CREDIT MULTIPLIERS IN RENEWABLE PORTFOLIO STANDARDS

Prepared for

The RPS Collaborative

by

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About This Report

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Introduction

Renewable Portfolio Standards (RPS) are a proven policy tool for increasing the deployment of renewable energy. If an RPS only has a single undifferentiated target for electricity suppliers to meet, economic factors could cause compliance to be met through a small number of large renewable energy installations. Policymakers hoping to promote a more diverse resource mix in their states have sometimes augmented their RPS policies with various carrots and sticks to encourage the development of technologies and applications with more challenging economics (e.g. behind-the-meter or community-scale renewables).

The most popular mechanisms for targeting specific technologies or applications are RPS carve-outs and credit multipliers. A carve-out serves as a subset of a larger RPS, requiring a certain percentage of the overall requirement to be met with a specific technology or application. Credit multipliers, on the other hand, award more than one (or less than one) renewable energy certificate (REC) for electricity produced by certain technologies or applications.

Of the 29 states with an RPS, 21 states plus DC have adopted a credit multiplier, a carve-out, or both as of June 2018. An additional three states with non-binding goals for renewable energy development include credit multipliers or carve-outs. In total, 38 credit multipliers have been adopted across 15 states plus DC since 1996. Eight of these states have both a credit multiplier and a carve-out.

This report examines the history and status of credit multipliers, the types of technologies and applications most often awarded credit multipliers, the advantages and disadvantages of credit multipliers, state experiences with the use of multipliers, and other trends in the implementation of credit multipliers.

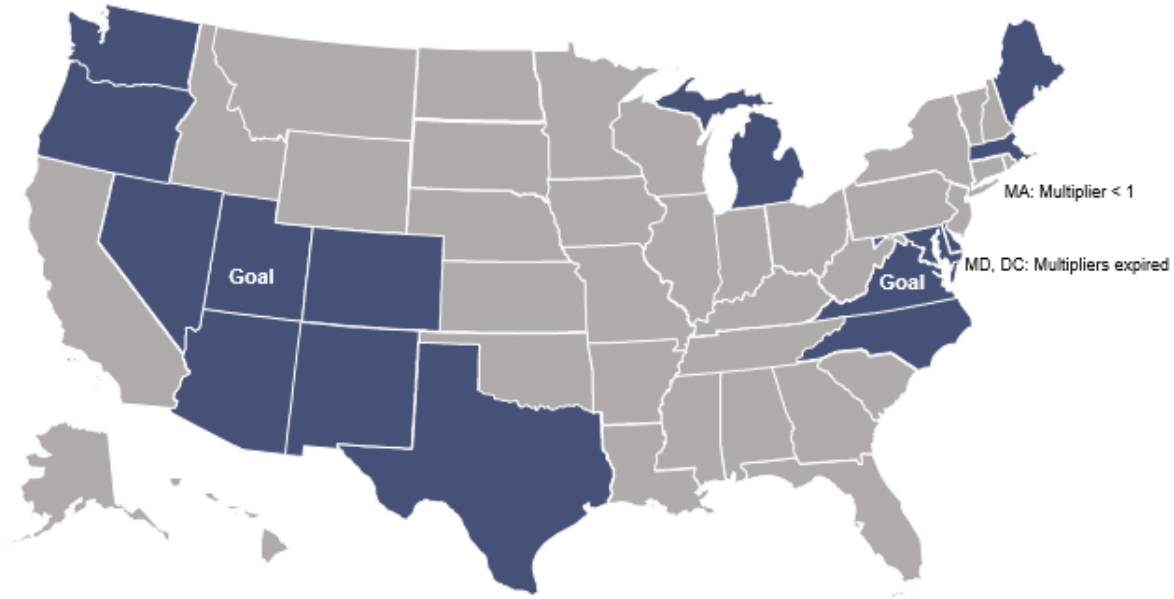
Origins

Credit multipliers have a long history, dating back to the initial enactment of some of the first RPS policies. The following section examines some of the trends associated with the adoption of credit multipliers.

Multiplier Included in the Original RPS Legislation

Arizona's original Solar Portfolio Standard, implemented in 1996, was one of the first procurement requirements in the U.S. and initially applied only to solar. As originally adopted,[1] the Solar Portfolio Standard awarded double credit to electricity produced by solar electric systems installed in-state. Colorado, Delaware, Maryland, Michigan, and Washington also included credit multipliers when they first enacted their RPS policies, signaling each state's early preference for certain technologies or applications. Other states adopted credit multipliers after the initial enactment of their RPS policies, with policymakers responding to the evolving priorities of their states. See Figure 1. No state has adopted a new multiplier since Massachusetts adopted a negative multiplier in 2012. See Table 1 on page 7.

Figure 1- States with RPS Credit Multipliers



[1] ACC Decision 59943. *Rule R14-2-1609*. http://images.edocket.azcc.gov/docketpdf/0000071319.pdf.

