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Do You Know Who Owns Your Solar Energy? The Growing Practice of Separating Renewable Attributes from Renewable Energy Development and its Impact on Meeting Our Climate Goals

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DO YOU KNOW WHO OWNS YOUR SOLAR ENERGY? THE GROWING PRACTICE OF SEPARATING RENEWABLE ATTRIBUTES FROM RENEWABLE ENERGY DEVELOPMENT AND ITS IMPACT ON MEETING OUR CLIMATE GOALS°

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I. INTRODUCTION: RENEWABLE ENERGY GROWTH OR RENEWABLE ENERGY DECEPTION?

In the United States, individuals and businesses are signing up for solar energy in record numbers.[1] Today, new financing and purchase options increase citizens' access to solar energy. With the current federal and state incentives, "going solar" has never been more affordable and is a great way to have a lesser impact on a warming planet. But do people know what they are signing up for when they respond to those marketing ads to "go solar" with a particular company? Are they getting what they signed up for? Unfortunately, more and more citizens who believe they are buying solar energy and reducing their local carbon footprint, are continuing to consume fossil-fueled energy. Some of the leading installers of rooftop solar systems in the United States, often unknown to the host customer, do not sell solar energy to the customers who host their systems. Instead, developers use contractual provisions to strip the renewable energy

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1. *See* AUSTIN PEREA ET AL., GMT RESEARCH AND SEIA, U.S. SOLAR MARKET INSIGHT, 2016 YEAR IN REVIEW 5-6 (2016).

credits (RECs), the environmental attributes associated with the solar energy, from the energy that they sell to the customer and sell the RECs separately to third parties for additional profit.[2] Community and shared solar developers advertise that customers can "go solar" by participating in their projects, but often do not legally sell solar energy to these community members. While these customers believe that their actions develop additional renewable energy, the customer only contributes toward existing mandates and still continues to purchase fossil fuel generated electricity.

These practices are alarming for several reasons. First, many customers sign legal agreements believing they are purchasing clean, local solar energy when they are actually being misled to do the opposite. Second, companies using these deceptive practices increase their revenue by selling the solar energy to a third party.[3] This additional revenue from the third-party RECs sales allows the companies to competitively undercut honest solar companies who keep the RECs bundled with their solar products. Legitimate solar companies lose sales to companies selling an inferior, polluting product. Finally, the planet is harmed when customers believe they are buying additional solar energy, but they instead continue to purchase polluting fossil fueled energy because their solar energy has been sold to someone else.[4]

In Vermont, concerns over these deceptive practices lead the Attorney General's Office to issue guidelines for solar companies to follow regarding solar marketing.[5] According to the AG's guidance,

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2. For every megawatt-hour of renewable energy generated one REC is created. Who legally owns the RECs is tracked in regional accounting systems.

3. *See* Mike Polhamus, *Vermont Attorney General Warns Solar Companies to Stop "False Marketing'*, BRATTLEBORO REFORMER, (March 19, 2017), http://www.reformer.com/stories/vermont-attorney-general-warns-solar-companies-to-stop-false-marketing,294722 [https://perma.cc/7Q8Q-UZMB].

4. *See id.*

5. *See generally* STATE OF VT. OFFICE OF THE ATTORNEY GENERAL, GUIDANCE FOR THIRD-PARTY SOLAR PROJECTS, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=0ahUKEwisjLmEg8fWAhXGRiYKHX6uDkAQFggzMAI&url=http%3A%2F%2Fago.vermont.gov%2Fassets%2Ffiles%2FPressReleases%2FConsumer%2FGuidance%2520on%2520Solar%2520Marketing.pdf&usg=AFQjCNF-khg47vSLViUBgIoGR_8ZP4h2Lg [https://perma.cc/GN2Y-ZHG5].

companies should not advertise their products as solar or renewable if customers are not provided the RECs associated with these products.[6]

Unfortunately, the problem of promoting environmental perceptions that are not consistent with the legal reality goes beyond individual solar companies' deceptive actions. When actual policies are examined, even some state leaders who proclaim renewable energy leadership have participated in these practices. For example, the State of Vermont has been cited in media reports as a leader in implementing renewable energy goals,[7] including a target of 90% renewable across all sectors.[8] However, a 2015 report analyzing the sale of RECs in Vermont revealed that the state's electric customers actually buy 0% solar[9] and 0% wind energy and the state's electric sector greenhouse gas emissions had doubled over a historic ten year period.[10] This fact is often misunderstood since there have been hundreds of megawatts (MWs) of wind and solar physically interconnected in Vermont in recent years. Contrary to the public perception, flawed state energy policy led to this result by encouraging the out-of-state sale of the RECs from almost all solar and wind facilities. This Article will examine the growing practice of stripping renewable energy credits from renewable energy projects and the challenges of meeting state and federal clean energy goals within this problematic legal framework.

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6. *See id*. at 2.

7. *See* Jeff Deyette, *Will New Mexico Join the Next Generation of Clean Energy Leaders?* UNION OF CONCERNED SCIENTISTS, (Feb. 21, 2017, 10:53 AM), http://blog.ucsusa.org/jeff-deyette/will-new-mexico-next-generation-clean-energy-leaders (citing Vermont having a leading renewable energy standard) [https://perma.cc/4WBZ-X3FP].

8. *See* VT. DEP'T OF PUB. SERVICE, COMPREHENSIVE ENERGY PLAN 2011 – VERMONT'S ENERGY FUTURE 3 (2011), http://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2011/2011%20CEP_Volume%201%5B1%5D.pdf [https://perma.cc/6ZEJ-P2MP].

9. Evaluating the numbers in finer detail from the Vermont Comprehensive Energy Plan it is found that 0.4% of Vermont's energy comes from solar, largely resulting from businesses, not-for-profit organizations and individual customers who chose to keep their RECs bundled with their solar energy and resulting in local greenhouse gas reductions.

10. *See* VT. DEP'T OF PUB. SERVICE, COMPREHENSIVE ENERGY PLAN 2016 189 (2016), https://outside.vermont.gov /sov/webservices/Shared%20Documents/2016CEP_Final.pdf [https://perma.cc/U7RR-3AK2].

II. A CASE STUDY: THE REALITY OF VERMONT'S RENEWABLE ENERGY CLAIMS

A. When a City's 100% Renewable Claims are Not Necessarily Renewable Energy Leadership

In Vermont, the City of Burlington Electric Department (BED) made national headlines by announcing it gets 100% of its electricity from renewable resources. BED leadership also proudly claimed that it had achieved this meaningful goal while keeping its electric rates down. One might wonder if being 100% renewable reduces the utility's electric rates, then, why isn't everyone following this lead? In BED's case the headlines did not tell the entire story. To achieve their 100% renewable energy goal, BED performs a REC arbitrage, selling most of the premium Class I RECs (the RECs that legally comply with most state renewable energy mandates) from its instate renewable resources - such as wind, solar, and biomass - and substituting cheaper, less valuable RECs. The Class I RECs are sold into the Massachusetts and Connecticut RPS programs at a premium price (historically $20-$60/MWhr).[11] Massachusetts and Connecticut electric customers pay the Class I REC price premiums to support the development of new premium renewable resources (e.g. solar and wind) and since they own the RECs from these resources they can claim the low carbon energy from these more recently developed renewable resources. BED then uses the revenues from the sale of their premium RECs to fund the purchase of a larger quantity of generally older, significantly lower priced RECs (known as Class II or noncompliance RECs).[12] The Class II RECs purchased by BED, such as RECs from older hydro facilities,

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11. *See* Laurie Guevara-Stone, *How Vermont's Largest City went 100% Renewable Electricity*, CHRISTIAN SCI. MONITOR (October 27, 2014), https://www.csmonitor.com/Environment/Energy-Voices/2014/1027/How-Vermont-s-largest-city-went-100-percent-renewable-electricity [https://perma.cc/3C3L-EFU9].

12. These RECs are sometimes referred to as Class II, noncompliance or voluntary RECs. Their value is more than an order of magnitude cheaper than the premium, or Class I RECs, such as wind and solar. Because most states do not count these older projects toward their state requirements, there is significantly reduced demand for them. *See Renewable Energy Certificate Markets*, S&P GLOBAL PLATTS MEGAWATT DAILY, Feb. 24, 2017.

are not eligible for other state RPS programs which depresses their value.[13] While BED can legally claim that their electric supply is renewable, they have achieved this milestone by arbitraging the REC market by selling high and buying low. Furthermore, BED's arbitrage practices have not generally incented the development of additional renewable resources from their actions because BED is purchasing the RECs from older projects.

BED's REC arbitrage strategy is not replicable on a regional or national basis and does not result in additional climate change mitigation. BED is a small utility in a larger New England market whose actions do not significantly impact the market price for these low demand renewable resources.[14] According to James Mandel of the Rocky Mountain Institute, "ultimately, as more communities move towards these targets, credit purchases and acquisitions of existing plants will not be sufficient."[15] Basic laws of supply and demand suggest that if every city or state counted these older vintage RECs toward their goals, there would no longer be the ability to purchase RECs at such fire sale prices. In New England, it is states such as Massachusetts and Connecticut, through their purchase of RECs for new renewable resources such as solar and wind, that are expanding the market for low carbon energy.

Additionally, BED's practice of selling all the premium RECs for its instate wind resources has caused its management to make questionable public claims about the resources it procures. Recently, BED's General Manager, stated "[w]ind power was a key factor in Burlington Electric's milestone achievement of sourcing 100 percent of our energy from renewable generation and constitutes an important piece of our renewable energy portfolio."[16] According to the General

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13. *See* Guevara-Stone, *supra* note 11.

14. In 2015, Burlington Electric Department's energy use was 353,730 MWh. *See* Burlington Elec. Dep't, *Our Portfolio* [herein after *Our Portfolio*], https://www.burlingtonelectric.com/our-energy-portfolio (last visited Sept. 28, 2017) [https://perma .cc/HU6A-BVY8]. In 2016, customers in the ISO-New England region consumed 124,258 GWh. *See* ISO-New England, *Key Grid and Market Stats*, https://www.iso-ne.com/about/key-stats (Last visited Sept. 28, 2017) [https: //perma.cc/Y9K2-QHKY].

15. Guevara-Stone, *supra* note 11.

16. Georgia Mountain Community Wind, *Georgia Mountain Community Wind Tops Energy Production Expectations*, VT DIGGER (Feb. 3, 2016),

Manager, "at BED, we are big fans of clean, green, stably-priced wind energy."[17] In a 2011 press release BED went further when it noted,

> Of the 40 megawatts the Sheffield project will produce, BED has contracted for 16 of those megawatts, representing 13% of BED's total energy needs. The Georgia Mountain wind project, which has been approved and is expected to be operational in 2013, will provide 9% of BED's power mix. Another project, which is still being negotiated, is expected to produce electricity by 2014. If all goes according to plan, at that point BED will achieve its goal of being completely renewable, receiving one-third of its power from hydro projects, one-third from the McNeil biomass plant and one-third from the three wind projects.[18]

Left unstated, was that BED, and other Vermont utilities, sells the RECs from all of its wind projects, as well as the McNeil biomass plant and, thus, does not legally consume power from these premium renewable resources.[19] These statements have left an incorrect public perception that instate wind power (as well as biomass) contributes toward Vermont's renewable energy and greenhouse gas reduction goals when the opposite is true given the out-of-state sale of the wind

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http://vtdigger.org/2016/02/03/georgia-mountain-community-wind-tops-energy-production-expectations/ [https://perma.cc/E8CW-ACPC].

17. *Id*.

18. *See* Burlington Elec. Dep't, *BED Getting Closer to 100% Renewable Power* (Oct. 24, 2011), https://www .google.com/search?q=https%26%2358%3B%2F%2Fwww.burlingtonelectric.com%2Fsites%2Fdefault%2Ffiles%2FDocuments%2FBED_Links%2Foct_24_2011_pressrelease.pdf&ie=utf-8&oe=utf-8&client=ubuntu&channel=fs [https://perma.cc/C5Y8-ERBH].

