HOW TEXAS OVERCAME CALIFORNIA AS A RENEWABLE STATE: A LOOK AT THE TEXAN RENEWABLE ENERGY SUCCESS

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INTRODUCTION

The United States relies heavily on the use of fossil fuels to supply electricity to the people within the country, with eighty-four percent of

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energy produced in 2008 coming from this source.[1] The United States has a long history with fossil fuels; "[s]ince 1885, the United States has primarily relied upon fossil fuels (coal, petroleum, and natural gas) as energy sources for generating electricity, powering our country through an industrial revolution, multiple wars, and the 1990s technology boom."[2] Though the country, like all other countries, has relied on fossil fuels in the past, this trend will need to change in order for the U.S. to sustainably grow into the future.

The burning of fossil fuels has increasingly become a point of debate within the U.S. and globally as the negative environmental impacts of this process are analyzed[3] and as countries are pushing for a reduction in greenhouse gas emissions. "In 2008, 85.1% of all U.S. greenhouse gas emissions were carbon dioxide emissions. Of this 85.1%, 80% of America's carbon dioxide emissions (weighted for global warming potential) were from fossil fuel combustion."[4] This carbon dioxide emitted from fossil fuel-burning power plants has caused an increase in the acidity of our oceans due to the ocean waters absorbing approximately fifty percent of the carbon dioxide released from these plants.[5] This increased acidity, has harmed fisheries and coral reefs, causing not only defects in these animals but also dead zones within the oceans.[6] In addition to increasing the acidity of the oceans, fossil fuel combustion has caused chemical bioaccumulation in the fish population, which can ultimately harm humans due to this fish consumption.[7]

With the negative impacts of fossil fuels being increasingly proven, there has been a push to generate energy in a more environmentally friendly manner, primarily through the use of carbon neutral energy sources.[8]

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1. Joshua J. Houser, *Supplying the Light at the End of the Tunnel: Using State-Level Experience to Develop Federal-Level Renewable Energy Policy*, 19 SE. ENVTL. L.J. 153, 154 (2010). In 2005, classic renewable sources, like biomass, solar, wind, and geothermal, only accounted for 1.5% of net electricity generation within the United States, with the remaining energy coming from coal, natural gas, petroleum, hydroelectric, and nuclear power. Robin J. Lunt, *Recharging U.S. Energy Policy: Advocating for a National Renewable Portfolio Standard*, 25 UCLA J. ENVTL. L. & POL'Y 371, 376 (2007).

2. Houser, *supra* note 1, at 154.

3. "Climate change has been described as 'perhaps one of the most daunting of the global threats currently facing mankind.'" Lunt, *supra* note 1, at 374.

4. Hannah Wiseman et al., *Formulating a Law of Sustainable Energy: The Renewables Component*, 28 PACE ENVTL. L. REV. 827, 841, n.63 (2011).

5. Houser, *supra* note 1, at 160–61.

6. *Id.* at 161.

7. *Id.*

8. Houser, *supra* note 1, at 161 ("[R]enewable energy sources, other than biomass and 'open-loop' geothermal systems, produce no emissions."). Scientists fear that atmospheric carbon dioxide levels will increase to above 700 ppm by 2100 (currently atmospheric carbon levels are at 380 ppm), which will increase the temperature by at least eight degrees Fahrenheit. Nicholas G. Morrow,

Renewable energy sources can be the best option for a sustainable, carbon neutral source of energy. Renewable energy, by emitting little to no emissions:

> do[es] not contribute to the multitude of health problems associated with fossil fuel emissions. By not contributing to disease, renewable energy lowers 'health treatment costs [and] health insurance rates' and increases productivity by decreasing the number of sick days taken by American workers."[9]

Additionally, renewable energy sources do not diminish with use, making them a more stable source for our electricity supply.[10] These sources are also not subject to foreign manipulation or embargo in the same way oil and gas are because they are domestically produced.[11] Unlike non-renewable sources, which are diminished through use and ultimately not sustainable for future generations, renewable sources, barring natural changes, will continue providing future generations the ability to meet their own needs.[12] The push for renewable energy is becoming global. For example, the European Union, Australia, and more than twenty-six U.S. states have implemented laws similar to renewable portfolio standards in order to reduce their reliance on fossil fuels and decrease greenhouse gas emissions and pollution, hopefully adding to the quality of life of their citizens.[13]

Within the United States, both Texas and California have pushed for renewable energy use within their borders. When many people think about the greenest state in the nation, Texas generally does not make the top of the list. Texas is known for big oil and gas, excessive carbon dioxide emissions (being one of the world's worst carbon polluters), and is generally thought of as a state that is not environmentally friendly; Texas holds the title of being both the leader in carbon emissions as well as energy consumption.[14] Texas is responsible for approximately eleven percent of the total carbon dioxide emissions within the United States. If Texas were a

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Federal Regulation of Greenhouse Gas Emissions A Practical Certainty: How Will the Texas Energy Industry Survive—Maybe Thrive?, 17 TEX. WESLEYAN L. REV. 237, 239 (2011).

9. Houser, *supra* note 1, at 162–63.

10. Lunt, *supra* note 1, at 378.

11. *Id.*

12. Wiseman et al., *supra* note 4, at 834–36. "Each short ton of coal, 3.44 barrels of oil, or 19,428 cubic feet of natural gas burned represents one less unit of energy available to future generations." *Id.* at 836–37.

