

## NOTES

### RENEWABLE ENERGY CREDITS AS PROPERTY

#### INTRODUCTION

Renewable energy credits (RECs)<sup>1</sup> are tradeable assets that allow a party to claim that it uses electricity produced from renewable resources. Governments and corporations have used RECs as a tool to pursue policies that support decarbonization of the electric grid, an important step in fighting the climate crisis.<sup>2</sup> RECs are useful for these goals because it is impossible to trace the flow of electricity — therefore, any claim or framework that requires a party to use renewable electricity also requires an accounting system separate from traditional electricity metering. For example, a wind farm that produces a megawatt-hour (MWh) of renewable energy could sell that energy to one party, then sell a REC to another party. The party owning the REC would now have a claim to that MWh of renewable electricity, even if that electricity did not in fact ever reach its facility. Accordingly, RECs provide an exclusive right for a party to claim a MWh of electricity as their own. Students and scholars of property may recognize this description of RECs as carrying an entitlement that resembles a property right.

In fact, case law and agency guidance often describe RECs as property.<sup>3</sup> Even though there is widespread acknowledgment that RECs are property, there is less discussion of what that categorization means.<sup>4</sup> Property can be a heady concept without clear boundaries.<sup>5</sup> At first

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<sup>1</sup> REC is a generic term for a class of commodities giving rights to claim the use of renewable energy, but different sources may use different names, such as renewable energy certificates. CTR. FOR RES. SOLS., *THE LEGAL BASIS FOR RENEWABLE ENERGY CERTIFICATES* 13 n.1 (2023), <https://resource-solutions.org/wp-content/uploads/2015/07/The-Legal-Basis-for-RECs.pdf> [<https://perma.cc/A8KC-7XR5>].

<sup>2</sup> See, e.g., Shelley Welton, *Electricity Markets and the Social Project of Decarbonization*, 118 COLUM. L. REV. 1067, 1084–85 (2018); Amanda Peterson Corio, *Five Years of 100% Renewable Energy — And a Look Ahead to a 24/7 Carbon-Free Future*, GOOGLE CLOUD BLOG (June 23, 2022), <https://cloud.google.com/blog/topics/sustainability/5-years-of-100-percent-renewable-energy> [<https://perma.cc/B2DK-CXNF>].

<sup>3</sup> See, e.g., *Wheelabrator Lisbon, Inc. v. Conn. Dep’t of Pub. Util. Control*, 531 F.3d 183, 186 (2d Cir. 2008) (“Generally speaking, RECs are inventions of state property law . . . .”); *In re Ownership of Renewable Energy Certificates*, 913 A.2d 825, 828 (N.J. Super. Ct. App. Div. 2007) (acknowledging that RECs are property); *Renewable Energy Certificates (RECs)*, U.S. EPA (Feb. 5, 2023), <https://www.epa.gov/green-power-markets/renewable-energy-certificates-recs> [<https://perma.cc/B6ST-BZN6>] (“[A REC] represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation.”); CTR. FOR RES. SOLS., *supra* note 1, at 4 (noting that five states explicitly define RECs as property rights).

<sup>4</sup> Professors Katrina M. Wyman and Adalene Minelli have discussed environmental attributes as a class of property rights. See generally Katrina M. Wyman & Adalene Minelli, *Propertizing Environmental Attributes*, 39 YALE J. ON REGUL. 1391 (2022). But RECs merit special discussion because of their overlay with state energy law, which makes their interaction with property more complicated than a traditional regulatory property framework.

<sup>5</sup> See, e.g., James Y. Stern, *Property’s Constitution*, 101 CALIF. L. REV. 277, 279 (2013).

blush, the entitlements contained in RECs look quite different than those contained in a fee simple absolute or personal property. Indeed, scholars describe interests like RECs as environmental attributes, a form of regulatory property, because they provide different rights and receive different treatment than traditional property interests.<sup>6</sup> This Note draws on property theory to explain how that categorization fits RECs in an effort to explain the often-assumed conclusion that RECs are property. This categorization is not simply academic — effective REC policy empowers states and private actors to better pursue decarbonization of their electricity use, which is essential for limiting the worst effects of the climate crisis.

By providing a theoretical background for how RECs act as property, this Note shows examples of how property theory can enrich debates about RECs and assist policymakers to craft more effective REC policy. First, property principles for initial allocation of resources have proven useful for adjudicating disputes about RECs. Property law has also been the site of debates about public choice and institutional competency that speak to current debates about the propriety of a federal renewable portfolio standard. Of course, property law also has baggage that proponents of RECs may not want. For instance, the Fifth Amendment Takings Clause provides strong protection for property rights against government interference. But takings jurisprudence provides escape valves that mean that a regulatory change that causes certain RECs' value to plummet is likely not vulnerable to takings challenges. In sum, RECs provide an understudied intersection between property theory and energy and environmental law that, when leveraged appropriately, could empower policymakers to more effectively pursue decarbonization.

## I. RECS AND THEIR PLACE IN THE ELECTRIC GRID

This Part provides a primer on renewable energy credits and the role that they play in state regulatory frameworks. RECs are most often used in state renewable portfolio standards (RPSs), which are programs requiring sellers of electricity to derive a set percentage of their generation portfolio from renewable energy sources.<sup>7</sup> But there are also voluntary purchasers of RECs, which may include utilities in states with voluntary RPS programs or private, nonelectricity market entities (for example, Google<sup>8</sup>) that seek to claim to use renewable electricity.

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<sup>6</sup> See, e.g., Wyman & Minelli, *supra* note 4, at 1393.

<sup>7</sup> Twenty-five states, plus Puerto Rico and the U.S. Virgin Islands, have mandatory renewable portfolio standards. *State Renewable Portfolio Standards and Goals*, NAT'L CONF. ST. LEGISLATURES (Aug. 13, 2021), <https://www.ncsl.org/energy/state-renewable-portfolio-standards-and-goals> [<https://perma.cc/9ZG7-QQXQ>]. Another three, plus Guam, have voluntary standards. *Id.*

<sup>8</sup> See Corio, *supra* note 2.

*A. A (Brief) Primer on Electricity Markets*

The United States electric grid is sometimes called “the most complex machine ever built.”<sup>9</sup> This Note is no occasion to dive into all of the grid’s complexity, but it provides an overview of electricity markets sufficient to illustrate how RECs fit in.

Electricity starts with a generator — for example, a solar farm, a wind farm, or a fossil-fuel-burning power plant — that converts a primary energy source into electricity.<sup>10</sup> That electricity then flows to the grid.<sup>11</sup> On the grid, electricity travels across high-voltage transmission lines before reaching lower-voltage distribution lines that connect to end users, such as homes and businesses.<sup>12</sup> Managing the electric grid is a tall order, requiring a constant balance of supply and demand.<sup>13</sup>

Under the Federal Power Act,<sup>14</sup> both state and federal governments play a role in determining the overall generation mix of the electric grid.<sup>15</sup> These kinds of decisions about who generates electricity have significant impacts on the environment. Beyond local pollution, fossil-fuel-fired power plants contribute significantly to the atmospheric CO<sub>2</sub> (among other greenhouse gases) that drives the climate crisis.<sup>16</sup> States have taken the lead on clean energy policy largely because of political reluctance at the federal level.<sup>17</sup> RPSs are a prominent example of state efforts to address the climate crisis.<sup>18</sup> RPSs are mandates that the generation portfolio for certain electricity market participants include a certain percentage of renewable energy.<sup>19</sup> Because electricity is impossible

<sup>9</sup> William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810, 820 (2016) (citing, inter alia, PHILLIP F. SCHEWE, *THE GRID: A JOURNEY THROUGH THE HEART OF OUR ELECTRIFIED WORLD* 1 (2007)).

<sup>10</sup> *Id.*

<sup>11</sup> Technically, renewable energy producers could also keep energy for themselves if they were not connected to the grid.

<sup>12</sup> Higher voltage is preferable for longer-range transmission lines because they can carry more electricity at any given time. ASHLEY J. LAWSON, CONG. RSCH. SERV., IF12253, *INTRODUCTION TO ELECTRICITY TRANSMISSION* 1 (2022).

<sup>13</sup> See *FERC v. Elec. Power Supply Ass’n*, 577 U.S. 260, 268 (2016).

<sup>14</sup> 16 U.S.C. §§ 791a–825r.

<sup>15</sup> See *Hughes v. Talen Energy Mktg., LLC*, 578 U.S. 150, 154 (2016).