19. In 2015, the amount of electricity delivered by Burlington Electric Department was 353.7 GWh. *See Our Portfolio supra* note 14. In contrast, the total electricity consumed in the New England market was between 115and 130 TWh, a factor 1000 times greater than the amount delivered by Burlington Electric Department. *See* STEVEN NADEL, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., ELECTRICITY CONSUMPTION AND PEAK DEMAND SCENARIOS FOR NEW ENGLAND 8 (2016), http://aceee.org/sites/default/files/publications/researchreports/u1605.pdf [https://perma.cc /YTS4-3GBA].

RECs.[20] The Federal Trade Commission, in a previous letter to Vermont's largest utility, Green Mountain Power, warned that "a utility should avoid unqualified or poorly qualified representations that state or imply that its customers will receive renewable electricity from its renewable facilities when, in fact, the utility has sold or will sell RECs from those projects elsewhere."[21]

B. The Misperception of State Climate Leadership

In 2015, the Vermont Governor's office issued a press release to promote then Governor Peter Shumlin's attendance at the United Nations Climate Change Conference in Paris. In this press release, Governor Shumlin prominently noted that Vermont completed a Comprehensive Energy Plan in 2011 with a goal of 90% renewable energy by 2050.[22] Shumlin stated "[i]n the last four and half years, Vermont has worked towards that goal, increasing the amount of solar installed or on the way by tenfold and increasing wind energy generation by 20 times."[23]

In the opening pages of Vermont's 2016 update to its Comprehensive Energy Plan, Shumlin stated: "there is no greater challenge and opportunity for Vermont and our world than the challenge to change the way we use and produce energy."[24] The state's climate leadership and ambitious renewable energy goals have been continuously promoted in national and international media reports. While various programs have sought to promote renewable energy

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20. VT. DEP'T OF PUB. SERVICE, *supra* note 10 at 189 (demonstrating that after RECs sales are accounted for Vermont receives no electricity from wind or solar generation resources).

21. Letter from James A. Kohm, Assoc. Dir., Div. of Enf't, F.T.C., to Green Mountain Power 4 (February 5, 2015) https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiLoobKlsfWAhVNfiYKHUN4ALcQFggoMAA&url=https%3A%2F%2Fwww.ftc.gov%2Fsystem%2Ffiles%2Fdocuments%2Fpublic_statements%2F624571%2F150205gmpletter.pdf&usg=AFQjCNFpVD-g5ae3Bcb5dyUqtlFuWjsj_w [https://perma.cc/47BH-5DVH].

22. *See Gov. Shumlin To Attend Paris Climate Change Conference*, MOUNTAIN TIMES (Dec. 22, 2015), http: //mountaintimes.info/gov-shumlin-to-attend-paris-climate-change-conference/ [https://perma.cc/2SCN-GSVL].

23. *Id*.

24. *See supra* note 10 at 1.

development in Vermont, particularly from solar and wind resources, Vermont continues farther behind on both its renewable energy targets and greenhouse gas reduction goals. An independent report to the Vermont Senate Natural Resources and Energy Committee, identifies the state's policies regarding the out-of-state sale of RECs as a primary reason for the state's failing renewable energy and climate policy.[25] The report demonstrates the dramatically different impacts on Vermont's renewable energy consumption and greenhouse gas emissions of selling RECs out-of-state versus retiring them toward the state's goals. Based on comments from the Department of Public service during the Shumlin administration, it appears that achieving these ambitious goals was less important than keeping electric rates low. Chris Recchia, Commissioner, noted that the state's largest utility has sold about "$22 million worth of credits" since 2005 and that retiring the RECs for instate greenhouse gas reductions would result in electric rates having a "six percent increase across the state."[26]

1. Greenhouse Gas Reduction Goals

Vermont lawmakers enacted ambitious greenhouse gas emissions goals in 2006.[27] Under Title 10, Vermont established goals to reduce greenhouse gas emissions from the 1990 emissions levels.[28] The purpose of the Act is to reduce greenhouse gas emissions within Vermont and emissions outside the state boundaries that are caused by the use of energy within Vermont.[29] The first goal was to decrease emissions levels by 25% of the 1990 baseline by 2012. The second goal is to decrease emissions levels by 50% by 2028. The statute also set an ultimate target to decrease emissions levels by 75% by 2050.[30]

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25. *See generally,* GREG FREEMAN, ET AL., VT. L. SCH. ENERGY CLINIC, AN ANALYSIS OF RENEWABLE ENERGY CREDITS IN VERMONT (2016).

26. Peter Hirschfeld, *Clean And Green? New Case Challenges Green Mountain Power's Renewable Energy Claims*, VPR (September 15, 2014), http://digital.vpr.net/post/clean-and-green-new-case-challenges-green-mountain-powers-renewable-energy-claims#stream/0 [https://perma.cc/A7TP-WNRB].

27. *See* An Act Relating To Establishing Greenhouse Gas Reduction Goals And A Plan For Meeting Those Goal, VT. STAT. ANN. tit. 10, § 578 (2006).

28. *See id*.

29. *See id*.

30. See *id*. at § 578(a)(3).

Vermont did not reach its first goal. The state's total emissions in 2012 were approximately the same as the emissions in 1990.[31] According to the Vermont Greenhouse Gas Emissions Inventory Update 1990-2012, Vermont's overall statewide greenhouse gas emissions increased from 2011 to 2012.[32] The emissions increased from 8.11 million metric tons CO_2 ($MMTCO_{2e}$) to 8.27 $MMTCO_{2e}$.[33] This 2012 level of emissions is approximately two percent higher than 1990 levels.[34] The outlook is even bleaker for Vermont's electric sector, which should have been most positively influenced by Vermont's renewable energy goals. Vermont's electric sector greenhouse gas emissions approximately doubled over the last decade.[35]

2. Renewable Energy Goals

In Vermont's 2011 Comprehensive Energy Plan, Vermont set a goal to fulfill 90% of its energy needs from renewable sources by 2050.[36] The Vermont Energy Act of 2012, or Act 170, required the state's Public Service Department to complete a Total Energy Study to meet the 90% renewable goal. Act 170 set renewable electricity targets of 55% by 2017 and 75% by 2032.[37] 10 V.S.A. §580(a) established a

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31. *See* Taylor Dobbs, *Vermont Falls Far Short of 2012 Emissions Goal*, VPR (Dec. 5, 2013), http://digital.vpr.net/post /vermont-falls-far-short-2012-emissions-goals#stream/0 [https://perma.cc/U7PF-GRM6].

32. *See* VT. DEP'T OF ENT'L CONSERVATION AIR QUALITY AND CLIMATE DIVISION, VERMONT GREENHOUSE GAS EMISSIONS INVENTORY UPDATE 1990-2012 2 (2015), http://dec.vermont.gov/sites/dec/files/documents/Vermont %20GHG% 20Emissions%20Inventory%20Update%201990-2012_June%20-2015.pdf [https://perma.cc/622K-XFDH].

33. *See id*.

34. *See id*.

35. See *id*.; *see also* VT. DEP'T OF PUB. SERVICE, *supra* note 10 at 35.

36. *See* LEIGH.W. SEDDON, 90% RENEWABLE BY 2050: EXPLORING VERMONT'S EFFICIENCY & RENEWABLE ENERGY PATHWAYS, VT. ENERGY EFFICIENCY CORP. 3 (2013), http://legislature.vermont.gov/assets/Documents/2014 /WorkGroups/ House%20Natural%20Resources/Renewable%20Energy%20Goals/W~Andrea%20 Colnes~EAN%202050%20Energy%20Analysis,%20Final%20Report~1-21-2014.pdf [https://perma.cc/6JEL-XZS2].

37. *See id*.; *see also* Renewable Energy Goals, VT. STAT. ANN. tit. 30, § 8001 (2012).

statewide goal to produce 25% of the energy consumed in the state through the use of renewable energy sources by 2025.[38]

Vermont's 2016 Comprehensive Energy Plan expanded upon the 2011 Comprehensive Energy Plan by setting three goals.[39] First, reduce total per capita energy consumption by 25% by 2025 and by at least one third by 2050.[40] Second, use renewable energy sources to meet 25% of the remaining energy need by 2025.[41] Then, use renewable sources to meet 40% of the remaining energy need by 2035 and 90% of the remaining energy need by 2050.[42] Third, meet end-use sector goals by 2025, including 10% of transportation, 30% of renewable buildings, and 67% renewable electric power.[43]

Although significant renewable generation projects have been constructed in Vermont, the state has not made significant increases in renewable energy consumption. More than 100 MW of wind and 100 MW of solar photovoltaic projects have been built within the state since the 2011 Comprehensive Energy Plan.[44] The Plan estimated that by 2015, 16% of the state's total energy needs would be satisfied by renewable resources.[45] However, the state's supply of renewable energy tells another story. According to the 2016 Comprehensive Energy Plan, Vermont receives 0% of its energy from solar and 0% from wind after adjusting for REC sales.[46]

Out-of-state REC sales are one of the biggest contributors toward the growth in electric sector greenhouse gas emissions and are in direct conflict with the state renewable and greenhouse gas reduction goals.[47] Even as Vermont developed new in-state renewable energy projects, in-state renewable energy consumption has not followed suit.[48] Vermont's renewable energy laws historically allowed Vermont

38. *See* State Goal, VT. STAT. ANN. tit. 10 § 580(a) (2008).
39. *See* VT. DEP'T OF PUB. SERVICE, *supra* note 10 at 2.
40. *See id*.
41. *See id*.
42. *See id*.
43. *See id*.
44. *See id*.
45. *See id*. at 5.
46. *See id*. at 189.
47. *See* VT. DEP'T OF ENT'L CONSERVATION AIR QUALITY AND CLIMATE DIVISION *supra* note 32 at 2.
48. *See* VT. DEP'T OF PUB. SERVICE *supra* note 10.

utilities and renewable energy developers to sell the RECs out-of-state separately from the renewable energy generated, largely as a strategy to reduce electric rates. Thus, Vermont is not consuming the renewable energy that is generated within its borders and which its citizens are subsidizing. While some of the failure of Vermont's renewable energy policies may be unique to the characteristics of Vermont law, others reflect a growing national trend.[49]

C. Increasing Solar Energy Deception in the United States

The solar boom has also created a national increase in solar energy deception for new solar customers. In a commentary to the LA Times, Severin Borenstein, UC Berkeley professor of Business and Public Policy, outlined this growing national problem: "if you've installed solar panels on your roof and feel aglow with environmental virtue, you may be in for a rude awakening. There's a good chance someone else has purchased your halo and is wearing it right now."[50] In his commentary, Borenstein notes that "70% of new solar systems are owned by third parties that typically resell the associated RECs" to another entity with their own emission reductions goal.[51] The individual hosting the rooftop solar system or participating in an offsite community solar array is often enticed by the effective marketing campaign that they can "go solar" by signing up with a third-party vendor. However, the fine print of the third-party contracts, which many consumers do not read or understand, contains clauses notifying the consumers that they do not own the RECs or environmental attributes from the solar array. Instead the RECs are often unbundled from the roof top solar and sold to a third party.

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49. A new VT. DEP'T OF PUB. SERVICE is effective as of 1/1/2017 in Vermont that sets a 75% renewable energy target for the state. However, the main tier of the program, similar to the BED policy actions, allows inexpensive Class II and noncompliance RECs to meet the requirement. This continues to incentivize all in-state wind and new solar over 5 MW to sell their RECs out-of-state given the wide definition of RECs allowed for compliance and an artificially low compliance penalty. *See* Renewable Energy Goals, VT. STAT. ANN. tit. 30, § 8002-005 (2015).

50. Severin Borenstein, *Smug about your solar roof? Not so fast*, LA TIMES (Jan. 20, 2016, 5:00 AM), http://www .latimes.com/opinion/op-ed/la-oe-0120-borenstein-solar-energy-credits-20160120-story.html [https://perma.cc/795J-KBRM].