13. Lunt, *supra* note 1, at 371.

14. Morrow, *supra* note 8, at 247.

country it would rank as the world's eighth largest carbon dioxide emitter, falling between the United Kingdom and Canada.[15] In contrast to Texas, California is known for being filled with green-loving, recycling, granola-eating, planet-huggers.[16] Additionally, the state of California has a history of leading the nation in nontraditional energy approaches.[17] What is surprising is that Texas is beating California in the renewable energy arena. Therefore, the assumptions people make about these two states will soon need to change, as Texas is becoming a leader in renewable energy, being the nation's leading wind energy producer,[18] meanwhile, California consistently fails to meet its renewable portfolio standard (RPS) goals, adding very little new renewable capacity.[19]

This paper will look at why Texas, and not California, has been so successful in achieving their renewable portfolio standards, even though people traditionally associate California with renewable energy success. Part I will look at the background and rationales for a state RPS. Additionally, Part I will analyze the RPS policies in both California and Texas. Part II will look at the success Texas has had, primarily in wind energy. It will examine how Texas, traditionally thought of as a fossil fuel state, has been able to exceed its RPS standards.[20] This section will focus on the main reasons for the success in Texas: the state's use of a single administrator of the program; the use of Competitive Renewable Energy Zones that allowed for success in transmission; and the strong punishment system in place for non-compliance coupled with the credit trading system provides compliance incentives. Finally, Part III will focus on what California can learn from the RPS system in Texas. This section recommends ways the state can improve their RPS program, primarily through reducing transaction costs associated with multi-agency involvement, the need for a stronger enforcement mechanism to reduce the

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15. *Id.* at 247–48.

16. Houser, *supra* note 1, at 163 (California has been deemed by many as being "possibly the most progressive state in terms of environmental policy-making, [having] employed various incentives and mandates to facilitate renewable energy development.").

17. Kevin S. Golden, *Senate Bill 1078: The Renewable Portfolio Standard—California Asserts its Renewable Energy Leadership*, 30 ECOLOGY L. Q. 693, 697 (2003).

18. Morrow, *supra* note 8, at 257. Texas is not only the nation's leader in wind power capacity, but is also a global leader. Few countries, including the United States, have a higher cumulative wind power capacity than Texas. Kathryn B. Daniel, *Winds of Change: Competitive Renewable Energy Zones and the Emerging Regulatory Structure of Texas Wind Energy*, 42 TEX. TECH. L. REV. 157, 159 (2009).

19. Deborah Behles, *Why California Failed to Meet Its RPS Target*, 17 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163, 165 (2011). In 2006, Texas exceeded the installed wind capacity of California. Daniel, *supra* note 18, at 159.

20. Morrow, *supra* note 8, at 259 (In Texas, wind energy generation has allowed the State to surpass its renewable energy goals as they are outlined in the State's RPS.).

ability of delaying compliance, and preventing unviable projects from being favored while also solving the transmission problem within the state. Overall, this paper will conclude that California has a lot to work on if it wants to have a successful RPS and be a renewable competitor in the national market.

I. RENEWABLE PORTFOLIO STANDARDS (RPS)

Renewable portfolio standards are a way for states and countries to diversify their electricity portfolio. By acquiring some of their electricity from sources other than fossil fuels a state or country may become more self-sufficient and less energy reliant on depleting non-renewable resources. Many states, including Texas and California have realized the impacts of climate change and the U.S. reliance on foreign oil and have begun developing and implementing plans to curb consumption of fossil fuels and switch to more renewable energy sources like solar and wind which do not diminish with use and can be somewhat stable and reliable over the long-term. [21] States with renewable standards are concerned with the environmental impacts of fossil fuel use. These concerns include the air pollution produced by fuel-burning power plants, which negatively affect human health, increase greenhouse gas concentrations, and form smog due to chemical reactions in the air.[22] Texas and California are part of a growing trend of states adopting RPS in order to diversify their electric generation schemes in order to rely less heavily on non-renewable energy sources like natural gas and coal.[23]

At the most basic level, an RPS is a statement by the state (or country) mandating that utilities acquire a certain percentage of the state's energy production through less-polluting, renewable, resources.[24] "A RPS 'requires electricity retailers to provide a minimum percentage of quantity [or fixed amount] of their electricity supplies from [qualifying] renewable energy sources.'"[25] A state's RPS is designed to carve out a piece of the market for renewable energy, allowing it to enter the mainstream by removing market

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21. Behles, *supra* note 19, at 164 (Many efforts to reduce carbon dioxide emissions have been focused on the electric industry, which is responsible for forty percent of the carbon dioxide emissions within the United States.); Houser, *supra* note 1, at 160 (Renewable energy generally refers to energy, which is produced by a resource that is naturally replaced.).

22. Houser, *supra* note 1, at 160.

23. Behles, *supra* note 19, at 164.

24. *Id.* ("[T]he majority of states have now enacted a 'renewable portfolio standard' ("RPS"), which mandates electric utilities to obtain a percentage of their power from renewable sources.").

