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The Case For A Mandatory Renewable Portfolio Standard In Virginia: A Case Study Examining Virginia's Potential For A Mandatory Renewable Portfolio Standard By Comparing Virginia To Maryland And North Carolina

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THE CASE FOR A MANDATORY RENEWABLE PORTFOLIO STANDARD IN VIRGINIA: A CASE STUDY EXAMINING VIRGINIA'S POTENTIAL FOR A MANDATORY RENEWABLE PORTFOLIO STANDARD BY COMPARING VIRGINIA TO MARYLAND AND NORTH CAROLINA

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INTRODUCTION

Since the early 1980s, states have utilized Renewable Energy Portfolio Standards (“RPSs”) as policy mechanisms to “promote broader investment in renewable energy without requiring passage of a comprehensive energy policy measure that includes a pricing mechanism for carbon.”¹ RPS policies can be drafted in one of two ways: (1) as a mandatory RPS, a legal mandate on what percentage of a state’s power portfolio must come from specific eligible renewable energy sources by a specific date in the future, or (2) as a non-binding or voluntary RPS, a policy goal that recommends that a certain percentage of a state’s power portfolio comes from specific eligible renewable energy sources by a set date in the future.²

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¹ Corey N. Allen, *Untapped Renewable Energy Potential: Lessons for Reforming Virginia’s Renewable Energy Portfolio Standard from Texas and California*, 35 VA. ENVTL. L.J. 117, 118 (2016); see also *Renewable Portfolio Standards*, NAT’L RENEWABLE ENERGY LABORATORY (Jan. 22, 2019), https://www.nrel.gov/tech_deployment/state_local_governments/basics_portfolio_standards.html [https://perma.cc/R2XF-GSA2]; GALEN BARBOSE, LAWRENCE BERKELEY NATIONAL LABORATORY, U.S. RENEWABLES PORTFOLIO STANDARDS 2017 ANNUAL STATUS REPORT (2017), <https://emp.lbl.gov/sites/all/files/lbnl-1005057.pdf> [https://perma.cc/FMM8-XVFD].

² Allen, *supra* note 1, at 118.

The introduction of RPS policies into state energy regulations has completely revolutionized the renewable energy industry.³ While most states enacted RPSs by the mid-2000s, RPSs are beginning to again appear on state legislature agendas as the fixed statutory targets within existing authorizing statutes are coming to pass.⁴ Partly due to this, 2016 saw large-scale change to RPSs across the country with over 20% of the states that utilize RPSs revising their existing statutory language to increase set target percentages or to introduce new eligible sources of renewable energy.⁵ D.C., Maryland, Minnesota, New York, Rhode Island, and Oregon all revised their RPS policies to increase their statutory targets of, as existing targets were realized ahead of the existing statutory timelines.⁶ The success of these RPS policies are not unique to the before mentioned states.⁷ It becomes clear, when looking at the mid-Atlantic/south Atlantic region as a whole, that states with RPSs have been widely successful in increasing their renewable energy level.⁸

The passage of a mandatory RPS can guide a state towards “investment in renewable energy generation that may not otherwise occur” by providing state-backed incentives to utility corporations for the development of renewable energy.⁹ However, Virginia has not elected to pass a mandatory RPS.¹⁰ Instead Virginia’s RPS language makes any participation voluntary and, as such, Virginia’s renewable energy lags behind neighboring states that have mandatory RPS objectives.¹¹ “As currently

³ See GALEN BARBOSE, LAWRENCE BERKELEY NATIONAL LABORATORY, U.S. RENEWABLES PORTFOLIO STANDARDS 2017 ANNUAL STATUS REPORT 3 (2017), <http://eta-publications.lbl.gov/sites/default/files/2017-annual-rps-summary-report.pdf> [<https://perma.cc/SC8Q-UJD9>].

⁴ See *id.* (discussing how state RPS programs are starting to see revisions and how states have been meeting their interim RPS targets).

⁵ See *id.* (explaining that five states and D.C. experienced revisions in 2016); see also Jocelyn Durkay, *State Renewable Portfolio Standards and Goals*, NAT’L CONFERENCE OF STATE LEGISLATURES (Aug. 1, 2017), <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx.dsireusa.org/system/program/detail/262> [<https://perma.cc/8FVT-4L4Z>] (explaining what states have what RPS policies).

⁶ See BARBOSE, *supra* note 3, at 10 (explaining the revisions made by the above-mentioned states in 2016).

⁷ *Id.* at 3, 5, 10, 13.

⁸ *Id.*

⁹ Allen, *supra* note 1, at 119.

¹⁰ VA. CODE ANN. § 56-585.2 (2018).

¹¹ See *id.*; see also *Renewable Energy Production By State*, U.S. DEPT. OF ENERGY, <https://energy.gov/maps/renewable-energy-production-state> [<https://perma.cc/XV4L-JH6G>] (documenting that D.C., Delaware, Maryland, and North Carolina the neighboring states and district to Virginia with mandatory RPS have higher renewable energy production).

structured, Virginia's non-binding RPS leaves significant untapped potential for future renewable energy production."¹²

Maryland and North Carolina are both neighboring states to Virginia.¹³ Additionally, both of those states, unlike Virginia, have mandatory RPS programs that have found success.¹⁴ This Note will seek to compare and contrast Virginia's current RPS¹⁵ with those in Maryland¹⁶ and North Carolina¹⁷ to analyze the weaknesses of Virginia's RPS and offer recommendations for reform within the Commonwealth.

I. HISTORY OF RPS POLICIES IN THE UNITED STATES AND RELEVANCY OF RPS POLICIES TODAY

In 1983, Iowa enacted the first RPS, a regulatory mandate or goal on electric suppliers to increase production of energy from statutorily eligible renewable energy sources like solar, wind, and geothermal.¹⁸ It would take over a decade until RPS policies gained more traction across the United States, but between the mid-1990s and the mid-2000s twenty-one states enacted RPS policies.¹⁹ While originally most RPS policies were enacted by incorporating them into broader state electric legislation, over time, RPS policies began to be enacted through stand-alone legislation.²⁰ As of August 1, 2017, twenty-nine states and the District of Columbia have established mandatory RPSs in effect.²¹ An additional eight states have established voluntary RPSs.²² These, as explained above, differ from mandatory RPSs because they do not statutorily require a certain percentage of energy to be derived from renewable sources by a specific year, but instead set the percentage as a mere goal.²³ "The federal government has

¹² Allen, *supra* note 1, at 119.

¹³ U.S. DEPT. OF ENERGY, *supra* note 11 (showing neighboring states to Virginia).

¹⁴ See N.C. GEN. STAT. § 62-133.8 (2017), MD. CODE ANN. PUB. UTIL. § 7-701 (2017).

¹⁵ VA. CODE ANN. § 56-585.2 (2018).

¹⁶ MD. CODE ANN. PUB. UTIL. § 7-701 (2017).

¹⁷ N.C. GEN. STAT. § 62-133.8 (2017).

¹⁸ NAT'L RENEWABLE ENERGY LABORATORY, *supra* note 1; BARBOSE, *supra* note 3, at 7.

¹⁹ See RYAN WISER ET AL., ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY, RENEWABLES PORTFOLIO STANDARDS: A FACTUAL INTRODUCTION TO EXPERIENCE FROM THE UNITED STATES 1,8 (2007), <https://emp.lbl.gov/sites/all/files/lbnl-62569.pdf> [<https://perma.cc/6WP9-PATX>].