51. *See id.*

SolarCity is a leading example of a company that often strips the renewable attributes from the solar products it sells to its customers. In 2015, SolarCity was the largest U.S installer with 35% of the residential market and 14% of the commercial market.[52] SolarCity's website promotes that you can, "power your home with clean energy."[53] Customers may be surprised that under the terms of lease agreements, the RECs "are the property of and for the benefit of SolarCity, useable at its sole discretion."[54] SolarCity's CEO, Lyndon Rive, stated that a customer by, "installing solar, whether you own the REC or not, every kilowatt-hour you produce is clean."[55] But what about the energy that the customer consumes? It is not physically possible for the customer with solar on their roof and a third party to both consume the same kWh of solar energy. Apparently the solar business today follows the adage in the old Tom Waits song, Step Right Up, where "the large print giveth and the small print taketh away."[56] If the RECs are sold to a third party, the electric consumer continues to receive electricity from the grid where the mix of generation resources selling electricity have significant greenhouse gas emissions.[57] Industry experts have expressed concern with this trend. Jennifer Martin, executive director of the Center for Resource Solutions which certifies RECs authenticity, noted that "a lot of individuals buy green power because they want to know that the power

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52. *See* Mike Munsell, *Top 10 Developers Account for Just 42% of US Commercial Solar Market*, GREEN TECH MEDIA (May 23, 2016), http://www.greentechmedia.com/articles/read/Top-10-Developers-Account-for-Just-42-of-US-Commercial-Solar-Market [https://perma.cc/W5N5-R969].

53. Dave Gram, *Buyer Beware Solar Power May Be Missing Key Ingredient*, ST. LOUIS POST-DISPATCH (January 17, 2016), http://www.stltoday.com/business/local/buyer-beware-solar-power-may-be-missing-key-ingredient/article_eac5bab6 -449a-5853-be2d-56f0a85587c6.html [https://perma.cc/VW3Q-AFFH].

54. *Id*.

55. Tim McDonnell, *The Problem with Rooftop Solar that Nobody is Talking About*, MOTHER JONES (January/February 2016), http://www.motherjones.com/environment/2016/01/green-energy-rec-rooftop-solar-panels [https://perma.cc/2ZRZ-C2DQ].

56. Gram, *supra* note 53.

57. *See Frequently Asked Questions – What is U.S. electricity generation by energy source?* U.S. ENERGY INFO. ADMIN. (Apr. 18, 2017), https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 (describing the average mix of electricity in the United States in 2016) [https://perma.cc/7XM2-D5MB].

they're buying wouldn't be there unless they bought it."[58] Martin also stated that as a customer if you don't own the RECs then "you're not getting what you're paying for."[59]

REC removal in third-party contracts happens because the sale of solar RECs is big business. For example, in May 2016, SolarCity closed on $227 million of equity financing for 201 MW of contracted solar projects with John Hancock Financial.[60] Under this contract, John Hancock was to receive the majority of the projects underlying cash flows, including solar renewable energy credits during the 20-year contract term.[61] The portfolio of projects includes residential, commercial, and industrial installations that form a representational sample of SolarCity's customer base.[62] Earlier in 2016, SolarCity announced it had agreed to sell RECs from its projects directly to an undisclosed bank for $40 million.[63] The sale monetizes the stream of solar RECs that SolarCity receives from a portion of its underlying projects.[64] Given SolarCity's leading position in the residential solar market, it is likely that a whole lot of residential solar customers are not legally consuming the solar energy that is being produced on their rooftops.

Vermont's largest community solar developer, SunCommon, has historically stripped the RECs from its community solar projects.[65] According to Duane Peterson, SunCommon Co-president, selling the RECs separately is a key to keeping energy affordable for his consumers.[66] Peterson asserts that SunCommon is "really clear with

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58. McDonnell, *supra* note 55.

59. *Id.*

60. *See SolarCity and John Hancock Announce $227 Million Cash Equity Financing*, CISION PR NEWSWIRE (May 3, 2016), http://www.prnewswire.com/news-releases/solarcity-and-john-hancock-announce-227-million-cash-equity-financing-300261532.html [https://perma.cc/S54V-QUB4].

61. *See id.*

62. *See id.*

63. *See SolarCity Closes Solar Renewable Energy Certificate Transaction*, CISION PR NEWSWIRE (Apr. 4, 2016), http: //www.prnewswire.com/news-releases/solarcity-closes-solar-renewable-energy-certificate-transaction-300245260.html [https://perma.cc/4B4J-J422].

64. *See id.*

65. *See* Gram, *supra* note 53.

66. *See id*.

folks what's going on with renewable energy credits."[67] However, according to media reports, the company's website promoted "solar at no upfront cost" and encouraged customers to "ditch fossil fuels invest in solar."[68] Customers who purchased a SunCommon product that does not include the solar RECs are not reducing their greenhouse gas emissions and cannot legally claim that they have "gone solar."

III. THE IMPORTANCE OF ADDITIONALITY IN MEETING OUR CLIMATE GOALS

A. Climate Impacts/Additionality

Additionality is an important concept for ensuring progress in meeting our climate goals. Additionality is defined as "a quality criterion for GHG emission reduction (carbon offset) projects stipulating that the project would not have been implemented in a baseline or 'business as usual scenario.'"[69] If an electric customer's action is not additional, then it is difficult to argue that the specific action makes progress towards reducing greenhouse gas emissions.[70] Over the past few decades, adding rooftop solar to one's home or business has become a common way to reduce your carbon footprint and this action, when taken by a household or business, readily demonstrated additionality. The solar energy produced by the system was additive to the grid as it reduced dependence on fossil fuel generation resources. In recent years, renewable energy development has sharply increased and claims of additionality have gotten more complicated than simply claiming to have purchased RECs.[71]

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67. *Id*.

68. *Id*.

69. Jared Braslawsky, Todd Jones and Mary Sotos, *Making Credible Renewable Electricity Usage Claims*, RE100 TECHNICAL ADVISORY GROUP 15 (2016), https://resource-solutions.org/document/making-credible-renewable-electricity-usage-claims/ [https://perma.cc/AT84-9682].

70. *See* Brian Joseph McFarland, *Carbon Reduction Projects and the Concept of Additionality*, 11 SUSTAINABLE DEV. L. & POL'Y 15, 15 (2011).

71. *See* Michael Gillenwater, Xi Lu, Miriam Fischlein, *Additionality of Wind Energy Investments in the U.S. Voluntary Green Power Market*, 63 RENEWABLE ENERGY 452, 452-457 (2014).

A significant complicating factor is that in some regions the supply of RECs has significantly outpaced the demand which has driven down the price of RECs. For example, in Texas, where there are excellent wind resources, wind energy development already significantly exceeds the modest state RPS goal.[72] Texas wind RECs regularly trade at a few hundredths of cent per kWh.[73] In New York and New England the market for Class I RECs (including local solar and wind) trades at 2-3 cents per kWh (or at a price about 100 times greater than Texas wind RECs).[74] As a result, in cities such as Boston and New York City, where customers are allowed to choose their electric supplier, there are companies marketing 100% wind power products that the company states "that electricity equal to 100% of your electricity usage is produced by wind power generation facilities located in the United States," which by definition includes Texas wind RECs.[75] This demonstrates how supply can significantly exceed demand in the national noncompliance or voluntary REC market.

As a result, there is concern that green products supplied by the national voluntary REC market do not have any meaningful market or financial impact on the renewable resource facilities that they come from.[76] While these products, which include the purchase of RECs, are legal claims about renewable energy content, it is likely that they have little impact on the expansion of a green grid or additionality.[77] The low price of RECs does not incent construction of renewable generation in the area where the RECs were produced and it can depress efforts to construct renewable generation in the area where the

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72. In fact there was sufficient wind energy production by 2009 to significantly exceed the state's 2025 goal of 10,000 MW. *See Renewable Generation Requirement – Project Overview*, DSIRE (Apr. 29, 2016), http://programs.dsireusa.org/system/program/detail/182 [https://perma.cc/K2K6-2QTZ].

73. *See Renewable Energy Certificate Markets*, *supra* note 12.

74. *See id*.

75. S*ee generally Carbon Conscious*, GREEN MOUNTAIN ENERGY, https://www.greenmountainenergy.com (last visited Sept. 29, 2017) [https://perma.cc/4LY3-2EMA].

76. *See* JOHN POWERS & AMY HADDON, THE ROLE OF RECS AND ADDITIONALITY IN GREEN POWER MARKETS 7 (n.d), http://www.renewablechoice.com/wp-content/uploads/2016/05/Additionality-White-Paper.pdf [https://perma.cc/CZ8F-H9JK].

77. *See id*.

RECs are purchased. Green power buyers who want to make sure that their actions resulted in an additional project built need to do more than simply purchase existing and excess RECs. If customers want to both purchase renewable energy and ensure that their actions are additional they can commit to onsite renewables, an equity investment or a purchase power agreement with a renewable energy project and of course must ensure that the RECs remain bundled with their purchase.[78] Furthermore, "while it is possible to calculate the amount of emissions avoided by renewable electricity generation for any MWh of renewable generation, only generation by projects that are deemed to be additional under an offset project certification program can be used to offset emissions from activities other than electricity use, such as driving, flying, or heating with natural gas."[79] As will be discussed further in Section VI, corporate America is a leading example of how additionality incents the development of new renewable resources.[80]

B. Solar Energy Growth in the United States

Solar power is already transforming our energy system, but we are only on the cusp of the transformation. For the past decade, American solar energy production has experienced unprecedented growth; growing from 1.2 gigawatts (GW) of installed capacity in 2008 to 42.4 GW of installed capacity at the end of 2016.[81] In 2016, solar energy was the leading source of new electricity generation capacity resources at 39% of the total new capacity added.[82] Even with the dramatic gains in annual and total capacity additions, solar energy has barely scratched its vast potential. As of December 2016, utility-scale photovoltaic (PV), distributed PV, and thermal solar generation

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78. *See id*.

79. ENVIRONMENTAL TRACKING NETWORK OF NORTH AMERICA, THE INTERSECTION BETWEEN CARBON, RECS, AND TRACKING: ACCOUNTING AND TRACKING THE CARBON ATTRIBUTES OF RENEWABLE ENERGY 15 (2010), http://www.etnna.org/images/PDFs/Intersection%20btwn%20Carbon%20RECs%20and%20Tracking.pdf [https://perma.cc/KT29-UQS2].

80. *See* Edward Klump, *Renewables: From Amazon to Wal-Mart, deals add up in Texas and Beyond*, ENERGYWIRE (October 4, 2016), https://www.eenews.net/stories/1060043787 [https://perma.cc/YDZ4-C8RT0.

81. *See* PEREA *supra* note 1 at 5.

82. *See id*.

produced less than 1% of the United States' total electricity.[83] Compare the current state of solar PV generation to solar PV generation potential which is almost 300,000 TWh/yr and a solar capacity potential of approximately 155,000 GW.[84] To put this into context, in 2010, the United States annual electricity retail sales for all 50 states were only roughly 3,754 TWh.[85]

The solar revolution is being fueled by new installations of large utility-scale and smaller distributed generation facilities.[86] In 2016, installations of utility-scale generation capacity topped 10 GW and installations of distributed generation – residential and non-residential – facilities exceeded 4 GW.[87] Each of these new facilities will produce RECs in addition to electricity thus increasing the need for transparency and disclosure.

IV. RENEWABLE ENERGY CREDITS

A. Evolution of Renewable Energy Credits

RECs are the means for tracking the production and the consumption of renewable energy. When electricity from a renewable energy facility enters the electric grid, the electrons are mixed with all other electrons in the grid and it is impossible to differentiate between renewable electrons and non-renewable electrons. With the development of RECs, renewable energy generators produce two products: electricity and environmental attributes. The environmental attributes result from producing electricity from a clean renewable

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83. *See* U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY Table ES1.A (2017), https://www.eia.gov/electricity /monthly/current_year/february2017.pdf (showing the total solar electricity production for 2016 was 2,299 GWh while electricity production from all energy sources was 345,238 GWh, making solar's contribution less than 1%) [https://perma.cc/S7UA-P93T].

