actually considers the needs of the low-moderate income population within that state. To do this, I categorize legislation in each state and determine how many policies in each state actually contain benefits for low-moderate income households. I predict that current policy does not adequately meet the needs of low-moderate income households, based on current community solar disregard for its community aspect. Then, I will look at how many community solar policies have been rejected across all

states, and determine why the legislation failed. This requires using the collected policy information and recording where each bill failed in progress of becoming law. For this portion, I predict that there are many factors that can cause community solar policy to fail. Finally, I will compare the two most common types of community solar legislation to determine the benefits and downfalls of current key methods legislators use to make community solar legislation more accessible. I will compare the policies across several metrics from my dataset as well as outsourced datasets. I predict that there will be a clear policy type that can make community solar more accessible.

Background

The COVID-19 pandemic has made access to LMI-targeted resources even more important. Energy burden, defined as the percentage of income individuals spend on their energy bills, was exacerbated by the pandemic (Mastropietro et al. 2020). This increased the financial burden endured by low-income communities. While government programs such as the Low Income Home Energy Assistance Program (LIHEAP) exist to alleviate financial stress for these communities, the results of the program do not always reflect the intent of the program. In other words, research has shown that programs like LIHEAP are not adequately addressing problems of energy burden, especially for households that have been struggling with energy burden long-term (Konisky et al. 2022). At the same time, the pandemic accelerated the process of the United States transitioning towards electronic communication methods, widening the gap between energy burdened households and non-energy burdened households (Chen et al. 2022). This disconnect meant that communication about essential needs skipped over energy-burdened households, who arguably need these services the most. As such, it is critical that LMI-targeted resources reach their intended audience, and that they fulfill the needs of low-moderate income households well.

Community solar policy within the United States is also currently at a critical junction. The Biden administration passed The Inflation Reduction Act in the summer of 2022, which included policy for community solar as well as the LMI population. This means that more states will be expected to include LMI considerations in their policy in the coming years. In conjunction with this fact, many states have implemented community solar pilot programs over

the past decade or two. These pilot programs are meant to test the efficacy of community solar within the state. Depending on the results from these programs, states have started to make more informed decisions about their policy design for community solar in recent years. As such, it will be useful to analyze the effectiveness of currently existing policy, so that we can understand the thought process going into the creation of future policy.

The ambiguity of community solar

Community solar exists under many different names and forms in legislation across the United States. Community solar became possible through the invention of net metering in the 1980s. Net metering allowed for owners of solar panels to feed the energy generated into the electricity grid, gaining credits in return for doing so. Companies or utilities that owned solar panels could do the same thing, which built the baseline for community solar. Vermont's community solar program, for example, was enabled in 2012 by policy that allowed for "group net metering systems." As solar energy became more popular in practice, more states started to pass legislation to support different types of solar systems, including distributed generation. While the concept of community solar is more community-focused than distributed generation (Campbell and Mahrer 2016), distributed generation policies still support the buildout of community solar projects. Furthermore, the term "shared solar" started to be used interchangeably with "community solar," adding another term that could refer to community solar systems (Augustine and McGavisk 2016). As such, even though community solar continues to grow as the dominant term, it is by no means the only way that states choose to refer to solar projects that benefit communities as a whole. The non-standardization of terminology, as well as the non-standardization of approaches to community solar regulation, makes the study of community solar policies across multiple states difficult (Smith et al. 2021).

Drawing inspirations for analysis from energy policy research

The difficulty of comparing community solar policies across the United States creates a need to research potential methods for comparing policies as a whole. Due to community solar being a relatively new industry, not much research exists for community solar policies. I

conducted a literature review of energy policy as a whole due to its potential similarities in data collection and analysis to community solar policy research. One common trend found in energy policy research is its emphasis on qualitative data. The most commonly identified research approach and design in energy policy is comparative analysis; however, other qualitative methods such as case studies, surveys, and interviews, were also used.

The most common type of research method used throughout the papers was comparative analysis. One example of this was seen in the comparative analysis of renewable energy policies in China and Mexico. This analysis details both the differences in focus of energy policy in each country (Mexico's focus on energy efficiency vs. China's focus on both energy efficiency and renewable energy), as well as their implementation style (China's policy design in collaboration with subnational governments vs. Mexico's focus on offering subnational governments financial incentives) (Valenzuela and Qi, 2012); pointing out that China may struggle more with financial backing to their programs, while Mexico might struggle with controlling the directions or actions that their subnational governments take. The comparative analysis locates the negative outcomes that result from each country's approach, which can provide policymakers with critical information on potential gaps in policy to focus on if they decide to pursue similar avenues. A different approach to comparative analysis can be seen in a paper analyzing the energy efficiency policies in Iceland, Norway, and New Zealand. The authors pinpointed the benefits of New Zealand's electricity levy in comparison to other countries, as well as the agricultural focus New Zealand needs that isn't a cause for concern in other countries (Verma et al. 2018). Even though comparative analysis wasn't the only method used in this paper, it was essential to find the specific strengths and weaknesses of New Zealand, as well as determine why New Zealand was a good country to focus on in the first place. While these papers focus on different aspects of energy policy, they use the same method of comparative analysis to inform their conclusions about the efficacy of different energy policies. This indicates that comparative analysis is a powerful tool to make judgements on energy policy, which is likely due to its ability to show the casual relationships in policy choice and outcome. Comparative analyses are also specific enough to focus on intricacies in all steps of policy design and implementation, while still giving the data a point of comparison.

While comparative analysis wasn't the only method used in energy policy research, other research designs were also largely focused on qualitative data. In Minnesota, a study was

conducted regarding the community solar initiatives in the area. The paper used survey data to draw conclusions about the benefits of community solar initiatives in general, and to compare this situation to practices in other countries (Peters et al. 2018). Similarly, a paper written on the EU's 2030 climate and energy policy framework is mainly a case study that assesses policy with four criteria, but also compares the new framework to the EU policies from 2020 (Oberthür 2019). In both examples, comparative analysis was not the research focus of the papers, but the studies were still focused on specific cases, and the analysis of results still had comparative aspects. This emphasizes the importance of specific studies in energy policy, as well as the benefits of comparison. While comparative analysis wasn't used in all papers, the papers that weren't based in comparative analysis mainly had both qualitative and comparative elements within them.

Common conclusions drawn from energy policy literature

Following the analysis of common research designs, attention can be drawn towards common findings of energy policy papers, which can explain what policy should be focused on moving forward. Across papers with multiple focuses and approaches, a common finding is the importance of local involvement: whether it be in the support, the design of policy, or the implementation of the policy. To start, Peters' paper on community solar initiatives emphasized the importance of local involvement in both decisions surrounding what projects to work on in neighborhoods, as well as the benefits of local support for spreading information about solar initiatives (Peters et al. 2018). In the same vein, a paper comparing wind power implementation in three separate regions emphasized that the success of wind power in North Rhine Westphalia (NRW), a German State, was due to its emphasis on local involvement, unlike larger countries that focused on less effective large-scale projects. The paper concludes that large-scale policy does not adequately address local problems, and that support for local project development needs to be institutionalized (Breukers and Wolsink 2007). Both of these papers, while looking at different types of energy policy, recognize that local efforts need to be encouraged. Another perspective can be seen from the study of Charanka Solar Park, which found that not just local opinion matters, but also marginalized local opinion (Yenneti and Day 2015). Yenneti's study used interviews to determine the disparity in the weight of opinions of locals. Their methodology

emphasizes the importance of not only working for the local community, but also connecting with the local community. These papers all push energy policy research suggestions in a similar direction: towards specific policy that can benefit smaller populations, especially marginalized populations.

Limitations and gaps in energy policy literature

For papers with common methods and conclusions, the limitations of the study might be similar as well. As such, it is important to know what these limitations are so that they can be either avoided or addressed in future research. In the paper about community solar initiatives in Minnesota, the author recognizes one limitation of local initiatives is that rhetoric surrounding initiative creation is much more abundant than actual action surrounding these initiatives (Peters et al. 2018). A similar limitation was found in the paper detailing energy policy in New Zealand, Iceland, and Norway: there was a lack of accessible data about initiatives, and as such, not all indicators of good energy policy could be assessed (Verma et al. 2018). These problems are part of the broader issue that there is likely less action, and even less monitoring, of energy policy in local communities. As pointed out in a book about global environmental policy, the downsides of transnational agreements is the lack of a centralized monitoring system (Falkner 2013). This applies to local communities too: even if local communities do monitor their policies, their methods for doing so might be different from other areas. In general, local communities are important to focus on for energy policy implementation and design. However, they are hard to track and research due to the limited data and different methods of tracking information.