²⁰ See *id.* at 2.

²¹ Durkay, *supra* note 5.

²² *Id.*

²³ Allen, *supra* note 1, at 118.

never adopted an RPS covering the United States, though many comprehensive energy bills have sought to implement a federal RPS.”²⁴

While most RPSs were enacted fairly recently, predominantly in the late 1990s and early 2000s, they have already had a large impact on renewable energy within the United States and are expected to continue to do so.²⁵ This is because over 56% of all U.S. retail electricity sales are currently governed by RPS policies.²⁶ By looking at the numbers, it is not hard to see that the renewable energy sector has boomed in the last twenty years mainly because of the enactment of RPS policies.²⁷ RPS requirements have constituted approximately 50% of the total U.S. renewable energy growth since 2000.²⁸ “From 1998–2007, over 8,900 megawatts (“MW”) of new, non-hydropower renewable energy capacity has come on-line in states with an RPS.”²⁹ Specifically, “RPS policies have supported the installation of new wind capacity, which accounted for approximately 78 percent of RPS-motivated renewable energy capacity additions between 1998 and 2012.”³⁰ Additionally, “[t]wo-thirds of all non-hydroelectric renewable capacity additions in the United States since 1998 have occurred in states with RPS policies.”³¹ The growth of biofuels has followed this trend.³²

In terms of United States energy production as a whole, in 2000 renewable energy production accounted for approximately 6% of the energy market.³³ But, by 2016, renewable energy production accounted for almost 10% of the energy market in the United States.³⁴ RPS policies have contributed greatly to this 50% increase in renewable energy production since 2000.³⁵ Over 44% of all United States renewable energy capacity additions in 2016 were due to RPS policies; however, within some regions RPS policies are responsible for an even larger percentage.³⁶ RPS policies

²⁴ *Id.* at 128.

²⁵ See BARBOSE, *supra* note 3, at 3, 8.

²⁶ *Id.* at 6.

²⁷ See *id.* at 12.

²⁸ *Id.*

²⁹ Allen, *supra* note 1, at 130.

³⁰ U.S. ENVTL. PROT. AGENCY, EPA ENERGY AND ENVIRONMENT GUIDE TO ACTION: RENEWABLE PORTFOLIO STANDARDS 5-1 (2015), https://www.epa.gov/sites/production/files/2017-06/documents/guide_action_chapter5.pdf [<https://perma.cc/WX2A-3HTC>].

³¹ Allen, *supra* note 1, at 130.

³² *Id.*

³³ *Table 1.2 Primary Energy Production by Source*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/totalenergy/data/monthly/pdf/sec1_5.pdf [<https://perma.cc/L9HN-6UA4>] (last visited Mar. 11, 2019).

³⁴ *Id.*

³⁵ See BARBOSE, *supra* note 3, at 12.

³⁶ *Id.*

are directly responsible for 70%–90% of the additional renewable energy capacities gained in 2016 in the West, mid-Atlantic, and Northeast.³⁷ This increase in renewable energy capacities has allowed consumption of renewable energy within the United States to increase from 6% in 2000 to 10% in 2016.³⁸ The impact of RPS policies on the growth of the renewable energy sector is ongoing.³⁹ This is because, in most states, the end statutory deadline for RPS policies has not been realized.⁴⁰ “[I]f full compliance is to be achieved in all states with a mandatory RPS [ignoring the eight states with voluntary RPS policies], a significant amount of new renewable power capacity, over 60,000 MW, will be necessary to develop over the next twenty years to reach full compliance.”⁴¹ Achieving this will “require roughly a 50% increase in United States renewable energy generation by 2030.”⁴² Additionally, consumption of renewable energy within the United States is expected to increase to 13% by 2030.⁴³

It is important to continue to analyze RPS policies and evaluate their successes and shortcomings as more of their statutory deadlines come to pass. Historically, “the majority of state RPS policies have been fully or almost fully achieved through the application of renewable electricity or renewable energy certificates (REC) towards RPS targets.”⁴⁴ However, past success does not guarantee future outcomes and it will be important to keep analyzing the successes or shortcomings of these policies. Specifically, it is extremely important to be analyzing RPS policies today, as 2016 saw large reform of RPS policies in five states and D.C.⁴⁵ These wide-scale reforms occurred in D.C., Maryland, Minnesota, New York, Rhode Island, and Oregon because of the successes of those

³⁷ *Id.*

³⁸ *Table 1.3 Primary Energy Consumption by Source*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/totalenergy/data/monthly/pdf/sec1_7.pdf [<https://perma.cc/S9J8-SFJP>] (last visited Mar. 11, 2019).

³⁹ *See generally* BARBOSE, *supra* note 3 (explaining generally how RPS goals are still being met and what that means for the future).

⁴⁰ *See, e.g., Voluntary Renewable Energy Portfolio Goal*, U.S. DEPT. OF ENERGY, <https://www.energy.gov/savings/voluntary-renewable-energy-portfolio-goal> [<https://perma.cc/H7HV-CE4D>] (last visited Mar. 11, 2019) (revealing that Virginia’s deadlines for voluntary RPS participation have not lapsed yet).

⁴¹ Allen, *supra* note 1, at 130.

⁴² *See* BARBOSE, *supra* note 3.

⁴³ *Id.*

⁴⁴ RYAN WISER & GALEN BARBOSE, U.S. DEPARTMENT OF ENERGY OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION, *RENEWABLE PORTFOLIO STANDARDS IN THE UNITED STATES—A STATUS REPORT WITH DATA THROUGH 2007 1* (2008), <https://www.osti.gov/servlets/purl/927151> [<https://perma.cc/AVH8-WRSY>].

⁴⁵ *See* BARBOSE, *supra* note 3.

states' existing RPS policies.⁴⁶ The mandated renewable energy levels in each state that decided to revise its previously enacted RPS standards were increased due to targets being realized before the year set in the original statutory language.⁴⁷

II. DESIGN AND IMPLEMENTATION OF RPS POLICIES

Since RPSs are state-based legislation, no two are the same.⁴⁸ Instead, states uniquely tailor their policies to optimize and achieve their own "particular state policy objectives, electricity market characteristics, and renewable resource potential."⁴⁹ However, most RPSs have common design characteristics.⁵⁰ At the heart of RPS policies is the requirement that retail electricity suppliers meet certain set targets and timelines regarding the generation of renewable energy.⁵¹ Generally, RPS mandates are aimed at suppliers because suppliers are best situated within the market to "encourage competition among renewable developers to meet the targets in a least-cost fashion."⁵² However, occasionally an RPS may instead place the burden of compliance on the actual power producers.⁵³

RPS policies intrinsically must dictate a specific minimum percentage of renewable energy for electric utilities and providers to achieve or aim to achieve (the target) by a specific time period.⁵⁴ Choosing an end target level varies considerably by state and can be "influenced by many factors, including a state's goals, renewable energy potential, and definition of eligible technologies and resources. Sometimes siting, public acceptance, and balance of system capabilities (e.g., transmission capacity) also influence the amount of renewable energy that can ultimately be accessed."⁵⁵ These differences can be seen in how at the end of 2007 enacted RPS policies ranged drastically "from [governing] 2% of the electricity supply in Iowa to 40% in Maine."⁵⁶

⁴⁶ *Id.*

⁴⁷ *See generally id.*

⁴⁸ *Renewable Energy Explained: Portfolio Standards*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/?page=renewable_home#tab4 [<https://perma.cc/K9WD-XCU8>] (last visited Mar. 11, 2019); WISER & BARBOSE, *supra* note 44, at 1.