Multiplier Added as Part of Wider RPS Revision

In some cases, the addition of a new credit multiplier for a specific technology or application was added to an RPS as part of a broader RPS revision. Colorado and New Mexico both expanded their RPS policies a few years after initial adoption by extending the procurement requirements to electric cooperatives and/or municipal utilities. In both cases, the state simultaneously adopted a credit multiplier for electricity from solar photovoltaics (PV) purchased by these smaller utilities, presumably to make compliance less expensive and to encourage greater solar development in rural communities. In a similar way, Colorado and Maine passed legislation to authorize community energy projects while also adopting credit multipliers for the electricity they produce to help jumpstart development.

States with Multiple Credit Multipliers

Among the states that have adopted a credit multiplier, eight states have adopted more than one multiplier. Some states with more than one multiplier, including Nevada and Maryland, adopted all of their multipliers at the same time. Other states, including Colorado and Delaware, adopted additional multipliers after adopting an initial set of multipliers. See Figure 2.

Figure 2- Number of RPS Credit Multipliers Per State

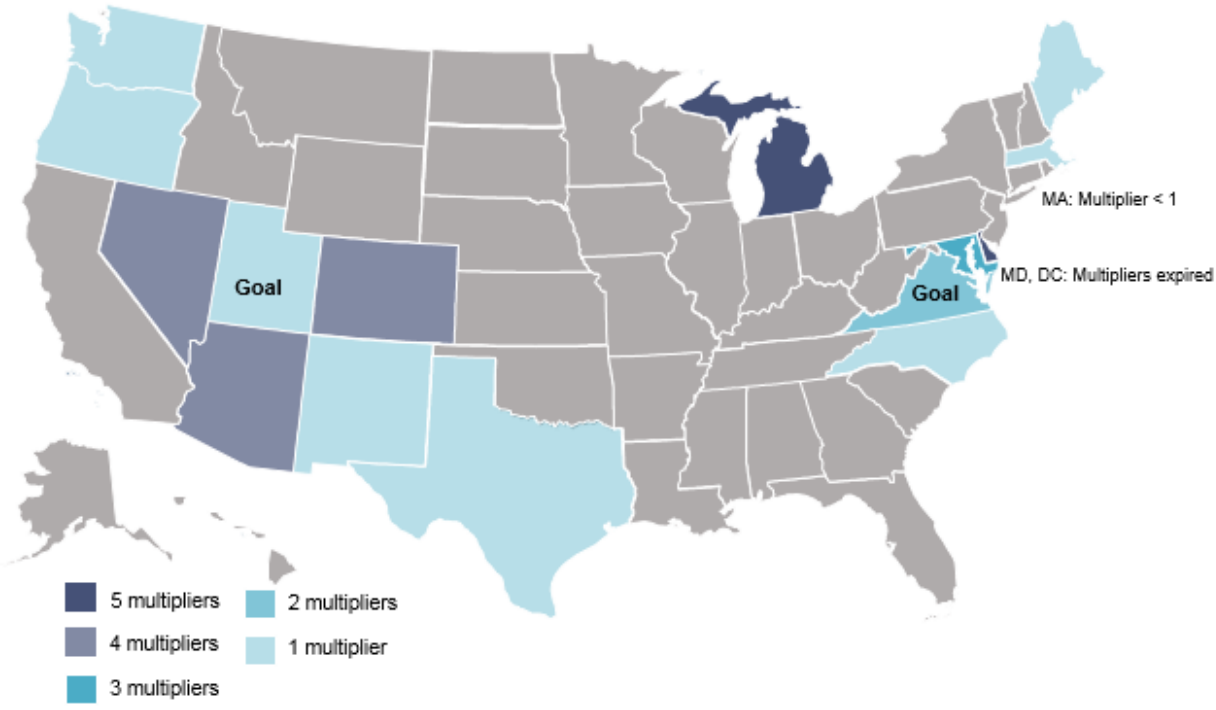


Table 1- Adoption Dates for Renewable Portfolio Standards and Credit Multipliers

State	RPS Adoption	Credit Multiplier Adoption
Arizona	1996	1996, 1998
Colorado	2004	2004, 2007, 2010
Delaware	2005	2005, 2008, 2010
District of Columbia	2005	2005
Maine	1997	2009
Maryland	2004	2004
Massachusetts	1997	2012
Michigan	2008	2008
Nevada	1997	2003
New Mexico	2004	2007
North Carolina	2007	2010
Oregon	2007	2009
Texas	1999	2007
Utah (Goal)	2008	2008
Virginia (Goal)	2007	2007, 2012
Washington	2006	2006

Technologies and Applications

Of the 38 credit multipliers adopted in 15 states plus DC, 25 are for specific technologies or groups of technologies. Roughly half of these multipliers are specifically for solar, though in some cases systems must meet additional criteria to qualify, such as size limitations or a requirement for the power to be used on-site. The remaining technology-specific credit multipliers include a variety of technologies, including offshore wind in Delaware and Virginia, energy storage in Michigan, and anything other than wind in Texas. See Table 2.

The nine credit multipliers that are not technology-specific reflect other state goals and priorities. Maine and Colorado both include credit multipliers for community energy systems. Arizona and Michigan have multipliers for any type of renewable energy system manufactured in-state. Michigan also has a multiplier for renewable energy systems installed by a Michigan workforce. Delaware has credit multipliers for solar and wind systems that either use in-state manufactured components or are installed by an in-state workforce.