<sup>16</sup> See William Boyd, *Public Utility and the Low-Carbon Future*, 61 UCLA L. REV. 1614, 1622–23 (2014). In 2022, the electric grid accounted for approximately thirty-one percent of U.S. carbon emissions. *How Much of U.S. Carbon Dioxide Emissions Are Associated with Electricity Generation?*, U.S. ENERGY INFO. ADMIN., (May 1, 2023) <https://www.eia.gov/tools/faqs/faq.php?id=77> [https://perma.cc/4QTS-RAGV].

<sup>17</sup> Felix Mormann, *Clean Energy Federalism*, 67 FLA. L. REV. 1621, 1625 (2015); Welton, *supra* note 2, at 1069; ARI PESKOE & KATE KONSCHNIK, *MINIMIZING CONSTITUTIONAL RISK: CRAFTING STATE ENERGY POLICIES THAT CAN WITHSTAND CONSTITUTIONAL SCRUTINY* 2 (2017), <https://statepowerproject.files.wordpress.com/2017/10/harvard-epi-minimizing-constitutional-risk-10-18-2017.pdf> [https://perma.cc/3T5C-HF2N].

<sup>18</sup> Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1341–42 (2010).

<sup>19</sup> *Id.* at 1359.

to trace once it comes onto the grid,<sup>20</sup> RPSs require that energy sellers buy RECs in order to subsidize renewable energy generation.<sup>21</sup> The next section provides background on RECs as they function in RPS markets as well as private markets.

### B. RECs: A Basic Definition

RECs represent the positive environmental attributes associated with renewable electricity generation.<sup>22</sup> When a renewable power plant generates a unit of power, it generates a REC as well (often corresponding to one MWh of electricity). However, a REC can be sold separately from the energy that generated it.<sup>23</sup> Therefore, renewable electricity generators create (and can sell) two products with each MWh of power generated — one MWh of electricity and one REC. RECs are necessary to track renewable energy use because, once electricity comes on the grid, it is impossible to distinguish one generator's electricity from another's.<sup>24</sup> Accordingly, when a company<sup>25</sup> or municipality<sup>26</sup> claims to use 100% renewable energy, it is not claiming that all of the electricity powering its operations is in fact renewable — that claim would be impossible to verify. Instead, the claim is that it has title to the same amount of RECs as its energy use. RECs therefore benefit renewable energy generators by acting as privately funded subsidies for their electric output and benefit buyers by allowing them to claim that their operations are powered by renewable energy.

There are mandatory and voluntary purchasers of RECs. The suppliers in either market are renewable energy generators (or secondary traders that purchased RECs from those generators). In mandatory markets (which are often driven by RPSs), the ultimate buyers are retail sellers of electricity (for example, electric utilities) that are subject to state regulation.<sup>27</sup> Under RPSs, states require that a percentage of the total electricity each entity sells comes from renewable energy.<sup>28</sup> Sellers

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<sup>20</sup> Mormann, *supra* note 17, at 1634–35.

<sup>21</sup> *Id.* at 1631.

<sup>22</sup> Kelly Crandall, Comment, *Trust and the Green Consumer: The Fight for Accountability in Renewable Energy Credits*, 81 U. COLO. L. REV. 893, 895–96 (2010).

<sup>23</sup> This kind of transaction is called an unbundled transaction. CTR. FOR RES. SOLS., *supra* note 1, at 4.

<sup>24</sup> Mormann, *supra* note 17, at 1635 (“[T]he flow of electricity is impossible to trace . . .”). Third parties track RECs for each MWh of energy produced on a generation information system. *See, e.g., Generation Information System*, ISO NEW ENG., <https://www.iso-ne.com/markets-operations/settlements/gis> [<https://perma.cc/UXS6-PT6X>].

<sup>25</sup> *E.g., Corio, supra* note 2.

<sup>26</sup> *E.g., CITY OF SOMERVILLE OFF. OF SUSTAINABILITY & ENV'T, SOMERVILLE CLIMATE FORWARD: SOMERVILLE'S COMMUNITY CLIMATE CHANGE PLAN 95–96* (2018), <https://s3.amazonaws.com/somervillema.gov.if-us-east-1/s3fs-public/somerville-climate-forward-plan.pdf> [<https://perma.cc/4GBN-TB4H>] (describing plan to achieve 100% renewable energy).

<sup>27</sup> *See, e.g., N.C. GEN. STAT. ANN. § 62-133.8(c)* (LexisNexis 2022); *MASS. GEN. LAWS ANN. ch. 25A, § 11* (West 2022); *id.* ch. 164, § 1B.

<sup>28</sup> *Davies, supra* note 18, at 1357.

meet these requirements by purchasing RECs, or, in some states, by producing their own renewable energy and retaining the associated RECs.<sup>29</sup> RPSs therefore create demand for RECs, as utilities will purchase RECs in the amount necessary to comply with state law.<sup>30</sup> States also may require utilities to purchase RECs separately from RPS obligations — for example, in 2016, Massachusetts required utilities to finance offshore-wind-power projects (and provided REC purchases as an option for doing so).<sup>31</sup>

In the absence of state mandates, there are two sources of voluntary demand for RECs. The first are state-administered voluntary programs, which operate in basically the same manner as mandatory markets.<sup>32</sup> However, unlike in mandatory markets, utilities may shoot for targets “to the extent it is cost-effective to do so.”<sup>33</sup>

The second are private, nonutility actors that seek to finance renewable energy generation (for example, to make a “100% green energy” marketing claim or meet an environmental, social, and governance (ESG) investment goal).<sup>34</sup> These purchasers do not necessarily need to purchase RECs that meet a state’s RPS definitions, as they have no need to use them in compliance frameworks. However, they remain subject to government enforcement for any misstatements regarding their purchases.<sup>35</sup> Depending on the nature of an entity’s renewable energy claim, it might need to purchase RECs meeting or in excess of state requirements, even if it is not subject to a state RPS.<sup>36</sup> In some states, retail customers (that is, end users of electricity ranging from factories

<sup>29</sup> See *id.* at 1360.

<sup>30</sup> States generally cap the price of RECs by setting a price for an “alternative compliance payment” that can function as a REC for entities that are unable to purchase the requisite amount of RECs on the open market. See, e.g., *Program Summaries*, MASS. DEP’T ENERGY RES., <https://www.mass.gov/service-details/program-summaries> [<https://perma.cc/WWN9-VS73>]. Because alternative compliance payments and RECs are interchangeable in compliance frameworks, rational economic actors would be presumptively neutral as between the two and will purchase RECs only if the price is lower than the alternative compliance payment.

<sup>31</sup> 2016 Mass. Acts ch. 188, § 83C(c).

<sup>32</sup> See, e.g., UTAH CODE ANN. § 54-17-602 (LexisNexis 2022).

<sup>33</sup> *Id.*

<sup>34</sup> See, e.g., META, 2023 SUSTAINABILITY REPORT 58 (2023), <https://sustainability.fb.com/wp-content/uploads/2023/07/Meta-2023-Sustainability-Report.pdf> [<https://perma.cc/TV3J-ZH8X>] (describing using energy attribute certificates, which operate similarly to RECs, to meet the company’s 100% renewable energy goal).

<sup>35</sup> See FTC Green Guides, 16 C.F.R. § 260.15 (2012). Cf. The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21344, 21355 (proposed Apr. 11, 2022) (SEC-proposed rule for climate-related disclosures).

<sup>36</sup> For instance, state RPSs often do not require “additionality,” which means that state-qualifying RECs may not ensure that the buyer is bringing energy onto the grid that would not have been generated absent the REC purchase. See, e.g., DNV, FINAL REPORT: CAMBRIDGE NET ZERO ACTION PLAN: 2021 UPDATE 19 (2021), <https://www.cambridgema.gov/-/media/Files/CDD/Climate/NetZero/2021planupdate/netzeroactionplan5yearupdatereport.pdf> [<https://perma.cc/VUK7-UH3D>] (noting that the RECs purchased through Cambridge’s Community Electricity Aggregation program did not guarantee additionality). But voluntary purchasers may seek RECs guaranteeing additionality. *Id.*

to residences) can also opt in to receive renewable energy in excess of RPS requirements.<sup>37</sup>

Regulatory frameworks generally mandate that RECs are rivalrous. Once an entity has purchased RECs, it has the legal right to claim that renewable energy as its own, and anybody else making that claim may be subject to legal sanction. Even the original generator (for example, a solar or wind farm) can no longer describe its energy as “renewable” without drawing regulatory scrutiny.<sup>38</sup> Once utilities use RECs towards their RPS obligations, the RECs generally are retired and can no longer be sold.<sup>39</sup> Rivalrousness is important for states or private parties to use RECs for their primary purpose — to track claimed usage of renewable energy given the impossibility of tracing electricity on the grid.