⁴⁹ U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-2.

⁵⁰ Allen, *supra* note 1, at 120.

⁵¹ WISER & BARBOSE, *supra* note 44, at 2.

⁵² *Id.*; *see also* Allen, *supra* note 1, at 123-24.

⁵³ Allen, *supra* note 1, at 123.

⁵⁴ U.S. ENERGY INFO. ADMIN., *supra* note 48.

⁵⁵ U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-9.

⁵⁶ K.S. CORY & B.G. SWEZEY, NATIONAL RENEWABLE ENERGY LABORATORY, RENEWABLE

It is worth noting that deciding what forms of energy count towards achieving the target is equally important. States get to specify in the statute what qualifies “as ‘renewable energy’ or ‘renewable electricity production’ under the RPS.”⁵⁷ “Generally, these resources include wind, solar, geothermal, biomass, and some types of hydroelectricity, but may also include other resources such as landfill gas, municipal solid waste, and ocean energy.”⁵⁸ States may dictate any conditions or limitations on the production of these types of energy in line with policy objectives or other concerns.⁵⁹

In terms of the diversification of energy types utilized to achieve the target, it is possible for RPS policies to not specify how those eligible renewable energy forms will be valued against one another. However most, if not all, do.⁶⁰ Why? The availability of renewable resources varies with climate and geography across the United States, so states may face limitations on what renewable energy sources can most cost effectively be produced.⁶¹ As such, states may attempt to encourage the production of more cost-effective renewable energy sources by classifying sources into classes or tiers within their RPS policies.⁶² Each class or tier generally has different energy technologies within it, and the different classes or tiers normally “have different levels of energy generation or procurement to achieve, as well as different timelines to come into compliance.”⁶³ Generally, by structuring the RPS this way, the state encourages competitiveness amongst the possible options within a tier or class so that the most cost-effective renewable option within a state is the one that is developed.⁶⁴ However, oftentimes states establish lower tiers or set-asides with separate smaller targets to encourage the diversification of renewable resources within the state’s energy portfolio.⁶⁵ This helps encourage the development of less cost-efficient renewable energy sources, like solar

PORTFOLIO STANDARDS IN THE STATES: BALANCING GOALS AND IMPLEMENTATION STRATEGIES 8, <https://www.nrel.gov/docs/fy08osti/41409.pdf> [<https://perma.cc/C3KH-JRSS>].

⁵⁷ Allen, *supra* note 1, at 122.

⁵⁸ U.S. ENERGY INFO. ADMIN., *supra* note 48.

⁵⁹ See U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-2-5-3.

⁶⁰ Durkay, *supra* note 5.

⁶¹ CORY & SWEZEY, *supra* note 56, at 9.

⁶² ED HOLT, POTENTIAL RPS MARKETS FOR RENEWABLE ENERGY GENERATORS 1, 2 (2016), <https://www.cesa.org/assets/2014-Files/Potential-RPS-Markets-Report-Holt-January-2014.pdf> [<https://perma.cc/8YM3-3MM2>].

⁶³ Allen, *supra* note 1, at 121.

⁶⁴ HOLT, *supra* note 62; see also Allen, *supra* note 1, at 121 (explaining why the RPS tier classes encourage competition).

⁶⁵ *Id.*

power.⁶⁶ Alternatively, some states dictate specific targets for specific sources of renewable energy within the RPS to incentivize the development of that source.⁶⁷

It is not feasible for targets to be achieved immediately. As such, it is important for state RPS policies to provide adequate time for targets to be achieved. This is necessary to allow for the creation and implementation of new renewable energy sources within the state's energy portfolio.⁶⁸ In most states the timeline stated in RPS policies is spread over a ten to twenty year period, allowing for the development of markets by providing "developers and investors time to plan and recover capital investments."⁶⁹ Most of the time, RPS policies do not just set one fixed percentage level for compliance by a set time.⁷⁰ Instead, most RPSs set multiple target deadlines within the compliance timeline allowing for the incremental increase in the percentage of renewable energy production within the state's power portfolio.⁷¹ "For example, a state could require utilities to increase their renewable generation by 2% each year for the next ten years, resulting in 20% renewable power in that state."⁷² This is of fundamental importance because "most states also require that once reached, the target percentage or capacity be maintained indefinitely."⁷³ It is worth noting that the RPS's statutory language also dictates a general reporting requirement tied to each compliance date or deadline.⁷⁴ Generally, reporting requirements include energy producers and providers reporting (1) the type of power source and (2) the percentage of that power source provided.⁷⁵

Geographical and temporal restrictions are also commonly included within the statutory language of an RPS, governing where the energy for hitting the target can come from either by restricting where the facility can be physically located or restricting the nature of the facility.⁷⁶ A state's RPS language can impose geographic limitations in a multitude of ways.⁷⁷

⁶⁶ *Id.*

⁶⁷ U.S. ENERGY INFO. ADMIN., *supra* note 48.

⁶⁸ U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-10.

⁶⁹ *Id.*

⁷⁰ Allen, *supra* note 1, at 121-22.

⁷¹ *Id.*

⁷² *38 States Plus DC Have a Renewable Portfolio Standard*, SOCIAL ENERGY INDUSTRIES ASSOC., <https://www.seia.org/initiatives/renewable-energy-standards> [<https://perma.cc/4D7X-NQQY>] (last visited Mar. 11, 2019).

⁷³ U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-10.

⁷⁴ Allen, *supra* note 1, at 121.

⁷⁵ *Id.*

⁷⁶ *Id.* at 122-23.

⁷⁷ *Id.*

The state can dictate if a certain percentage or all of the required renewable power is generated within the physical state.⁷⁸ For example, Michigan requires any renewable energy counted towards compliance to have been generated within the state.⁷⁹ Alternatively, some RPS policies allow renewable power that has been generated outside of the state, but only if the state that the power was generated in is part of “the same regional transmission operator as the RPS state.”⁸⁰ California, for example, follows this model, allowing renewable energy to count towards compliance if it “come[s] from generators that interconnect with California’s transmission system.”⁸¹ Lastly, the RPS can indirectly regulate where energy comes from by incentivizing generation from within the state by providing higher credits towards compliance for energy produced within the state.⁸² However, there has been a general trend across RPS revisions away from geographic restrictions.⁸³

In terms of temporal restrictions, these guidelines “determine if facilities that are currently producing or under construction may be used for compliance with RPS mandates, as opposed to solely facilities constructed after the RPS is implemented.”⁸⁴ Occasionally, RPS policies will carve out caveats that allow existing facilities to have energy generated counted towards compliance that otherwise would not if the facility increases its overall generation capacity.⁸⁵ Beyond deciding whether the state will need to construct new facilities after RPS implementation or if energy generated within existing facilities and facilities under construction can count towards compliance, these restrictions can also permit “regulated utilities to ‘bank’ current excess renewable generation to use for future compliance or to ‘borrow’ from a future compliance period to meet a shortfall in the current period.”⁸⁶

The statute will also have to specify who will govern the RPS. Administration of the RPS includes “handling compliance reporting from regulated producers or retail providers, determining compliance with

⁷⁸ *Id.* at 122.