25. Houser, *supra* note 1, at 154. Other definitions of renewable portfolio standards consist of "government regulations that 'require that a certain percentage of a utility's overall or new generating capacity or energy sales must be derived from renewable resources.'" Lunt, *supra* note 1, at 381.

barriers, while also creating a cost-effective and efficient method for introducing this energy type into the market.[26]

RPSs differ in each jurisdiction; however, there are some consistencies. Each RPS must specify what percentage or amount of electricity must be generated from qualifying renewable sources, as well as a specific time frame for compliance. Most states have opted for a standard that gradually increases over time through small increments to ultimately arrive at a final goal by a designated year.[27] Additionally, each state can have different qualifying facilities that will meet their RPS requirements, though generally renewable energy sources include wind, solar, geothermal, hydropower, and biomass.[28] An RPS must also identify who must meet the obligation and if the standard allows for a renewable energy credit trading system in order to help utilities meet their obligations.[29] At a minimum, an RPS must be accompanied by renewable energy certificates in order to help verify and track compliance.[30] Overall, a successful RPS ensures that renewable targets will be met in a way that is least costly both in terms of actual costs and administrative costs.[31] Though the U.S. federal government has not adopted a national RPS, the push for renewable energy is not only occurring on the state level but is also occurring on the federal level as seen through the federal government's promotion of the development of renewable energy sources through the American Recovery and Reinvestment Act of 2009. The American Recovery and Reinvestment Act of 2009 extended the pre-existing tax credits for renewable energy production and is often utilized by developers in many states, including Texas and California.[32]

A. California RPS Goals

California, like some other states, adopted RPS standards not only to promote a renewable energy industry, but also to stabilize the state's energy

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26. Golden, *supra* note 17, at 700.

27. Lunt, *supra* note 1, at 381.

28. Houser, *supra* note 1, at 160.

29. Lunt, *supra* note 1, at 382. "RPSs vary in the details, but they generally include a renewable energy credit (REC) trading program that allows electric utilities to choose the most efficient way to meet the PRS requirement—by generating electricity from renewable sources, purchasing renewable energy on the wholesale market, or by purchasing RECs separate from the associated electricity." Lunt, *supra* note 1, at 382–83.

30. Ole Langniss & Ryan Wiser, *The Renewables Portfolio Standard in Texas: An Early Assessment*, 31 ENERGY POL'Y 527, 527 (2003).

31. *Id.*

32. Houser, *supra* note 1, at 155. The American Recovery and Reinvestment Act also provides funding for transmission development and renewable energy projects. *Id.*

market.[33] California has a long history of promoting renewable energy development, adding the requirement to the State's Public Utilities Code in 1991, requiring that environmental values be incorporated into all regulated utilities' energy procurement processes and requiring a portion of the state's energy to come from renewable sources.[34] In 1996, the state went further, creating the Renewable Energy Fund and setting aside 540 million dollars in order to provide incentives and subsidies for renewable energy providers, producers, and purchasers.[35] California then adopted a very aggressive RPS standard, which it strengthened in 2008, showing the state's commitment to renewable energy.[36] Under the California system, the state allows electric retailers to satisfy their RPS obligations through use of renewable resources, including small hydro, wind, biomass, and solar facilities.[37] The state, in its RPS, has prioritized renewable energy as well as energy efficiency over the generation of fossil fuels stating that the goals of the RPS "includ[e] promoting stable electricity prices, protection of public health, improvement of environmental quality, stimulation of sustainable economic development, creation of new employment opportunities, and reduced reliance on imported fuels."[38]

Originally, the California RPS aimed for a minimum of twenty percent of its energy to come from designated renewable sources by 2017 by requiring a two percent increase every year until 2017.[39] In order for this goal to be met, each electricity provider was required to show that they individually provided twenty percent of their energy from renewable sources, making the standard a utility-based standard.[40] California expanded its RPS with Senate Bill No. 2X, which was signed into law on April 12, 2011, increasing the California RPS to thirty-three percent of retail electricity sales by 2020.[41] Though California has an ambitious RPS, the state has not been able to meet its standards, showing that a poorly designed RPS policy will not increase renewable energy generation.[42] In addition to

33. Golden, *supra* note 17, at 693 (California saw an electric market failure during the state's electricity crisis in 2000–2001.).

34. *Id*. at 697.

35. *Id*. at 697–98.

36. Behles, *supra* note 19, at 169–70.

37. CAL. PUB. UTIL. CODE § 399.12 (West 2010); CAL. PUB. RES. CODE § 25741 (West 2011) (In California, renewable resources include "biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current.").

38. Behles, *supra* note 19, at 170.

39. Golden, *supra* note 17, at 703.

40. Lunt, *supra* note 1, at 381.

41. *The Desert Renewable Energy Conservation Plan: What is DRECP?* CALIFORNIA ENERGY COMMISSION, (Jan. 11, 2012), http://www.drecp.org/about/index.html.

42. Langniss & Wiser, *supra* note 30, at 528; *see also* Behles, *supra* note 19, at 165.

the RPS, Executive Order # S-14-08 has helped California develop the Desert Renewable Energy Conservation Plan to promote solar energy production; the state views solar power as the future of renewables.[43] This plan is expected to "provide binding, long-term endangered species permit assurance while facilitating the review and approval of renewable energy projects in the Mohave and Colorado deserts" within the state.[44]

In addition to providing percentage standards to be acquired via renewable energy, California RPS includes several incentives for renewable development. One such incentive is the feed-in tariff which "are payments made by utilities to facilities that own and operate their own renewable energy facilities on-site."[45] This program has spurred the creation of new renewable energy capacity.[46] Additionally, the state is trying to encourage commercial and residential development of solar power through the California Solar Initiative, which provides subsidies for solar installation.[47] This initiative resulted in an additional twenty-five megawatts of solar power to come online in 2009. The state has also budgeted fifty million dollars for research and development in solar power.[48] California has also established the Multifamily Affordable Solar Housing program, which offers up-front rebates for customers installing solar energy.[49] Though California has many initiatives to help them meet the State's RPS standard, the State continues to fail to meet their goals, causing the state to continue to fall behind other states in developing renewable energy.[50]

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43. *The Desert Renewable Energy Conservation Plan*, *supra* note 41.

44. *Id*.