Some of these issues might be indicative of the limitations of the research methods as a whole. As previously mentioned, even though not all of the papers used comparative analysis, most of the papers used qualitative methods of research, such as case studies and literature review. In Sovacool's paper regarding polycentric approaches to governance, he addresses that in order to come to a genuine conclusion about the usefulness of polycentrism, the qualitative speculation in his paper would need to be supplemented with quantitative data, more research, and more cases to study (Sovacool 2011). This makes a good point about qualitative research in general: the results cannot really be generalized due to the lack of data. While the results of these comparative studies might be able to give policymakers a sense of what may happen if they

followed the same procedure, there is not enough information to be sure that the solution provided in these studies will work in all situations. As such, more reviews may need to be conducted to attempt to make generalizations about energy policy.

Implications for the study

Based on the literature review, a good way to approach energy policy research as a whole is comparative analysis. Methods outside of comparative analysis are still focused on qualitative methods of analysis. According to the common conclusions of energy policy research, legislation that encourages direct local involvement should be viewed in a more positive light. However, since limited data may be available for state-specific policies, more effort should go into data collection to ensure that all of the information that can be collected will be included. When possible, textual analysis should also be supported by quantitative data in order to strengthen the argument.

METHODS

Approach

My study is conducted across the 22 states and territories that currently have community solar legislation. These states include: California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Massachusetts, Maryland, Maine, Minnesota, North Carolina, New Hampshire, New Jersey, New Mexico, Nevada, New York, Oregon, Rhode Island, South Carolina, Virginia, Vermont, and Washington DC. To collect information about each state's community solar legislation, I went to each state's legislature website. I conducted a search based on each state's primary verbiage for community solar to find legislation that was specific to community solar programs. I left out legislation that was specific only to renewable energy or to solar energy, because the primary focus of my study was on community solar legislation. To be more thorough, I also conducted a search for community solar legislation in the DSIRE database, a renewable energy database policy database run in collaboration with EnergySage and North

Carolina State University. Finally, I did a final search through LegiScan’s legislative database for community solar initiatives. Then, I compiled a table of each state’s legislation and I notated parts of the legislation that honed in on the state’s plans for LMI programs and allocations. As supplementary information, I also collected research documents from states regarding community solar and LMI allocations, as well as newspaper opinion pieces on community solar legislation that passed or failed.

Coding the Data

To answer all three of my research questions, I gathered information on what kind of policies were being passed in each state. I notated the general actions that each state’s legislation mandated for community solar. Then, I grouped policies by similar actions of interest. To answer my question about whether each state includes considerations for the needs of LMI customers, I collected information on the year, type of action each legislation took, and government funding. Information about the status of legislation and reason not passed was gathered to answer my research question on what type of community solar legislation would get rejected and why. I inserted information about each policy into a spreadsheet so that I could compare them across all categories.

Table 1. Coding mechanism for community solar legislation. Community solar legislation was coded based on common patterns of legislation. The codebook is organized from least considerate of low-moderate income communities to most considerate types of legislation.

Legislation type	Code
Establishing a CS program or authority	EST
Pilot programs	PIL
Directing PUC to create rules for LMI participation	PUC
Grants or funds set aside for CS	GRANT
LMI requirements built into legislation	LMI
Involving local organizations/businesses for LMI participation	ORG

Determining the consideration states have for LMI-related policy

In order to determine whether or not states have LMI-related policy, I first filtered my dataset by legislation that was passed. Then, I divided the passed legislation into different categories: legislation with LMI considerations and legislation without LMI considerations. Legislation with the code EST and PIL were considered policies without LMI allocations, and legislation that was coded PUC, GRANT, LMI, or FUND, was noted as policies with LMI considerations. Then, I counted the number of policies with LMI considerations and compared that number with the number of total passed legislation. I also compared the number of states with legislation that had LMI considerations to the number of total states with community solar legislation.

Analysis of failed policies

To answer my question on the factors influencing community solar bills to fail, I looked at the stage in which each policy failed. I then compared the result of each failed policy to determine if there was a commonality between the reasons that these policies failed.

Comparative analysis of key legislation types

To determine which legislation types to compare, I looked at the number of legislation in each type category, excluding bills that were not passed and legislation that did not include LMI considerations. I picked the two categories with the highest numbers of legislation within the categories. After choosing which type of legislation to compare, I compared the policy types on the number of states with the policy, the number of policies from my dataset, and the average year that policy from each legislation type was passed. Then, I compiled data from the United States' NREL database regarding community solar in each state (Campbell 2019). The final metric I compared was the amount of community solar capacity buildout in states from each policy type. I graphed the community solar capacity in each state with each policy type in order to compare the speed at which each policy type led to community solar buildout.

RESULTS

Consideration for LMI-related policy

Table 2. Legislation with LMI considerations. Passed community solar legislation is filtered by policies that consider LMI allocations in green (FUND, LMI, ORG, PUC), and policies that do not consider LMI allocations in red (EST, PIL).

State	Year	Legislation	Type of Legislati	Gov Control (D/R)	Passed (Y/N)	If no, why?
New Hampshire	2017	SB 17-129	FUND	R	Y	
Connecticut	2018	PA 18-50	LMI	D	Y	
Delaware	2020	SB 20-250	LMI	D	Y	
Delaware	2021	SB 21-2	LMI	D	Y	
Illinois	2016	SB 16-2814	LMI	D	Y	
Nevada	2019	AB 19-465	LMI	D	Y	
New Hampshire	2022	SB 22-270	LMI	R	Y	
New Hampshire	2019	SB 19-165	LMI	D	Y	
Oregon	2016	SB 16-1547	LMI	D	Y	
Virginia	2020	SB 20-710	LMI	D	Y	
Illinois	2021	SB 21-2408	ORG	D	Y	
Maine	2019	LD 19-1711	ORG	D	Y	
New Mexico	2021	SB 21-84	ORG	D	Y	
Virginia	2020	SB 20-629	ORG	D	Y	
New Jersey	2018	SB 18-2314	PIL/PUC	D	Y	
California	2013	AB 13-327	PUC	D	Y	
California	2022	AB 22-2316	PUC	D	Y	
Colorado	2010	HB 10-1342	PUC	D	Y	
California	2013	SB 13-43	EST	D	Y	
Colorado	2019	HB 19-1003	EST	D	Y	
Hawaii	2015	Act 15-100	EST	D	Y	
Massachusetts	2008	S 08-2768	EST	D	Y	
Minnesota	2013	Statute 216B.1641	EST	D	Y	
New Jersey	2021	A 21-4554	EST	D	Y	
North Carolina	2017	HB 17-589	EST	R	Y	
Rhode Island	2016	HB 16-8354A	EST	D	Y	
South Carolina	2019	A 19-62	EST	R	Y	
Vermont	2012	30 V.S.A. § 8010	EST	D	Y	
Washington DC	2013	Act 13-20-186	EST	N/A	Y	
Connecticut	2015	PA 15-113	PIL	D	Y	
Maryland	2015	SB 15-398	PIL	D	Y	
Maryland	2019	HB 19-683	PIL	D	Y	

Out of 32 pieces of passed community solar legislation, 18 included considerations for low-moderate income households. On the state and territories level, 12 states and territories contained low-moderate income considerations out of 22.

Failed Policies

Table 3. Failed policies across all states. The dataset is filtered by policies that were not passed, and organized by reasons not passed.

State	Year	Legislation	Type of Legislati	Gov Control (D/R)	Passed (Y/N)	If no, why?
Rhode Island	2021	HB 21-5327	LMI	D	N	CHA
Rhode Island	2016	HB 16-7585	EST	D	N	COM
New York	2013	SB 7444	PIL	D	N	COM
New York	2021	SB S3521A	LMI	D	N	GOV (D)
Maine	2016	LD 16-1649	EST	R	N	GOV (R)
Maine	2018	LD 18-1444	EST	D	N	GOV (R)
Nevada	2017	SB 17-392	LMI	D	N	GOV (R)
Illinois	2021	SB 21-18	LMI	D	N	HOUSE (D)
Minnesota	2015	SF 15-1508	LMI	D	N	SEN (D)
Connecticut	2014	SB 14-353	PIL	D	N	SEN (D)

There was no dominant reason that community solar policies failed. There were a variety of types of legislation that failed, and there was no specific place in the legislature that policies commonly failed.

Comparing PUC and LMI policy types

Table 4. Comparison of PUC and LMI metrics. Comparing the average year legislation was passed for the two dominant types of legislation, the number of policies in each legislation type, and the number of states with each legislation type.

	LMI	PUC
Average year	2019	2016
Number of policies	14	4
Number of states	10	3

Comparing LMI policy and PUC policy directly, LMI policies are passed in later years on average than PUC policies. However, more states have passed LMI policies than PUC policies, and more LMI policies exist than PUC policies.