Additionally, different states may have different requirements for RECs and may classify them differently.<sup>40</sup> For example, Massachusetts divides RECs based on generation type (with specific categorizations for solar and waste energy) and age of generator.<sup>41</sup> North Carolina includes carve-outs for REC generation from hog waste.<sup>42</sup> State programs often recognize RECs generated out of state as qualifying for a state RPS provided that they are in the relevant interstate electricity market and meet the state’s requirements.<sup>43</sup> Even still, commentators often bemoan the lack of standardization of RECs, arguing that it leads to market

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<sup>37</sup> See MASS. GEN. LAWS ANN. ch. 164, § 1A(a) (West 2022); see also, e.g., *Competitive Electric Supply Product Overview*, MASS. DEP’T OF PUB. UTILS., ELEC. POWER DIV., <https://www.mass.gov/info-details/competitive-electric-supply-product-overview#competitive-supply-products> [<https://perma.cc/6U82-CCHA>] (“Competitive suppliers may offer products with a renewable energy level that exceeds the Commonwealth’s minimum requirement . . .”).

<sup>38</sup> 16 C.F.R. § 260.15 (2012).

<sup>39</sup> See, e.g., *Program Summaries*, *supra* note 30. At least one state found that, as a matter of state law, RECs were not necessarily rivalrous. See *Va. Elec. & Power Co.*, No. PUE-2010-00132, slip op. at 10 & n.26 (Va. State Corp. Comm’n June 17, 2011) (finding as a matter of Virginia law that utilities could claim the use of renewable electricity toward their voluntary RPS goals even if the generator sold the RECs elsewhere). But the Virginia State Corporation Commission later changed course in light of a new statutory framework, finding that “renewable energy — without the renewable attribute — is just energy.” *Appalachian Power Co., LLC*, No. PUR-2018-00039, slip op. at 5 (Va. State Corp. Comm’n Sept. 21, 2018).

<sup>40</sup> Welton, *supra* note 2, at 1085–86.

<sup>41</sup> *Program Summaries*, *supra* note 30.

<sup>42</sup> Welton, *supra* note 2, at 1086. In case the reader is curious why hog waste would qualify as a renewable energy source: hog waste produces methane. This methane, which would otherwise be emitted into the atmosphere, may be extracted from the waste in an anaerobic digester and used in a natural gas-fired power plant. LA CAPRA ASSOCS. ET AL., ANALYSIS OF A RENEWABLE PORTFOLIO STANDARD FOR THE STATE OF NORTH CAROLINA 25–28 (2006), [https://www.epa.gov/sites/default/files/2016-03/documents/analysis\\_of\\_a\\_renewable\\_portfolio\\_standard\\_for\\_the\\_state\\_of\\_north\\_carolina.pdf](https://www.epa.gov/sites/default/files/2016-03/documents/analysis_of_a_renewable_portfolio_standard_for_the_state_of_north_carolina.pdf) [<https://perma.cc/LK5W-T5MJ>]. Industry advocates refer to this kind of resource as “renewable natural gas,” but others take issue with that moniker. NAT. RES. DEF. COUNCIL, *A Pipe Dream or Climate Solution?* (2020), <https://www.nrdc.org/sites/default/files/pipe-dream-climate-solution-bio-synthetic-gas-ib.pdf> [<https://perma.cc/J9D7-S6NE>].

<sup>43</sup> See, e.g., *Program Summaries*, *supra* note 30. In fact, failure to do so may result in challenges under the dormant commerce clause. See, e.g., *Allco Fin. Ltd. v. Klee*, 861 F.3d 82, 107 (2d Cir. 2017) (upholding a Connecticut RPS against such a challenge in part because it did not limit the program only to Connecticut generators).

confusion<sup>44</sup> and inconsistency across jurisdictions (especially considering that nearly all electricity markets cross state lines).<sup>45</sup>

Although RECs are creations of state law, private parties can trade instruments that include more or fewer attributes than a state would require, all depending on the nature of the claim the rightsholder wants to make. When private parties contract for RECs, a seller can warrant that the RECs sold comply with state standards.<sup>46</sup> However, it is possible to subdivide RECs into several attributes as opposed to a single attribute that conveys all environmental benefits from the generation of renewable electricity. For instance, the now-defunct Clean Power Plan would have allowed power plants (subject to state authorization) to trade Emissions Reduction Credits, which warrant that electricity was produced without carbon emissions.<sup>47</sup> Theoretically, a seller could have conveyed the carbon-free attribute of a MWh of solar electricity through an Emissions Reduction Credit, and then conveyed all other attributes of the solar electricity to another party that, for example, cared only about supporting solar power and not any resultant emissions reductions.<sup>48</sup> But of course, once parties have contracted for environmental commodities (whether RECs or REC-like commodities), they will receive the full scope of rights and responsibilities flowing from state contract, property, and consumer protection laws. And even states that do not have RPSs will recognize and broker disputes involving RECs.<sup>49</sup>

In sum, RECs are rivalrous environmental commodities that are separately conveyable from the energy associated with their generation. Their main benefit is that they allow governments and market participants to subsidize renewable electricity generation, since there is no way to track the flow of electric charge from generator to end user. Their definition varies state by state, but in general, they are generated

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<sup>44</sup> See Shannon Osaka & Hailey Haymond, *Buying Renewable Energy Doesn't Mean What You Think*, WASH. POST (June 21, 2023, 6:30 AM), <https://www.washingtonpost.com/climate-environment/2023/06/21/renewable-energy-credits-certificates-greenwashing> [<https://perma.cc/GUC4-4KMN>]; Miriam Wasser, *Why "100% Renewable Electricity" Plans May Not Be as Green as You Think*, WBUR (May 8, 2023), <https://www.wbur.org/news/2023/05/08/massachusetts-competitive-suppliers-renewable-energy> [<https://perma.cc/GFZ2-LL4X>].

<sup>45</sup> See, e.g., Mormann, *supra* note 17, at 1634; Davies, *supra* note 18, at 1366. The one exception is the Electric Reliability Council of Texas, which facilitates a market that serves only Texas. See *Electric Power Markets*, FERC (May 16, 2023), <https://www.ferc.gov/electric-power-markets> [<https://perma.cc/Z93U-2KFE>].

<sup>46</sup> EDISON ELEC. INST., RENEWABLE ENERGY CERTIFICATES ANNEX TO THE EEI MASTER POWER PURCHASE & SALE AGREEMENT, at i (2010), <https://www.eei.org/-/media/Project/EEI/Documents/Resources-and-Media/Master-Contract/EEI-RECs-Annex-v1.pdf> [<https://perma.cc/R2F7-JFUW>].

<sup>47</sup> Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662, 64950 (Oct. 23, 2015).

<sup>48</sup> See ARI PESKOE, HARVARD ENV'T POL'Y INITIATIVE, EMISSION RATE CREDITS (ERCs) IN THE CLEAN POWER PLAN I (2015), <http://eelp.law.harvard.edu/wp-content/uploads/PPP-Emission-Rate-Credits-in-the-Clean-Power-Plan.pdf> [<https://perma.cc/9XG9-YCV3>].

<sup>49</sup> See Grand View PV Solar Two, LLC, No. IPC-E-11-15, slip op. at 2, 7 (Idaho Pub. Utils. Comm'n Oct. 29, 2013) (order no. 32913).

whenever a renewable energy generator generates a MWh of electricity. The next Part describes how a property framework explains the entitlements that RECs provide.

## II. WHAT IS PROPERTY?

Case law and agency guidance have described RECs as property, but often without discussion of what that categorization means.<sup>50</sup> The moniker of “property” on its own is not particularly useful — this Part’s eponymous question has long vexed scholars.<sup>51</sup> Real property, personal property, intellectual property, and “new” property are just a few of the different species of legal rights providing different protections that nevertheless fall under the same umbrella of “property.” In order to clarify how RECs fit into that picture, this Part first provides an overview of property as a concept to examine what facets of property RECs have. It then focuses on regulatory property, which is the bucket of interests into which RECs fit most neatly. This theoretical background sets the stage for analysis of the ways in which property theory can enrich debate about RECs.

### A. Property as a Concept

This Note works from the assumption that property is a meaningful and mostly coherent concept, even if its contours are not always clear.<sup>52</sup> The Note borrows from property theory, starting with the draft *Restatement (Fourth) of Property*, to sketch how RECs fit into that picture. The draft *Restatement* defines the basic requirements of property as thinghood and ownership. This Note builds on those requirements to identify other features that often characterize property regimes, such as mandatory rules, that are especially powerful as explanations for RECs as property. These facets of RECs are likely to be where property theory can most productively contribute to policies involving RECs.