45. Houser, *supra* note 1, at 165.

46. *Id*. (The expansion of the use of feed-in tariffs to all RPS-qualified renewable energy sources has been linked to parties contracting for thirty-one future projects, totaling a combined capacity of 34.67 megawatts.).

47. *Id*.; Ca. Pub. Utilities Comm'n, *About the California Solar Initiative*, CA.GOV, http://www.cpuc.ca.gov/puc/energy/solar/aboutsolar.htm (last modified Dec. 22, 2011) ("The CSI Program has a budget of $2.167 billion over 10 years, and the goal is to reach 1,940 MW of installed solar capacity by the end of 2016.").

48. Houser, *supra* note 1, at 166; *About the California Solar Initiative*, *supra* note 47.

49. Energy Bar Association, *Committee Report: Report of the State Commission Practice & Regulation Committee*, 30 ENERGY L. J. 765, 818–19 (2009) (The State has allocated 108 million dollars for this program.).

50. Langniss & Wiser, *supra* note 30, at 528; *see also* Behles, *supra* note 19, at 165.

B. Texas RPS Goals

Surprisingly, given the common stereotypes of the two states, Texas actually adopted its RPS standards in 1999, before California.[51] Unlike California's RPS, which looks to a set retail percentage for the state, the Texas RPS requires a set capacity contribution designated by a number of megawatt capacity coming from renewables.[52] "Texas' RPS originally required '400 megawatts (MW) of new renewable capacity by 2003 and increase capacity every two years after that to 2,000 MW by 2009.'"[53] The Texas Legislature, in 2005, increased the standard to 5,880 MW by 2015 and 10,000 MW by 2025.[54] These goals represent one of the most aggressive policy standards within the United States.[55] Though the state has ultimate megawatt goals (instead of a percentage of energy produced), the state requires each individual retail provider to obtain a percentage of their electricity from renewable sources (like the California requirement).[56] Within the state, electricity retailers servicing the market must present a specified number of renewable energy credits (RECs) annually to the state regulating authority to show compliance with their quota.[57] In Texas, renewable sources include wave/tidal, solar, geothermal, wind, hydroelectric, and biomass.[58]

Texas has been successful with its RPS goals, exceeding them through the use of wind energy production becoming the nation's leader in wind power.[59] Texas has realized that wind is a permanent renewable resource that can generate a great deal of electricity in a relatively low cost manner.[60] Wind is also a good source of renewable power within the state because there are parts of Texas that receive consistent, relatively high velocity wind year around, providing for the ability to have large wind farms

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51. Golden, *supra* note 17, at 701; Daniel, *supra* note 18, at 161.

52. *See* Brent Stahl et al., *Wind Energy Laws and Incentives: A Survey of Selected State Rules*, 49 WASHBURN L.J. 99, 138 (2009) (California RPS looks to a percentage whereas Texas RPS looks to a specific megawatt requirement.).

53. Houser, *supra* note 1, at 168. Langniss & Wiser, *supra* note 30, at 528 (880 MW of renewable energy represents approximately three percent of total electricity consumption within the state of Texas.).

54. Stahl et al., *supra* note 52, at 138.

55. Langniss & Wiser, *supra* note 30, at 528.

56. Lunt, *supra* note 1, at 387.

57. Langniss & Wiser, *supra* note 30, at 528.

58. Lunt, *supra* note 1, at 388.

59. Houser, *supra* note 1, at 168. (Though Texas has been successful meeting its RPS goals, "almost half of all newly developed wind power has been wasted due to inadequate transmission capacity." However, this waste has been addressed through the creation of competitive renewable energy zones). Golden, *supra* note 17, at 701.

60. David J. Hurlbut, *Multistate Decision Making for Renewable Energy and Transmission: An Overview*, 81 U. COLO. L. REV. 677, 681 (2010).

running in a relatively consistent manner and able to take advantage of economies of scale in development.[61]

From 2001 to 2002 Texas installed 900 megawatts of wind power, nearly twice the amount required by the state's RPS for that time period.[62] In 2008, Texas generated over 6,000 megawatts of renewable wind energy, exceeding the 2015 goal seven years early.[63] By 2009, Texas had installed 7,118 MW of cumulative renewable capacity, and the economic downturn does not appear to be slowing the pace.[64] Accordingly, at least within Texas, wind power can be as competitive as other energy sources. The state's capital, Austin, has also committed to a renewable energy standard, requiring thirty-five percent of its municipal-owned utility to be from renewable energy sources.[65]

Though Texas has been very successful in utilizing wind to produce energy, it has not diversified its portfolio.[66] However, in 2005, the Legislature encouraged diversification by adding provisions to the RPS that require 500 megawatts of power to be produced by a renewable energy source other than wind by 2025 as part of the 2025 goal.[67] Currently, wind is the most competitive renewable energy resource within the state; solar and biomass are currently too expensive to compete with wind.[68] Additionally, Texas seems to be focused on large-scale development, and unlike California, Texas has few incentives that promote small-scale renewable projects. However, small-scale wind projects in Texas can receive a property tax exemption for the increased property value associated with the system.[69] Texas also allows for net metering with smaller scale wind systems, allowing the excess electricity produced at these locations to go into the grid, offsetting the electric customer's electricity bill from the utility.[70]

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61. Langniss & Wiser, *supra* note 30, at 533.
62. Hurlbut, *supra* note 60, at 692.
63. Morrow, *supra* note 8, at 259.
64. Daniel, *supra* note 18, at 159. ("Cumulative installed renewable capacity means renewable energy that is produced by a generating facility that is either connected to a distribution or transmission system, energy produced by a generating facility where the owner or controller of the facility consumes the energy, or energy that is generated by a facility that within twelve months will be connected and operating as part of a distribution or transmission system.").
65. Wiseman et al., *supra* note 4, at 881. The city estimates that this commitment will cause a rate increase by approximately twenty percent within the next ten years. *Id.* The goal in Austin is more ambitious than the California standard showing that the assumptions about Texas not being as environmentally friendly as California might be proving to be wrong, at least for parts of the state. *See supra* Part I.A. and accompanying notes.
66. *See* Stahl et al., *supra* note 52, at 138.
67. *Id*.
68. Langniss & Wiser, *supra* note 30, at 530.
69. Daniel, *supra* note 18, at 175–76.
70. *Id*. at 178.