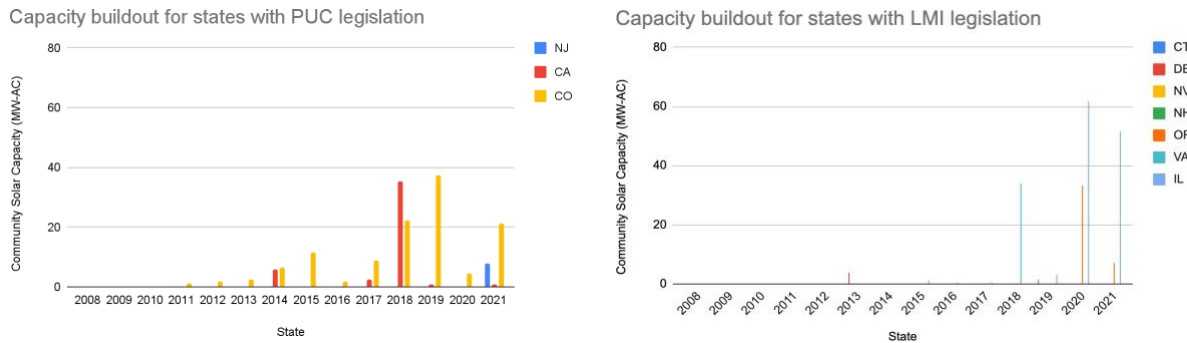


Figure 1. Comparison of capacity buildout from PUC legislation vs. LMI legislation. Time series bar graphs of community solar capacity buildout (in MW-AC) between states with PUC legislation (left) and states with LMI legislation (right).

Based on the time series data, despite LMI policies passing in later years than PUC data, capacity buildout of community solar projects in states with LMI policies happens much quicker in a much shorter amount of time. Capacity buildout in states with PUC policy happens at a slower pace over time.

DISCUSSION

My analysis of community solar legislation yielded both expected and unexpected results. While many states have passed community solar legislation that support LMI communities, a lot of work still needs to be done to ensure that this support exists across all communities. There is no clear reason as to why community solar legislation fails in certain states. Based on the findings, community solar legislation certainly has the potential to make community solar more accessible to LMI communities. However, certain types of community solar legislation are more impactful than others, especially for LMI communities. States should learn from other states' trials and tribulations and adjust their legislation moving forward accordingly.

More states need to update their legislation to include LMI provisions. As the data indicates, only 12 states of 22 had community solar legislation supporting LMI communities and only 18 pieces of legislation supported LMI communities out of 32 total pieces of passed legislation. This is only a slim majority, meaning that most community solar legislation does not have a goal of making community solar more accessible to LMI communities. This supports evidence that community solar legislation needs to be made more accessible across the United States. Existing research analyzes the benefits and failures of community solar on a smaller scale; research often goes into case studies of community solar legislation (DeVar 2019; Wallsgrove 2019). My results show the overarching progress of community solar legislation across the United States.

The reasons that community solar legislation gets rejected are not immediately clear. As seen in the data, there are a variety of reasons why community solar legislation may get rejected. The most common reason that community solar legislation gets rejected, however, is from governor veto. In most of these instances, the governor was the opposite political party as the legislature. Research shows that governor veto is much more likely when the governor and the legislature are divided on a partisan line (Klarner and Karch 2008). This may indicate that the reason community solar legislation does not pass is not because community solar legislation is not viable or supported, but rather because of partisan or institutional forces.

Policy that is coded LMI should be the way forward for states looking to pass community solar legislation if they want to increase LMI access to community solar. States often mandate or fund other groups to conduct research into viable methods of implementing community solar before they pass legislation with a permanent community solar program (Campbell 2019). There are more states with LMI policy than PUC policy, which may indicate that LMI policy has proven to be more useful than PUC policy after state research. States with LMI policy are ranked higher, build out capacity faster, and are more recent than states with PUC policy (Chan et al. 2022). The faster capacity buildout means that more customers will get support faster, especially LMI customers because LMI policy reserves carve outs for these customers. This also supports prior findings that PUC policy may not be as effective (DeVar 2019).

Community solar legislation can make community solar more accessible to LMI communities, but only if states take precedent into account. The fact that a large proportion of states still do not have LMI provisions within their legislation indicates that there is still room for

community legislation to grow in terms of providing for low-moderate income subscribers. States should look at other states' community solar legislation to see what works and doesn't. By doing so, states can bypass making the same mistakes that other states have made in the past. Standardization of community solar policies has been proposed as a solution by prior research (Hirsh Bar Gai et al. 2021). However, this study shows that community solar legislation does not necessarily need to contain the same provisions to have the same impact; rather, they just need to uphold a certain level of strictness/standard when it comes to LMI provisions.

Limitations

This study was limited to one year of research; more time is needed to fully analyze the implications of the dataset. Additionally, the methods used may not fully encapsulate all of the legislation that impacts community solar across all states. Even though I used three different methods to gather community solar legislation, I may have missed some community solar policies that use different names or terms than traditional community solar policies.

Future Directions

My research shows that it may be beneficial to look further into PUC rulemaking. As seen, PUC rulemaking was a huge factor, especially in earlier legislation. Findings of state PUC committees may hold useful information on how to make CS more accessible. It may give more insight on why policies that dedicate rulemaking to the PUC grew less popular over time and resulted in less community solar capacity buildout than other types of policy. Another future avenue of research may be to research states that contain community solar without legislation and compare their impact on LMI communities. This study was only focused on legislation, but no consideration was given to the states that have no legislation but still provide CS to customers. Looking into this contrast may give more insight on how impactful CS legislation as a whole is.

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APPENDIX A

Table A1. Comprehensive community solar legislation dataset. Table containing all passed and failed community solar legislation across all states and territories, organized in alphabetical order by state.

State	Year	Legislation	Type of Legislati	Gov Control (D/R)	Passed (Y/N)	If no, why?
California	2013	AB 13-327	PUC	D	Y	
California	2022	AB 22-2316	PUC	D	Y	
California	2013	SB 13-43	EST	D	Y	
Colorado	2010	HB 10-1342	PUC	D	Y	
Colorado	2019	HB 19-1003	EST	D	Y	
Connecticut	2018	PA 18-50	LMI	D	Y	
Connecticut	2014	SB 14-353	PIL	D	N	SEN (D)
Connecticut	2015	PA 15-113	PIL	D	Y	
Delaware	2020	SB 20-250	LMI	D	Y	
Delaware	2021	SB 21-2	LMI	D	Y	
Hawaii	2015	Act 15-100	EST	D	Y	
Illinois	2016	SB 16-2814	LMI	D	Y	
Illinois	2021	SB 21-2408	ORG	D	Y	
Illinois	2021	SB 21-18	LMI	D	N	HOUSE (D)
Maine	2019	LD 19-1711	ORG	D	Y	
Maine	2016	LD 16-1649	EST	R	N	GOV (R)
Maine	2018	LD 18-1444	EST	D	N	GOV (R)
Maryland	2015	SB 15-398	PIL	D	Y	
Maryland	2019	HB 19-683	PIL	D	Y	
Massachusetts	2008	S 08-2768	EST	D	Y	
Minnesota	2013	Statute 216B.1641	EST	D	Y	
Minnesota	2015	SF 15-1508	LMI	D	N	SEN (D)
Nevada	2019	AB 19-465	LMI	D	Y	
Nevada	2017	SB 17-392	LMI	D	N	GOV (R)
New Hampshire	2017	SB 17-129	FUND	R	Y	
New Hampshire	2022	SB 22-270	LMI	R	Y	
New Hampshire	2019	SB 19-165	LMI	D	Y	
New Jersey	2018	SB 18-2314	PIL/PUC	D	Y	
New Jersey	2021	A 21-4554	EST	D	Y	
New Mexico	2021	SB 21-84	ORG	D	Y	
New York	2013	SB 7444	PIL	D	N	COM
New York	2021	SB S3521A	LMI	D	N	GOV (D)
North Carolina	2017	HB 17-589	EST	R	Y	
Oregon	2016	SB 16-1547	LMI	D	Y	
Rhode Island	2021	HB 21-5327	LMI	D	N	CHA
Rhode Island	2016	HB 16-7585	EST	D	N	COM
Rhode Island	2016	HB 16-8354A	EST	D	Y	
South Carolina	2019	A 19-62	EST	R	Y	
Vermont	2012	30 V.S.A. § 8010	EST	D	Y	
Virginia	2020	SB 20-710	LMI	D	Y	
Virginia	2020	SB 20-629	ORG	D	Y	
Washington DC	2013	Act 13-20-186	EST	N/A	Y	

APPENDIX B

Table B1. Notes on every piece of community solar legislation. Notes on every piece of community solar legislation: linking the bill, the name, important pieces of information directly from the bill text, and thoughts on the bill text.