⁷⁹ *Renewable Portfolio Standards*, STATE POWER PROJECT, <https://statepowerproject.org/renewable-portfolio-standard/> [<https://perma.cc/X6RP-NBBS>] (last visited Mar. 11, 2019).

⁸⁰ Allen, *supra* note 1, at 123.

⁸¹ STATE POWER PROJECT, *supra* note 79.

⁸² Allen, *supra* note 1, at 123.

⁸³ BARBOSE, *supra* note 3.

⁸⁴ Allen, *supra* note 1, at 122.

⁸⁵ *Id.* at 122–23.

⁸⁶ *Id.* at 123.

RPS mandates, and levying penalties for non-compliance.”⁸⁷ Generally, state RPSs are administered by existing state utility regulatory agencies since they have the requisite experience with regulating and monitoring electric power providers.⁸⁸ One way states can help facilitate the administration of an RPS is by establishing a renewable energy credit (also known as a renewable energy certificate (“REC”)) trading system in the statute.⁸⁹ A REC is a legal instrument “that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour (“MWh”) of electricity is generated and delivered to the electricity grid from a renewable energy resource.”⁹⁰ Utilizing RECs helps in the administration of RPSs because “an RPS that does not use RECs as the primary compliance mechanism will require significant reporting to show exact levels or percentages of power generated or provided, broken down by source type, and then a calculation of the regulated utility’s source mix to show it has complied with its RPS mandate.”⁹¹ Comparatively, if the RPS allows for RECs, then each compliance period the power provider would just have to give the RECs to the RPS administrator to show that the provider had met the requirements of the RPS mandate.⁹² These RECs can be sold either “bundled” or “unbundled.”⁹³ “A utility that sells renewable energy can ‘bundle’ the electricity and the REC together. That means the buyer gets both the energy and the REC. If the energy and RECs are ‘unbundled,’ the developer can sell the electricity to one utility and the REC to another.”⁹⁴

Lastly, RPS policies generally have some requirement about enforcement.⁹⁵ However, whether an RPS has an enforcement mechanism

⁸⁷ *Id.* at 126.

⁸⁸ *Id.*

⁸⁹ *Id.* at 124–26.

⁹⁰ *Renewable Energy Certificates (RECs)*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/greenpower/renewable-energy-certificates-recs> [<https://perma.cc/RY3S-3H6V>] (last visited Mar. 11, 2019); see also James Critchfield, *Understanding Renewable Energy Certificates (RECs) and the Green Power Procurement Process*, U.S. ENVTL. PROT. AGENCY (Apr. 15, 2015), https://www.epa.gov/sites/production/files/2016-01/documents/webinar_20150415_critchfield.pdf [<https://perma.cc/UG2C-4T8J>]; Allen, *supra* note 1, at 124.

⁹¹ Allen, *supra* note 1, at 124.

⁹² *Id.* at 124.

⁹³ Tim Whitehouse, *Guest Commentary: Reforming MD.’s Renewable Energy Law*, MARYLAND MATTERS (Feb. 21, 2018), <https://marylandmatters.org/2018/02/21/guest-commentary-reforming-md-s-renewable-energy-law/> [<https://perma.cc/QT4B-M7S2>].

⁹⁴ *Id.*

⁹⁵ U.S. ENVTL. PROT. AGENCY, *supra* note 30, at 5-10.

will depend on if participation is mandatory or voluntary.⁹⁶ Enforcement mechanisms can include both financial or market access-based penalties.⁹⁷ In terms of financial penalties, an RPS can simply impose penalties on an energy provider for failing to meet the mandated target by the expressed time.⁹⁸ Alternatively,

An RPS may provide for an Alternative Compliance Payment (“ACP”), where a regulated producer or retail provider makes a payment to the RPS administrator to make up for its shortfall in renewable energy production or procurement, such that it is not penalized further for non-compliance. ACP prices are normally defined in advance at fixed levels, which helps regulated producers or providers find a price-out level in the market if renewable energy becomes significantly less cost-effective.⁹⁹

An RPS may also allow for penalties regarding market access by the suspending or revoking of a provider’s ability “to sell electricity in the state if the RPS obligation is not met.”¹⁰⁰

III. WHY MARYLAND AND NORTH CAROLINA FOR A CASE STUDY?

Virginia, Maryland, and North Carolina are all in part served by PJM, “a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.”¹⁰¹ PJM facilitates the achievement of long-term regional electric planning by acting as a neutral party to the states and electricity producers.¹⁰² PJM is responsible for helping each state have reliable access to electricity which impacts “more than 65 million people.”¹⁰³

⁹⁶ *Id.*

⁹⁷ Allen, *supra* note 1, at 127.

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Who We Are*, PJM, <http://www.pjm.com/about-pjm/who-we-are.aspx> [https://perma.cc/8TDW-MJP5] (last visited Mar. 11, 2019).

¹⁰² *Id.*

¹⁰³ *Id.*

Additionally, PJM provides many resources to help states govern RPSs.¹⁰⁴ As explained in the Section above, no two RPS programs are the same.¹⁰⁵ However, many utilize shared aspects, such as RECs.¹⁰⁶ PJM's Generation Attribute Tracking System ("GATS") tracks and records the energy generated within its territory and converts each MWh into a REC.¹⁰⁷ GATS also provides a trading platform for aggregators, producers, states, and other market participants, like homeowners, to buy and sell RECs.¹⁰⁸ If PJM member states allow for RECs in their RPSs, then GATS makes governing RPS compliance easier.¹⁰⁹ "For state agencies, GATS provides an effective way to implement policies and regulations. The GATS allows regulators access to centralized on-demand reports about RECs, and fuel mix and emissions disclosures."¹¹⁰

Analysis of PJM's region has shown that RPS policies "have [had] the direct effect of boosting renewable energy installations. This is due to the vast amounts of renewable resources still untapped in the region that are unlikely to be developed within the next 15 years without the demand created by RPS policies."¹¹¹ Only three of PJM's participating states (Kentucky, West Virginia, and Tennessee) have no RPS.¹¹² Virginia and Indiana are the only two PJM states who utilize voluntary RPS.¹¹³ As such, all three states considered within this case study (Maryland, North Carolina, and Virginia) have an RPS of some kind.¹¹⁴ Given their participation in the same RTO, any analysis regarding the strengths and shortcomings of their RPSs can be grounded in an understanding that all three have access to similar resources. Specifically, all three states as participants in PJM have access to more diverse energy sources, as they can pull from RECs developed in any of the member states.¹¹⁵

¹⁰⁴ *About GATS*, PJM, <https://www.pjm-eis.com/getting-started/about-GATS.aspx> [<http://perma.cc/Q3A4-A79M>] (last visited Mar. 11, 2019).

¹⁰⁵ U.S. ENERGY INFO. ADMIN., *supra* note 48; WISER & BARBOSE, *supra* note 44, at 1.

¹⁰⁶ Allen, *supra* note 1, at 120.