Table 2- Technologies Eligible for Credit Multipliers

Technology or Application	State
Solar Electric	AZ, CO*, DC (expired), DE, MD (expired), MI, NM*, NV*, OR*, UT, VA
In-State Manufacturing or Installation Workforce	AZ, DE, MI
Wind	DC (expired), DE, MD (expired), VA
Offshore Wind	DE, VA
Community Energy	CO, ME
Cooperative or Municipal Territory	CO, NM
Distributed Renewables	AZ, NV, OR, WA

*Additional requirements must be met

North Carolina provides a unique example of a very narrowly applicable multiplier. The state assigns triple credit to RECs produced by the first 20 megawatts of renewable energy projects installed at a certified cleanfields renewable energy demonstration park. The enacting legislation[2] includes a list of ten criteria that a tract of land must meet in order to be certified as a cleanfields demonstration park. Some of the criteria are very specific (e.g., the land must be contiguous to a body of water and include an idle manufacturing facility that once employed 250 people), suggesting this multiplier was designed for the benefit of a single project.

No other state has written a credit multiplier for the likely benefit of one project, though most states do try to keep the benefits within their borders. Although RPS policies are generally crafted to avoid conflicts with the dormant Commerce Clause,[3] nearly all credit multipliers

[2] Senate Bill 886 of 2010.See https://www.ncleg.net/Sessions/2009/Bills/Senate/PDF/S886v7.pdf.

[3] Elefant, Carolyn and Holt, Ed. *The Commerce Clause and Implications for State Renewable Portfolio Standard Programs*. Clean Energy States Alliance. See https://www.cesa.org/assets/2011-Files/States-Advancing-RPS/CEG-Commerce-Clause-paper-031111-Final.pdf.

require systems to be installed within the state to qualify. In some cases, this is stated explicitly. In other cases, it is stated implicitly by requiring systems to serve a customer's on-site load, or be connected to the distribution system of an electric cooperative or municipal utility.

Value of Credit Multipliers

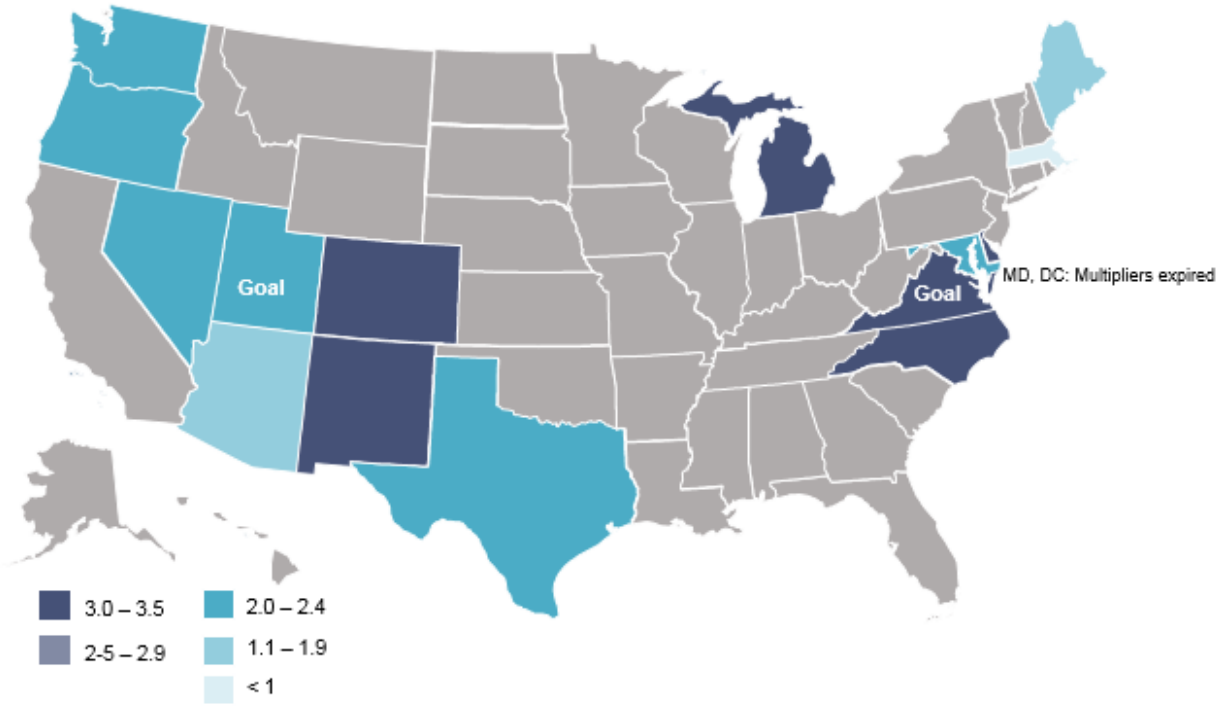
States have created credit multipliers at various levels, adopting relatively small multipliers for technologies or characteristics that need less economic support, and larger multipliers for earlier-stage technologies or applications with more challenging economics. On the low side, seven credit multipliers value one REC as 1.1 RECs for compliance. Four of those multipliers are for equipment manufactured or installed by a workforce based in the state (Delaware and Michigan). See Table 3.