California

Bill #	Key Legislation	Notes	Conclusion
SB 13-43	Electricity: Green Tariff Shared Renewables Program.	- One hundred megawatts shall be reserved for facilities that are no larger than one megawatt nameplate rated generating capacity and that are located in areas previously identified by the California Environmental Protection Agency as the most impacted and disadvantaged communities. These communities shall be identified by census tract, and shall be determined to be the most impacted 20 percent based on results from the best available cumulative impact screening methodology designed to identify each of the following - To the extent possible, a participating utility shall actively market the utility's green tariff shared renewables program to low-income and minority communities and customers	- LMI already being thought of, capacity being set aside - Utility controlled
AB 13-327	Electricity: natural gas: rates: net energy metering: California Renewables Portfolio Standard Program.	- The bill would require the commission to ensure that any new or expanded fixed charges reasonably reflect an appropriate portion of the different costs of serving small and large customers, do not unreasonably impair incentives for conservation and energy efficiency, and do not overburden low-income and moderate-income customers. - the commission shall ensure	- All language points to PUC control of LMI allocations

		<p>that low-income ratepayers are not jeopardized or overburdened by monthly energy expenditures. Energy expenditure may be reduced through the establishment of different rates for low-income ratepayers, different levels of rate assistance, and energy efficiency programs.</p> <ul style="list-style-type: none"> - Beginning in 2002, an assessment of the needs of low-income electricity and gas ratepayers shall be conducted periodically by the commission with the assistance of the Low-Income Oversight Board - The commission shall, by not later than December 31, 2020, ensure that all eligible low-income electricity and gas customers are given the opportunity to participate in low-income energy efficiency programs, including customers occupying apartments or similar multiunit residential structures. - The commission shall allocate funds necessary to meet the low-income objectives in this section. - 	
<p>AB 22-2316</p>	<p>Public Utilities Commission: customer renewable energy subscription programs and the community renewable energy program.</p>	<ul style="list-style-type: none"> - This bill would require the commission, on or before March 31, 2024, to evaluate each customer renewable energy subscription program, as described, to determine if the program meets specified goals, to authorize the termination or modification of a program that does not meet those goals, and to determine whether it would be beneficial to ratepayers to establish a community renewable energy program. The bill would require the commission, on or before July 1, 2024, to establish that program if doing so would be beneficial to ratepayers and to require each electrical corporation to participate in 	<ul style="list-style-type: none"> - A lot of this legislation is asking the commission to evaluate efficacy of “the community renewable energy program” - More delays in time, PUC has until 2024 to decide - Despite having a 51% requirement, it’s not implemented and controlled by the

		<p>that program.</p> <ul style="list-style-type: none"> - The bill would require the community renewable energy program, if established, to be complementary to, and consistent with, specified requirements of the California Building Standards Code, ensure at least 51% of its capacity serves low-income customers - On or before March 31, 2024, the commission shall, in a new or existing proceeding, do both of the following: Evaluate each customer renewable energy subscription program [...] to determine if the program meets all of the following goals: [...] Promotes robust participation by low-income customers - the commission shall ensure that a community renewable energy facility participating in the community renewable energy program is eligible for an enhanced federal investment tax credit available as a qualified low-income economic benefit project 	commission
Extra:			

Colorado

Bill #	Key Legislation	Notes	Conclusion
HB 10-1342	Community Solar Gardens Act	<ul style="list-style-type: none"> - Created state-wide shared renewables program - Clause that plans for community solar gardens must include "a proposal for including low-income customers as subscribers" - "The utility may give preference to community solar gardens that have low-income subscribers" 	<ul style="list-style-type: none"> - The first community solar bill passed in Colorado also included LMI considerations - However, the

		- PUC rules passed the next year (2011) for this law that allocated 5% carveout	carveout was only 5%
HB 19-1003	Community Solar Gardens Modernization Act		No new LMI considerations
Extra:			

Connecticut

Bill #	Key Legislation	Notes	Conclusion
SB 14-353	AN ACT CONCERNING THE DEVELOPMENT OF CLASS I RENEWABLE ENERGY SOURCE PROJECTS.	- The bill requires DEEP, in consultation with the electric companies, to establish a three-year pilot program to support development of "shared clean energy facilities." These are facilities with a generating capacity of up to three megawatts that use Class I renewable resources (e.g., wind or solar power)	- Failed because public, utilities, legislators could not come to consensus - Pilot program not enough, public argues, but result is no progress is made
PA 15-113	AN ACT ESTABLISHING A SHARED CLEAN ENERGY FACILITY PILOT PROGRAM.	- The Department of Energy and Environmental Protection, in consultation with the electric distribution companies, shall establish a two-year pilot program to support the development of shared clean energy facilities. On or before January 1, 2016, the department shall develop and issue a request for proposals from subscriber organizations seeking to develop a shared clean energy facility. - On or before January 1, 2018, the department shall file a report, in accordance with the provisions of section 11-4a of the general statutes,	- Another proposal of pilot programs, which is opposed by solar advocates - No LMI mention yet

		<p>with the joint standing committee of the General Assembly having cognizance of matters relating to energy, (1) analyzing the success of the shared clean energy pilot program, (2) identifying and analyzing the success of programs in other states that allow facilities similar to a shared clean energy facility, and (3) recommending whether a permanent program should be established in this state and, if so, any necessary legislation.</p>	
<p>PA 18-50</p>	<p>AN ACT CONCERNING CONNECTICUT'S ENERGY FUTURE</p>	<p>- (D) The department shall limit subscribers to (i) low-income customers, (ii) moderate-income customers, (iii) small business customers, (iv) state or municipal customers, (v) commercial customers, and (vi) residential customers who can demonstrate, pursuant to criteria determined by the department in the program requirements recommended by the department and approved by the authority, that they are unable to utilize the tariffs offered pursuant to Substitute Senate Bill No. 9 Public Act No. 18-50 22 of 54 subsection (b) of this section.</p> <p>- (E) The department shall require that (i) not less than ten per cent of the total capacity of each shared clean energy facility is sold, given or provided to low-income customers, and (ii) in addition to the requirement of clause (i) of this subparagraph, not less than ten per cent of the total capacity of each shared clean energy facility is sold, given or provided to low-income customers, moderate-income customers or low-income service organizations.</p> <p>(F) The department may allow preferences to projects that serve low-income</p>	<p>- LMI discussed extensively, specific LMI requirements built into legislation</p>

		<p>customers and shared clean energy facilities that benefit customers who reside in environmental justice communities. (G) The department may create incentives or other financing mechanisms to encourage participation by low-income customers.</p>	
<p>Extra:</p>			
<ul style="list-style-type: none"> - Hurdles to Connecticut’s solar programs - Objections towards a pilot program (too little) <ul style="list-style-type: none"> - This does a really good job of showing the politics behind Connecticut’s community solar program - “Advocates have been further incensed by the Energy and Technology Committee’s apparent disregard for a study commissioned by the Connecticut Academy of Science and Engineering (CASE) that advised going ahead with a full program, not a pilot.” - On the failure of CS the first time around <ul style="list-style-type: none"> - Legislators point fingers at solar advocates for wanting too much “moving the goalposts” 			

Delaware

Bill #	Key Legislation	Notes	Conclusion
<p>SB 20-250</p>	<p>RELATING TO THE RENEWABLE ENERGY PORTFOLIO STANDARDS ACT AND THE COMMUNITY SUSTAINABLE ENERGY AUTHORITIES ACT.</p>	<ul style="list-style-type: none"> - A retail electricity supplier or municipal electric company must receive 150% credit toward meeting the renewable energy portfolio standards established under this subchapter for eligible energy resources provided that at least 5% of the energy users participating in any community sustainable energy project are low and moderate income users, meaning users whose income is 120% or less of the median income for families in Delaware. - The authority shall have the power to conduct research activities to maintain current 	<ul style="list-style-type: none"> - This is the first piece of legislation passed in Delaware for CS, clear that LMI considerations already being made - Weak though, only 5% - do “authorities” refer to community solar companies? Or are there designated

		<p>data on energy consumption and needs for energy resilience in the municipality or municipalities, for the fulfillment of public and private needs in relation to energy efficiency and energy consumption, including needs in low and moderate income census tracts.</p> <ul style="list-style-type: none"> - it is declared to be the policy of this State to promote the public health, safety, convenience and welfare of the inhabitants thereof by the creation in municipalities of "community energy authorities," which shall exist and operate to expand the deployment of energy conservation measures, renewable energy, and energy storage in the State and spread the benefits of those sustainable resources to all citizens of the State. 	<p>authorities that run all community solar in Delaware?</p>
<p>SB 21-2</p>	<p>RELATING TO COMMUNITY OWNED ENERGY GENERATING FACILITIES AND RENEWABLE ENERGY.</p>	<ul style="list-style-type: none"> - Every 3 years, the community-owned energy generating facility must certify to the Public Service Commission in writing that it meets the low-income eligibility criteria provided in this chapter. - Before a community-owned energy generating facility receives permission to interconnect with an electric distribution company, the community-owned energy generating facility must certify to the electric distribution company and the Commission that participants in the community-owned energy generating facility include at least 15% low income customers whose gross annual income, by family size, is at or below 200% of the Federal Poverty Guidelines, or 60% of the state median household income published by the United States Census Bureau, 172 whichever is greater 	<ul style="list-style-type: none"> - Upped from 5% to 15% - PUC also involved in verification, but not rule-making on the LMI front