¹⁰⁷ PJM, *supra* note 104, at 450–51.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ Tommy Vitolo, *Enhancing Maryland's Renewable Portfolio Standard* (Feb. 22, 2016), <http://www.synapse-energy.com/sites/default/files/Enhancing-Marylands-RPS-15-111.pdf> [<https://perma.cc/LYH5-RVVM>].

¹¹² *State Renewable Portfolio Standards and Goals*, NAT'L CONFERENCE OF STATE LEGISLATURES (Jul. 20, 2018), <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx> [<https://perma.cc/8HPK-F29H>].

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ PJM, *supra* note 104.

IV. VIRGINIA'S RPS

A. *History*

Virginia enacted its RPS far later than most states.¹¹⁶ In 2007, Virginia enacted legislation creating a voluntary RPS.¹¹⁷ Multiple studies were conducted prior to the passage of the legislation to determine what impact an RPS would have on Virginia's energy sector.¹¹⁸ "A 2006 study found that, without a mandatory RPS, Virginia's electric power sector would be comprised of 87% coal-fired power, 9% natural gas-fired power, and 4% oil-fired power."¹¹⁹ A 2005 study by the Virginia Commission on the Electric Utility Restructuring was commissioned "to determine the impacts of increased deployment of renewable energy sources in Virginia."¹²⁰ It determined that 1,340 MW of renewable energy capacity was installed within the Commonwealth at the time of the survey.¹²¹ The more impactful finding was the determination that "930 MW of renewable power capacity was developable in the near term and at least 15,000 MW of renewable power capacity was possible overall."¹²² However, successful lobbying efforts by utilities within the state led the General Assembly to pass a voluntary form of an RPS, codified in the Virginia Code as § 56-585.2.¹²³

Since that time, RPS revisions have consistently come before the General Assembly every few years.¹²⁴ In 2009, legislation was passed to revise the RPS to increase incentives for investor-owned utilities within the Commonwealth to obtain energy through renewable sources.¹²⁵ Another notable change occurred in 2012 when legislation was passed allowing "investor-owned utilities to meet up to 20% of a renewable energy goal through certificated research and development activity expenses related to renewable energy and alternative energy sources."¹²⁶ The question of if Virginia's RPS should be mandatory has plagued Virginia since 2007, and it remains a controversial issue even though twenty-nine other states

¹¹⁶ NAT'L CONFERENCE OF STATE LEGISLATURES, *supra* note 112.

¹¹⁷ U.S. DEPT. OF ENERGY, *supra* note 40; *see also* VA. CODE ANN. § 56-585.2 (2018).

¹¹⁸ Allen, *supra* note 1, at 131–32.

¹¹⁹ *Id.*

¹²⁰ *Id.* at 132.

¹²¹ *Id.* at 132–33.

¹²² *Id.* at 133.

¹²³ VA. CODE ANN. § 56-585.2 (2018); *see also* Allen, *supra* note 1, at 132.

¹²⁴ U.S. DEPT. OF ENERGY, *supra* note 40.

¹²⁵ *Id.*

¹²⁶ *Id.*

have enacted mandatory RPSs.¹²⁷ Candidates on both sides of the aisle agree that the existing RPS legislation needs drastic changes.¹²⁸ Former Governor McAuliffe ran in 2014 on a position of imposing a mandatory RPS within the Commonwealth with a 25% goal instead of a 15% by 2021; however, McAuliffe's term has now ended and still nothing in Virginia's RPS has changed.¹²⁹ In the most recent session of the General Assembly, bills to make Virginia's RPS mandatory died in committee.¹³⁰

As it currently stands, Virginia's RPS allows any "incumbent investor-owned electric utility [to] apply to the State Corporation Commission to participate in the RPS program."¹³¹ Utilities may choose to participate in the program due to the incentives, including tax breaks and a right to recover incurred costs from pursuing the goals.¹³² The State Corporation Commission will grant approval to investor-owned incumbent electric utilities that can demonstrate that it is reasonably expected to achieve the 2022 target of 12%.¹³³ Participating investor-owned electric utilities have four target goals: (i) "4% of base year sales in 2010,"¹³⁴ (ii) an "average of 4% of base year sales in 2011 through 2015, and 7% of base year sales in 2016,"¹³⁵ (iii) an "average of 7% of base year sales in 2017 through 2021, and 12% of base year sales in 2022,"¹³⁶ and lastly (iv) an "average of 12% of base year sales in 2023 and 2024, and 15% of base year sales in 2025."¹³⁷

Under the statute, "eligible energy resources include solar, wind, geothermal, hydropower*, wave, tidal, and biomass energy."¹³⁸ However, the language provides a multiplier to incentivize the development of certain

¹²⁷ *Should Virginia Make its Renewable Portfolio Standard Mandatory?*, BLUE VIRGINIA (Jan. 8, 2014), <http://bluevirginia.us/2014/01/renewable-portfolio-standards-to-mandate-or-not-to-mandate> [<https://perma.cc/6KWC-ZJMY>].

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ Ivy Main, *General Assembly Chews on Spits Out Healthy Energy Legislation, While Still Trying to Digest a Huge Hunk of Pork*, POWER FOR THE PEOPLE VA (Feb. 8, 2018), <https://powerforthepeopleva.com/2018/02/08/general-assembly-chews-on-spits-out-healthy-legislation-while-still-trying-to-digest-a-huge-hunk-of-pork/> [<https://perma.cc/5YE5-9VQJ>].

¹³¹ Allen, *supra* note 1, at 133.

¹³² VA. CODE ANN. § 56-585.2 (2018).

¹³³ *Voluntary Renewable Energy Portfolio Goal*, DSIRE (Feb. 8, 2015), <http://programs.dsireusa.org/system/program/detail/2528> [<https://perma.cc/UNQ7-FT8G>].

¹³⁴ *Id.*

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

types of energy.¹³⁹ The RPS grants double credits for onshore wind and solar power, and triple credits for offshore wind.¹⁴⁰ The RPS does not place restrictions on facilities, and allows existing renewable energy generators to contribute towards RPS compliance.¹⁴¹ Additionally, the statute allows utilities to use RECs towards meeting the goals; however, only 20% of any annual requirement can be met through research and investment.¹⁴²

A strong restriction the RPS does create is a requirement for participating utilities to report to the Commission annually.¹⁴³ “Each participating utility also is required to report to the Commission annually concerning: (i) efforts, if any, to meet the RPS goals, (ii) overall generation of renewable energy, and (iii) advances in renewable generation technology that affect activities described in clauses (i) and (ii).”¹⁴⁴ As of this writing, Dominion Virginia Power and Appalachian Power are the only utilities to have elected to participate in Virginia’s RPS.¹⁴⁵ They both have complied with reporting requirements annually.¹⁴⁶

B. *Successes and Failures*

Virginia’s RPS is one of the least ambitious in the country.¹⁴⁷ As a result, compared to neighboring states, Virginia lags far behind in the installation of renewable energy generators.¹⁴⁸ In terms of solar energy and wind energy during 2016, Virginia had an installed capacity of 238.2 MW being able to be produced annually in the state.¹⁴⁹ Comparatively, Maryland had 828.8 MW, and North Carolina had 3,223.8 MW.¹⁵⁰ This

¹³⁹ DSIRE, *supra* note 133.

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² VA. CODE ANN. § 56-585.2 (2018).