II. THE TEXAS SUCCESS

Texas has been very successful at instituting its RPS for many reasons. The state's success can be primarily linked to the framework Texas instituted for its RPS, which drove renewable generation through establishing a base demand for renewable energy.[71] Texas has been able to prove that a well thought out, designed, and implemented RPS can spur private sector renewable energy development with relatively minimal involvement by the government.[72] The state's RPS has created a renewable energy mandate that is seen as reliable, allowing for retail confidence in entering into long-term contracts with renewable generators.[73] This has allowed these generators to have access to low interest loans and capital, allowing for more investment in renewables.[74]

Wind energy has been the primary means Texas has used to achieve its RPS goals, causing the state to be the nation's current leader in wind energy production.[75] In 2009, wind energy constituted six percent of electricity produced in the state[76] Texas's success in implementing its RPS and exceeding its established goals are linked to the design of the system. The system has succeeded for three reasons: (1) it has a single administrator, which reduces transaction costs; (2) the state solved the transmission issue through the use of Competitive Renewable Energy Zones; and (3) the participants are persuaded into compliance through the use of strong punishment mechanisms.

A. Single Administrator

Unlike other states within the continental United States where the Federal Energy Regulatory Commission (FERC) has authority, the Texas Legislature regulates the Texas retail and wholesale electric markets through the Public Utility Commission of Texas (PUCT), allowing the state more control over electricity.[77] This means that Texas agencies do not have to coordinate with FERC regarding electricity development. Adding to the convenience and ease of the Texas system, like most states with a RPS,

71. Lunt, *supra* note 1, at 387.
72. *Id*.
73. *Id*. at 389.
74. *Id*.
75. Stahl et al., *supra* note 52, at 136.
76. Morrow, *supra* note 8, at 257. Though the Texas standard is less than the standard in California, Texas has been able to exceed its goals, something that California is far from being capable of.
77. Energy Bar Association, *supra* note 49, at 825.

Texas utilizes one agency to administer the program; in Texas the PUCT implements the RPS program through the renewable emissions credit trading program.[78] The PUCT was responsible for creating and executing the RPS policy and has successfully established clear rules and definitions. The PUCT is responsible for locating areas with the most potential for the best renewable siting while also reviewing plans involved in providing for transmission line construction to these areas.[79] Ultimately, the Texas RPS has been successful because of the strong legislative support and because the single agency responsible for implementing the program, the PUCT, is committed to its successful implementation.[80]

B. Transmission Success Through Use of Competitive Renewable Energy Zones

Texas has realized that transmission problems can hamper any RPS goals by being a renewable energy development challenge.[81] The state has been able to successfully establish favorable transmission planning.[82] To solve the transmission problem, in 2005, Texas utilized Competitive Renewable Energy Zones (CREZs), a policy in which new transmission would be built to wind-rich areas before interconnection commitments were signed with specific developers.[83] The Texas Legislature created CREZs in order to avoid the transmission constraints, which were experienced during the development of the McCamey region; the Legislature wanted to coordinate the development of renewable energy projects with the build-out of adequate transmission to these areas.[84] Texas Senate Bill 20 amended the Texas Utilities Code allowing for the CREZ program, stating "that '[i]n considering an application for a certificate of public convenience and necessity for a transmission project intended to serve a [CREZ], the commission is not required to consider . . . the adequacy of existing service [or] the need for additional service,'" which is different from the

78. Lunt, *supra* note 1, at 388.
79. Daniel, *supra* note 18, at 179.
80. Golden, *supra* note 17, at 701.
81. Hurlbut, *supra* note 60, at 692.
82. Langniss & Wiser, *supra* note 30, at 533. In Texas, grid expansion costs are paid by electricity customers within the State (and not power plant operators). *Id*. at n.17. "Moreover, fees to recover the embedded costs of existing and new transmission infrastructure are placed on electricity consumers based on a flat fee, or postage stamp approach independent of the location of production or consumption (congestion costs will also be charged)." *Id.*
83. Hurlbut, *supra* note 60, at 690, 693. A revision in 2005 to the Texas Utility Code "directed the Texas [Public Utilities Commission] to 'designate competitive renewable energy zones' and to 'develop a plan to construct transmission.'" *Id.* at 695.
84. Stahl et al., *supra* note 52, at 136.

requirement of proof that a new line is necessary before a traditional transmission line can receive a certificate for construction.[85] The bill also gave confidence to transmission owners by making it clear that they would not bear the costs of an underutilized CREZ line due to developer lack of interest or a cancellation of a project.[86]

These CREZs allow for an expedited "approval process for utilities to recoup transmission construction costs, thus encouraging transmission development prior to generator construction and lender financing."[87] The intent of the CREZ was to "select well-defined areas where meteorological data showed vast amounts of top-quality wind potential—a market opportunity so good that no rational wind developer with a line of credit would pass it up."[88] In conjunction with the program, utilities building these transmission lines were granted broad eminent domain powers.[89] The hope of this program is that "[t]he potential for return on investment in a CREZ would be compelling enough to support a reasonable expectation that the line would be utilized by a sufficient number of economically rational wind developers—even if the developers were not known at the time the [Texas Public Utilities Commission] authorized the transmission."[90] Ultimately, the companies that could bring the wind projects online the quickest and cheapest would be the companies developing the project.[91] The creation of CREZs made Texas wind farms easier to finance because it ensured transmission infrastructure.[92] By building transmission infrastructure the state made a powerful statement to developers that it will continue to encourage renewable energy growth, helping Texas maintain its position as a leader of wind energy generation.[93]

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85. Hurlbut, *supra* note 60, at 694–95.