Extra:
- Delaware’s LMI legislation seems pretty cut and dry, not sure what else

Hawaii

Bill #	Key Legislation	Notes	Conclusion
Act 15-100	An Act Relating to Energy	- Establishes community solar to make renewable energy more accessible to residents - Utilities submit their plan for tariffs	- No language for LMI - PUC determines rulesetting for community solar
Order 20-37070	COMMENCING PHASE 2 OF THE COMMUNITY-BASED RENEWABLE ENERGY PROGRAM	- As to low and moderate income ("LMI") customers, the Companies propose "that Phase incorporate mechanisms to incentivize or require third party SOs to subscribe residential and/or LMI customers The Companies offer potential incentive mechanisms including: (1) required carve outs for residential or LMI customer segments for each SO; (2) unique credit rates for residential and/or LMI customer segments; (3) total program capacity allocation target set during the REP process, allowing bidders to set their own residential or LMI commitments, with bid's commitment included as an REP evaluation criterion; or (4) combination of the proposed potential mechanisms	- Mechanism proposal, but no set requirements still - 5 years passed before this entered into consideration, and it's still barebones

Extra:
- According to Hawaii’s gov’t website , the PUC has been rulemaking for CS and LMI generally, all documents located here

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Illinois

Bill #	Key Legislation	Notes	Conclusion
SB 16-2814	An Act Concerning Regulation	<p>- The Illinois Power Agency Renewable Energy Resources Fund shall also be used to create the Illinois Solar for All Program, which shall include incentives for low-income distributed generation and community solar projects, and other associated approved expenditures. The objectives of the Illinois Solar for All Program are to bring photovoltaics to low-income communities in this State in a manner that maximizes the development of new photovoltaic generating facilities, to create a long-term, low-income solar marketplace throughout this State, to integrate, through interaction with stakeholders, with existing energy efficiency initiatives, and to minimize administrative costs.</p> <p>- Low-Income Community Solar Project Initiative. Incentives shall be offered to low-income customers, either directly or through developers, to increase the participation of low-income subscribers of community solar projects. The developer of each project shall identify its partnership with community stakeholders regarding the location, development, and participation in the project, provided that nothing shall preclude a project from including an anchor tenant that does not qualify as low-income. Incentives should also be offered to community solar projects that are 100% low-income subscriber owned, which includes low-income households, not-for-profit organizations, and affordable housing owners. It is a goal of this program that a minimum of 25% of the incentives for this program be allocated to community photovoltaic projects in environmental justice communities.</p> <p>- Low-Income Community Solar Pilot Projects. Under this program, persons, including, but not limited to, electric utilities, shall propose pilot community solar projects. Community solar projects proposed under this subparagraph (D) may exceed 2,000 kilowatts in nameplate capacity, but the amount paid per project under this program may not exceed \$20,000,000. Pilot projects must result in economic benefits for the members of the community in which the project will be located. The proposed pilot project must include a partnership with at least one community-based organization.</p>	<ul style="list-style-type: none"> - Establishes a potential pilot program, specifically for LMI CS - Takes into account community, environmental justice, and other organizations - Allocates control/rulemaking to the Illinois Power Agency - Many LMI considerations despite being an early program (2016) - Calls for collaboration with organizations and communities - jobs allocated to the LMI Illinois workforce!!
SB 21-18			

SB 21-2408	Article 5. Energy Transition	-	
Extra:			
<ul style="list-style-type: none"> - Illinois passes yearly bills about the energy transition within the state. Community solar is only a small factor of these large bills - SB 21-18 and SB 21-2408 are very similar... maybe insignificant that SB 21-18 did not pass - Illinois Power Agency's long-term procurement plan 			

Massachusetts

Bill #	Key Legislation	Notes	Conclusion
S 08-2768	Green Communities Act	- If the electricity generated by the neighborhood net metering facility during a billing period exceeds its kilowatt-hour usage during the billing period, the neighborhood net metering facility shall be billed for 0 kilowatt-hour usage and the excess neighborhood net metering credits shall be credited to those customers identified by the neighborhood net metering facility as being served by the same company to which the neighborhood net metering facility is interconnected, residing in the same neighborhood in which the neighborhood net metering facility is located and having an ownership interest in the neighborhood net metering facility. The amount of the excess neighborhood net metering credits to be attributed to each such customer shall be determined by the allocation provided by the neighborhood net metering facility. Credits may be carried forward by such customers from month to month. Written notice of the identity of the customers so	- Indirectly establishes a community solar program

		designated and the allocation of the credits to be attributed to such customers shall be in such form as the distribution company shall reasonably require.	
Extra:			
<ul style="list-style-type: none"> - National Grid wants to take ownership of LMI allocations - Massachusetts Department of Energy Resources develops their community solar program (SMART) 			

Maine

Bill #	Key Legislation	Notes	Conclusion
LD 16-1649	An Act To Modernize Maine's Solar Power Policy and Encourage Economic Development	<ul style="list-style-type: none"> - Died in house after veto from Governor (Paul LePage, R) - Directed the Public Utilities Commission to convene a stakeholder group to develop an alternative to net energy billing. This bill reflects the consensus developed in that process and subsequent negotiations between stakeholders and establishes a comprehensive framework to support distributed generation in Maine. 	<ul style="list-style-type: none"> - The demand for CS was there, blocked by R governor
LD 18-1444	An Act Regarding Large-scale Community Solar Procurement	<ul style="list-style-type: none"> - Died in house after veto from Governor (Paul LePage, R) - This bill directs the Public Utilities Commission to enter into long-term contracts with a duration of 20 years for the procurement of 120 megawatts of large-scale community solar distributed generation resources by 2022. 	<ul style="list-style-type: none"> - The demand for CS was there, blocked by R governor - Demand not strong enough; some clear opposition
LD 19-1711	An Act To Promote Solar Energy	<ul style="list-style-type: none"> - Directing the Public Utilities Commission to establish a pilot program implementing 	<ul style="list-style-type: none"> - Following election of Dem Gov, CS

	<p>Projects and Distributed Generation Resources in Maine</p>	<p>a tariff rate for nonresidential customers of new distributed generation resources if the commission determines a tariff rate is the most cost-effective manner possible to promote the development of distributed generation resources</p> <ul style="list-style-type: none"> - 10% of total nameplate capacity of projects for LMI customers/organizations that directly serve LMI customers - If 50%+ of the project is for municipalities/govs, the project must be 5% LMI 	<p>policy was passed quickly and with inclusion of considerations for LMI customers</p>
<p>Extra:</p>			
<ul style="list-style-type: none"> - Maine proposed CS multiple times, getting shot down each time (twice by the governor and thrice in Senate) <ul style="list-style-type: none"> - LD 1686, LD 1127, LD 1139 - Governor was Republican, legislation for CS got passed after Democratic governor stepped into office - Maine had a Community-based Renewable Energy Pilot Program from 2009 onwards (including CS). However, only 3 projects were CS and they weren't accessible by the public (?) <ul style="list-style-type: none"> - Seems like the model was different (people buy into community solar farms and energy generated is sold to utilities) - However, lessons learned from the pilot led to adoption of LMI clause with CS policy (could also help it was so late) - Unclear on PUC regulations for LMI 			

Maryland

Bill #	Key Legislation	Notes	Conclusion
SB 15-398	<p>Electricity – Community Solar Energy Generating</p>	<p>-ALLOW RENTERS AND LOW-INCOME AND MODERATE-INCOME RETAIL ELECTRIC CUSTOMERS TO OWN AN</p>	<p>- Asks for consideration of LMI customers</p>

	<p>System Program</p>	<p>INTEREST IN A COMMUNITY SOLAR ENERGY GENERATING SYSTEM - how community solar project developers can increase participation by low- and moderate-income retail electric customers in community solar projects; (13) the progress of the community solar energy generating pilot program under § 7-306.1 of the Public Utilities Article, as enacted by Section 1 of this Act, in attracting low- and moderate-income retail electric customers;</p>	<p>- Directs PSC to overlook the pilot program and advise for a permanent community solar program</p>
<p>HB 19-683</p>	<p>Electricity – Community Solar Energy Generating Systems Pilot Program – 3 Extension</p>		<p>- Extends the pilot program (potentially to delay establishing a permanent program) - Mandates the PSC to report on progress of the community solar pilot program</p>
<p>RM 56 item 32 (2020)</p>	<p>Re: RM 56 Low and Moderate Income Verification</p>	<p>- For establishing low-income participation, the Commission adopts federal poverty levels (“FPL”) found at https://aspe.hhs.gov/poverty-guidelines, as updated annually. For establishing moderate income participation the Commission adopts the American Community Survey data found at https://www.census.gov/content/dam/Census/library/publication/2019/acs/acsbr18-01.pdf, as updated annually. The Commission declines the LMI Advocates request to publish these income levels on the Commission website at</p>	<p>- Requires certain verification processes for LMI participation - Does not allow for self-attestation</p>