84. *See* ANTHONY LOPEZ ET AL., U.S. RENEWABLE ENERGY TECHNICAL POTENTIALS: A GIS-BASED ANALYSIS 10-12 (2012), http://www.nrel.gov/docs/fy12osti/51946.pdf [https://perma.cc/D8GE-3BH6].

85. *See id.*

86. *See* U.S. ENERGY INFO. ADMIN., *supra* note 83.

87. *See* PEREA *supra* note 1 at 10-11.

source.[88] For every megawatt hour (MWh) of renewable energy generated, a 1 MWh renewable energy credit (REC) is created. A REC is a "tradeable, contractual instrument that represents the full suite of attributes of 1 Megawatt-hour of renewable energy generation on the electricity grid."[89]

The concept of RECs developed during the late 1990s to meet several needs. First, President Clinton issued an Executive Order that directed the Environmental Protection Agency (EPA) and other Federal agencies to increase renewable energy procurement.[90] While the Order led to interest from government agencies to purchase renewable power, actually doing so was a different matter. The physical realities of the electric grid did not allow institutional customers to purchase power directly from renewable facilities located on the same transmission system.[91] Second, many states began adopting Renewable Portfolio Standards and thus a mechanism was needed to track the renewable energy purchased by a utility.[92] Third, electricity consumers were increasingly interested in purchasing renewable energy.[93] Fourth, renewable energy credits were one way that developers could separate the environmental attributes from the power generated into a unique commodity to extract additional value from their facilities.[94] Developers could extract the additional value of the REC because a key trait of RECs is that they can be unbundled and priced separately from the electricity. RECs can be either bundled or unbundled with the associated electricity thus creating the option of separating the RECs from the electricity with which they were

88. *See* JASON COUGHLIN, ET. AL., A GUIDE TO COMMUNITY SHARED SOLAR: UTILITY, PRIVATE, AND NONPROFIT PROJECT DEVELOPMENT 4 (2012), http://www.nrel.gov/docs/fy12osti/54570.pdf [https://perma.cc/KZ66-SAU7].

89. *See Green-e Glossary* , GREEN-E (Updated Mar. 27, 2017), https://www.green-e.org/glossary [https://perma.cc/9YNS-KN2E].

90. Exec Order No. 12873, 58 Fed. Reg. 54,911, 54,913 (Oct. 20, 1993).

91. *See* POWERS & HADDON, *supra* note 76 at 44.

92. *See id*.

93. *See* LORI BIRD, ET AL,, NREL, GREEN POWER MARKETING IN THE UNITED STATES: A STATUS REPORT (TENTH EDITION) 13 (2007), http://www.nrel.gov/docs/fy08osti/42502.pdf [https://perma.cc/U4WF-SNA2].

94. *See* POWERS & HADDON, *supra* note 76 at 3-4.

created.[95] A REC is bundled when it is sold with the generated unit of electricity. A REC is unbundled when it is sold separately from the generated unit of electricity.[96] Both purchasers of bundled and unbundled RECs can make renewable energy claims specific to the source of the renewable energy that the attribute originally comes from. Independent auditing programs like the Center for Resource Solutions' Green-e® Energy program ensure that only one customer claims credit for each REC and the megawatt-hour of electricity generation it represents.[97]

Bradley Klein of the Environmental Law & Policy Center, explains that "marketing material touting green energy should explain, among other things, what renewable resource helped to create that credit — whether it be solar in Illinois, wind in Texas, or landfill gas from Arkansas."[98] In Illinois, there is a current effort to require those who are bundling RECs with a customer's power supply to specify where those RECs come from. According to Klein, "customers deserve to know where that renewable energy credit is coming from . . . because they may have preferences about what types of renewable energy resources they wish to support."[99] According to James Critchfield, director of the EPA's Green Power Partnership, unbundled RECs are an important part of the national system that developed after many states began requiring utilities to get a certain percentage of their electrical power from renewable sources.[100] Critchfield stated "the

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95. *See* Luke Hagedorn, *All RECs are not created equal: Bundling and Geographic Sourcing*, RENEWABLE ENERGY L. INSIDER (Mar. 7, 2011), http://www.renewableenergylawinsider.com/2011/03/07/all-recs-are-not-created-equal-part-1-bundling-and-geographic-sourcing/ [https://perma.cc/VSM2-HWXV].

96. *See* ERIC O'SHAUGHNESSY, ET AL., NREL, STATUS AND TRENDS IN THE U.S. VOLUNTARY GREEN POWER MARKET (2015 DATA) 16 (2016), http://www.nrel.gov/docs/fy17osti/67147.pdf [https://perma.cc/N5N4-LS7Y].

97. *See* GREEN-E , ENERGY (June 21, 2017), https://www.green-e.org/docs/Green-e%20Energy%201-pager.pdf [https://perma.cc/792S-GM67].

98. Becky Yerak, *Green Energy Claims Under Scrutiny in Chicago*, CHICAGO TRIBUNE (Mar. 9, 2016), http://www.chicagotribune.com/business/ct-renewable-energy-credits-0309-biz-20160308-story.html [https://perma .cc/Y2SK-4JHN].

99. *Id*.

100. *See* Richard Halstead, *Critics: Marin Clean Energy not so Clean and Green*, MARIN INDEPENDENT J. (July 11, 2015), http://www.marinij.com/environment-and-

EPA, the Federal Trade Commission, and the National Association of Attorneys General have all recognized the REC as the instrument through which renewable energy usage claims are substantiated."[101] Critchfield said "it's a market-based approach that is valuable to growing the market."[102]

RECs play a vital role in determining utility compliance with state renewable portfolio standard (RPS) programs. To demonstrate compliance with state mandated renewable energy goals, utilities must produce or acquire sufficient RECs and then retire the RECs in support of their targets.[103] Recall, energy generated from a renewable source is only considered renewable if the REC is still paired with the units of electricity.[104] Therefore when a utility unbundles a REC and sells the electricity to a party then the unbundled electricity is called "null power."[105] Null power should be given the environmental attributes of the adjusted grid (or system) mix (the mix of all resources in the relevant grid region including fossil fuel and nuclear power less any green energy claimed by others).[106]

The ability to unbundle RECs, combined with the need to prevent double counting of the RECs, was a major reason for the creation of regional tracking systems for generator attributes. In North America, there are multiple regional electronic generator attribute tracking systems which record the MWh production of renewable energy facilities (among other data) and log the parties who ultimately have legal title to the RECs .[107] In New England, RECs are tracked in the New England Power Pool Generation Information System (GIS). GIS is an "all generation" tracking system, meaning that it issues and tracks certificates for all MWh of generation (both renewable and non-

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nature/20150711/critics-marin-clean-energy-not-so-clean-and-green [https://perma.cc/7G87-VDRS].

101. *Id*.

102. *Id.*

103. *See* DAVID HURLBUT, NREL, STATE AND LOCAL GOVERNMENTS - RENEWABLE PORTFOLIO STANDARDS 4-6 (2015), http://www.nrel.gov/tech_deployment/state_local_governments/pdfs/43512.pdf [https://perma.cc/7G87-VDRS].

104. *See* POWERS & HADDON, *supra* note 76 at 4.

105. *See* Letter from James A. Kohm, *supra* note 21.

106. *See Green-e Glossary*, *supra* note 89.

107. *See id.*

renewable) and load in the ISO New England control area.[108] GIS issues one "Certificate" for every MWh of generation entering the system,[109] and one "Certificate Obligation" for each MWh of load in the system. RECs can be and are tracked for a wide range of characteristics. Each Certificate carries information on the fuel source, emission characteristics, labor characteristics, vintage, location, RGGI and Green-E status of the generators.[110] In New England, the attributes for null power are specifically tracked and when RECs are stripped from renewable electricity the null power is assigned the adjusted system mix, which consists of electricity generated from the residual resources unclaimed by other entities and primarily includes resources such as coal, oil, nuclear, and natural gas.[111]

V. FEDERAL AND STATE RENEWABLE ENERGY POLICY

A. Federal Policies Advancing Solar

Federal policies and programs have fueled the dramatic expansion of ground-mounted solar, rooftop solar, utility-scale solar, and community solar projects. Federal actions are concentrated in supporting research programs that decrease installation costs, the SunShot Initiative program, and providing tax credits, the Investment Tax Credit (ITC).[112]

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108. *See* NEPOOL GENERATION INFORMATION SYSTEM, http://www.nepoolgis.com (last visited Sept. 30, 2017) [https://perma.cc/9WAR-H9BZ]. RECs from sources which are never traded, such as net-metered solar, may not enter into and be tracked by the GIS system and thus the customer retains the environmental attributes.

109. *See* JENNY HEETER, NREL, REC TRACKING SYSTEMS: COSTS & VERIFICATION ISSUES 10 (2013), http://www .nrel.gov/docs/fy14osti/60640.pdf [https://perma.cc/72ES-JQB6].

110. *See* PAUL N. BELVAL, DAY PTINEY, NEPOOL GENERATION INFORMATION SYSTEM 5 (2013), http://resource-solutions.org/images/events/rem/presentations/2013/Paul%20N.%20Belval.pdf [https://perma.cc/F2KQ-M3TZ]; *See also* NEPOOL GENERATION INFORMATION SYSTEM, *supra* note 108.

111. *See* NEPOOL RESIDUAL MIX, NEPOOL GENERATION INFORMATION SYSTEM, https://www1.nepoolgis.com /myModule/rpt/myrpt.asp?r=112 (last visited Sept. 29, 2017) [https://perma.cc/F9CV-E9HM].

112. *See* Office of Energy Efficiency & Renewable Energy, *About the SunShot Initiative*, DEP'T OF ENERGY, https://energy.gov/eere/sunshot/about-sunshot-

Launched in 2011, the SunShot Initiative has funded multiple research projects seeking to reduce the hard and soft costs of installing residential solar PV panels, commercial, and utility-scale solar PV panels.[113] Since the inception of the Initiative, the cost of installing solar has dropped in residential, commercial, and industrial sectors.[114] The average cost of residential solar PV installation has fallen by more than 50%, the average cost of commercial solar PV installation has dropped by more than 60%, and the average price of a utility-scale PV project has fallen by almost 75%.[115] As costs have fallen, the rate of solar installations has increased.[116]

The federal ITC altered the landscape for renewal energy development by adding extra incentives that further reduce the installed cost of solar. The ITC allows eligible commercial and residential renewable energy project, including solar PV, to claim a 30% tax credit.[117] The ITC was renewed in December 2015[118] and will phase down to 10% for commercial and 0% for residential projects after 2021.[119] Since its introduction in 1992, the ITC has boosted the development of renewable energy.[120] The ITC has helped induce more

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initiative (last visited on Sept. 30, 2017) (detailing the dramatic drop in per watt installation costs) [https://perma.cc/FHJ4-XNYS]; TRIEU MAI ET AL., NREL, IMPACTS OF FEDERAL TAX CREDIT EXTENSIONS ON RENEWABLE DEPLOYMENT AND POWER SECTOR EMISSIONS 16 (2016), http://www.nrel.gov /docs/fy16osti/65571.pdf (describing the impact of the tax credit on the past and future development of solar generation resources) [https://perma.cc/5HLN-JD3X].

113. *See* Office of Energy Efficiency & Renewable Energy, *supra* note 112.

114. *See* Office of Energy Efficiency & Renewable Energy, *SunShot Initiative Goals*, DEP'T OF ENERGY, https: //energy.gov/eere/sunshot/sunshot-initiative-goals (last visited on Sept. 30, 2017) [https://perma.cc/9B2H-UAJA].

115. *See id*.