¹⁴³ *Id.*

¹⁴⁴ *Status Report Implementation of the Virginia Electric Utility Regulation Act*, COMMONWEALTH OF VA STATE CORP. COMM’N (Sept. 1, 2016), https://www.scc.virginia.gov/comm/reports/2016_veur.pdf [<http://perma.cc/MQW8-7T77>].

¹⁴⁵ *Renewable Energy Portfolio Standards*, COMMONWEALTH OF VA STATE CORP. COMM’N, <https://www.scc.virginia.gov/pur/renew.aspx> [<https://perma.cc/35FF-ZR9J>] (last visited Mar. 11, 2019).

¹⁴⁶ *Id.*

¹⁴⁷ BLUE VIRGINIA, *supra* note 127.

¹⁴⁸ Ivy Main, *2017 guide to Virginia wind and solar policy*, POWER FOR THE PEOPLE VA (Jan. 12, 2018), <https://powerforthepeopleva.com/tag/renewableportfoliostandard/> [<https://perma.cc/V3P3-BWGA>].

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

is true even though solar energy within Virginia more than doubled in 2016 with the installation of the largest solar farm in the mid-Atlantic region by Amazon.¹⁵¹ This is in part due to Virginia's RPS's voluntary nature. Due to this, Virginia's State Corporation Commission's only option when a utility fails to meet a goal is notify the public.¹⁵² This public notification falls short of providing sufficient incentives for utilities to elect to change existing methods of producing power towards renewable energy. As such, much of the potential renewable energy sources in Virginia remain uncultivated.

Where has Virginia's policy succeeded? In creating an RPS that has flexibility. A multitude of renewable energy sources are pursuable under the RPS, giving utilities the option of developing the energy sources that work for them. Additionally, by participating in the PJM and allowing for 20% of goals to be met through purchased RECs and by granting RECs to utilities for research and investments utilities are given breathing room to develop renewable energy sources with less business risk.¹⁵³ Lastly, Virginia has succeeded in getting large-scale utilities to elect to participate in the program and more importantly to comply with recording requirements.¹⁵⁴ Both Dominion Virginia Power and Appalachian have met reporting requirements each year since they joined in 2009.¹⁵⁵

V. MARYLAND'S RPS

A. *History*

Maryland enacted its mandatory RPS regulation in 2004, which was codified as Maryland Public Utility Companies Code § 7-701 et seq.¹⁵⁶ "The objective of Maryland's [RPS] is to recognize and develop the benefits associated with a diverse collection of Maryland's renewable energy supplies. The State's RPS Program does this by recognizing the environmental and consumer benefits associated with renewable energy."¹⁵⁷ This initial

¹⁵¹ *Virginia Profile Analysis*, U.S. ENERGY INFO. ADMIN. (Aug. 17, 2017), <https://www.eia.gov/state/analysis.php?sid=VA> [<https://perma.cc/UK2K-4AYA>].

¹⁵² Allen, *supra* note 1, at 136.

¹⁵³ *See generally id.*

¹⁵⁴ *Id.*

¹⁵⁵ COMMONWEALTH OF VA STATE CORP. COMM'N, *supra* note 145; *see also* Allen, *supra* note 1, at 136.

¹⁵⁶ *Maryland Renewable Energy Portfolio Standard*, DSIRE (Sept. 13, 2017), <http://programs.dsireusa.org/system/program/detail/1085> [<https://perma.cc/F68M-V9EJ>].

¹⁵⁷ *Maryland Renewable Energy Portfolio Standard Program—Frequently Asked Questions*,

regulation aimed to achieve that objective by breaking renewables into two tiers with separate objectives. Tier 1, which includes “wind, biomass, anaerobic decomposition, geothermal, ocean, fuel cells powered through renewables, small hydro, poultry-litter incineration facilities, and waste-to-energy facilities” had an objective of 7.5% by 2019.¹⁵⁸ “Tier two renewables [which] include hydroelectric power other than pump-storage generation,” had an objective of 2.5% by 2018.¹⁵⁹

“The program is implemented through the creation, sale and transfer of [RECs]. The development of renewable energy sources [in Maryland] is further promoted by requiring electricity suppliers to pay a financial penalty for failing to acquire sufficient RECs to satisfy the RPS.”¹⁶⁰ To enforce this, electricity suppliers are required to submit an annual report to the Public Service Commission demonstrating compliance with the RPS requirements.¹⁶¹ An electricity supplier’s failure to meet the set standards will require it to pay the Maryland Strategic Energy Investment Fund (“SEIF”) a set rate per MWh the supplier was short compared to the mandated percentages.¹⁶²

Numerous revisions have occurred over time and changed these initial RPS targets by increasing the targets within each tier.¹⁶³ A 2007 revision added solar energy to Tier 1 and created a solar carve out within the statute, thus requiring that a specific percentage of Tier 1 be derived from solar in the future.¹⁶⁴ A 2011 revision reclassified waste-to-energy facilities from Tier 1 to Tier 2.¹⁶⁵ In 2013, a carve-out for offshore wind was created.¹⁶⁶ Maryland’s RPS regulation was most recently revised in 2017, when the target was increased from 20% by 2022 to 25% by 2020 because the state was set to surpass the existing targets prematurely.¹⁶⁷

MD. PUB. SERV. COMM’N, <http://www.psc.state.md.us/electricity/maryland-renewable-energy-portfolio-standard-program-frequently-asked-questions/> [<https://perma.cc/8CSM-ASL5>] (last visited Mar. 11, 2019).

¹⁵⁸ DSIRE, *supra* note 156.

¹⁵⁹ *Id.*

¹⁶⁰ MD. PUB. SERV. COMM’N, *supra* note 157.

¹⁶¹ DSIRE, *supra* note 156.

¹⁶² *See generally id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Renewable Energy Portfolio Standard*, U.S. DEP’T OF ENERGY, <https://www.energy.gov/savings/renewable-energy-portfolio-standard> [<https://perma.cc/4PAZ-WGCG>] (last visited Mar. 11, 2019).

¹⁶⁷ DSIRE, *supra* note 156; *Maryland Increases Renewable Portfolio Standard Target to*

B. Successes and Failures

One of the strongest takeaways from Maryland's RPS is the importance of changing policies to better effectuate the objectives of the statute. Since Maryland's RPS was first enacted in 2004 it has undergone nine revisions.¹⁶⁸ These constant revisions have allowed the state to add new energies as new technologies have been developed, reprioritize state goals, and increase flexibility as the program has developed. For example, Maryland's capacity to change policy allowed it to respond swiftly to a sharp decline in the solar renewable energy credit ("SREC") market in 2016.¹⁶⁹ In 2016, SRECs were trading at \$100, but due to a variety of reasons the marketed plummeted and SRECs were trading in 2017 at \$18.¹⁷⁰ The legislature was able to revise the statute and increase the solar carve-out to provide relief to the SREC market.¹⁷¹

The goal of Maryland's RPS was to increase the development of renewable energy sources within Maryland.¹⁷² However, more than four-fifths of the energy consumed in Maryland comes from out of state.¹⁷³ This is due to one of the weaknesses of Maryland's RPS: allowing for RECs purchased through PJM to be utilized towards RPS requirements.¹⁷⁴ While RECs can facilitate easier administration, for Maryland it has resulted in higher energy prices in order to keep up with rising targets because, rather than utilizing energy produced within the state,

25% by 2020, U.S. ENERGY INFO. ADMIN. (Mar. 24, 2017), <https://www.eia.gov/todayinenergy/detail.php?id=30492> [<https://perma.cc/38DJ-R5SH>].