		<p>this time. 6. The Commission finds that self-attestation plus proof of participation in any of the following programs is sufficient to qualify as an "alternate means" to verify LMI status under COMAR 20.62.03.03D</p>	
Extra:			
<ul style="list-style-type: none"> - Although legislation was passed in 2015, the pilot did not begin serving subscribers until 2018 - Report on the Community Solar Energy Generating Systems (CSEGS) Pilot Program <ul style="list-style-type: none"> - Only reached 10% of potential capacity - might be reason why they're unprepared to start a permanent program - According to this article and Maryland PSC's website, 30% of all projects must be LMI projects. However, "Arrays in the LMI category must subscribe at least 10% of their energy to low income subscribers, with an additional 20% of their energy subscribed to either low or moderate income subscribers and the remaining 70% of the energy available for subscription by anyone." <ul style="list-style-type: none"> - According to PSC statement: 200MW, 60MW set aside for LMI-focused projects - This means realistically, only 30% of 30% of the project is dedicated to LMI customers (equivalent to 9% of all projects) - Also, if the program is only at 10% of capacity, all of them could be regular projects without violating the regulations - Public opinion article covering concerns on LMI policy 			

Minnesota

Bill #	Key Legislation	Notes	Conclusion
<p>Statute 216B.1641 (2013)</p>	<p>Community Solar Garden</p>	<p>- The public utility subject to section 116C.779 shall file by September 30, 2013, a plan with the commission to operate a community solar garden program which shall begin operations within 90 days after commission approval of the plan. Other public utilities may file an application at their election.</p>	<p>- Notably no low-income clauses within the legislation - Statute calls for the PUC to make plans for the</p>

		<p>The community solar garden program must be designed to offset the energy use of not less than five subscribers in each community solar garden facility of which no single subscriber has more than a 40 percent interest. The owner of the community solar garden may be a public utility or any other entity or organization that contracts to sell the output from the community solar garden to the utility under section 216B.164. There shall be no limitation on the number or cumulative generating capacity of community solar garden facilities other than the limitations imposed under section 216B.164, subdivision 4c, or other limitations provided in law or regulations.</p>	<p>community solar program</p>
<p>SF 15-1508</p>	<p>Relating to community solar gardens; modifying the community solar garden program; amending Minnesota Statutes 2020, section 216B.1641.</p>	<ul style="list-style-type: none"> - the owner of the solar garden does not discriminate against or screen subscribers based on income or credit score and that any customer of a utility with a community solar garden plan approved by the commission under subdivision 3 is eligible to become a subscriber - The owner of a community access project must include the following information in an annual report to the community access project subscribers and the utility: [...] (3) an estimate of the proportion of low- and moderate-income subscribers, and a description of one or more of the following methods used to make the estimate 	<ul style="list-style-type: none"> - Can't find more info on what happened to the bill, assumed dead - No LMI requirements, but makes it easier for LMI customers to subscribe
<p>Extra:</p>			
<ul style="list-style-type: none"> - Might only be for XCel Energy customers - Minnesota only developed solar capacity in 2017 			

- [Interesting article](#) covering struggles w/ XCel and LMI stuff

North Carolina

Bill #	Key Legislation	Notes	Conclusion
HB 17-589	Competitive Energy Solutions for NC	- enacts the Distributed Resources Access Act to allow third parties to offer leasing of solar energy facilities in the service area of an offering utility or a municipality that offers electric service and to create a community solar energy program to be implemented by the offering utility. - Section 6 requires the development of a community solar program that will require the offering utilities to file a program with the Commission to construct up to 20 MWs of solar facilities per public utility that will allow customers to participate by buying subscriptions for a certain amount of output of the electricity produced by the facility. Each community solar energy facility will be required to offset the electric needs of at least five subscribers and no single subscriber will be allowed to subscribe to more than 40% of the output of the facility. The facility will be limited to 5 MW in size and each subscription will represent at least 200 W of generating capacity and no more than 100% of the maximum annual peak demand of electricity at the subscriber's premises.	Establishes community solar, only within the districts of certain utilities (DEP and DEC)
Extra:			
- Report from the two utilities working on CS			

- No external funding provided from the state government
 - Interesting dynamic of some utilities making it harder and some gov't processes making it harder. Which is better/worse?
- [Input from Sierra Club on NC's CS program](#)

New Hampshire

Bill #	Key Legislation	Notes	Conclusion
SB 17-129	Requiring a portion of the renewable energy fund to benefit low to moderate income residential customers	<p><i>- no less than 15 percent of the funds shall annually benefit low-moderate income residential customers, including, but not limited to, the financing or leveraging of financing for low-moderate income community solar projects in manufactured housing communities or in multi-family rental housing.</i></p> <p><i>- "Low-moderate income community solar project" means ground-mounted or rooftop solar arrays that directly benefit a group of at least 5 residential end-user customers, where at least a majority of the residential end-user customers are at or below 300% of the federal poverty guidelines.</i></p>	<ul style="list-style-type: none"> - Provides guaranteed grant funding for CS - Establishes LMI projects as 50%+ LMI allocation per project - Largest allocation yet
SB 19-165	Relative to net energy metering by	<p><i>- The commission shall report on the costs and benefits of low-moderate income community solar projects</i></p>	<ul style="list-style-type: none"> - While the % allocation per

	<p>low-moderate income community solar projects</p>	<p><i>- The commission shall authorize at least 2 new low-moderate income community solar projects, as defined in RSA 362-F:2, X-a, each year in each utility's service territory beginning January 1, 2020</i></p> <p><i>- a 2.5 cent per kwh addition thereafter for low-moderate income community solar projects</i></p> <p><i>- a group host shall be paid for its surplus generation at the end of each billing cycle at rates consistent with the credit the group host receives relative to its own net metering under either subparagraph IV(a) or (b) or alternative tariffs that may be applicable pursuant to paragraph XVI.</i></p> <p><i>Alternatively, a group host [for a low-moderate income community solar project, as defined in RSA 362-F:2, X-a,] may elect to receive credits on the customer electric bill for each member and the host with the utility being allowed the most cost-effective method of doing so according to an amount or percentage specified for each member</i></p>	<p>project is higher, the # of projects is lower (or at least, the potential)</p> <p>- First indication of catering to utilities</p>
<p>SB 22-270</p>	<p>AN ACT establishing a low-moderate income community solar program.</p>	<p>- The electric distribution utilities shall establish a list of potential low-moderate income residential customers who qualify to benefit from the low-moderate income community solar addition. This list shall consist of residents who have enrolled in or are on the waitlist for the state Electric Assistance Program.</p> <p>- Each year, the department of energy, in consultation with the electric distribution utilities, shall select a means by which to enroll households as off-takers for these low-moderate income community solar projects. Customers shall be enrolled</p>	<p>- Interesting new approach: all LMI customers are opt-in, eliminating the problem of education/outreach to customers</p> <p>- However, another state assistance program is the qualifying factor; still doesn't reach all customers</p> <p>- HOWEVER, CS</p>

		<p>on an opt-out basis, notified by mail of their enrollment, and informed of the details of the project from which they are receiving credit. Once enrolled, such customers shall receive on-bill credits until such time as they no longer qualify for the Electric Assistance Program, or until they opt out from receiving credits.</p> <ul style="list-style-type: none"> - All reasonable and prudently-incurred costs incurred by the electric distribution utilities related to this program, including but not limited to, costs of implementation, billing, and administrative activities, shall not be borne by the utilities, but shall be recovered from customers. - Utility owned projects that are designated as community solar projects shall not count against the limitation on the maximum allowed distributed energy resources 	<p>projects still allowed to outreach for customers</p> <ul style="list-style-type: none"> - Weird statement about costs falling on customers and not utilities: more catering - Maximum for LMI projects (6MW)
<p>Extra:</p>			
<p>PUC 2020 LMI Costs and Benefits Report</p> <ul style="list-style-type: none"> - Approximately 16 percent of the Renewable Energy Fund has been allocated to the Low-Moderate Income Community Solar Grant Program (Program) since fiscal year (FY) 2018. <p>The LMI-focused Pilot Program gets suspended</p> <ul style="list-style-type: none"> - In this order the Commission suspends the deadline for developing utility administered low-moderate income solar pilots, in order to allow the competitive market to produce similar projects administered by third parties. <p>SB 13-98</p> <ul style="list-style-type: none"> - Allows for community solar to be built - Mentions a Renewable Energy Fund; might fund certain CS projects <p>PV's summary on NH's CS</p>			