86. *Id.* at 695 ("'If the commission issues a certificate of convenience and necessity . . . to facilitate meeting the goal for generating capacity from renewable energy technologies . . . the commission shall find that the facilities are used and useful to the utility in providing service . . . and are prudent and includable in the rate base, regardless of the extent of the utility's actual use of the facilities.'").

87. Houser, *supra* note 1, at 169.

88. Hurlbut, *supra* note 60, at 693.

89. Wiseman et al., *supra* note 4, at 850, n.99.

90. Hurlbut, *supra* note 60, at 693.

91. *Id*. at 694.

92. Daniel, *supra* note 18, at 165 ("CREZs were developed to resolve the dilemma that faced many developers who were hesitant to provide financial commitments for the development of wind farms if the transmission infrastructure was not already in place and conversely, to facilitate plans for creating transmission infrastructure in particular areas so that those areas could be developed as wind farms.").

93. *Id*. at 179.

C. Strong Punishments and the Texas Trading Scheme—Renewable Energy Certificate Trading Program

Another key to the success of the Texan RPS is that the system is moderately flexible, which allows energy suppliers to meet their mandate under the RPS in a cost-effective manner.[94] The Texas RPS, utilizes renewable energy credits (RECs), which are acquired through: the generation of electricity by renewable sources; purchasing RECs from facilities that are qualified as new, separately from the electricity; or by buying the REC with the purchase of renewably produced electricity.[95] An REC, in Texas, is equal to one megawatt hour of Texas-generated, qualifying renewable energy;[96] the RECs are allocated to each of the state's "competitive retail provider[s] based on the percentage of electricity that provider provides within the state."[97] Additionally, the rules promulgated encourage the installation of new renewable facilities because tradable RECs are only awarded to new facilities and producers that produce less than two MW.[98]

The Texas RECs are coupled with a renewable energy certificate trading program to facilitate the acquisition of RECs and is administered by the Electric Reliability Council of Texas.[99] This renewable energy certificate trading program is a cornerstone of the Texas RPS because it drove the state's renewable development and has reduced program enforcement costs by making compliance easy to monitor.[100] This trading program has facilitated renewable energy demand by providing a relatively easy mechanism for renewable energy producers to sell their renewable energy to electricity retailers who must satisfy their requirements under the RPS.[101] The intent of the program was to "allow other means to satisfy the renewable requirement without requiring that each retail electricity provider

94. Golden, *supra* note 17, at 702.

95. Lunt, *supra* note 1, at 388.

96. Stahl et al., *supra* note 52, at 138.

97. Lunt, *supra* note 1, at 388. Morrow, *supra* note 8, at 259 ("The number of credits required, called the load ratio share, is calculated by multiplying the RPS goal for that year by the provider's market share.").

98. Lunt, *supra* note 1, at 388 (Additionally, "'[a] facility is eligible to earn RECS if it relies exclusively on energy that is naturally regenerated, such as solar, wind, geothermal, hydroelectric, wave/tidal, biomass or biomass based waste products.").

99. *Id.*

100. Houser, *supra* note 1, at 169. Texas is the first state to implement a trading program in its RPS. *Id. See also* Houser, *supra* note 1, at 169, n.138. The program "[eases the tracking of compliance for enforcement purposes, [improves] liquidity in the market, and [increases] the competitiveness of Texas renewables by lowering their overall costs." Golden, *supra* note 17, at 702.

101. Houser, *supra* note 1, at 169.

actually own or contract directly for output from renewable energy resources," allowing for greater compliance and efficiency.[102]

The trading system causes the price of RECs to be brought down as renewable generators compete to sell their certificates, thus increasing the demand for renewable energy.[103] "The tradable REC program is crucial to the success of Texas's RPS because, 'the innovation of tradable RECs allows electricity providers from any area of the state to seek the lowest cost renewable resources without having to take delivery of the electricity.'"[104] The trading program also creates an incentive for developers to invest in cost-effective renewable generation through the use of market forces, while also discouraging the development of resources which are of poor quality, with costly technology or inefficient equipment.[105] Ultimately, "[t]he purchase of a REC subsidizes the marginal cost of renewable electricity, allowing the renewable provider to sell the electricity into the grid at a price competitive with other sources of electricity," spurring renewable demand.[106] Without this trading program, it is believed that retailers would have to contract with renewable energy generators directly in a process that would be difficult due to the necessity of matching annual obligations through contracting for the exact number of required RECs required, thus creating inefficiencies.[107] Finally, the trading program allows for program stability because a retailer will not be tied to a poorly performing supplier facility. The retailer will always be able to comply and will not have to worry about being under-supplied by renewable energy.[108]

Because Texas provides ample opportunity for RPS compliance the state has employed a strong sanction system if compliance is not met. Under the Texas RPS, if a retail electricity supplier does not meet its obligations, the penalty for non-compliance "is set to the lesser of five cents per missing kWh or 200% of the mean trade value of certificates in the compliance period."[109] Compliance is measured annually, with a three-month "true up" period, in which the utility has time to acquire extra RECs

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102. Paul Hudson & Evan Rowe, *Mandate & Market: Texas Electric Restructuring Act of 1999, an Environmental Case Study Six Years into Implementation*, 1 ENVTL. & ENERGY L. & POL'Y J. 235, 241 (2005).