First, property rights grant the rightsholder authority over some discrete “thing.”<sup>53</sup> Having property rights in a car means that others cannot, without consent, use the car without fear of legal recourse. But

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<sup>50</sup> See, e.g., sources cited *supra* note 3.

<sup>51</sup> See, e.g., Stern, *supra* note 5, at 280 n.8 (collecting articles titled “What is Property?”).

<sup>52</sup> This understanding is often associated with the “new essentialists,” which stands in contrast to the view (traditionally associated with law and economics) that property is merely a bundle of rights. See Katrina M. Wyman, *The New Essentialism in Property*, 9 J. LEGAL ANALYSIS 183, 184 n.6, 185 (2017); Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1691 (2012); see also Thomas W. Merrill & Henry E. Smith, Essay, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 358–59 (2001). But see Abraham Bell & Gideon Parchomovsky, *A Theory of Property*, 90 CORNELL L. REV. 531, 537 (2005) (providing a law and economics account for property as a conceptually significant category).

<sup>53</sup> RESTATEMENT (FOURTH) OF PROP. app. A, vol. 4, § 1.2 (AM. L. INST., Black Letter of Tentative Draft No. 3, 2022). Wyman & Minelli, *supra* note 4, at 1399, describe this requirement as “thinghood.”

“things” do not have to be physical — intellectual property, securities, and other intangible forms of property (including RECs) are all “things” to which property rights can attach.<sup>54</sup> “Things” must also be discrete, meaning they must be a “separate whole” from the entity claiming to own them.<sup>55</sup> In practical terms, the separateness requirement means that property rights can be traded.<sup>56</sup> RECs are discrete things in part because they are unbundled from the energy underlying them — a generator can sell electricity and RECs to two different parties, and the rights transferred in either sale are mutually exclusive.

Second, property rights can be owned.<sup>57</sup> Ownership rights may vary with the exact kind of “thing” at issue. For instance, real property comes with the right to exclude and the right to use and enjoyment.<sup>58</sup> Patents come with the exclusive rights to make, use, sell, or offer to sell an invention.<sup>59</sup> RECs come with the right to claim the use of a unit of clean energy. The range of rights that come with a property interest gives rise to the metaphor that property is a bundle of sticks.<sup>60</sup>

Thinghood and ownership provide the basic requirements of property rights, but there are several features that derive from these building blocks that are common to many property regimes. First is that property often carries with it a right to exclude that is enforceable against any infringer. The U.S. Supreme Court has stated that “the right to exclude is ‘universally held to be a fundamental element of the property right,’ and is ‘one of the most essential sticks in the bundle of rights that are commonly characterized as property.’”<sup>61</sup> The right to exclude has never been unlimited, giving way to government regulation<sup>62</sup> and interest balancing by courts.<sup>63</sup> But even if its importance can be overstated,<sup>64</sup> the right to exclude is an important facet of ownership. For RECs, the

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<sup>54</sup> RESTATEMENT (FOURTH) OF PROP. app. A, vol. 4, § 1.2 (AM. L. INST., Black Letter of Tentative Draft No. 3, 2022) (“Intangible property is property in a thing that is not classified as tangible property, i.e., property in a thing that is incorporeal and that lacks physical form and characteristics.”).

<sup>55</sup> *Id.*; see also Wyman & Minelli, *supra* note 4, at 1400.

<sup>56</sup> Not all property can be traded. For instance, easements in gross of a noncommercial character (in other words, easements given to particular individuals in their individual capacity as opposed to as a property owner or business owner) are not always alienable. RESTATEMENT (FIRST) OF PROP. § 491 (AM. L. INST. 1944).

<sup>57</sup> Wyman & Minelli, *supra* note 4, at 1400.

<sup>58</sup> See A.M. Honoré, *Ownership*, in OXFORD ESSAYS IN JURISPRUDENCE 107, 112–24 (A.G. Guest ed., 1961).

<sup>59</sup> 35 U.S.C. § 271(a).

<sup>60</sup> See *Henderson v. United States*, 575 U.S. 622, 626 (2015) (acknowledging the bundle of sticks metaphor).

<sup>61</sup> *Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2072 (2021) (quoting *Kaiser Aetna v. United States*, 444 U.S. 164, 176, 179–80 (1979)).

<sup>62</sup> See *id.* at 2076, 2084 (acknowledging that the right to exclude has been limited by the First Amendment and antidiscrimination statutes).

<sup>63</sup> See RESTATEMENT (SECOND) OF TORTS § 826 (AM. L. INST. 1979) (directing courts to balance the gravity of harm done by a nuisance against the utility of the offending party’s conduct).

<sup>64</sup> See Thomas W. Merrill, *The Property Strategy*, 160 U. PA. L. REV. 2061, 2067 (2012).

rivalrousness that is common to many REC regimes exemplifies the importance of exclusion.

Additionally, property is often subject to mandatory, not default, rules. Professors Thomas Merrill and Henry Smith describe this principle as *numerus clausus*.<sup>65</sup> They argue that unlike contract rights, which are more or less endlessly customizable, property regimes protect “only those interests that conform to a limited number of standard forms.”<sup>66</sup> The complicated system of estates and future interests provides an example of the limited forms that property regimes protect — an interest in Blackacre must fit a standard form, or a court will refuse to recognize it as a property right.<sup>67</sup> This principle promotes uniformity and lowers information costs on others, as property rights generally bind large numbers of third parties.<sup>68</sup> Given standard, recognizable forms, these third parties can recognize property rights and accordingly avoid trammeling the rightsholder’s interests.<sup>69</sup> RECs often follow this standard-form approach. For REC markets to function efficiently, rights must be defined clearly. Purchasers in a mandatory market, for example, would likely not want to purchase rights they are not sure they can use towards their RPS requirements.<sup>70</sup> And in fact, requirements for RECs are often set in considerable detail by statute or regulation.<sup>71</sup>

All of these facets of property rights are interrelated. The right to exclude is part and parcel of ownership and control. It has value because it is enforceable against the world — a rightsholder does not need to secure assent from any possible trespasser to bar them from entering her property. And potential trespassers know not to infringe the rightsholder’s rights because they can recognize those rights as one of the limited standard forms that the law protects. While these features of property rights are generally true across domains, they may manifest differently, and even be weaker, in certain types of property. The next section explores how RECs’ interplay with government programs like RPSs affects their categorization as property rights.

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<sup>65</sup> Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 4 (2000).

<sup>66</sup> *Id.* at 3.

<sup>67</sup> *Id.*; *see also id.* at 5 (“[C]ommon-law courts will not enforce an agreement to create a new type of property right.”).

<sup>68</sup> *See* Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 783 (2001); Smith, *supra* note 52, at 1691.

<sup>69</sup> Merrill & Smith, *supra* note 65, at 8.

<sup>70</sup> Market pressure to define rights clearly may be weaker in voluntary markets — indeed, one of the principal criticisms of the voluntary market is that consumers are unable to understand what an entity’s claims mean. *See* Crandall, *supra* note 22, at 915–16. Accordingly, stronger consumer protection efforts may be more necessary in the voluntary market.

<sup>71</sup> *See, e.g.*, 225 MASS. CODE REGS. 14.05 (2022).

*B. Regulatory Property and Environmental Attributes*

RECs do not easily fit into the buckets of real, personal, or intellectual property. Instead, they are a species of regulatory property called environmental attributes. But existing frameworks for regulatory property do not fully account for RECs' position between government programs and private markets.

Regulatory property derives from "new" property, which Professor Charles Reich described as government-provided "money, benefits, services, contracts, franchises, and licenses" that give rise to property interests.<sup>72</sup> Regulatory property often takes the form of "credits" that allow rightsholders not to comply with a generally applicable law.<sup>73</sup> For instance, local governments may facilitate development through transferable development rights, which allow rightsholders to buy their way out of zoning restrictions.<sup>74</sup>

The U.S. Supreme Court famously followed Reich's schema for new property.<sup>75</sup> Regulatory property leverages Professor Harold Demsetz's classical understanding of property rights as solving commons problems<sup>76</sup> to address the commons problem that is pollution.<sup>77</sup> In a typical framework, governments create credits or allowances that give rightsholders the right to emit a certain quantity of a pollutant.<sup>78</sup> Governments make these interests scarce (and therefore valuable) by setting a cap on the total number of interests that the program distributes.<sup>79</sup> These frameworks compel polluters to internalize negative externalities like harm from pollution and promote efficiency by incentivizing polluters who can reduce pollution at a cost below the cost of pollution credits on the open market to do so.<sup>80</sup> The most prominent federal regulatory property framework came with the 1990 amendments to the Clean Air Act, which established an emissions trading program for sulfur

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<sup>72</sup> See Charles A. Reich, *The New Property*, 73 YALE L.J. 733, 733 (1964).