New Jersey

Bill #	Key Legislation	Notes	Conclusion
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<p>SB 18-2314</p>	<p>AN ACT concerning clean energy</p>	<p>- No later than 210 days after the date of enactment of P.L. , c. (C.) (pending before the Legislature as this bill), the Board of Public Utilities shall adopt, pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.), rules and regulations establishing a "Community Solar Energy Pilot Program" to permit customers of an electric public utility to participate in a solar energy project that is remotely located from their properties but is within their electric public utility service territory to allow for a credit to the customer's utility bill equal to the electricity generated that is attributed to the customer's participation in the solar energy project.</p> <p>b. The rules and regulations developed by the board shall establish:</p> <p>[...] (7) the provision of access to solar energy projects for low and moderate income customers</p> <p>- The board may restrict qualified solar energy projects to those located on brownfields, landfills, areas designated in need of redevelopment, in underserved communities, or on commercial rooftops.</p> <p>- No later than 36 months after adoption of the rules and regulations required pursuant to subsection b. of this section, the board shall adopt rules and regulations, pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.), to convert the Community Solar Energy Pilot Program to a permanent program. The board shall adopt rules and regulations for the permanent program that set forth standards for projects owned by electric public utilities, special purpose entities, and</p>	<p>- Establishes a pilot program</p> <p>- Directs the board of public utilities to make rules for a permanent program later</p>
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		nonprofit entities. The rules and regulations shall also: [...] (5) require the provision of access to solar energy projects for low and moderate income customers;	
A 21-4554	AN ACT concerning certain solar energy projects,	- The board shall develop, as part of the SREC-II program, a small solar facilities incentive program to award SREC-IIs to the owners of community solar facilities and net metered solar facilities less than five megawatts in size, as measured in direct current, or another size specified by the board. The small solar facilities incentive program shall aim to provide SREC-IIs for the generation of at least 300 megawatts of net-metered solar facilities per year and 150 megawatts of community solar facilities per year, for each of the five years after the establishment of the SREC-II program	- Still an establishment program - No specific Imi requirements, but mentions needing to make it more affordable for LMI customers
Extra:			

New Mexico

Bill #	Key Legislation	Notes	Conclusion
SB 21-84	AN ACT RELATING TO UTILITIES; ENACTING THE COMMUNITY SOLAR ACT	- The commission shall adopt rules to establish a community solar program by no later than April 1, 2022. The rules shall: (1) provide an initial statewide capacity program cap of two hundred megawatts alternating current proportionally allocated to investor-owned utilities until November 1, 2024. The statewide capacity program cap shall exclude native community solar projects and rural electric distribution	- The pre-qualification aspect is huge: circumvents problems with credit checks like other states (Maryland) - 30% of EACH project is for LMI;

		<p>cooperatives</p> <ul style="list-style-type: none"> - establish an annual statewide capacity program cap to be in effect after November 1, 2024 - require thirty percent of electricity produced from each community solar facility to be reserved for low-income customers and low-income service organizations. The commission shall issue guidelines to ensure the carve-out is achieved each year and develop a list of low-income service organizations and programs that may pre-qualify low-income customers - The commission shall solicit input from relevant state agencies, public utilities, low-income stakeholders, disproportionately impacted communities, potential owners or operators of community solar facilities, Indian nations, tribes and pueblos and other interested parties in its rulemaking process. 	<p>no loopholes (Maryland)</p> <ul style="list-style-type: none"> - While other commissions open the docket for public comment, this actively asks PRC to solicit impacted groups - The program in NM is a pilot program; may not end up being the same rules later on. HOWEVER, wording suggests the 30% requirement will remain in effect (seems only the cap will change)
<p>Extra:</p>			
<p>Announcement from the Public Regulation Commission (PRC) about the CS Rules (March 30, 2022) PNM (the utility)'s website describing CS and distributed responsibilities</p>			

Nevada

Bill #	Key Legislation	Notes	Conclusion
SB 17-392	An Act Relating to Energy	- Requires the Commission, for the period beginning on January 1, 2018, and ending on December 31, 2023, to authorize the payment of incentives in an amount of not more than \$1,000,000 per	

		<p>year for the installation of solar energy systems, community solar gardens and distributed generation systems at locations throughout the service territories of electric utilities in this State which benefit low-income and moderate-income customers.</p> <ul style="list-style-type: none"> - Require at least 10 percent of the total generating capacity of community solar gardens in this State be available for use by low-income residential customers of a utility or by persons providing services which benefit low-income customers, including, without limitation, homeless shelters, low-income housing developments, Indian reservations, Indian colonies and schools with a significant population of low-income pupils. - repealing provisions requiring an electric utility to create a Lower Income Solar Energy Pilot Program; 	
<p>AB 19-465</p>	<p>AN ACT relating to energy; requiring electric utilities to offer an expanded solar access program to certain customers and to submit a plan to the Public Utilities Commission of Nevada for such a program</p>	<ul style="list-style-type: none"> - For low-income eligible customers, provides for a lower rate, the cost of which must be allocated across all of the rate classes of the utility - Establish a process for identifying noncontiguous geographic locations for community-based solar resources which, to the extent practicable, must be located in communities with higher levels of low-income eligible customers - Twenty-five percent of the capacity of the program, as provided in subsection 1, be reserved for low-income 	<ul style="list-style-type: none"> - The approach taken is different for the first piece of legislation vs. the second - There is no longer a percentage set aside for LMI in each CS project

		<p>eligible customers;</p> <p>(2) Twenty-five percent of the capacity of the program, as provided in subsection 1, be reserved for disadvantaged businesses and nonprofit organizations; and</p> <p>(3) Fifty percent of the capacity of the program, as provided in subsection 1, be reserved for eligible customers who are fully bundled residential customers who own, rent or lease their residence and who certify in a statement which satisfies the requirements established by the Commission pursuant to paragraph (p) that they cannot install solar resources on their premises</p>	
Extra:			
<p>Article discussion LMI Legislation</p> <ul style="list-style-type: none"> - [SEIA] prefers community solar programs that also allow developers to offer subscriptions. AB 465 only sets up utility-offered programs. - Notates previous governor veto of CS legislation (Republican Governor) - The two different bills were built by two different committees 			

New York

Bill #	Key Legislation	Notes	Conclusion
SB 7444	AN ACT to amend the public service law, in relation to the community solar pilot program	<p>Versions Introduced in Other Legislative Sessions:</p> <p>2015-2016: A4739, S337</p> <p>2017-2018: A4155, S93</p> <p>2019-2020: A1281, S436</p> <p>2021-2022: A75</p>	- Proposed every year? Failed every year?

<p>SB S3521A</p>	<p>Community Solar for Disadvantaged Communities Act</p>	<p>- Community distributed generation facility bill credits for disadvantaged communities. All community distributed generation facilities that are specifically designated for participation in the bill credit system established under section sixty-six-q of this article shall provide at least thirty-five percent of the credits from the aggregate generation resulting from the designated projects under their ownership to disadvantaged communities as defined under subdivision five of section 75-0101 of the environmental conservation law</p>	<p>- Gives a set requirement for % allocation to LMI customers</p>
<p>Extra:</p>			

Oregon

Bill/Order #	Key Legislation	Notes	Conclusion
<p>SB 16-1547</p>	<p>Elimination of coal from electricity supply</p>	<p>- Directs the PUC to create a community solar program, and to create rules that ensure "10 percent of the total generating capacity of the community solar projects operated under the program will be made available for use by low-income residential customers"</p>	<p>- Total carveout: 10% - Asks PUC to create rules</p>
<p>Order 17-232</p>	<p>In the Matter of Rules Regarding Community Solar Projects.</p>	<p>- SB 1547 requires that, as part of the program, we determine a methodology by which 10 percent of the total generating capacity of the community solar projects operated under the program will be made available for use by low-income residential customers of electricity, and that we periodically review and adjust this percentage.</p>	<p>- Splits 10% carveout to 5% and 5% - Deflects responsibility once again: "low-income facilitator" is being contemplated, no</p>

		<ul style="list-style-type: none"> - To implement this provision, the proposed rules require that each project provide five percent of its capacity to low-income residential customers, and that five percent of the total program must be designated for low-income residential customers. - The proposed rules define "low-income" as an annual income of no more than 200 percent of the federal poverty level. - The proposed rules contemplate there will be a low-income facilitator to manage this aspect of the program. 	<p>more proposed action for this</p> <ul style="list-style-type: none"> - Action item: Check if this was periodically updated
<p>Extra:</p>			
<ul style="list-style-type: none"> - Language is very vague (possible it's just an option and not actually a requirement for 10%) 			