On the higher end, six credit multipliers value one REC as 3 RECs for compliance. Two of these are for solar PV installed in the territory of a non-investor-owned utility (Colorado and New Mexico). Delaware created the largest multiplier, awarding 3.5 RECs for every REC produced by offshore wind. However, systems needed to be placed in service by May 31, 2017 to qualify for the multiplier. Since no commercial-scale offshore wind facility has been sited in the Mid-Atlantic region, this multiplier went unused. Multipliers can also be used to disincentivize a technology. Nevada values one REC produced through a reverse polymerization process as 0.7 RECs for compliance. Massachusetts awards less than one REC for woody biomass-generated electricity that fails to meet certain efficiency requirements. See Figure 3.

Table 3- Values of Credit Multipliers

State	Multiplier Value(s)
Arizona	1.1 - 1.5
Colorado	1.25 - 3
District of Columbia	1.1 – 1.2
Delaware	1.1 - 3.5
Maine	1.5
Maryland	1.1 - 2
Massachusetts	0.5 – 0.95
Michigan	1.1 - 3
Nevada	0.7 - 2.4
New Mexico	3
North Carolina	3
Oregon	2
Texas	2
Utah (Goal)	2.4
Virginia (Goal)	2 - 3
Washington	2

Figure 3- Value of Largest RPS Credit Multiplier in Each State



Installation Deadlines

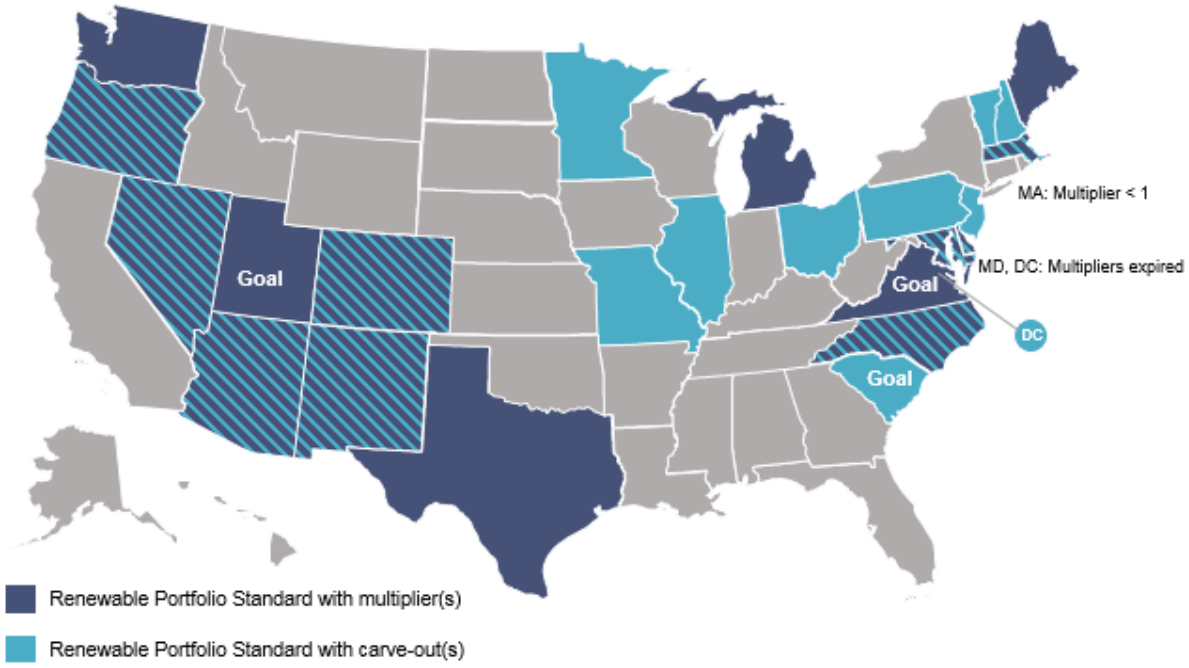
More than half of the credit multipliers adopted to date include a deadline by which the system must be placed in service to qualify. In all of these cases, the placed in-service deadline has already passed. However, in all but two of these jurisdictions, Maryland and DC, RECs produced by a system that met the installation deadline can continue to receive a credit multiplier throughout the life of the project. Even if new systems cannot qualify for the credit multiplier, legacy systems that are still in operation can continue to impact the dynamics of a state's RPS.

Of the 15 credit multipliers that do not have an installation deadline, four are for equipment manufactured in-state or installed by an in-state workforce, demonstrating that those states (Delaware and Michigan) want to continue maximizing the employment benefits of their RPS policies. Three of the credit multipliers without an installation deadline are in states where RECs do not have a tangible value. Utah and Virginia both have voluntary *goals* for renewable energy, not mandatory requirements. Texas has a capacity-based RPS that has already been met many times over. In these three states, since the utilities are not required to purchase RECs, they have no value, and by extension, credit multipliers do not enhance their value.