<sup>73</sup> See, e.g., Bruce Yandle & Andrew P. Morriss, *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, 28 ECOLOGY L.Q. 123, 144 (2001) (noting that environmental permits have value because pollution is otherwise not permitted); Steven J. Eagle, *The Perils of Regulatory Property in Land Use Regulation*, 54 WASHBURN L.J. 1, 1 (2014). Before these kinds of interests were called regulatory property, some theorists referred to them as "hybrid property." See Carol M. Rose, Essay, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 164 & n.114 (1998).

<sup>74</sup> Christopher Serkin, Essay, *Penn Central Take Two*, 92 NOTRE DAME L. REV. 913, 918 (2016).

<sup>75</sup> *Goldberg v. Kelly*, 397 U.S. 254, 262 n.8 (1970).

<sup>76</sup> Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 354–57 (1967).

<sup>77</sup> See Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 5 (describing the storage of pollution in the air as a commons problem).

<sup>78</sup> Michael Pappas & Victor B. Flatt, *The Costs of Creating Environmental Markets: A Commodification Primer*, 9 U.C. IRVINE L. REV. 731, 741, 744 (2019).

<sup>79</sup> This framework is called a "cap-and-trade" program. Wyman & Minelli, *supra* note 4, at 1404.

<sup>80</sup> See Rose, *supra* note 77, at 27.

dioxide.<sup>81</sup> The program has generally been seen as a success.<sup>82</sup> Scholars describe the creation of regulatory property by government fiat as a “top-down” approach to property creation.<sup>83</sup>

But environmental attributes do not necessarily derive value from government programs. A “bottom-up” approach, in which private markets lead the way, or a “hybrid” approach, in which private markets and governments both contribute to property creation, are both possible.<sup>84</sup> For instance, the Clean Water Act<sup>85</sup> (not to be outdone by its aerial counterpart) also toys with market-based frameworks through wetlands mitigation banks. The Clean Water Act’s “compensatory mitigation” program allows parties to receive permits to dredge or fill wetlands on the condition that the permittee pay to preserve wetlands elsewhere.<sup>86</sup> The EPA and Army Corps of Engineers allow developers to gain “credits” from wetlands preservation activities, which they can bank toward future projects; this policy started a commodities-like market for these credits.<sup>87</sup> Wetlands preservation credits are often generated by conservation easements that bar development of wetlands.<sup>88</sup> To be sure, wetlands preservation credits likely derive much of their market value from the Clean Water Act’s market-based framework. But conservation easements on wetlands existed before the Clean Water Act, and they do not rely on the Act’s compensatory mitigation program for their existence.

RECs demonstrate how the “hybrid” approach to property creation works in practice. Some states explicitly define RECs as property interests, and state RPS programs resemble top-down regulation by setting requirements for REC purchases.<sup>89</sup> But there is also a robust private market for RECs that resembles a bottom-up market.<sup>90</sup> Adjudications involving RECs in states without RPS requirements show that the top-down/bottom-up and mandatory/voluntary market dichotomies are not

<sup>81</sup> 42 U.S.C. § 7651b; Rose, *supra* note 77, at 11 n.30. Sulfur dioxide causes acid rain when it interacts with atmospheric chemicals to form sulfuric acid, which then mixes with water and falls to the earth as precipitation. *What is Acid Rain?*, U.S. EPA (June 1, 2023), <https://www.epa.gov/acidrain/what-acid-rain> [<https://perma.cc/J9NH-HP8E>].

<sup>82</sup> James Salzman & J.B. Ruhl, *Currencies and the Commodification of Environmental Law*, 53 STAN. L. REV. 607, 621 (2000).

<sup>83</sup> Wyman & Minelli, *supra* note 4, at 1422–23. Not all commentators have seen the proliferation of this approach as a positive trend. *See, e.g., id.* at 1405–07.

<sup>84</sup> *Id.* at 1424, 1426.

<sup>85</sup> 33 U.S.C. §§ 1251–1389.

<sup>86</sup> Salzman & Ruhl, *supra* note 82, at 650–52. Theoretically, mitigation is supposed to be the last resort for the permitting authority, after (1) avoiding filling the wetland at all, and (2) minimizing adverse impacts from filling that cannot reasonably be avoided. *Id.* at 651. However, the EPA fully embraced off-site mitigation as a permit condition in 1995 agency guidance. *Id.* at 654–55.

<sup>87</sup> *Id.* at 654.

<sup>88</sup> *Wetland Mitigation Banking Program*, U.S. DEP’T AGRIC., <https://www.nrcs.usda.gov/wetland-mitigation-banking-program> [<https://perma.cc/6C93-45HU>].

<sup>89</sup> *See* Wyman & Minelli, *supra* note 4, at 1402 n.44. Professors Wyman and Minelli describe RECs in RPS programs as falling into the top-down category. *Id.* at 1423.

<sup>90</sup> *See id.* at 1425 (describing voluntary markets for RECs).

necessarily stable. States without RPSs still need to adjudicate disputes involving RECs, and states need to ensure that RECs used towards their RPS goals are not used in another mandatory or voluntary market.<sup>91</sup> Mandatory and voluntary green power purchases are not hermetically sealed markets — both rely on environmental attributes resulting from electric generation across the grid, and a REC can be sold into either market. Entities that wish to purchase RECs for voluntary reasons — for example, municipalities in Massachusetts, or residents thereof<sup>92</sup> — may act in the same market as mandatory purchasers. And private parties can contract for environmental attributes that meet state requirements or those that don't, as well as allocate regulatory risk if programs change.<sup>93</sup> Accordingly, even though environmental attributes are often a creation of government programs, they need not be so.

In sum, RECs can be characterized as environmental attributes used as regulatory property. Though all aspects of RECs do not neatly fit into a traditional property framework, many of the classic aspects of property — for example, excludability and mandatory rules — apply to RECs. The next Part explores how the understanding of RECs as property speaks to doctrinal and policy debates surrounding RECs.

### III. IMPLICATIONS

Thus far, this Note has shown how property theory explains the legal framework of RECs. RECs have features such as thinghood, ownership, and strong mandatory rules that are typical of property regimes. With that understanding, policymakers can apply theory from property literature to current debates surrounding RECs. In fact, property principles of accession and “first in time, first in right” have already resolved debates about ownership of RECs. Concepts from property theory are also relevant in debates about federal versus state RPS programs. These issues are just some of the ways that property law and theory could lead the way: there may be other issues, such as ways to protect consumers from misleading claims,<sup>94</sup> that merit further research as to how property theory could implicate current debates surrounding RECs. And there is no need to sound the alarm bells about the possibility of takings liability for changes in RPS programs. Takings jurisprudence's treatment of regulatory property interests, as well as the practical realities of RECs, suggests that takings liability is unlikely for RECs in most cases.

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<sup>91</sup> For example, Utah, with a voluntary RPS, requires generators to “affirm that the renewable energy attributes of the electricity have not been traded, sold, transferred, or otherwise used to satisfy another state's renewable energy requirements.” UTAH CODE ANN. § 54-17-603(5) (West 2023).

<sup>92</sup> In Massachusetts, municipalities have the option to sell electricity directly to their residents as a community choice aggregator. MASS. GEN. LAWS ANN. ch. 164, § 134 (West 2023); CITY OF SOMERVILLE OFF. OF SUSTAINABILITY & ENV'T, *supra* note 26, at 95.

<sup>93</sup> EDISON ELEC. INST., *supra* note 46, at ii–iii.

<sup>94</sup> See generally Crandall, *supra* note 22.

### A. Property's Potential

A theoretical understanding of how RECs act as property rights can serve to enrich the doctrine surrounding RECs. In fact, adjudicators have already applied the property principles of accession to resolve disputes implicating RECs. And property theory can provide further guidance to policymakers and advocates working with programs that use RECs to meet environmental goals.

1. *Allocation.* — Shortly after RPS programs began, many states had to address whether preexisting agreements for the purchase of electricity included the transfer of RECs. While current power purchase agreements will generally specify whether the entities are contracting for power only or for RECs and power,<sup>95</sup> that kind of specificity was not likely for agreements entered before states created RECs. Accordingly, adjudicators faced a problem that often arises in property law — how to allocate newly minted resources.