116. *See* Jon Weiner, *Median Installed Price of Solar in the United States Fell by 5-12% in 2015*, BERKELEY LAB (Aug. 24, 2016), http://newscenter.lbl.gov/ 2016/08/24/median-installed-price-solar-united-states-fell-5-12-2015/ [https://perma.cc/LK2D-7DDF].

117. *See Business Energy Investment Tax Credit (ITC)*, DEP'T OF ENERGY, http://energy.gov/savings/business-energy-investment-tax-credit-itc (last visited Sept. 30, 2017) [https://perma.cc/9EMQ-E7LX].

118. *See* Consolidated Appropriations Act 2016, Pub. L. No. 114-113 § 187, 129 Stat. 3074 (2015).

119. *See Business Energy Investment Tax Credit*, *supra* note 117.

120. *See* MAI ET AL., *supra* note 112.

than $400 billion dollars of investment in renewable energy projects and is expected to attract another $73 billion dollars before it winds down.[121] The ITC extension by itself is expected to produce $40 billion of investment in solar projects between 2016 and 2020.[122]

The ITC increased the demand for solar but also fueled a system dependent upon third-party investors. The ITC can represent up to half of the value of a project.[123] To claim the ITC, parties must have sufficient tax appetite[124]therefore, if a homeowner lacks the tax appetite to claim the ITC, much of the value of the project goes unclaimed. As will be discussed in Section V.B.4, this untapped value allowed third-party solar developers to expand their presence in the marketplace.

B. State Policies Advancing Solar

State incentive programs have primarily focused on retail electricity procurement mandates, solar carve-out policies, and net metering programs.

1. Renewable Portfolio Standards

A state renewable portfolio standard (RPS) is a mandate imposed on utilities to sell a specified percentage of renewable energy as part of

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121. *See Impact of tax credit extensions for wind and solar,* BLOOMBERG NEW ENERGY FINANCE (Dec. 17, 2015), https://about.bnef.com/blog/impact-of-tax-credit-extensions-for-wind-and-solar/ [https://perma.cc/4UNT-QMV6]; AMY GRACE ET AL., IMPACT OF TAX CREDIT EXTENSIONS FOR WIND AND SOLAR, BLOOMBERG NEW ENERGY FINANCE (2015) https://data.bloomberglp.com/bnef/sites/4/2015/12/2015-12-16-BNEF-US-solar-and-wind-tax-credit-impact-analysis.pdf (describing the potential scope of the renewable energy build out under the ITC) [https://perma.cc/KV3Y-9RWR].

122. *See* Mike Munsell, *Investment Tax Credit Extension Would Increase US Solar Installations 54% Through 2020*, GREENTECH MEDIA (Dec. 16, 2015), http://www.greentechmedia.com/articles/read/investment-tax-credit-extension-will-increase-solar-installations-54-throug [https://perma.cc/Z3DZ-WPBY].

123. *See* PAUL SCHWABE, NREL, TAX INCENTIVE BASED FINANCING OPTIONS FOR RENEWABLE ENERGY 4 (2016), https://energy.gov/sites/prod/files/2016/12/f34/schwabe-taxcreditfinancing.pdf [https://perma.cc/5TCR-2YK5].

124. *See* World Resources Institute, *Renewable Energy Tax Credits*, 4 THE BOTTOM LINE 1, 1 (2008), https://www.wri .org/sites/default/files/pdf/bottom_line_renewable_energy_tax_credits.pdf [https://perma.cc/97XY-Y3RD].

their total electricity sales. As of December 2016, twenty-nine states, three territories, and the District of Columbia have adopted RPSs.[125] Most state standards are measured by percentage of kilowatt hours of retail electric sales. A few states require specific amounts of renewable energy capacity or a percentage of peak demand.[126]

States also control the kind and type of resources that are eligible for inclusion in the RPS. State RPS programs can vary in the renewable energy procurement requirement, the length of time for compliance, which resources are eligible for inclusion in the program, whether existing resources or only new resources qualify, and which utilities must comply with the standard.[127] State governments determine the level of the standard and when utilities will be required to meet the standard. RPS amounts can range between 10% and 100% of retail electric sales. State-imposed schedules can set utility compliance requirements in 2020 or as far out as 2050. For example, California's RPS increased from 20% 2012 to 33% by 2020 to 50% by 2030.[128] Hawaii's RPS increased from 10% in 2010 to 100% by 2045.[129]

The composition and structure of an RPS reflect policy decisions made by state legislators.[130] Given the cost advantage of utility scale

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125. *See* Jocelyn Durkay, *State Renewable Portfolio Standards and Goals*, NAT'L CONF. OF STATE LEG. (Dec. 28, 2016), http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx [https://perma.cc/B2EP-WTLP].

126. *See id*.

127. *See id*.*; See also* ASA HOPKINS, TYPES OF RENEWABLE ENERGY CREDITS IN NEW ENGLAND: A SUMMARY, VT. PUB. SERVICE DEP'T. (2015), http://legislature.vermont.gov/assets/Documents/2016/WorkGroups/House%20Ways%20and%20Means/Bills/H.40/H.40~Asa%20Hopkins~Types%20of%20Renewable%20Energy%20Credits%20in%20New%20England~2-20-2015.pdf (describing the different types of REC classes and the amount of permitted participation in the RPS) [https://perma.cc/QCE6-9EZJ].

128. *See California – Renewables Portfolio Standard*, DSIRE (Apr. 19, 2017), http://programs.dsireusa.org/system /program/detail/840 [https://perma.cc/79TL-S77C].

129. *See Hawaii – Renewables Portfolio Standard*, DSIRE (June 10, 2015), http://programs.dsireusa.org/system /program/detail/606 [https://perma.cc/Z57N-ATNT].

130. *See* RYAN WISER ET AL., LAWRENCE BERKELEY NAT'L LAB., SUPPORTING SOLAR POWER IN RENEWABLES PORTFOLIO STANDARDS: EXPERIENCE FROM THE UNITED STATES 3-5 (2010), https://emp.lbl.gov/sites/all/files/report-lbnl-3984e.pdf [https://perma.cc/Y7HB-M36H].

wind, most utility RPS procurements could be filled with low-cost wind power. However, to encourage diversity in generation resources, many states have created mechanisms to promote acquisition of a spectrum of resources. States can carve out capacity for specific resource types such as solar or provide credit multipliers to enhance the value of the associated RECs.[131] Twenty-one states plus the District of Columbia have enacted resource-specific carve-outs for solar and distributed generation, credit multipliers, or both.[132] The inclusion of solar specific carve outs in state RPSs has facilitated the rapid increase in the rate of installations in solar generation resources.[133] In fact, in 2015, 69% of new RPS resources were solar generation facilities despite the cost advantages of wind.[134]

2. Net Metering Programs

Net metering is the most widely adopted state program to incentivize small-scale renewable energy development as the programs have become a standard component of state renewable energy programs. As of October 2016, 46 jurisdictions (forty-one states, four territories, and the District of Columbia) have state-developed mandatory net metering rules from some or all of their utilities, two states allow their utilities to net meter, and five jurisdictions (four states and one territory) had generation compensation rules other than net metering.[135] In 2016, net metering – distributed residential and non-residential generation resources – contributed more than 4,000 MW of new generation capacity; adding capacity at a record pace.[136]

Net metering permits customers to deliver energy to the grid and take energy from the grid. However, the pattern of energy production

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131. *See id.*

132. *See* GALEN BARBOSE, LAWRENCE BERKELEY NAT'L LAB., U.S. RENEWABLES PORTFOLIO STANDARDS: 2016 ANNUAL STATUS REPORT 6, 8 (2016) https://emp.lbl.gov/sites/all/files/lbnl-1005057.pdf [https://perma.cc/7XQX-QPHP].

133. *See Id*.

134. *See* BARBOSE, *supra* note 132 at 6, 8.

135. *See* Megan Cleveland & Jocelyn Durkay, *State Net Metering Policies*, NAT'L CONF. OF STATE LEG. (Nov. 3, 2016), http://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx [https://perma.cc/5H98-F57G].

136. See PEREA, *supra* note 1 at 8, 10-11.

rarely matches the pattern of energy consumption.[137] Net metering allows electric customers to balance their generation and consumption through the application of a monetary credit on their bills for the electricity they produce.[138] Monthly net metering credits are accrued at the retail rate during periods of excess generation. The net metering credits are applied to the months when consumption exceeds demand but in most programs the credits expire a year after they have been created.

As an accounting mechanism, net metering can be applied to small-scale rooftop solar arrays or larger-scale solar arrays. In many states, groups of customers can participate in a group or virtual net metering agreement. Seventeen states allow aggregated net metering where multiple bills are combined and applied against energy generated from a single array.[139] Sixteen states have virtual or group net metering policies where customers do not have to have an array physically located on their premises.[140] Instead, customers within the same utility service area can take a portion of the generation from an array located within the utility service area.[141] There are two reasons behind the explosive growth[142] in group net metering.[143] First, customers who would be excluded from net metering programs because they don't have the ability to install an array on their property can now participate.[144] Second, the larger size of installations, e.g. 500kW to 1 MW, has reduced the average participation costs thus making solar more affordable for a larger portion of the population.[145]

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137. *See Net metering for home solar panels*, ENERGY SAGE, https://www.energysage.com/solar/101/net-metering-for-home-solar-panels/ (last visited Sept. 30, 2017) [https://perma.cc/7UJK-BAZL].

138. *See* Cleveland & Durkay, *supra* note 135.

139. *See id.*

140. *See id.*

141. *See id.*

142. *See* PEREA, *supra* note 1 at 8.

143. *See* DAVID FELDMAN ET AL., NREL, SHARED SOLAR: CURRENT LANDSCAPE, MARKET POTENTIAL, AND THE IMPACT OF FEDERAL SECURITIES REGULATION vi (2015), https://www.nrel.gov/docs/fy15osti/63892.pdf [https: //perma.cc/FN84-5LPS].

144. *See id*. at 21-25.

145. *See id*. at 27.

3. RECs and Net Metering

RECs play a very important role in net metering programs and determine whether homeowners may legally make renewable energy claims. First, a net metering customer consumes renewable electricity when they keep the RECs bundled with electricity generated on their property. This customer retains the RECs and reduces their greenhouse gas emissions by not selling the RECs; a process known as retiring the RECs.[146] This customer may also legally make renewable energy claims about their solar project. Second, a net metering customer does not consume renewable energy when they transfer the RECs to a utility to meet a state's RPS.[147] This customer may not legally make renewable energy claims because those claims would result in "double counting."[148] The utility has the right to legally make renewable energy claims because it retired the RECs to meet RPS goals. The concept of double counting occurs "when more than one entity claims ownership of a REC or of the REC and its associated power."[149] Finally, a net metering customer does not consume renewable energy when they sell the RECs. Without the RECs, the customer may not legally make claims that their electricity is "renewable," "clean," or "green."[150] The customer has not reduced their personal greenhouse gas emissions, instead they are receiving the utilities adjusted system mix.[151]

4. The Growth of Third-Party Ownership of Renewables

The combination of federal and state incentives, as documented above, created an investment opportunity that has drawn significant amounts of outside capital to the solar industry. As a result, distributed

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146. *See* HEETER, *supra* note 109 at 3.

147. *See Making Environmental Claims*, ENVT'L PROTECTION AGENCY, https://19january2017snapshot.epa.gov /greenpower/making-environmental-claims_.html (last visited Sept. 30, 2017) [https://perma.cc/4GDW-GSLJ].

148. See *id.*; *See also* PETER C. FUSARO & MARION YUEN, GREEN TRADING MARKETS DEVELOPING THE SECOND WAVE 69 (1st ed. 2005).

149. K.S. CORY & B.G. SWEZEY, RENEWABLE PORTFOLIO STANDARDS IN THE STATES: BALANCING GOALS AND IMPLEMENTATION STRATEGIES 5 (2007), http://www.nrel.gov/docs/fy08osti/41409.pdf [https://perma.cc/XE8X-2XDV].