103. Houser, *supra* note 1, at 170.

104. Lunt, *supra* note 1, at 389.

105. Hudson & Rowe, *supra* note 102, at 244 ("Because the price of a REC is basically the difference between two market prices, the developers of renewable energy projects have an incentive to develop the most cost-effective resources in the most cost-effective manner.").

106. Lunt, *supra* note 1, at 389.

107. Hudson & Rowe, *supra* note 102, at 244.

108. *Id*. at 245.

109. Golden, *supra* note 17, at 701 n.50.

in order to comply with their obligations.[110] Though there is some flexibility in the system, it is not worth delaying compliance.[111] Additionally, long-term contracts with retail suppliers have ensured their ability to comply with RPS requirements; adding penalty provisions in their renewable energy contracts encourages renewable projects to make necessary construction deadlines and specifications.[112] The enforcement mechanism in place in Texas, along with the strong penalty system, allows for successful enforcement of the RPS, ultimately leading to compliance.[113]

III. WHAT CALIFORNIA CAN LEARN

Though California is generally a leader in energy and environmental issues,[114] California has been unable to meet its RPS goals for many reasons. Though the state has one of the most aggressive RPS policies in the nation, "requir[ing]] 20% of the state's energy to be generated from renewable resources by 2010 and 33% by 2020."[115] However, California has failed to meet its 2010 goal. It is estimated that in 2010 California only received, at best, eighteen percent of its electric supply from renewable sources, falling at least two percent short of the state's goal.[116] More troubling for a state pushing renewables is that between 2003 and 2009, California only increased its renewable energy by 1.4 percent.[117] Additionally, the state continues to build new natural gas facilities that are contrary to the RPS policy; these natural gas facilities are both expensive for ratepayers within the state, but they are also linked to preventing renewable development.[118] California fails to meet its RPS goals for three reasons: (1) the program is decentralized, with many agencies having overlapping involvement; (2) inadequate enforcement mechanisms; and (3) the state's failure to prevent the proposal of unviable projects.[119]

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110. *Id*. at 702, n.52; Langniss & Wiser, *supra* note 30, at 532.

111. Langniss & Wiser, *supra* note 30, at 532. California does not have such a system in place thus making it attractive to utilities to delay compliance. *See infra* Part III.B and accompanying notes.

112. Langniss & Wiser, *supra* note 30, at 532.

113. *Id*.

114. Behles, *supra* note 19, at 168.

115. *Id*. at 165. With Executive Order S-14-08, issued in 2008, California accelerated their RPS standards to the current standards stating "'all retail sellers of electricity' serve their load with 33% of energy coming from renewable energy by 2020." *Id.* at 168. California also requires greenhouse gas emissions to be reduced to their 1990 levels by 2020. *Id.*

116. Behles, *supra* note 19, at 172.

117. *Id*. ("There were 'several years of fairly static energy production from renewable resources' [in California]. More recently, the percentage has increased because California unities have signed short-term contracts with out of state resources.").

118. *Id*. at 165.

119. *Id*. at 166.

A. Agencies with Overlapping Authority

California can learn from the Texas example and streamline the number of agencies involved in siting and permitting renewable energy sites. California differs from most other RPS states because multiple agencies in California administer the program in a complicated delegation of authority.[120] This creates a difficult permitting environment and results in a long timeframe for project siting while also providing many opportunities for opposition groups to intervene in the project.[121] By having so many agencies involved in the process, the barriers to development are inevitably higher causing developers to jump through multiple hoops, some of which are overlapping.[122] Unlike Texas, where one agency controls the process, California has several agencies responsible for the implementation of some aspect of the state's RPS, including: the California Energy Commission, the California Public Utilities Commission, and the California Air Resources Board.[123] With all of these agencies involved, it can lead to delays in projects and adds to the administrative costs of renewable energy within the State. Before construction of a renewable energy facility within the state, a developer must go to multiple agencies to obtain various permits, with each agency having a large permit application backlog.[124]

In the California RPS system, the California Public Utilities Commission (CPUC) must take all appropriate action in order to ensure that all utilities meet the state's RPS goals, while also ensuring cost-effective projects advance and those investments in renewable energy are efficient and "vigorously pursued."[125] As to the important process of siting renewable sites, Executive Order S-14-08 requires the California Energy Commission to work with the California Public Utilities Commission and

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120. Houser, *supra* note 1, at 164.

121. Jesse Broehl, *California Utilities Hide Behind Solar Smokescreen: Legal Loophole Allows Penalties to be Avoided for Failing to Bring Wind Power Online*, WIND POWER MONTHLY (April 1, 2009), *available at* http://www.windpowermonthly.com/article/958579/california-utilities-hide-behind-solar-smokescreen---legal-loophole-allows-penalties-avoided-failing-bring-wind-power-online; Rachael Salcido, *Siting Offshore Hydrokinetic Energy Projects: A Comparative Look at Wave Energy Regulations in the Pacific Northwest*, 5 GOLDEN GATE U. ENVTL. L.J. 109, 157 (2011); Wiseman et al., *supra* note 4, at 870, n.178 (Groups are able to intervene at various stages even though the siting process for renewables within the State has become centralized, thus local zoning is preempted.). This is different from Texas where no agency has siting authority, which is specific to wind, although voluntary state review is available. *Id.* at 872, n.181.