The principle of accession deals with the issues that arise when property creates other property by assigning rights in the new resources to the owner of the original.<sup>96</sup> For instance, crops are obviously separately conveyable from land. But do contracts for the sale of land presumptively include any crops planted on the land? (Generally, yes.<sup>97</sup>) Accession extends beyond physical property to provide a framework for intangible property, including environmental attributes.<sup>98</sup> And indeed, disputes about who owned RECs in cases where generative statutes were silent shortly followed the establishment of RPS programs. Purchasers argued that contracts for electricity automatically transferred ownership of RECs to purchasers — in essence, arguing that accession controlled.<sup>99</sup> Generators, on the other hand, argued that their sale of electricity did not transfer RECs.<sup>100</sup>

There were two primary aspects of this debate: first, whether state or federal law governed, and second, the default rule for allocating RECs in contracts formed before RECs existed. On choice of law, a 2003 Federal Energy Regulatory Commission (FERC) order held that

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<sup>95</sup> *E.g.*, EDISON ELEC. INST., *supra* note 46, at 2–3. If entities contract for RECs without power, then they have entered a virtual power purchase agreement. *See* RACHIT KANSAL, ROCKY MOUNTAIN INST., INTRODUCTION TO THE VIRTUAL POWER PURCHASE AGREEMENT 3 (2018), <https://rmi.org/wp-content/uploads/2018/12/rmi-brc-intro-vppa.pdf> [<https://perma.cc/95BD-7BYN>].

<sup>96</sup> *See* Thomas W. Merrill, *Accession and Original Ownership*, 1 J. LEGAL ANALYSIS 459, 463 (2009).

<sup>97</sup> *Id.* at 465.

<sup>98</sup> *Id.* at 464; *see* Wyman & Minelli, *supra* note 4, at 1416, 1421.

<sup>99</sup> For instance, some purchasers argued that the Public Utilities Regulatory Policies Act of 1978 (PURPA), Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in scattered sections of the U.S. Code), mandated that RECs transferred automatically. *Am. Ref-Fuel Co.*, 105 FERC ¶ 61,004, para. 12 (Oct. 1, 2003).

<sup>100</sup> *City of New Martinsville v. Pub. Serv. Comm'n*, 729 S.E.2d 188, 195 (W. Va. 2012).

state law governed these disputes.<sup>101</sup> On the merits, states generally came to the same answer that RECs followed power in these pre-RPS contracts — so the owner of electricity owned the RECs, as in accession.<sup>102</sup> But true to property’s heterogeneity, that answer was not uniform — at least one state has set by regulation a default rule that RECs stay with the generator in certain instances, following a “first in time” principle.<sup>103</sup> But either way, states have generally followed property-like principles (whether consciously or not) to allocate RECs, demonstrating that property can provide guidance for debates surrounding RECs.

2. *Property Theory and a Federal RPS.* — There is an ongoing debate about the balance of clean energy policy between states and the federal government. Currently, there is no federal renewable portfolio standard. But the Biden Administration proposed a federal clean electricity standard as part of the Build Back Better Agenda, which eventually became the Bipartisan Infrastructure Law.<sup>104</sup> While energy scholars have robustly debated whether the federal government should set a federal renewable portfolio standard, existing property literature speaks to many aspects of that debate.

As stated above, RECs are generally creatures of state law. Although challengers have asserted that the complex web of federal electricity law restricts state control over RECs, these challenges have mostly failed. In 2012, FERC clarified that unbundled REC transactions (that is, conveyances of RECs separate from the underlying electricity) fall outside of FERC’s jurisdiction over wholesale markets, meaning they are squarely within that of the states.<sup>105</sup>

However, many scholars argue that a federal renewable portfolio standard would be preferable to the current mix of state standards.<sup>106</sup>

<sup>101</sup> *Am. Ref-Fuel Co.*, 105 FERC para. 24.

<sup>102</sup> See Mormann, *supra* note 17, at 1665–66; see also *City of New Martinsville v. Pub. Serv. Comm’n*, 729 S.E.2d at 190–91 (default rule that RECs conveyed to purchaser); *In re Ownership of Renewable Energy Certificates*, 913 A.2d 825, 828 (N.J. Super. Ct. App. Div. 2007) (same); *Whelebrator Lisbon, Inc. v. Dep’t of Pub. Util. Control*, 931 A.2d 159, 175–76 (Conn. 2007) (same).

<sup>103</sup> See OR. ADMIN. R. 860-022-0075 (2022); see also Wyman & Minelli, *supra* note 4, at 1412–16. The court in *New Mexico Industrial Energy Consumers v. New Mexico Public Regulation Commission*, 168 P.3d 105 (N.M. 2007), found that RECs were not included in “purchased power” under PURPA, *id.* at 116, which could mean that, under New Mexico law, RECs did not transfer automatically. See Mormann, *supra* note 17, at 1666.

<sup>104</sup> *Fact Sheet: Bipartisan Infrastructure Deal and Build Back Better Agenda Present Bright Future for Solar Power, Good Jobs, and More Affordable Energy*, THE WHITE HOUSE (Aug. 17, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/17/fact-sheet-bipartisan-infrastructure-deal-and-build-back-better-agenda-present-bright-future-for-solar-power-good-jobs-and-more-affordable-energy> [https://perma.cc/PY4B-VS24].

<sup>105</sup> WSPP Inc., 139 FERC ¶ 61,061, para. 18 (Apr. 20, 2012); see also *FERC v. Elec. Power Supply Ass’n*, 577 U.S. 260, 289 (2016) (acknowledging that FERC’s and states’ spheres of jurisdiction are “‘complementary’ and ‘comprehensive’” (quoting *Fed. Power Comm’n v. La. Power & Light Co.*, 406 U.S. 621, 631 (1972))).

<sup>106</sup> Mormann, *supra* note 17, at 1634; Davies, *supra* note 18, at 1366. For a survey of arguments in favor of a federal RPS program, see Mormann, *supra* note 17, at 1634–47.

The argument is generally that a federal RPS would be preferable to a mix of state RPSs because it would standardize RECs and facilitate more efficient trading across state lines (among many other reasons).<sup>107</sup> In fact, the failed Waxman-Markey climate bill would have included a federal renewable electricity standard that used REC-like instruments.<sup>108</sup> And the Clean Power Plan also would have empowered states to use REC-like instruments in an effort to reduce emissions across the power sector.<sup>109</sup>

RECs' status as property may bolster the standardization rationale in favor of a federal RPS. Scholars have noted that uniformity is a concern with existing REC markets.<sup>110</sup> Clear boundaries of the claims included in RECs are necessary to facilitate functional markets. Per Professors Katrina Wyman and Adalene Minelli, "[P]roperty rights in environmental attributes must be allocated before they can be traded" — efficient markets require clearly defined property rights.<sup>111</sup> This observation is in line with Merrill and Smith's observation that property rights require clearly defined and consistent boundaries.<sup>112</sup> For RECs specifically, legislatures and agencies, as opposed to courts, are likely especially suited to demarcate boundaries.<sup>113</sup> Taking that argument one step further, it may be that the interest in national uniformity counsels in favor of the federal government taking the lead on RECs.

However, advocates against a federal RPS may argue that states, which are more suited to dealing with property rights, should retain control over RECs. Of course, Congress almost certainly has the power to enact a federal renewable portfolio standard under its Commerce Clause authority as a regulation of the interstate REC or electricity market.<sup>114</sup> Further, the federal government has experience creating some regulatory property interests, such as sulfur dioxide emissions credits.<sup>115</sup> But the argument would run that states already have experience with RECs and are more familiar with local electricity generation, which would allow states to treat electricity policy with a finer scalpel.

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<sup>107</sup> Mormann, *supra* note 17, at 1634; Davies, *supra* note 18, at 1366.

<sup>108</sup> American Clean Energy and Security Act of 2009 ("Waxman-Markey"), H.R. 2454, 111th Cong. § 101(b)(1) (2009).

<sup>109</sup> See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662, 64832 (Oct. 23, 2015); see also PESKOE, *supra* note 48, at 1.

<sup>110</sup> Mormann, *supra* note 17, at 1634; Davies, *supra* note 18, at 1366.

<sup>111</sup> Wyman & Minelli, *supra* note 4, at 1394–95.

<sup>112</sup> Merrill & Smith, *supra* note 65, at 4.

<sup>113</sup> *Cf. id.* (suggesting that legislatures often have superior institutional capacity to create property rights as compared to courts). *But see* Maureen E. Brady, *Property's Ceiling: State Courts and the Expansion of Takings Clause Property*, 102 VA. L. REV. 1167, 1214–15 (2016) (noting examples of courts creating property interests).

<sup>114</sup> *Cf. FERC v. Mississippi*, 456 U.S. 742, 767 n.30 (1982) (noting that the field of electricity regulation is preemptible).

<sup>115</sup> See 42 U.S.C. § 7651b.