150. STATE OF VT. OFFICE OF THE ATTORNEY GENERAL *supra* note 5, at 2.

151. *See* ENVIRONMENTAL TRACKING NETWORK OF NORTH AMERICA, *supra* note 79.

solar which was once almost exclusively owned by the customer has now given way to the growth of third-party ownership.[152] In fact, third-party ownership of solar panels holds a dominant position in the United States residential solar sector. In 2014, 72% of the 1.2 GW of installed residential solar was third-party owned.[153] Third-party ownership rates can be even higher in individual states, more than 90% of residential installations in New Jersey since the middle of 2013 have been third-party owned.[154]

Third-party ownership is where outside investors own the solar panels, which supply solar energy to the customer. The two dominant third-party ownership models, leases and power purchase agreements can be structured in a variety of different ways: with little to no upfront costs, with partial down payments, or with the option to purchase the system in the future. The attractiveness of third-party ownership is two-fold: low initial cost to the customer and the ability to locate the solar panels either on the customer's property or offsite.[155]

Third-party ownership takes advantage of the considerable tax incentives available for renewable energy resources. As discussed in Section V.A., the federal government allows eligible residential and commercial renewable energy projects to claim a 30% ITC.[156] Claiming the credits requires the individual or business or developer to have sufficient tax appetite or taxable income.[157] Solar developers

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152. *See* CAROLYN DAVIDSON, NREL, THIRD PARTY SOLAR: OVERVIEW, LANDSCAPE, PROS/CONS 7 (2015), http://www.ncsl.org/Portals/1/Documents/energy/Davidson-Present.pdf [https://perma.cc/86UA-RVCF].

153. *See* Mike Munsell, *72% of US Residential Solar Installed in 2014 was Third-Party Owned*, GREENTECH MEDIA (July 29, 2015), http://www.greentechmedia.com/articles/read/72-of-us-residential-solar-installed-in-2014-was-third-party-owned [

154. *See Third-Party Solar Financing*, SEIA, https://www.seia.org/initiatives/third-party-solar-financing financing (last visited Sept. 30, 2017) [https://perma.cc/W36L-WC9A].

155. *See* DAVIDSON, *supra* note 152 (highlighting the low upfront costs); COUGHLIN, *supra* note 88.

156. *See* 26 U.S.C. § 25D (1992) (residential investment tax credit); 26 U.S.C. § 48 (1992) (commercial investment tax credit).

157. *See* KATHARINE KOLLINS ET AL., NREL, SOLAR PV PROJECT FINANCING: REGULATORY AND LEGISLATIVE CHALLENGES FOR THIRD-PARTY PPA SYSTEM OWNERS 19 (2010), http://www.nrel.gov/docs/fy10osti/46723.pdf [https://perma.cc/J6T5-S59A].

can partner with tax equity investors, individuals or companies with available tax appetite, in a financial arrangement to access the ITC.[158] Tax equity investors provide capital for solar projects and in return they are given the right to claim the ITC.[159] In this relationship, the customer enables the investor access to the ITC. These investors rely on both the interconnection rights and steady stream of revenues from solar net metering customers in order to be able to take advantage of the ITC, since otherwise they would have to negotiate a contract directly with the utility.

The combination of federal tax incentives and state solar incentive programs fueled the rapid expansion of solar in the United States, but it also diverted the marketplace away from community-owned solar projects. A reliance on tax equity investors has led to growth in third-party investment rather than community ownership.[160] As a result, significant economic value has flowed to investors instead of remaining with the solar customer. Tax equity investing increases the overall cost of capital as compared to debt financing which reduces the economic benefits available to consumers who want solar energy.[161] The growth of third party ownership has also led to bringing a new financing mechanism, securitization, to the solar industry. The U.S. mortgage market, made infamous by the sub-prime mortgage debacle, is the best-known asset backed security.[162] Securitization, a form of off-balance sheet debt financing, can be applied to the cash flows of aggregated residential solar leases.[163] SolarCity started the

158. *See* FELDMAN, *supra* note 143 at 8.

159. *See* MARK REGANTE, TAX ISSUES IN FINANCING RENEWABLE ENERGY PROJECTS, 51(2012), https://www1.eere .energy.gov/femp/pdfs/fupwg_ spring12_regante.pdf [https://perma.cc/DE9D-MHZH].

160. *See* Munsell, *supra* note 153.

161. *See* SCOTT FISHER ET AL., U.S. P'SHIP FOR RENEWABLE ENERGY FIN., TAX CREDITS, TAX EQUITY AND ALTERNATIVES TO SPUR CLEAN ENERGY FINANCING 2, http://uspref.org/wp-content/uploads/2011/09/Tax-Credits-Tax-Equity-for-Clean-Energy-Financing.pdf [https://perma.cc/U3WE-QCDG].

162. *See* FRANCIS M. O'SULLIVAN & CHARLES H. WARREN, SOLAR SECURITIZATION: AN INNOVATION IN RENEWABLE ENERGY FINANCE 12 (2016), http://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf [https://perma.cc/7NJA-JZ9J].

163. *See id*.

securitization trend in residential solar in 2013[164] and has been the most active user of securitization in the U.S. renewables market, raising a total of $635 million.[165] SolarCity has been the leader in solar securitization to date with 382 MWs of assets, including 330 MW of residential assets.[166]

Often these third-party owned solar systems strip the RECs from the energy that they provide to net metering customers and sell them separately for additional revenue. The RECs are often sold to third parties, including utilities, to help them meet their state RPS requirements. The growth of third party ownership has thus led to increased opportunities for deceptive practices. While the developer needs the utility customer to interconnect, access the federal ITC, and gain a consistent revenue source through net metering credits, the contracts for these projects often leave all the environmental attributes, including the RECS, with the owner of the system. Growing consumer complaints have been raised regarding both the financial savings and green energy claims made in regard to the provisions of these multi-year customer agreements.[167] In June of 2016, the Federal Trade Commission held a public workshop called "Something Under the Sun: Competition and Consumer Protection in Solar Energy" to explore public concern in regard to these issues.[168]

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164. *See* Rene Lavanchy, *Behind the Meter: Securitization and US Distributed Energy*, IJGLOBAL (January 26, 2016). https://ijglobal.com/articles/99167/behind-the-meter-securitisation-and-us-distributed-energy [https://perma.cc/8AYV-CWQM].

165. *See id*.

166. *See* O'SULLIVAN & WARREN, *supra* note 162 at 17.

167. *See* BARBARA ALEXANDER, SOLAR POWER ON THE ROOF AND IN THE NEIGHBORHOOD: RECOMMENDATIONS FOR CONSUMER PROTECTION POLICIES (2016), http://utilityproject.org/wp-content/uploads/2016/03/Solar-Power-Consumer-Protection-Report-March-2016.pdf [https://perma.cc/VZ95-BUGP].

168. *See Something New Under the Sun: Competition & Consumer Protection Issues in Solar Energy*, FED. TRADE COMM'N (June 21, 2016), https://www.ftc.gov/news-events/events-calendar/2016/06/something-new-under-sun-competition-consumer-protection-issues [https://perma.cc/H73B-K3RN].

VI. SOLUTIONS MOVING FORWARD

This article has identified several issues that have resulted from improper claims made as a result of the unbundling of RECs from the associated renewable electricity. First, we discussed the example of leaders in Vermont State Government creating the public perception of renewable energy leadership resulting from significant renewable energy development on the ground. We highlighted how after accounting for the unbundling and out-of-state sale of the renewable electricity, there was virtually no solar or wind energy consumed by Vermont electric customers in the utility mix. Further, we revealed that electric sector greenhouse gas emissions had risen not declined, as presumed. Next, we discussed an example of a Vermont municipal utility that sold its premium renewables to Massachusetts and Connecticut electric customers and replaced those more expensive renewables with low cost voluntary RECs. At the same time, that utility claimed to be 100% renewable while it reduced its electric rates. Finally, we introduced the growing problem created by third-party financed solar, where solar developers strip the RECs from customer's rooftop and community solar while simultaneously promoting that these customers have "gone solar" and "ditched fossil fuels" when the opposite is true.

In each of these instances, the confusion over unbundled RECs and who owns the renewable energy has created a public perception that there has been more solar and other renewable energy development than has happened in practice. In many instances, the misperception seems to be intentional to gain a political or business advantage. The misperception causes less solar development than what might otherwise be intended if the citizen and electric customer were more fully aware of the legal and policy realities. As we have previously explained, these actions have harmed the potential solar customer and resulted in unfair practices that have harmed the transparent solar developers. Since you cannot fool Mother Nature, we have developed less solar than intended and ultimately provided less climate mitigation for our environment. In this section, we offer some policy considerations to assist us in resolving the challenges presented by these deceptive practices.

A. The Need for Enforcement of Consumer Protection Laws

As demand for renewable energy increases, so are concerns over the misleading green marketing of energy products. If existing national and state-wide consumer protection laws are enforced, many of the deceptive marketing practices regarding solar development can be eliminated.

At the national level, the Federal Trade Commission (FTC) created the Guides for the Use of Environmental Marketing Claims or the "Green Guides" to address misleading environmental claims.[169] The purpose of the Green Guides is to "help marketers avoid making environmental marketing claims that are unfair or deceptive under Section 5 of the FTC Act, 15 U.S.C. § 45."[170]

The Green Guides provide guidance to marketers to help them avoid making "environmental claims that mislead consumers."[171] The guidance covers how to anticipate and prepare for consumer interpretation of claims, general principles for all environmental marketing claims, and how marketers can avoid deceiving customers by qualifying their claims.[172] Under § 260.2, a "representation, omission, or practice is deceptive if it is likely to mislead customers acting reasonably under the circumstances and is material to the consumers' decisions."[173] A reasonable basis regarding environmental marketing claims requires competent and reliable scientific data.[174] Section 260.3 requires environmental marketing claims to include clear, prominent, and understandable qualifications and disclosures; a distinction between benefits of product, package, and service; no overstatement of the environmental attribute; and clear comparative

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169. *See Green Guides*, *Environmentally Friendly Products: FTC's Green Guides*, FED. TRADE COMM'N., https://www.ftc.gov/news-events/media-resources/truth-advertising/green-guides (last visited Oct. 1, 2017). (The first Green Guides were created in 1992 and revised in 1996, 1998, and 2012) [https://perma.cc/AX78-ABQT].

170. FTC Guides for the use of Environmental Marketing Claims, 16 C.F.R. § 260.1 (2012).

171. *Green Guides, supra* note 169.

172. *See supra* note 169; See *also* 16 C.F.R. § 260.1-17 (2012).