Interaction with Carve-Outs

Of the 15 states to adopt a credit multiplier, eight also have a carve-out for certain technologies within their RPS. In some cases, the technologies overlap, leaving policymakers with the question of deciding whether a project can receive the credit multipliers and satisfy the carve-out, or if claiming one negates the other.

Figure 4 - RPS Credit Multipliers and Carve-Outs



Arizona

Arizona's RPS includes three credit multipliers and a carve-out. The general RPS increases by 1 percent annually until 2025 when 15 percent of the utility's retail load must come from renewable energy. Of this total, 30 percent of each year's requirement must come from distributed renewable energy resources, defined as systems that are located at a customer's premises and displace conventional energy resources.

Arizona's RPS also awards a 1.5 multiplier for distributed solar electric generators installed by the end of 2005. The term solar electric generator includes systems participating in a net metering or net billing program. It is possible for a system qualifying for the multiplier to also meet the distributed renewable energy resources carve-out.

Colorado

Colorado's RPS includes a carve-out for distributed generation. The RPS defines distributed generation as a renewable energy system with a nameplate rating of 30 MW or less. The RPS further requires half of the distributed generation carve-out to be met with "retail" distributed generation, defined as systems located on the customer's side of the meter.

Colorado's four credit multipliers include 1.25 for RECs generated by systems installed in the state by the end of 2014, 1.5 for RECs generated by community-based systems, 2 for RECs generated by systems up to 30 MW installed in the territory of an electric cooperative or municipal utility by the end of 2014, and 3 for solar PV-derived RECs that are either purchased or produced by an electric cooperative or municipal utility.

A single REC can only qualify for one multiplier, but could potentially also be used to satisfy the distributed generation carve-out, with one exception. The Colorado Code of Regulations[4] stipulates that investor-owned utilities claiming the credit multiplier for systems up to 30 MW installed in the territory of an electric cooperative or municipal utility cannot use those RECs to satisfy the distributed generation carve-out. The regulations do not mention any other restrictions, so it can be assumed that in all other cases a REC could both earn a multiplier and satisfy the distributed generation carve-out if it meets the requirements of each.

Delaware

Delaware's RPS, as originally enacted in 2005, allowed for a variety of multipliers, including a triple multiplier for customer-sited solar PV installed by the end of 2014 and 1.1 multipliers for PV systems using 50 percent in-state manufactured content and systems installed by a 75 percent in-state workforce. The state legislature revised the RPS in 2007 to include a carve-out for solar, later allowing certain fuel cell projects to satisfy a portion of the carve-out. The same legislation clarified that a customer-sited PV system installed by the end of 2014 could either receive the triple multiplier and satisfy the general RPS requirements, or forego the multiplier and be used to satisfy the solar carve-out. Customer-sited solar systems cannot claim both benefits. However, systems used to satisfy the solar carve-out can continue to receive the 1.1 multipliers for in-state materials and installers.

Nevada

Nevada's RPS includes two multipliers (plus one negative multiplier) and a solar carve-out. One multiplier is for energy efficiency utilized during peak times, which does not overlap with the solar carve-out. However, RECs produced by solar energy systems installed on a customer's property by the end of2015, and which use at least 50 percent of the energy on-site can qualify

[4] 4 CCR 723-3-3666. See https://drive.google.com/file/d/0B8qvU2knU8BkcEJneE93YkNRQmM/view.

for a 2.4 multiplier. Nevada law does not prohibit systems that receive a credit multiplier from satisfying the solar carve-out.

New Mexico

New Mexico's RPS includes several technology-specific carve-outs for investor-owned utilities to ensure a diverse resource mix, and a multiplier for solar installed by an electric cooperative before the end of 2011. Since the carve-out does not apply to electric cooperatives, and the multiplier applies only to electric cooperatives, there is no overlap between the two.

North Carolina

North Carolina's RPS, as originally enacted in 2007, includes carve-outs for solar, hog waste, and poultry waste. Legislation enacted in 2010[5] adopted a triple multiplier for RECs generated by the first 20 MW of biomass facilities located at a "cleanfields demonstration park." That same legislation stated that the triple-counted RECs can also be used to satisfy the poultry waste carve-out even if the biomass facility does not use poultry waste.

Oregon

Oregon's RPS awards two RECs for every REC generated by in-state solar PV systems between 500 kW and 5 MW installed by December 31, 2015. Oregon's RPS also features a carve-out, requiring at least 8 percent of the aggregate electrical capacity of all utilities to come from small-scale renewable energy projects of 20 MW or less by 2025. There is no explicit rule barring RECs awarded through the multiplier from being used for compliance with the carve-out.

Advantages and Disadvantages

Credit multipliers present a number of advantages and disadvantages when compared to carve-outs or RPS policies with no special provisions. They also come with their own share of potential complications and unintended consequences that a policymaker will want to consider when developing a multiplier.

Advantage: Simple Quantification of Value

Credit multipliers allow policymakers to quantify how much they value a certain resource or application compared to other eligible resources. A multiplier provides a very clear expression of that value, which is easy for the public and the market to understand. If society perceives a

[5] S.B. 886; See https://www.ncleg.net/Sessions/2009/Bills/Senate/PDF/S886v7.pdf.

specific technology or application to be three times as valuable as the alternatives, a triple credit multiplier is a relatively easily feature to implement.