¹⁶⁸ *Timeline of Past Policy Decisions and State Energy Goals*, MD CLEAN ENERGY CTR., <http://mdcleanenergy.org/government/policy-matters/state> [<https://perma.cc/Q5W3-2XSB>] (last visited Mar. 11, 2019).

¹⁶⁹ Sol Systems, *Its Official: Maryland Aims for 25% Renewables After Overriding Governor's Veto*, ENERGY CENTRAL (Feb. 14, 2017), <https://www.energycentral.com/c/ec/its-official-maryland-aims-25-renewables-after-overriding-governors-veto> [<https://perma.cc/89NL-CDB4>].

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² Tyler A. Butler, *Maryland Energy Administration, Maryland's Renewable Energy Portfolio Standard, An Insider's Perspective—What You Should Know*, MD. ENERGY ADMIN. (Jan. 30, 2017), <http://news.maryland.gov/mea/2017/01/30/marylands-renewable-energy-portfolio-standard-an-insiders-perspective-what-you-should-know/> [<https://perma.cc/7E42-26CH>].

¹⁷³ *Maryland Profile Analysis*, U.S. ENERGY INFO. ADMIN. (Jul. 20, 2017), <https://www.eia.gov/state/analysis.php?sid=MD> [<https://perma.cc/TH7Z-CD6V>].

¹⁷⁴ DSIRE, *supra* note 156.

utilities are instead buying RECs generated out of state.¹⁷⁵ In fact, “every year since 2011, between 70% and 75% of RECs retired for compliance were generated out-of-state.”¹⁷⁶ The Maryland Energy Administration has estimated that since the RPS was enacted “as much as \$186 million, if not more, has been spent to acquire non-Maryland RECs.”¹⁷⁷ Unfortunately, due to the fact that Maryland’s RPS does not specify if RECs can be bundled or unbundled, this cost typically comes without the benefit of actually receiving the renewable energy.¹⁷⁸ “About 38 percent came from West Virginia, Pennsylvania and Virginia.”¹⁷⁹ The purchase of unbundled RECs is the purchase of the certificate alone without the purchase of the underlying energy.¹⁸⁰ Unbundled RECs were 80% of the RECs used towards Maryland’s RPS in 2016.¹⁸¹ This makes Maryland look greener than it actually is, because the actual renewable energy is being utilized elsewhere.¹⁸²

VI. NORTH CAROLINA’S RPS

A. *History*

North Carolina enacted its first mandatory RPS policy in 2007 by Session Law 2007-397, or Senate Bill 3, which requires “all investor-owned utilities in the state to supply 12.5% of 2020 retail electricity sales from eligible energy resources by 2021.”¹⁸³ Electric cooperatives and municipal utilities must achieve 10% by 2018.¹⁸⁴ This was the first RPS to be enacted in the southeast.¹⁸⁵ North Carolina is unique in being one

¹⁷⁵ Butler, *supra* note 172.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ Whitehouse, *supra* note 93.

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ *Renewable Energy and Energy Efficiency Portfolio Standard: North Carolina*, DSIRE (Aug. 16, 2017), <http://programs.dsireusa.org/system/program/detail/2660> [<https://perma.cc/W4T8-GQP6>].

¹⁸⁴ *Id.*

¹⁸⁵ N.C. UTILITIES COMM’N, ANNUAL REPORT TO THE GOVERNOR OF NORTH CAROLINA AND THE JOINT LEGISLATIVE UTILITY REVIEW COMMITTEE REGARDING RENEWABLE ENERGY AND ENERGY EFFICIENCY PORTFOLIO STANDARD IN NORTH CAROLINA (Oct. 1, 2008), <http://star>

of the few states in the South that has an RPS, but this may be due to North Carolina's participation in PJM.¹⁸⁶ While there have been multiple attempts to repeal RPS policies in North Carolina over recent years, it has been maintained each time through bipartisan efforts.¹⁸⁷

North Carolina's RPS is administered by the North Carolina Utilities Commission ("NCUC") and allows for energy from "solar-electric, solar thermal, wind, hydropower up to 10 megawatts (MW), ocean current or wave energy, biomass that uses Best Available Control Technology (BACT) for air emissions, landfill gas, combined heat and power (CHP) using waste heat from renewables, hydrogen derived from renewables, and electricity demand reduction."¹⁸⁸ Usage of RECs are allowed; however, unbundled RECs purchased from out of state facilities are limited to only being able to meet up to 25% of the standard.¹⁸⁹ Beyond general targets, North Carolina's RPS carved out technology-specific targets for solar power, swine waste, and poultry waste.¹⁹⁰ Additionally, North Carolina's RPS offers triple credits for RECs generated by certain biomass facilities within the state.¹⁹¹

Each electric power supplier is required by the NCUC to submit an annual compliance report "detailing the actions it has taken to fulfill the requirements of [North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard]."¹⁹² The NCUC incentivizes compliance with the RPS by allowing utilities to "recover the incremental cost of renewable resources and up to \$1 million in alternative energy research expenditures annually from customers."¹⁹³ However, that recovery amount is capped per customer account.¹⁹⁴ To date, "under the NCUC's final rules, there are no specified penalties or alternative payments for noncompliance,

w1.ncuc.net/NCUC/ViewFile.aspx?Id=9ceb5fea-c51f-4f08-9ea4-26c15d1c5949 [https://perma.cc/H54H-92BZ].

¹⁸⁶ *Electric Power Markets: PJM*, FED. ENERGY REG. COMM'N (Aug. 22, 2017), <http://www.ferc.gov/market-oversight/mkt-electric/pjm.asp> [http://perma.cc/G9J9-48ME].

¹⁸⁷ Allison Eckley, *The Latest Misinformation About the Impact of NC's Renewable Energy & Energy Efficiency Portfolio Standard*, NC SUSTAINABLE ENERGY ASS'N (Jul. 27, 2016), <https://energync.org/latest-misinformation-impact-ncs-renewable-energy-energy-efficiency-portfolio-standard/> [https://perma.cc/2BDA-PN3U].

¹⁸⁸ DSIRE, *supra* note 183.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *Id.*

¹⁹⁴ DSIRE, *supra* note 183.

but the commission has existing authority under Chapter 62 of the N.C. General Statutes to enforce compliance.”¹⁹⁵

B. Successes and Failures

The most straightforward success seen by North Carolina’s RPS is the fact that it has generated investment in renewable energy generation within the state of North Carolina.¹⁹⁶ Arguably, this is because of the cap on only 25% of RECs being able to come from out-of-state facilities.¹⁹⁷ Therefore, unlike Maryland, North Carolina has been able to actually generate renewable energy infrastructure within the state since the RPS was passed.¹⁹⁸ North Carolina’s RPS has driven the creation of North Carolina’s \$7 billion clean energy industry that has been responsible for the creation of over 26,000 jobs within the state.¹⁹⁹ Beyond this economic development, it is estimated that RPS policies in North Carolina will save North Carolinians \$651 million by 2029.²⁰⁰ Additionally, North Carolina’s RPS carve-outs utilize the state’s strongest energy resources.²⁰¹ For example, North Carolina carved out specific requirements for the development of solar energy, an abundant resource within the state.²⁰² “Enough solar energy is generated, mostly in eastern counties, to meet more than 5% of the state’s electricity needs, according to a 2017 Environment North Carolina Research and Policy Center report. Solar production in North Carolina increased to 4,016 gigawatts in 2016, up from 1 gigawatt a decade earlier.”²⁰³ This growth is only expected to continue.²⁰⁴

There are weaknesses within North Carolina’s RPS, however. While the NCUC is granted authority to set and utilize enforcement

¹⁹⁵ *Id.*

¹⁹⁶ Eckley, *supra* note 187.