173. FTC Guides for the use of Environmental Marketing Claims, 16 C.F.R. §260.2.

174. *See id*.

claims with substantiation.[175] Section 260.4 presents instructions for marketers to avoid deceptive claims by using "clear and prominent qualifying language that limits the claim to a specific benefit or benefits."[176] Specifically regarding renewable energy claims, the FTC's Green Guides advise that, if "a marketer generates renewable electricity but sells renewable energy certificates for all of that electricity, it would be deceptive for the marketer to represent, directly or by implication, that it uses renewable energy."[177]

Most states have consumer protection statutes enforced by the state attorneys general. For example, Vermont has Truth in Advertising laws that address deceptive marketing. Under 9 V.S.A. § 2453(a), "[u]nfair methods of competition in commerce and unfair or deceptive acts or practices in commerce are hereby declared unlawful."[178] The governing law for this statute is the FTC Act § 5(a)(1), which also governs the FTC Green Guides.[179] Under 9 V.S.A. § 2458 violations of the Act are subject to injunctive relief and civil penalties of up to $10,000 per violation.[180] The Attorney General is authorized to investigate deceptive claims by issuing subpoenas under 9 VSA §2460.[181] In 2015, the Vermont Attorney General's Office issued guidance to all solar companies doing business in Vermont clarifying the type of claims that a solar provider may make about the renewable nature of solar projects in which the RECs are retained and sold by the solar provider.[182]

While both the FTC and Vermont's Attorney General's Office have issued helpful guidelines addressing consumer protection issues arising in the renewable energy development context, further efforts are required to educate the public and increase transparency in these

175. *See id*. §260.3(a-d).
176. *id*. §260.4(c).
177. *Id*. § 260.15(d).
178. VT. STAT, ANN. tit. 9 V.S.A § 2453 (2012).
179. *See id*. §2453(b).
180. *See id*. §2458.
181. *See id*. §2460.
182. See Polhamus, *supra* note 3. The Vermont Attorney General's Office and Department of Public Service issued the guidance to all solar companies doing business in Vermont. The purpose of this guidance was to clarify the statements that a solar provider may make about the renewable nature of solar projects in which the Renewable Energy Certificates are retained and sold by the solar provider.

transactions, together with an increased focus on enforcement. From ongoing marketing, it is apparent that some solar providers continue to take advantage of consumers' poor understanding of increasingly complex contractual terms and issues surrounding renewable energy credits. This, in turn, distorts competition between solar developers. Increased transparency and enforcement will strengthen the solar industry, protect consumers, and result in additional growth in solar, which offers important benefits for the environment.[183]

B. Integrating Disclosure and Competitive Green Choice: Illinois Green Energy Marketing Disclosure

Illinois is an example of a jurisdiction seeking to address the transparency issue of green claims. In 2015, the Illinois Commerce Commission opened a rulemaking docket to amend the disclosure requirements for retail electric sellers, a docket that remains open in 2017.[184] The proposed rule will increase the disclosure requirements for alternative retail electric sellers (ARES) who offer products described as "green," "renewable," "environmentally friendly," or other similar terms.[185]

Illinois's move to increase transparency in its retail electric market followed its decision to open its retail electric market to competition. Illinois deregulated its retail electric sector in 1997 thus allowing retail sellers to start competing within traditional utility territories.[186] It was not until 2011 that retail competition arrived in the residential utility sector and alternative retail electric sellers started marketing their

183. *See* Letter from Kevin Jones, Prof. and Dir., Inst. for Energy and the Env't, Vt. Law Sch., to Derek Moore, U.S. Fed. Trade Comm'n Office of the Sec'y (Aug. 22, 2016) (on file with author).

184. *See* Ill. Commerce Comm'n, No. 0512 (2015).

185. *See* ILL. ADMIN. CODE tit. 83, § 412.190 (1997).

186. The Electric Service Customer Choice and Rate Relief Law of 1997 deregulated Illinois retail electric market by allowing alternative retail electric suppliers to deliver or furnish electric power to retail customers. *See* 220 ILL. COMP. STAT. 5/16-115 (2015); *see also The History of Electricity Deregulation in Illinois*, SPARK ENERGY (July 7, 2011, 8:12 AM) https://www.sparkenergy.com/en/blog/archive/the-history-of-electricity-deregulation-in-illinoi/ [https://perma.cc/W6X8-AM4A].

services and products to residential customers.[187] In 2014, the Illinois Commerce Commission, the body overseeing the state's retail electric market, initiated a Notice of Inquiry seeking comments on retail market issues. Of concern were the marketing practices employed by retail electric sellers.[188] Alternative electric retail sellers supply 3.3 million Illinois customers, 70% of the Illinois retail electric market[189] and 1.9 million residential customers.[190] A move to regulate their environmental claims will have a significant impact on marketplace disclosure practices.

The proposed rule will require alternative retail electric suppliers to provide additional information on their green marketing claims. At present, the use of environmental or green marketing claims by retail electric sellers is loosely regulated. The proposed rule would require the alternative retail electric sellers to substantiate their environmental claims by providing additional information on the RECs that they have acquired.

The proposed regulatory changes would also bar alternative retail electric sellers from stating or implying in marketing or promotional materials that their electric service is "green," "renewable," or "environmentally friendly" or has a lesser environmental impact if the ARES has not acquired RECS above its mandated RPS compliance amounts.[191] ARES must provide information on the amount of RECS required to satisfy the RPS, the percentage of RECs in the energy product that are above the seller's RPS requirements, and the renewable energy resource type mix used to supply customers.[192] ARES must also disclose the "percentage of electricity paired with renewable energy resources through RECS generated in the State of Illinois" that will be used to supply electricity to the customer.[193]

The proposed rule would require ARES to annually disclose the REC composition of the energy products they provide to their

187. *See* Ill. Commerce Comm'n, 14-NOI-01 (2014).

188. *See id*.

189. *See* Ill. Commerce Comm'n, No. 15-0512, at *3 (2016).

190. *See* ICC PLUG IN ILLINOIS, www.pluginillinois.org (last visited on Oct. 1, 2017) [https://perma.cc/N6WC-BBEK].

191. *See* Ill. Commerce Comm'n , *supra* note 189, at *21.

192. *See id.*

193. *See id.* at *22.

customers.[194] ARES who cannot provide this information in their marketing materials, will have to provide the information to the customer within fourteen months of enrollment.[195] Lastly, all RECS used to satisfy the claims must be procured within the same year they were retired or during the two years preceding the year in which the RECs were retired.[196]

Alternative retail electric sellers will also be required to display the required information on the Illinois Commerce Commission's website, PlugInIllinois.org. The website is a centralized repository where residential customers can compare elements of the plans offered by alternative retail electric seller plans in their utility area.[197]

The Commerce Commission's focus on transparency and disclosure would give a new set of powers to electric customers: an enhanced ability to see and change the environmental impact of their energy choices. Retail electric providers will have to be explicit in the marketing materials and maintain communication with the customers after they procure their signature. The increased transparency would add impetus to the push for additionality and away from maintaining the status quo.

C. Design Legislation to Prevent States from Creating the Perception of Double Counting

What can policymakers do when a state government's renewable energy policy appears designed to foster confusion regarding who owns the rights to claim the renewable energy? What can policymakers do when the rights appear to have been legally sold to consumers in neighboring states? One solution is to pass a state law preventing the importation of RECs from those states. The issue of double counting arose in New England when the State of Connecticut passed An Act Concerning Connecticut's Clean Energy Goals in 2014.[198] The Act prohibited any MWh from a renewable energy source that is claimed or counted by another entity toward renewable energy goals in another

194. *See id. at* *23.
195. *See id.* at *21-23.
196. *See id.* at *23.
197. *See* ICC PLUG IN ILLINOIS, *supra* note 190.
198. *See generally* 2013 Conn. Acts 2133 (Reg. Sess.).

state from counting toward the Connecticut RPS. As explained in Section IV.A, counting of the same RECs toward multiple state RPS requirements has largely been prevented by the advent of regional generator attribute tracking systems. These systems track and record who has retired a REC toward a state RPS or other green power program. The Connecticut act was passed because of concern of double counting by other states' renewable energy programs, when RECs were not required to be retired, particularly in the State of Vermont.

Connecticut's concern can be traced back to a legislative decision made in Vermont in 2005. That year, Vermont enacted the Sustainably Priced Energy for Economic Development (SPEED) program which set voluntary renewable procurement goals[199] for Vermont's utilities. Unlike other state renewable energy procurement mandates, SPEED allowed the utilities to sell the RECs from the projects that were used to meet these goals and the utilities did just that by selling wind, biomass and solar RECs in large quantities to parties to use for compliance in other state RPS programs.

Connecticut's decision had ripple effects in the utility sector and amongst the utilities acquiring RECs to meet their RPS requirements. On May 15, 2014, NextEra Energy sent a notice to REC sellers in New England referencing the Connecticut legislation and declaring that any RECs delivered to NextEra Energy Power Marketing must qualify for all RPS requirements and cannot be double counted. The letter stated, "it is a fundamental principle of all renewable energy market sales that the environmental characteristics associated with the electric energy generated cannot be counted or claimed twice." The letter concluded that the Vermont SPEED "authorizes Vermont utilities to report power purchases from qualifying renewable energy projects in Vermont while the renewable energy credits associated with the same energy are sold separately. The energy is counted toward the Vermont SPEED program as renewable energy projects, while the renewable attributes

199. The goals were not quite voluntary because a process to implement a mandatory purchase requirement would be triggered if the Vermont utilities did not meet its goals.

are separately sold as RECs."[200] This created a significant problem for Vermont utilities since Connecticut and Massachusetts RPS programs were the primary markets for the sale of Vermont RECs. It was particularly problematic for the Burlington Electric Department since Connecticut had the only regional RPS accepting biomass RECs from Vermont. BED was selling most of the RECs from a woodchip plant it owned into the Connecticut RPS and a prohibition on sales would dramatically increase local electric rates. According to press reports at the time, Vermont utilities were selling approximately $50 million per year in RECs to Massachusetts and Connecticut.[201] It was anticipated that BED would face double digit increases in rates and other utilities faced lower but substantial increases if this practice was prevented by the Connecticut law.[202]

As a result of the potential economic impact on Vermont utilities, the Vermont Department of Public Service (VT DPS) argued to the Connecticut Public Utilities Regulatory Authority (CT PURA) that "[a]ccording to the plain language of the Vermont statutes, there is no regulatory requirement associated with SPEED or the total renewables targets until 2017.[203] The VT DPS argued the unusual public policy position that Vermont had no statewide renewable energy goals in effect under SPEED. In a supporting argument, the VT DPS noted that "an act relating to establishing a renewable energy standard and energy transformation program" and that this bill would establish specific renewable energy standards, starting January 1, 2017, that would be met through retirement of RECs, thereby creating a regulatory

200. Email from Lawrence Silverstein, Vice President and Managing Dir., NextEra Energy Power Mkgt., LLC, to NEPOOL REC Sellers (May 15, 2014) (on file with author).

201. *See* John Herrick, *Vermont Utilities Could Lose Millions of Dollars in Energy Credits*, VTDIGGER (Oct. 20, 2014), https://vtdigger.org/2014/10/20/legislature-expected-set-renewable-energy-standards/ [https://perma.cc/E33H-EFVQ]; *see also* John Herrick, *Connecticut Rules in Favor of Vermont Renewable Energy Credits*, VTDIGGER (Mar. 11, 2015), https://vtdigger.org/2015/03/11/connecticut-rules-in-favor-of-vermont-renewable-energy-credits/ [https://perma.cc/4KJ5-UUKJ].

202. *See id.*

203. The yearly SPEED goals ended in 2012 and did not specify another goal until 2017, i.e. when Vermont utilities were to procure 20% of their electricity from SPEED resources.

structure substantially similar to RPS programs in other states.[204] The Vermont legislature would cure the problem of the double claims on the electricity prior to the next SPEED goal being in effect. On March 11, 2015, CT PURA issued a declaratory order agreeing with the VT DPS that that the absence of current year goals did not present a conflict with the Connecticut RPS, but it reserved judgment on the 2017 goal.[205]

Subsequently, in 2015, Vermont passed legislation that ended the double counting controversy while simultaneously creating new challenges for renewable energy transparency. The Vermont legislature enacted Act 56, which replaced the SPEED goals with a new renewable energy standard that set a goal of 55% renewable energy in 2017 and increasing to 75% in 2032.[206] This shift addressed the concerns raised by Connecticut; however, it opened an alternative compliance pathway that has been portrayed as either a clever or deceptive practice. The Vermont Renewable Energy Standard defined qualified renewable energy much more broadly than other New England states, allowing utilities to practice REC arbitrage as discussed in Section II.A. Act 56 allowed much older vintage renewable resources to qualify for the Vermont renewable energy standard than was permitted in the other New England States that participate in the GIS.[207] Moreover, Vermont also became the first New England State to allow its utilities to count RECs from large scale hydro, such as that from Hydro Quebec, toward their compliance obligations.[208] As a result, while RECs eligible for other states' RPS

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204. Letter from Ed McNamara, Vt. Dep't of Pub. Serv. to Ct. Pub. Util. Reg. Authority (Feb. 2, 2015) (on file with author).