Advantage: No Ceiling on Development

Carve-outs function the same way as an RPS. They establish a target, typically expressed as a percentage of retail sales, which a utility must achieve with a particular resource. Establishing the right target is critical to creating a healthy market. If policymakers set the bar too low, they may artificially limit the growth of the market. Multipliers, on the other hand, do not establish a ceiling on development. If the credit multiplier for a particular resource proves to be more effective than policymakers imagined, the state will simply see more development of the resource.

Advantage: No Floor on Development

Carve-outs also present policymakers with the risk of setting the bar too high. An overly-aggressive target could have an undesirable impact on rates as utilities struggle with compliance. Multipliers, however, do not obligate a utility to purchase electricity from early-stage technologies at a higher cost than other renewables. If the credit multiplier proves to be too small to stimulate growth there is no penalty to the utility.

Advantage and Disadvantage: Administrative Tradeoffs

Carve-outs increase the administrative burden on utilities and regulators. Utilities must separately report on their compliance with a carve-out in addition to the general market RPS, and may need to design new RFPs or other procurement programs to purchase RECs associated with the carve-out. Regulators must also adopt new rules to administer the carve-out, and develop new procedures for tracking a utility's compliance.

With the exception of cases where a REC resulting from a credit multiplier can be used for compliance with a carve-out, multiplier RECs are used to satisfy the requirements of the general market RPS. They generally do not add to a utility's reporting requirements or require them to develop new procurement programs. However, there can still be some administrative challenges. In most cases, the multiplier is only awarded at the time the REC is reported to the utility commission for compliance. The REC tracking platform used by a state typically identifies the projects that are eligible for a multiplier, but the effect of the multiplier is generally not represented in the REC count provided by the platform. Regulators will need to develop systems to ensure an accurate accounting of RECs when assessing a utility's compliance. In the rare cases where the multiplier credits are awarded within the REC tracking platform, protocols will need to be developed for removing the additional credits from projects that are exporting their RECs to another state.

Disadvantage: RPS Dilution

Credit multipliers allow utilities to meet their RPS obligations with fewer actual MWh of electricity than would otherwise be required. If a multiplier is heavily used in a state, it can have an effect on the broader policy goals of the RPS. In Michigan, for example, 8 percent of the overall RPS requirement in 2017 was met with RECs from a credit multiplier[6] (Michigan Incentive RECs), which was more than the contributions from solar and landfill gas combined. This effect can have a lasting impact in states that allow RECs generated by legacy systems to continue receiving the multiplier.

Disadvantage: Uncertain Results

While a credit multiplier's lack of a floor on development can be a benefit in avoiding higher cost resources, it also results in greater uncertainty than a carve-out. If a credit multiplier is not set at a sufficient level, there is a risk of the policy not being effective in encouraging the development of the particular technology or application. In some cases, including the multipliers in Delaware for wind, the multipliers did not result in any development. A carve-out, on the other hand, requires and may enforce a certain level of development.

Disadvantage: Value Tied to REC Prices

Since credit multipliers simply award additional RECs to qualified projects, the value of the multiplier is tied to REC prices. REC prices vary greatly from state to state and year to year. If a state has an abundance of wind energy applying downward pressure on REC prices, a credit multiplier might not provide enough value to spur development of the target technology or application. Furthermore, credit multipliers may increase REC market volatility, as the number of RECs required by the utility changes based on the use of multipliers for compliance.[7]

Credit Multipliers in Action

Delaware

Two of Delaware's five credit multipliers were never used and have since expired. The 1.5 credit multiplier for in-state wind energy required systems to be placed in service by the end of 2012 to qualify, and the 3.5 multiplier for offshore wind required systems to be installed by May 31, 2017. As of May 31, 2016, the only wind systems being used for compliance with Delaware's

[6] Michigan Public Service Commission. *Report on the Implementation and Cost-Effectiveness of the P.A. 295 Renewable Energy Standard*. February 2018. See https://www.michigan.gov/documents/mpsc/MPSC_PA_295_Renewable_Energy_Report_with_Appendices__Feb_15_2018_613878_7.pdf.

[7] Olmsted, Peter, et al. *Policy Approaches to Support Distributed Renewable Energy: Best Practices Among U.S. States*. Center for Environmental Policy, University of Delaware. January 2011. See https://cpb-us-w2.wpmucdn.com/sites.udel.edu/dist/3/848/files/2013/08/2011_es_READY_PoliciestoSupportDistributedRE1.pdf.

RPS are sited outside of Delaware.[8] The credit multipliers, therefore, did not provide enough of a benefit to stimulate development. Other technical, market, or policy barriers may also exist that challenge wind development in the state.

The remaining three multipliers, however, have been heavily used.[9] Delaware provides a 1.1 multiplier for PV and wind systems where at least 50 percent of the equipment is manufactured in-state, an additional 1.1 multiplier for PV and wind systems installed by a workforce with at least 75 percent in-state workers, and a triple multiplier for customer-sited PV systems located in Delaware and installed by 12/31/2014.