This argument also has a property dimension: it is a standard argument in property federalism literature that state governments are best suited to tailor property regimes to state interests.<sup>116</sup> For example, a uniform federal RPS could conceivably not include hog waste, while North Carolina explicitly carves hog waste out as renewable energy.<sup>117</sup> Professor Shelly Welton argues that decarbonization is a social project and states should be free to reflect social interests — for example, supporting the hog industry in North Carolina — in their creation of RECs.<sup>118</sup> This argument tracks arguments in property theory that more local units of government can better tailor property protections to local interests.

But the hog-waste example may not be a triumph of local interests and state innovation — instead, it may be a story of regulatory capture by the pork industry.<sup>119</sup> There is a robust property literature discussing public choice theory — in other words, the processes by which actors leverage legislation and regulation to pursue favorable regimes in a process called “rent-seeking.”<sup>120</sup> In the case of hog waste, the “renewable natural gas” rationale for its treatment as renewable energy may be especially weak because the subsidized technology only questionably reduces carbon emissions.<sup>121</sup> But even where political capture privileges a technology that does meaningfully limit emissions, such as solar, there may be reason for concern. Decarbonization will likely require a mix of renewable energy sources, given the intermittent nature of many renewable technologies.<sup>122</sup> Accordingly, attractive carve-outs for a given green technology could act to the exclusion of other renewable technologies that are also necessary for deep decarbonization, which could be catastrophic if the subsidized technology isn’t particularly green.<sup>123</sup> These

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<sup>116</sup> Maureen E. Brady, *Property Convergence in Takings Law*, 46 PEPP. L. REV. 695, 704 (2019).

<sup>117</sup> Welton, *supra* note 2, at 1086.

<sup>118</sup> *Id.*

<sup>119</sup> See Christopher Serkin, *The New Politics of New Property and the Takings Clause*, 42 VT. L. REV. 1, 10 (2017) (noting the regulatory capture concern). Welton notes as much. Welton, *supra* note 2, at 1099.

<sup>120</sup> See, e.g., Brady, *supra* note 113, at 1204–05. On public choice generally, see Daniel A. Farber & Philip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873, 878 (1987).

<sup>121</sup> See NAT. RES. DEF. COUNCIL, *supra* note 42.

<sup>122</sup> MASS. EXEC. OFF. ENERGY & ENV’T. AFFS., MASSACHUSETTS 2050 DECARBONIZATION ROADMAP 55 (2020), <https://www.mass.gov/doc/ma-2050-decarbonization-roadmap/download> [<https://perma.cc/BN4U-CGQH>].

<sup>123</sup> For instance, commentators have raised concerns that subsidizing so-called “green hydrogen” is counterproductive. See, e.g., Leah C. Stokes, Opinion, *Before We Invest Billions in This Clean Fuel, Let’s Make Sure It’s Actually Clean*, N.Y. TIMES (Apr. 14, 2023), <https://www.nytimes.com/2023/04/14/opinion/hydrogen-fuel-tax-credit-climate-change.html> [<https://perma.cc/R55R-WTHW>]; Jeff St. John, *The Problem with Making Green Hydrogen to Fuel Power Plants*, CANARY MEDIA (Oct. 10, 2023), <https://www.canarymedia.com/articles/hydrogen/the-problem-with-making-green-hydrogen-to-fuel-power-plants> [<https://perma.cc/RMU8-GNNE>].

concerns about legislative control of property rights follow a different strand of scholarly debate in property theory.<sup>124</sup>

Of course, states and the federal government will face different public choice pathologies. Property theory cannot resolve the empirical question of which level of government is best suited to craft effective policy for RECs — in fact, it demonstrates that there are reasonable property law arguments in favor of either position that can bolster the economic and environmental arguments already being advanced. Further, current examples of federalized property demonstrate that federal authority over RECs need not be exclusive once federalized. With intellectual property, for example, Congress has preempted state law in copyright<sup>125</sup> but allowed for further state innovation in trademark law.<sup>126</sup> For RECs, the Waxman-Markey bill would have included a savings clause allowing for states to add onto federal requirements.<sup>127</sup> The Clean Power Plan would have added onto the Clean Air Act's system of cooperative federalism (which is the norm in environmental law)<sup>128</sup> instead of supplanting state law.<sup>129</sup> RECs, which implicate both property law and pollution control, could also provide for an area of further study for cooperative federalism in property regimes.

### B. Avoiding Property's Baggage: Takings Liability

The federal Constitution's strong protection against government encroachment on property rights through the Fifth Amendment Takings Clause has been critiqued as applied to property interests that derive from (but are not themselves) real property or personal property.<sup>130</sup> For regulatory property, takings claims could make it impossible for governments to change regulatory programs without paying just compensation. In fact, regulatory programs often explicitly state that regulatory property is not property in order to avoid takings challenges.<sup>131</sup> But if RECs are property, are programs like RPSs vulnerable under the Fifth Amendment Takings Clause? For example, if a state changed a renewable

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<sup>124</sup> See Brady, *supra* note 113, at 1204.

<sup>125</sup> 17 U.S.C. § 301(a).

<sup>126</sup> See Jennifer E. Rothman, *Navigating the Identity Thicket: Trademark's Lost Theory of Personality, The Right of Publicity, and Preemption*, 135 HARV. L. REV. 1271, 1338 (2022) (noting that there is not a robust doctrine of trademark preemption, although arguing that there should be one).

<sup>127</sup> American Clean Energy and Security Act of 2009 ("Waxman-Markey"), H.R. 2454, 111th Cong. § 101(k)(1)(A) (2009).

<sup>128</sup> See Jody Freeman, *The Uncomfortable Convergence of Energy and Environmental Law*, 41 HARV. ENV'T L. REV. 339, 350 (2017).

<sup>129</sup> See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662, 64832–33 (Oct. 23, 2015).

<sup>130</sup> See Nikolas Bowie, *The Supreme Court, 2020 Term — Comment: Antidemocracy*, 135 HARV. L. REV. 160, 208–09 (2021). *But see* Richard A. Epstein, *The Common Law Foundations of the Takings Clause: The Disconnect Between Public and Private Law*, 30 TOURO L. REV. 265, 266–67 (2014) (arguing for more robust takings protections).

<sup>131</sup> See, e.g., Rose, *supra* note 73, at 170.

portfolio standard to exclude one type of energy (for example, biomass) that was previously recognized as renewable, could a biomass generator challenge that change as a taking of its RECs without just compensation? That change could render any environmental attributes from the generator's electricity effectively valueless — if a utility were seeking to comply with a state RPS, it would not buy the generator's nonqualifying attributes.<sup>132</sup> And a party wanting to claim that its energy was “renewable” for a marketing claim would probably avoid attributes that a state says are not “renewable.”

In fact, RECs' status as property likely does not open states with RPS programs up to takings liability for two reasons. First, the structure of RECs and RPS programs makes it difficult to imagine the set of circumstances that would lead to a “taking.” Second, even if that situation arises, takings jurisprudence shows that many rights that are property cannot necessarily be “taken.”<sup>133</sup>

Regulatory change likely will not lead to takings liability because states rarely make changes that actually extinguish existing RECs. Because RECs are generated whenever a renewable power plant generates new electricity and are generally retired at the end of a calendar year, it seems unlikely that a state policy that did not render already-existing RECs valueless would constitute a taking. If a state, for example, decided that biomass energy no longer met its standards for renewable energy<sup>134</sup> and as a result cut new RECs from biomass generators from its RPS program, no existing property interest would be affected. Provided that a state does not extinguish existing RECs,<sup>135</sup> a generator could only complain that RECs that it expected to exist at some point in the future are now valueless. They could perhaps bring a regulatory takings claim under the *Penn Central*<sup>136</sup> framework, but such a claim would have to overcome the low security of expectation in limited-term environmental commodities.<sup>137</sup>

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<sup>132</sup> Parties in other states may still be willing to purchase these RECs if they comply with the relevant RPS.

<sup>133</sup> See Thomas W. Merrill, *The Landscape of Constitutional Property*, 86 VA. L. REV. 885, 892 (2000).

<sup>134</sup> Biomass energy is produced by burning organic material. Opponents claim that it should not be considered renewable because of the negative environmental impacts associated with burning biomass, and as a result, some states have excluded biomass from REC qualifications. See, e.g., MASS. GEN. LAWS ANN. ch. 25A, § 11F(f) (West 2023) (providing that woody biomass is not renewable energy); 2022 Mass. Acts ch. 179, § 36 (effecting this change).

<sup>135</sup> There could be a stronger takings claim if a state extinguished existing RECs. But changes to RPS programs often apply only to future cycles. See, e.g., 225 MASS. CODE REGS. 14.05(1)(a)7a (2022) (providing that, going forward, new woody biomass-burning units will not be eligible for Massachusetts's RPS).