205. Declaratory Ruling, CONN. GEN. STAT. § 16-1(a)(20) (2012), *amended by* PA 13-303, No. 15-01-03, 5 (Mar. 11, 2015).

206. *See* 2015 Vt. Acts & Resolves 13-14 (requiring utilities to procure 10% of their energy requirements from new distributed in-state renewables by 2032 with a maximum project size of 5 MW).

207. The broad definition of Tier I RECS covers hydroelectric resources, landfill gas, biodigesters plus traditional resources like wind and solar. Additionally, the Vermont RES Tier I does not have a time period limitation allowing for older hydroelectric resources to be utilized to demonstrate compliance. *See* Order Re: BED Motion to Alter or Amend, No. 8550, at *17-18 (Vt. Pub. Serv. Bd.) (Oct. 27, 2016).

208. *See id*. (Order allowed utilities to include energy procured from Hydro-Quebec provided that the utility filed annual compliance documentation

programs were trading in the range of $20/MWhr to $60/MWhr in recent years,[209] Act 56 only set a penalty for noncompliance of $0.01/KWhr01K for its total renewable energy requirement.[210] Premium renewables in Vermont, including wind, solar projects of at least 5 MW, and biomass, would continue to be sold into the Massachusetts and Connecticut RPS programs. Existing RECs for old or large hydro and other resources that did not count toward the other New England States programs would be purchased at a substantial discount to meet Vermont's RES Tier 1 goal of 45% in 2017.[211] Given the difference in structure of Vermont's Renewable Energy Standard compared to all its northeastern neighbors, serious questions remain unanswered as to whether this was renewable energy leadership or perhaps just a clever means for creating false perceptions while avoiding the higher ratepayer cost of true climate policy leadership.

D. Many Leading Corporations Are Setting the Standard for the Clean Energy Transition and Transparent Greenhouse Gas Reductions

Electric utilities are not the only businesses that must be transparent about their renewable energy claims. All companies seeking to market their products or services as made with renewable energy also must comply with the standards in the FTC's Green Guides.[212] According to the FTC's Green Guides, "it is deceptive to make an unqualified 'made with renewable energy' claim unless all, or virtually all, of the significant manufacturing processes involved in making the product or package are powered with renewable energy or non-renewable energy

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demonstrating that it had purchased the environmental attributes, the environmental attributes are eligible for the RES, and that the environmental attributes have not been claimed in any other jurisdiction). *See id.*

209. *See* PUB. SERV. DEP'T., TYPES OF RENEWABLE ENERGY CREDITS IN NEW ENGLAND: A SUMMARY 1-2 (2015) (showing the range of REC prices paid in 2015).

210. *See* 2015 Vt. Acts & Resolves, *supra* note 206, at 23.

211. VT. STAT. ANN. tit. 30, § 8005(a) (2015) (The RES is structured to require contribution from three different Tiers. *See id.* The total renewable energy requirement (Tier I) is 55%. *See id.* at § 8005(a)(1)(B). Tier II requires 10% of the total renewable energy requirement to come from distributed renewable generation. *Id*. at § 8005(a)(2)(c). Thus, subtracting Tier II from Tier 1 produces a 45% Tier I RES goal.).

212. *See* 16 C.F.R. § 260.1(c) (2016).

matched by renewable energy certificates. When this is not the case, marketers should clearly and prominently specify the percentage of renewable energy that powered the significant manufacturing processes involved in making the product or package."[213] Businesses must therefore be careful about claims that they make from renewable energy products that they purchase from others. For example, a general store that purchases a share of a project marketed as community solar, should not make renewable energy claims when the marketer only sells the net metering credits to the store and sells the RECs to another party. The general store itself would likely be in violation of state and federal law if it promoted that it was using renewable energy. Furthermore, businesses should be transparent about the specific renewable energy claims that they make. For example, a general store in the Northeastern United States that was purchasing a renewable energy product consisting of Texas wind RECs should not imply that it is using "local" renewable energy or that the source is some other renewable fuel such as solar energy.

RECs have historically been the primary means for C&I buyers to procure green energy. Given the complicated regulatory rules and physics of the electric system, it has been difficult for companies to source renewable energy directly from the generator. Instead, many companies seeking to procure green power continue to buy their electricity directly from their utility and separately purchase RECs for the ownership rights or ability to make environmental claims.[214]

The historical pattern is changing and companies are taking an active role in managing the source of their energy. While RECs remain the only way that a buyer can legally claim that they are using green or renewable energy, the purchase of RECs alone has often not been sufficient for leading commercial, industrial and institutional (C&I) customers who want to transition to carbon neutrality. Many C&I customers today also strive to achieve "additionality" when acquiring renewable energy. C&I buyers pursuing green power purchases for several reasons including attractive economics, commitments to carbon neutrality, and additionality.[215]

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213. *Id*. § 260.15(c).
214. *See* POWERS & HADDON, *supra* note 76 at 4.
215. *See id.*

C&I interest in renewable energy has been fueled by the rapid expansion of purchase power agreements. A purchase power agreement (PPA) is a long-term agreement to purchase the electricity and renewable energy credits produced by a specific generation resource or system.[216] Historically, PPAs were more of a tool for utilities to secure the long-term purchase of a power generating resource. Today, PPAs have become important to C&I customers to demonstrate additionality of clean energy resources. PPAs allow C&I customers to demonstrate that they have supported the development of renewable resources that would not have been developed but for the action of the C&I customer who helped finance the development of the clean energy resource.[217] The RECs must be bundled with their electricity purchase in order for C&I customers to promote additionality and legally make green claims about their electricity purchases.

C&I buyers are becoming a major force in renewable energy procurement and are using their power to influence development of additional resources. In 2014, 52% of the new wind power in the United States resulted from nonutility customers (mostly corporations) clean power purchases.[218] According to Jacob Susman, Vice President and head of origination at EDF Renewable Energy, "for the first time ever, non-utility buyers emerged as the leader over utility buyers when it comes to the new windfarms that were contracted" in 2014.[219] Prior to 2014, no single year had produced as much as 1,000 MW of C&I PPAs.[220] In 2015, 3,420 MW of PPA deals were completed with 2016 producing even higher amounts of signed contracts.[221]

In recent years, these leading corporations have set the gold standard in renewable energy procurement and today's top renewable energy

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216. *See* KARLYNN CORY ET AL., PURCHASE POWER AGREEMENT CHECKLIST FOR STATE AND LOCAL GOVERNMENTS 1 (Nat'l Renewable Energy Lab. ed., 2009).

217. *See* POWERS & HADDON, *supra* note 76 at 5,7.

218. *See id.* at 3.

219. David Labrador, *U.S. Wind Power Demand: Corporations Take the Lead*, ROCKY MOUNTAIN INSTITUTE (Feb. 22, 2016), https://rmi.org/news/blog_2016_02_22_us_wind_power_demand_corporations_take_the_lead/.

220. *See* POWERS & HADDON, *supra* note 76, at 5.

221. *Solar Market Insight Report 2016 Q4*, SEIA (DEC. 6, 2016), http://www.seia.org/research-resources/solar-market-insight-report-2016-q4.

leaders "reads like a directory of corporate America."[222] In 2016, the Renewable Energy Buyers Alliance was formed by Business for Social Responsibility, Rocky Mountain Institute, World Resources Institute and the World Wildlife Fund.[223] The organization's goal is to drive 60 GW of new corporate renewable energy in the United States by 2025. The group announced that more than sixty companies are involved in the group's initiatives.[224] Eighty-eight leading companies have now joined RE100, which encouraged its members "to set a public goal to procure 100% of their electricity from renewable sources of energy by a specified year."[225] RE100's members include such diverse companies as Apple, Bloomberg, Coca Cola Enterprises, Facebook, General Motors, Google, Microsoft, Pearson, Proctor and Gamble, Starbucks, Walmart, Wells Fargo and many others.[226]

Google has embraced renewable energy with a passion that almost requires a leadership category of its own. By 2017, Google has pledged to purchase enough renewable energy to match 100% of its operations.[227] By early 2016, Google had announced 842 MW of new renewable energy purchases in the United States, Sweden, and Chile boosting its overall purchases to more than 2 GW of renewable capacity.[228] When purchasing renewable energy, Google strives to meet specific criteria, including proximity and additionality so that their efforts result in new renewable energy projects, and bundled physical energy and its renewable certification (RECs in the United

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222. Klump, *supra* note 80.

223. RENEWABLE ENERGY BUYERS ALLIANCE, http://rebuyers.org/ (last visited Mar. 20, 2017).

224. Jennifer Delony, *Nonprofits Create Alliance to Drive Corporate Renewable Energy Purchases*, RENEWABLE ENERGY WORLD (May 12, 2016), http://www.renewableenergyworld.com/articles/2016/05/nonprofits-create-alliance-to-drive-corporate-renewable-energy-purchases.html [https://perma.cc/93FA-U42M].

225. *Going 100%*, RE 100, http://re100.org/.

226. *Companies*, RE 100, http://re100.org.

227. ACHIEVING OUR 100% RENEWABLE ENERGY PURCHASING GOAL AND GOING BEYOND 1 (Google ed., 2016).

228. *See* Gary Demasi, *Understanding Our Goal: What it Means to Reach 100% Renewable Energy Purchasing*, GOOGLE GREEN BLOG (Feb. 8, 2016), http://googlegreenblog.blogspot.com/2016/02/google-green-blog-what-it-means-to-be_8.html.

States or GOOs, Guarantee of Origin in the EU).[229] While Google, with its global leadership, could arguably pause and bask in the climate leadership limelight, Google's plan is to "work to achieve the much more challenging long-term goal of powering our operations on a region-specific, 24-7 basis with clean, zero-carbon energy."[230]

VII. CONCLUSION: REC POLICIES AND MOVING FORWARD ON OUR CLIMATE GOALS

Global energy consumption plays a primary role in our climate challenge and in addition to energy efficiency, renewable energy purchases are a valuable tool for mitigating the effects of our energy use. Unfortunately, across the United States, the growing practice of stripping RECs from renewable energy projects and the lack of clear regulatory enforcement has already created a situation where customers should inquire about who owns their solar electricity.

RECs are a useful tool in ensuring both a vibrant market for renewable energy and in preventing double counting of renewable energy claims. RECs provide a means for accurate accounting of who can legally make a renewable energy claim but the integrity of the renewable energy marketplace can only be assured if there is meaningful enforcement by both state and federal regulators of consumer protection laws. When utilities, solar developers, governors, or the media make incorrect statements about green energy claims, they communicate misleading information about our progress in mitigating climate change.

In the United States, currently enacted commitments for renewable energy are insufficient to meet our global climate goals, particularly when we consider the need to electrify additional sectors of the economy such as transportation.[231] When a state like Vermont, sets an aggressive policy goal but then enacts laws counter to that goal we create false hope about climate progress. Similarly, when a solar

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229. *See id*.

230. ACHIEVING OUR 100% RENEWABLE ENERGY PURCHASING GOAL AND GOING BEYOND, *supra* note 227, at 1.

231. *See* Jeffrey B. Greenblatt & Max Wei, *Assessment of the climate commitments and additional mitigation policies of the United States*, 6 NATURE CLIMATE CHANGE 1090 (2016).

company markets to its potential customers that they can "go solar" and support a cleaner environment, but sells their RECs to another third party, there is less solar on the system than what is demanded by the customer.

Fortunately, in the United States, corporate leaders such as Google and other members of the RE100 have begun to demonstrate the kind of climate leadership necessary to meet our environmental challenges as commercial renewable energy purchasing is at an all-time high. The criteria that Google and these other companies include are instructive for our future standards. Additionality is a standard that we should strive for to ensure that our efforts are resulting in the development of new renewable energy not just financial arbitrage. Importantly, when marketers or alternatively the commercial buyers make green claims without having title to sufficient renewable energy credits to back up those claims the appropriate regulatory authority must act swiftly to end this harmful behavior. For better or worse, history has proven that we can only fool the customer for so long and that Mother Nature operates in the realm of science not perception.