Delaware's RPS also features a carve-out requiring 3.50 percent of the electricity sold in Delaware in 2025 to come from PV. The interim PV target for compliance year 2015-2016 was 1.00 percent, which equated to 70,762 SRECs for Delmarva Power and Light. SRECs used for compliance with the carve-out are not eligible for the triple multiplier, but can receive both of the 1.1 multipliers for in-state equipment and in-state labor. In its 2015-2016 compliance report,[10] Delmarva Power and Light showed its purchase of 67,391 SRECs, which equaled 70,762.8 SRECs after applying the multipliers.

Additionally, Delmarva Power and Light received more SRECs than it needed for the carve-out and applied the remaining SRECs to its general market RPS. Since these SRECs were not used for the carve-out, they are eligible for triple credit if they meet the other requirements of the multiplier for customer-sited PV systems. Again, Delmarva Power and Light's 2015-2016 compliance report showed significant use of the multiplier, converting 16,091 RECs into 49,604 RECs after applying all the multipliers. In total, 8.3 percent of the RECs used to satisfy the solar carve-out and the general market RPS combined were RECs resulting from the multipliers.

Maine

Maine's experience with credit multipliers provides insight into their relative strength when compared to other incentives. Legislation enacted in 2009 created the Community-Based Renewable Energy Pilot Program. The legislation defines community-based renewable energy as systems that are at least 51 percent owned by qualifying local owners, and are no more than 10 MW in capacity. Certified community-based renewable energy projects have two incentives to choose from: 1) a long-term contract with one of the investor-owned transmission and distribution utilities for the output of the system, or 2) a 1.5 REC multiplier.

[8] Delmarva Power and Light 2015-2016 Compliance Report. https://depsc.delaware.gov/wp-content/uploads/sites/54/2017/03/2015-2016AnnualSupplierRPSReport092916.pdf.
[9] Delmarva Power and Light 2015-2016 Compliance Report. https://depsc.delaware.gov/wp-content/uploads/sites/54/2017/03/2015-2016AnnualSupplierRPSReport092916.pdf.
[10] Delmarva Power and Light 2015-2016 Compliance Report. https://depsc.delaware.gov/wp-content/uploads/sites/54/2017/03/2015-2016AnnualSupplierRPSReport092916.pdf.

As of January 2017, 15 renewable energy projects totaling almost 53 MW of capacity had received certification as a community-based renewable energy project.[11] Only five projects totaling 5.06 MW of capacity chose the credit multiplier, with the remaining projects electing for a long-term contract.[12] A single wind project accounted for 4.5 MW of the credit multiplier, and three of the projects were 38 kW or smaller.[13] Of the ten projects that chose a long-term contract, all but two were at least 1 MW in capacity.[14] The administrative complexity associated with entering into a long-term contract made it a less attractive option for small-scale systems when compared to the relative ease of receiving a credit multiplier.

Nevada

Nevada has used a variety of credit multipliers to achieve different policy objectives. Nevada has also doubled-down on certain technologies providing additional incentives on top of the credit multiplier. The most incentivized technology is customer-sited PV, which is eligible for a 2.4 credit multiplier plus an additional 1.05 line loss credit multiplier. Nevada also has a solar carve-out that can be satisfied with RECs earned through the multipliers, and a rebate program (Solar Generations) for customers who install PV on-site. Taken together, along with recent improvements to Nevada's net metering rules, these incentives have led to strong customer adoption and interesting dynamics within the RPS.

For compliance year 2016, Nevada Power reported 434,449 RECs associated with systems that participated in the Solar Generations program.[15] Many of these RECs are the result of the 2.45 multiplier. These RECs alone were almost double the number of RECs needed by Nevada Power to satisfy the solar carve-out. When combined with solar RECs acquired through other efforts, Nevada Power applied a surplus of over 800,000 solar RECs to its general market requirements under the RPS and still had a surplus of solar RECs to carry forward into future years.[16] Sierra Pacific Power, the other subsidiary of NV Energy, also had a surplus of solar RECs, though not as

[11] Maine Public Utilities Commission. Report on the Community-based Renewable Energy Pilot Program. http://www.maine.gov/tools/whatsnew/attach.php?id=730341&an=1.
[12] Maine Public Utilities Commission. Report on the Community-based Renewable Energy Pilot Program. http://www.maine.gov/tools/whatsnew/attach.php?id=730341&an=1.
[13] Maine Public Utilities Commission. Report on the Community-based Renewable Energy Pilot Program. http://www.maine.gov/tools/whatsnew/attach.php?id=730341&an=1.
[14] Maine Public Utilities Commission. Report on the Community-based Renewable Energy Pilot Program. http://www.maine.gov/tools/whatsnew/attach.php?id=730341&an=1.
[15] NV Energy. Portfolio Standard Annual Report, Compliance Year 2016. https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/2016ComplianceReport.pdf.
[16] NV Energy. Portfolio Standard Annual Report, Compliance Year 2016. https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/2016ComplianceReport.pdf.

large as Nevada Power.[17] This over-saturation of solar RECs applies downward pressure on prices. Given that systems eligible for the 2.45 credit will continue to receive the multiplier throughout the useful life, this over-supply is projected to remain in future years.