¹⁹⁷ DSIRE, *supra* note 183.

¹⁹⁸ See Main, *supra* note 148 (Maryland generates much less than North Carolina through renewable sources).

¹⁹⁹ Eckley, *supra* note 187.

²⁰⁰ *Id.*

²⁰¹ See, e.g., DSIRE, *supra* note 183 (describing a carve-out for poultry waste).

²⁰² *North Carolina’s renewable-energy industry is positioned for success*, BUSINESS N.C. (Jan 5, 2018), <http://businessnc.com/north-carolinas-renewable-energy-industry-positioned-success/> [<https://perma.cc/7HPE-EG59>].

²⁰³ *Id.*

²⁰⁴ *Id.*

power, it has not done so.²⁰⁵ This can create instability in the market.²⁰⁶ While North Carolina is not currently having any issues hitting the targets established in its RPS,²⁰⁷ past successes are not a guarantee of future ones. As such, utilities are not currently able to make economic decisions with any amount of certainty regarding if it will be more efficient in the future to pay a penalty over continuing to invest in pursuing renewable energy.

VII. POLICY SUGGESTIONS FOR VIRGINIA MOVING FORWARD

If Virginia wants to realize the successes from RPSs that have been realized in its neighboring states, Virginia will need to enact stricter standards that include an enforcement mechanism. While Virginia calls its RPS a “standard,” in actuality it is a goal because there is no punishment for not reaching the set goal.²⁰⁸ While there are state incentives for reaching the goal by the timeline,²⁰⁹ that strategy has yielded less than satisfactory results for Virginia.²¹⁰ Virginia has an incredible capacity for the development of renewable resources.²¹¹ However, this capacity remains underutilized due to Virginia’s voluntary RPS.²¹² While the statute does create some incentives for utility providers to opt into the RPS,²¹³ they fall short. Of Virginia’s sixteen largest utility providers, only two have decided to opt into the RPS.²¹⁴ However, this does not mean that Virginia is not producing renewable energy. As discussed above in the Maryland section, Virginia utilities do produce renewable energy and sell their corresponding RECs to Maryland.²¹⁵ This demonstrates that renewable energy can be cost-effectively developed in Virginia. A

²⁰⁵ See N.C. UTILITIES COMM’N, *supra* note 185, at 13.

²⁰⁶ See *id.* at 5 (noting that failure to enforce erodes confidence in RPS programs).

²⁰⁷ North Carolina’s RPS requirement for renewable generation is 10% overall. NAT’L CONFERENCE OF STATE LEGISLATURES, *supra* note 112, at 7. Currently the state derives approximately 25% of its energy from renewables. U.S. DEPT. OF ENERGY, *supra* note 11.

²⁰⁸ See DSIRE, *supra* note 156.

²⁰⁹ See VA. CODE ANN. § 56-585.2(E) (2018) (incentives include tax breaks and the right to recover costs incurred pursuing the goals).

²¹⁰ BLUE VIRGINIA, *supra* note 127.

²¹¹ Allen, *supra* note 1, at 118.

²¹² See VA. CODE ANN. § 56-585.2(E) (2018) (incentives include tax breaks and the right to recover costs incurred pursuing the goals).

²¹³ Allen, *supra* note 1, at 118.

²¹⁴ *Id.* at 135.

²¹⁵ Whitehouse, *supra* note 93.

mandatory RPS could help improve cost-effectiveness by effectively requiring utilities to pursue the development of infrastructure in order to meet RPS targets. Additionally, since the two largest providers in the state are already complying,²¹⁶ it is likely that the administrative costs of adjusting to a mandatory policy would be small.

However, after analyzing both the states of Maryland and North Carolina, it is clear that there are a few policy decisions Virginia can enact to ensure the best RPS for the Commonwealth. Firstly, RPS policies should be re-examined often and have the flexibility necessary to be responsive and account for changes in state policy goals, technology development, and economic developments. Virginia's RPS has seen far fewer revisions and changes than many other states, specifically Maryland.²¹⁷ Further, any revisions seen in Virginia have been very pointed and limited in nature. Virginia's RPS would be stronger if the General Assembly granted authority to the Virginia State Corporation Commission to adjust the policy as necessary.

Additionally, Virginia could learn from Maryland's weakness and North Carolina's strength:²¹⁸ that, when adopting a mandatory RPS, place a cap on the number or percentage of RECs that can come from out of state. This allows for the actual development of infrastructure, generation of energy, and creation of jobs tied to increased renewable energy production to occur within the boundaries of the state.²¹⁹ RECs are useful to the administration of an RPS, and allowing RECs to be bought from a regional group like PJM is beneficial because it allows utilities to cushion themselves in case generation does not hit expected levels within the state.²²⁰ But by limiting this to just a safety net, the costs and benefits of energy development remain within the state.

Lastly, Virginia should learn that an enforcement mechanism would help achieve its policy goals. Virginia's RPS was passed because

²¹⁶ Allen, *supra* note 1, at 135–36.

²¹⁷ Compare VA. CODE ANN. § 56-585.2 (2018) (noting Virginia's RPS policies have been revised seven times), with MD. CODE ANN. PUB. UTIL. § 7-701 (2018) (amended more than seven times).

²¹⁸ See *supra* discussions Sections V.B, VI.B (noting that a lack of caps caused much of Maryland's renewable energy to come from out of state and that North Carolina's use of caps avoided this problem).

²¹⁹ See, e.g., Eckley, *supra* note 187 (describing economic boon of RPS policies in North Carolina and describing how RECs allow companies to contribute to that boon by meeting RPS requirements).

²²⁰ See *supra* discussion Part III (describing PJM's role as a stabilizing force in the energy market).

the legislature believed an RPS would help encourage the cultivation of Virginia's diverse renewable energy sources.²²¹ However, given that it is voluntary and there are no enforcement mechanisms,²²² the policy lacks the teeth necessary to realize its goals. Utilizing an alternative compliance payment, like Maryland,²²³ would allow pressure to be placed on utilities for failure to hit stated targets. This would be a small change, given that Virginia's two largest utilities are already complying with the RPS,²²⁴ and would allow the impacts to spread throughout the rest of the state.

For these reasons, it is in Virginia's best interest for the General Assembly to reconsider Virginia's RPS. A decision to change the RPS to a mandatory one would increase incentives for the development of Virginia's vast renewable energy sources and make it more likely that the state will hit its stated goals.

²²¹ See Allen, *supra* note 1, at 131–32 (noting that studies undertaken before the legislation indicated a vast potential for cultivation of diverse renewable resources).

²²² VA. CODE ANN. § 56-585.2 (2018).

²²³ See generally DSIRE, *supra* note 156.

²²⁴ Allen, *supra* note 1, at 135.