<sup>136</sup> *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978).

<sup>137</sup> See Serkin, *supra* note 74, at 922, 925 (acknowledging the “muddled” doctrine of regulatory takings, *id.* at 922, and explaining that the linchpin of a court's analysis would likely be the reasonable investment-backed expectations prong).

But even if a situation arises where a regulatory change did plausibly effect a taking, it is also an open question whether the Takings Clause protects RECs. Although the Fifth Amendment proscribes governments from “tak[ing] private property . . . without just compensation,”<sup>138</sup> just because something is called “property” does not mean that it can be “taken.”<sup>139</sup> “Property” for the purpose of the Takings Clause is a stricter categorization than for the Due Process Clause, and some things styled as property may have no constitutional protection at all.<sup>140</sup> The Supreme Court has been clear that it looks to extraconstitutional sources, such as state law, to determine whether an interest qualifies as property.<sup>141</sup> At the same time, states may not manipulate their own law to redefine property interests as nonproperty (for instance, to avoid takings liability), or vice versa.<sup>142</sup> But that problem raises the question: When should courts reject a state categorization of something as property?<sup>143</sup> In his influential account, Merrill argues for “patterning” — that is, courts should look to “general criteria” that give rise to property interests as a matter of federal constitutional law, then should look to state positive law to determine whether such an interest meets that criteria. Merrill argues that the general criteria of constitutional property requires an “irrevocable right on a claimant.”<sup>144</sup>

Environmental attributes are likely not generally the kind of property that gives rise to takings liability under Merrill’s account. Wyman and Minelli argue that most environmental attributes are probably not subject to takings liability for regulatory changes because most environmental attributes are property between private parties but not between rightsholders and the government.<sup>145</sup> In particular, they point to property disclaimers, which are provisions (often found in cap-and-trade programs or other regulatory property frameworks) stating that credits in a program are not property rights.<sup>146</sup> The validity of these disclaimers

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<sup>138</sup> U.S. CONST. amend. V.

<sup>139</sup> See Merrill, *supra* note 133, at 892.

<sup>140</sup> *Id.* at 893. For instance, entitlements to welfare benefits are protected by the Due Process Clause, *see id.* at 918, but not by the Takings Clause, *id.* at 958.

<sup>141</sup> *Bd. of Regents of State Colleges v. Roth*, 408 U.S. 564, 577 (1972) (“Property interests, of course, are not created by the Constitution.”).

<sup>142</sup> *Webb’s Fabulous Pharmacies, Inc. v. Beckwith*, 449 U.S. 155, 164 (1980); *Tyler v. Hennepin County*, 143 S. Ct. 1369, 1375 (2023); Merrill, *supra* note 133, at 892; *see also The Supreme Court, 2022 Term — Leading Cases*, 137 HARV. L. REV. 290, 319 (2023).

<sup>143</sup> Brady, *supra* note 116, at 716–17.

<sup>144</sup> Merrill, *supra* note 133, at 893. Merrill’s account, while canonical, is not incontestable. *See, e.g., Stern*, *supra* note 5, at 291 (“Merrill frankly abandoned any real attempt to justify his three definitions as a matter of property theory.”). *See generally* Leif Wenar, Essay, *The Concept of Property and the Takings Clause*, 97 COLUM. L. REV. 1923, 1925–43 (1997) (providing an overview of dominant conceptions of the Takings Clause).

<sup>145</sup> Wyman & Minelli, *supra* note 4, at 1401.

<sup>146</sup> *Id.* at 1401–02; *see* Michael Pappas, *Disclaiming Property*, 42 HARV. ENV’T L. REV. 391, 394 (2018).

is in question.<sup>147</sup> If takings jurisprudence seeks to avoid states manipulating what interests count as “property” to avoid takings liability,<sup>148</sup> it seems that a disclaimer standing on its own should not avoid takings liability. But at any rate, RPS programs often do *not* have property disclaimers, and some states explicitly define RECs as property rights.<sup>149</sup>

Even still, governments may argue that the Takings Clause does not protect RECs because they do not provide an irrevocable right to claim that energy is “renewable.” They primarily derive value from their utility in a government regulatory program,<sup>150</sup> and highly regulated industries, like electric utilities, have low security of expectations in interests that are part and parcel of regulatory frameworks like RPSs.<sup>151</sup> And even if RECs no longer qualified for one state’s RPS, they still could qualify for private voluntary REC markets or RPSs in other states, meaning they would not have lost all “economically viable use.”<sup>152</sup> On the other hand, industry advocates could argue that the private market for RECs shows that they have value outside of regulatory frameworks and therefore are unlike other forms of regulatory property, such as emissions credits, that are not constitutional property. Given these arguments, it may be that RECs at least merit a regulatory takings analysis for a government action that significantly depresses their value.<sup>153</sup>

But even if RECs are constitutional property, it may be unlikely that they can be “taken.” Professor James Stern sees constitutional property more broadly than does Merrill but argues that the Takings Clause proscribes only the “taking” of property — that is, transferring an entitlement from one party to another.<sup>154</sup> If property was not transferred to another party, or was never owned by the complaining party in the first place, arguably no taking occurred.<sup>155</sup> Courts have relied on this kind of analysis (in effect, adjudicating an initial-allocation dispute) to reject takings challenges involving RECs. For instance, the Supreme Court of Connecticut rejected a claim that the Connecticut Department of Public Utility Control had effected an unconstitutional taking in establishing the rule that RECs transferred along with electricity for pre-RPS

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<sup>147</sup> Pappas, *supra* note 146, at 412. Wyman and Minelli note as much. *See* Wyman & Minelli, *supra* note 4, at 1402.

<sup>148</sup> *See, e.g.*, Tyler v. Hennepin County, 143 S. Ct. 1369, 1375 (2023).

<sup>149</sup> *E.g.*, CTR. FOR RES. SOLS., *supra* note 1, at 4.

<sup>150</sup> *See* Merrill, *supra* note 133, at 894.

<sup>151</sup> *Cf.* Cal. Chamber of Com. v. State Air Res. Bd., 216 Cal. Rptr. 3d 694, 725–27 (Ct. App. 2017) (explaining that greenhouse gas allowance credits do not give rise to takings claims because the state needs regulatory flexibility, for example, in the event that a state program is preempted by federal law).

<sup>152</sup> Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1016 (1992) (emphasis omitted).

<sup>153</sup> *Cf.* Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124–28 (1978) (establishing the framework for regulatory takings).

<sup>154</sup> Stern, *supra* note 5, at 284.

<sup>155</sup> *Id.*

contracts.<sup>156</sup> The court reasoned that, because Connecticut law was that RECs followed electricity, the RECs at issue “were not the plaintiff’s property” in the first place.<sup>157</sup> Other states have similarly found no taking involving RECs when an administrative tribunal decides between two competing claims for REC ownership, although sometimes without explanation.<sup>158</sup> In sum, takings liability for regulatory change involving RECs is unlikely.

### CONCLUSION

RECs provide a case study of governments and private parties innovating in property rights to pursue the decarbonization of the electric grid that is necessary to avoid the worst effects of the climate crisis. By examining the ways that RECs act as property, stakeholders and policymakers can look to property theory for guidance to more effectively craft REC policy. Although RECs and property theory are not a panacea for the climate crisis,<sup>159</sup> a deeper understanding of the property aspects of RECs will empower policymakers to draw on insights from property theory, both in innovating in property regimes and in avoiding pitfalls, to craft more effective climate policy.

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<sup>156</sup> *Wheelabrator Lisbon, Inc. v. Dep’t of Pub. Util. Control*, 931 A.2d 159, 177 (Conn. 2007).

<sup>157</sup> *Id.* at 176–77.

<sup>158</sup> *ARIPPA v. Pa. Pub. Util. Comm’n*, 966 A.2d 1204, 1207, 1208 n.6 (Pa. Commw. Ct. 2009); *Va. Elec. & Power Co.*, PUE-2010-00132, slip op. at 10 n.24 (Va. State Corp. Comm’n June 17, 2011).

<sup>159</sup> Many argue that interconnection and the need for more transmission are more pressing issues than lack of market incentives. *See, e.g.*, Emma Penrod, *Why the Energy Transition Broke the U.S. Interconnection System*, UTIL. DIVE (Aug. 22, 2022), <https://www.utilitydive.com/news/energy-transition-interconnection-reform-ferc-qcells/628822> [<https://perma.cc/44GF-PVBU>] (interconnection); Boyd & Carlson, *supra* note 9, at 855 (transmission).