Unlike most other states, Nevada allows utilities to use energy efficiency to satisfy up to 20 percent of its RPS requirements. Nevada policymakers tried to incentivize more impactful energy efficiency measures by including a 2.0 multiplier for energy efficiency that offsets energy use during peak times. The multiplier has demonstrated some success with 19 percent of Sierra Pacific Power's energy savings and 10 percent of Nevada Power's energy savings coming during peak times.[18]

Conclusion

Credit multipliers in RPSs have been a popular tool for encouraging the development of specific technologies or applications. They vary greatly across the 14 states that have adopted them, reflecting the wide spectrum of priorities for the different states. While no new credit multiplier has been adopted since 2012, and only 15 of the existing 38 multipliers still apply to new installations, the existing credit multipliers can have an effect on renewable energy markets across the country.

Credit multipliers offer several advantages and disadvantages when compared to other policy tools, namely carve-outs. Direct state experience has showed mixed results of credit multipliers, with some states seeing increased development of the target technology or application, with others seeing no development. This highlights the complexity of state renewable energy markets and barriers, the interaction between policy mechanisms, and the importance of credit multiplier design.

[17] NV Energy. Portfolio Standard Annual Report, Compliance Year 2016. https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/2016ComplianceReport.pdf.

[18] NV Energy. Portfolio Standard Annual Report, Compliance Year 2016. https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/2016ComplianceReport.pdf.

Appendix - RPS Credit Multipliers by State

State	Multiplier Value	Technology or Application	Installation Deadline
Arizona	1.1 - 1.3	Early installation (systems installed between 1/1/01 and 12/31/03)	EXPIRED
	1.5	In-state solar electric	12/31/2005
	1.5	In-state manufactured content	12/31/2005
	1.5	Distributed solar	12/31/2005
Colorado	1.25	In-state generation	12/31/2014
	3	Co-op or Muni solar electric	7/1/2015 (co-ops)12/31/16 (munis)
	2	Systems up to 30 MW in co-op or muni territory	12/31/2014
	1.5	Community-based renewables	None
Delaware	3	In-state customer-sited PV and fuel cells	12/31/2014
	1.5	In-state wind	12/31/2012
	3.5	Offshore wind	5/31/2017
	1.1	Solar or wind with 50% in-state manufactured content	None
	1.1	Solar or wind with 75% in-state installation workforce	None
District of Columbia	1.1 – 1.2	Solar or wind	EXPIRED
	1.1	Landfill methane or wastewater-treatment methane	EXPIRED
Maine	1.5	Community energy	None
Maryland	2	Solar electric systems installed by 7/1/2007	EXPIRED
	1.1	Wind systems installed by 12/31/2008	EXPIRED
	1.1	Methane systems installed by 12/31/2008	EXPIRED
Massachusetts	0.5 – 0.95	Woody that fails to meet certain efficiency requirements	None

State	Multiplier Value	Technology or Application	Installation Deadline
Michigan	3	Solar electric	4/1/2017
	1.2	Electricity produced during peak times by a resource other than wind	None
Michigan	1.2	Energy storage	None
	1.1	Systems manufactured in-state	None
	1.1	Systems installed by an in-state workforce	None
Nevada	2.4	PV installed on the premises of a retail customer with at least 50% serving on-site load	12/31/2015
	2	Energy Efficiency during peak load	None
	1.05	Line loss factor for customer-maintained renewable energy	12/31/2015
	0.7	Reverse polymerization process	None
New Mexico	3	Co-op PV	12/31/2011
North Carolina	3	"Cleanfields Demonstration Projects"	Limited to 20 MW of projects
Oregon	2	PV 500 kW - 5 MW	12/31/2015
Utah (Goal)	2.4	PV and solar thermal	None
Virginia (Goal)	2	PV, onshore wind, animal waste	None
	3	Offshore wind	None
Washington	2	DG 5 MW or less	None
	1.2	Systems where the labor force used an approved apprenticeship program	None
Texas	2	Non-wind	None

About the North Carolina Clean Energy Technology Center

The North Carolina Clean Energy Technology Center is a UNC System-chartered Public Service Center administered by the College of Engineering at North Carolina State University. Its mission is to advance a sustainable energy economy by educating, demonstrating, and providing support for clean energy technologies, practices, and policies. The Center provides service to the businesses and citizens of North Carolina and beyond relating to the development and adoption of clean energy technologies. Through its programs and activities, the Center envisions and seeks to promote the development and use of clean energy in ways that stimulate a sustainable economy while reducing dependence on foreign sources of energy and mitigating the environmental impacts of fossil fuel use.

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The Clean Energy States Alliance (CESA) is a national, non-profit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

CESA works with state leaders, federal agencies, industry representatives, and other stakeholders to develop and promote clean energy technologies and markets. It supports effective state and local policies, programs, and innovation in the clean energy sector, with an emphasis on renewable energy, power generation, financing strategies, and economic development. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the views and achievements of its members.

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