Rhode Island

Bill #	Key Legislation	Notes	Conclusion
HB 16-7585	<p>RELATING TO PUBLIC UTILITIES AND CARRIERS - NET METERING</p>	<p>- 39-26.4-1. Purpose. -- The purpose of this chapter is to facilitate and promote installation of customer-sited, grid-connected generation of renewable energy;</p>	<ul style="list-style-type: none"> - Failed, customer-sited generation was crossed out - Would have allowed for community solar
HB 16-8354A	<p>RELATING TO PUBLIC UTILITIES AND CARRIERS - RENEWABLE ENERGY PROGRAMS</p>	<p>- Through December 31, 2018, the maximum aggregate amount of community remote net-metering systems built shall be thirty megawatts (30 MW). Any of the unused MW amount after December 31, 2018, shall remain available to community remote net-metering systems until the MW aggregate amount is</p>	<ul style="list-style-type: none"> - Some mention of LMI, but no allocations of any sort

		<p>interconnected. After December 31, 2018, the commission may expand or modify the aggregate amount after a public hearing upon petition by the office of energy resources. The commission shall determine within six (6) months of such petition being docketed by the commission whether the benefits of the proposed expansion exceed the cost. This aggregate amount shall not apply to public entity facilities or multi-municipal collaborative facilities. By June 30, 2019, the commission shall conduct a study examining the cost to all customers of the inclusion of the distribution charge as a part of the net-metering calculation.</p> <p>- In order to facilitate the adoption of solar by customers in multifamily structures, campuses, multi-structure business parks, multitenant or multi-owner commercial facilities, and public entities with multiple accounts, the electric distribution company may establish rules and tariffs for program years starting on or after April 1, 2016. Such rules and tariffs will set forth the requirements for eligible recipients, credit transfers, consumer protection, and other considerations and terms, with input from the office, for the commission's review and approval.</p>	
<p>HB 21-5327</p>	<p>Net Metering</p>	<p>- Effective immediately, an additional thirty megawatts (30 MW) shall be added to the existing community remote net-metering program, "community remote net-metering expansion," bringing the maximum aggregate amount of community remote net-metering system to sixty megawatts (60 MW). Projects</p>	<p>- Allocation is 35% of 50% of the project, but requirements still built into the legislation</p>

		<p>shall be allocated program capacity on a first-come, first-served basis based on the community net-metering waiting list. Neither the commission, the electric distribution company nor any other entity shall require more than one-half (1/2) of the expansion to be located on previously disturbed sites. Each community remote net-metering system that receives an allocation in the expansion shall be subject to the following requirements:</p> <ul style="list-style-type: none">- Provide bill credits of a minimum of thirty-five percent (35%) of project capacity or thirty-five percent (35%) of project savings to low- or moderate-income households defined as: being on the A-60 rate class; or participating in a low-income discount program, including, but not limited to, the Low Income Home Energy Assistance Program, Medicaid, Supplemental Nutrition Assistance Program, Rhode Island Works, Child Care Assistance Program, general public assistance, Good Neighbor Energy Fund, or the Universal Service Fund; or living in a zip code where the median household income is at or below two hundred percent (200%) of the federal poverty level or that is at the top fifteen percent (15%) of the region for low-income residents; or living in a low-income master-metered building; or living in qualifying low-income housing pursuant to § 44-5-13.11; or by self-attestation; or any combination of the above. The commission shall promulgate rules and regulations that establish requirements associated with the manner of obtaining and the terms for retaining such	
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		customers and the commission may establish penalties for failure to meet the requirements of this subsection;	
Extra:			

South Carolina

Bill #	Key Legislation	Notes	Conclusion
A 19-62	SC Energy Freedom Act	- It is the intent of the General Assembly to expand the opportunity to support solar energy and support access to solar energy options for all South Carolinians, including those who lack the income to afford the upfront investment in solar panels or those who do not own their homes or have suitable rooftops. The General Assembly encourages all electric service providers in this State to consider offering neighborhood community solar programs.	- No LMI considerations, just establishing community solar
Extra:			
<ul style="list-style-type: none"> - CS and stakeholder perspectives document: research commissioned by SC gov - Summary of A 19-62 			

Virginia

Bill #	Key Legislation	Notes	Conclusion
SB 20-710	Multi-family shared solar program	- The net metering standard contract or tariff shall be available to eligible customer-generators or eligible agricultural	

		<p>customer-generators on a first-come, first-served basis in each electric distribution company's Virginia service area until the rated generating capacity owned and operated by eligible customer-generators, eligible agricultural customer-generators, and small agricultural generators in the Commonwealth reaches one six percent, in the aggregate, five percent of which is available to all customers and one percent of which is available only to low-income utility customers of each electric distribution company's adjusted Virginia peak-load forecast for the previous year</p> <ul style="list-style-type: none"> - The Commission shall establish an appropriate rate structure related thereto, which shall govern compensation related to all eligible customer-generators, eligible agricultural customer-generators, and small agricultural generators, except low-income utility 5 of 7 customers, that interconnect after the effective date established in the Commission's final order. - The Commission shall enter its final order in such a proceeding no later than 12 months after it commences such proceeding, and such final order shall establish a date by which the new terms and conditions shall apply for interconnection and shall also provide that, if the terms and conditions of compensation in the final order differ from the terms and conditions available to customers before the proceeding, low-income utility customers may interconnect under whichever terms are most favorable to them. 	
<p>SB 20-629</p>	<p>Shared solar</p>	<ul style="list-style-type: none"> - The Commission shall establish a minimum bill, 	<ul style="list-style-type: none"> - Considerations for

	<p>programs</p>	<p>which shall include the costs of all utility infrastructure and services used to provide electric service and administrative costs of the shared solar program. [...] Low-income customers shall be exempt from the minimum bill.</p> <ul style="list-style-type: none"> - The Commission shall approve a shared solar facility program of 150 megawatts with a minimum requirement of 30 percent low-income customers. The Commission shall approve an additional 50 megawatts of capacity upon determining that at least 45 megawatts of the aggregated shared solar capacity in the Commonwealth have been subscribed to by low-income customers - The Commission, in collaboration with the Department of Mines, Minerals and Energy, may adopt mechanisms to ensure low-income customer participation. - The Commission shall: [...] Create a stakeholder working group including low-income community representatives and community solar providers to facilitate low-income customer and low-income service organization participation in the program 	<p>LMI customers are being made with the minimum bill exemption rule</p> <ul style="list-style-type: none"> - The building of a solar facility program with 150 MW with 30% for LMI customers seems to only be testing for LMI participation, similar to a pilot program - Rulemaking left up to the Commission
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Extra:

Virginia's gov't website [describing their community solar programs](#) [Problems with Virginia's community solar](#)

- A 55\$ minimum bill defeats the purpose of community solar's savings provided to customers, making the program prohibitively expensive

Vermont

Bill #	Key Legislation	Notes	Conclusion
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30 V.S.A. § 8010 (2012)	Renewable Energy Programs	- the formation of group net metering systems, the resolution of disputes between group net metering customers and the interconnecting provider, and the billing, crediting, and disconnection of group net metering customers by the interconnecting provider; and	- Establishment of community solar
Extra:			
Opinion piece listing the gov't and the PUC as obstructors of CS			

Washington

Bill #	Key Legislation	Notes	Conclusion
Act 13-20-186	Community Renewable Energy Amendment Act of 2013	- update the net metering provisions to ensure consistency across programs, to allow for the creation of community renewable energy facilities that are renewable energy facilities interconnected at the distribution system level and located in a community served by an electric company, to allow retail customers of an electric company whose meters or accounts are within the District of Columbia and within the same service territory as a community renewable energy facility to subscribe to a community renewable energy facility, to allow for the establishment of subscriber organizations to beneficially own or operate community renewable energy facilities for subscribers, to allow for third parties under contract with subscriber organizations to build, own, or operate community renewable energy facilities - "(2) It is in the public	- More of an establishment of community solar, but some LMI provisions mentioned

		<p>interest that the Department encourages broad participation in District-based tier one renewable electric generation by District residents, not-for-profit entities, and for-profit entities through outreach efforts and programs in all 8 wards; "(3) It is in the public interest that the Department enables the development and deployment of community renewable energy facilities for the following purposes: "(A) To allow renters and low- to moderate-income retail electric customers to own interests in tier one renewable energy generating facilities; "(B) To allow interests in tier one renewable energy generation facilities to be portable and transferrable; "(C) To facilitate market entry for all potential subscribers, while prioritizing those persons most sensitive to market barriers; and "(D) To encourage developers to promote participation by renters and low- to moderate-income retail electric customers; and "(4) It is in the public interest for developers to encourage participation by renters and low- to moderate-income retail electric customers."</p>	
<p>Act 16-21-466</p>	<p>RPS Expansion Amendment Act of 2016</p>		
<p>Extra:</p>			
<p>Opposition against customers getting charged for interconnection fees</p>			