122. Wiseman et al., *supra* note 4, at 829.

123. Behles, *supra* note 19, at 171. "Both the California energy Commission (CEC) and the California Public Utilities Commission (CPUC) execute and enforce the RPS. This is an unusual, and perhaps more complicated, delegation of authority, as most RPS states have successfully used only one agency to administer their RPSs." Houser, *supra* note 1, at 164.

124. Houser, *supra* note 1, at 166.

125. Behles, *supra* note 19, at 171.

the California Independent System Operator to identify where and how renewable energy should be sited and developed within the state.[126]

California also imposes additional transaction costs on developers by requiring agencies to work with counties and cities in determining environmental impacts associated with siting renewable projects.[127] The California Environmental Quality Act requires both cities and counties to consider and document the environmental impacts of their actions. This includes granting licenses for renewable energy projects and requiring them to determine if an environmental impact report or a negative declaration is required for a specific project.[128] In turn, the agencies must consult with other responsible agencies and trustees who may also have jurisdiction over a specific project.[129]

In addition, overlapping jurisdiction covers issues related to transmission.[130] Though the California Independent System Operator primarily manages transmission, a utility is required to acquire a certificate of public convenience and necessity from the CPUC before a new transmission line is constructed.[131] Authority overlap also occurs with transmission planning, which is administered by regional planning initiatives, including: the California Transmission Planning Group, the California Renewable Transmission Initiative, and the Western Renewable Energy Zone initiative.[132] The coordination that must occur between these various agencies and organizations increasing the cost of any renewable energy development by adding unnecessary transaction costs.

Procurement related issues are also covered by several agencies, with the California Energy Commission and the California Independent System Operator making procurement related recommendations to the CPUC. The CPUC is responsible for reviewing, accepting, modifying, or rejecting renewable procurement plans submitted by utilities.[133]

An example of overlapping agency involvement is the newly developed Desert Renewable Energy Conservation Plan (DRECP), which is designed to promote renewable energy development in the California desert.[134] To administer this project, a Renewable Energy Action Team (REAT) was formed with participation from the California Department of Fish and

126. *Id.* at 175.
127. Stahl et al., *supra* note 52, at 100.
128. *Id*. at 100–01.
129. *Id*. at 101.
130. Behles, *supra* note 19, at 176.
131. *Id*.
132. *Id*.
133. *Id*.
134. *The Desert Renewable Energy Conservation Plan*, *supra* note 41.

Game, the California Energy Commission, the U.S. Fish and Wildlife Service, and the Bureau of Land Management.[135] Each one of these agencies must work together, with the California Public Utilities Commission, National Parks Service, California Independent System Operator, the Department of Defense, and the U.S. Environmental Protection Agency, to develop a viable solar energy plant within the Mohave and Colorado deserts.[136]

California would have more success implementing its RPS if there were fewer agencies involved in the process, or at least a better defined agency jurisdiction, like Texas. "In addition to overlapping authority being resource intensive, different agencies may make decisions on the same matter, which causes inconsistent results and makes compliance difficult to monitor."[137] California may have greater success in the future because it recognizes this barrier and is trying to alleviate permit application delays by consolidating agency review and creating project review teams for renewable energy projects.[138]

B. The Need For Adequate Enforcement Mechanisms

Unlike Texas, which has a strong sanction system, the punishment in California for failing to meet the RPS requirement is almost non-existent because the RPS program fails to contain strong mechanisms to force compliance.[139] Originally, the state had a significant monetary penalty in the draft RPS; however, due to political pressure, this monetary penalty was replaced by a discretionary contempt non-compliance penalty in the final bill.[140] The California RPS also allows for flexible attainment of the goals by giving electricity corporations the opportunity to acquire additional renewable energy resources in subsequent years to make up for the shortfalls that have occurred in previous years. This mechanism allows utilities to fall behind on their obligations and makes continued compliance impractical.[141]

Additionally, the state's RPS allows for a utility to forgo a penalty payment for non-compliance if they can demonstrate a good faith effort

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135. *Id*.

136. *Id*. With all of these agencies involved in one plant, it is difficult to imagine any successful solar energy development will be built due to the sheer amount of coordination that must occur between all of these agencies.

137. Behles, *supra* note 19, at 177.

138. Houser, *supra* note 1, at 166.

139. Behles, *supra* note 19, at 179–80.

140. Golden, *supra* note 17, at 704.

141. *Id*.

towards RPS compliance.[142] This lack of enforcement has caused some utility companies to enter into purchase contracts for speculative solar projects at unrealistically low prices.[143] Utilities have been accused of avoiding compliance through betting on speculative, unviable, low-cost technology, which will not be successful.[144] The California RPS is weak because it allows for contracts (and not real power) to be counted towards a utility's twenty percent threshold and does not look into whether the project contract will be completed, and capacity installed, in the immediate future (or within the compliance period).[145] This loophole has prevented viable renewable generation from coming online because it is difficult for viable wind projects to compete with solar projects that have been priced in a way that is unrealistically low.[146]

In order to have a successful RPS program, California needs to adopt strong penalties for non-compliance, similar to those in the Texas RPS design, which has caused a very successful rate of compliance.[147] Because of this lack of enforcement, utilities are putting off acquiring renewable resources. "In the event that a utility fails to meet its RPS mandates, the California Public Utility Code requires the utility to 'procure additional eligible renewable energy resources in subsequent years to compensate for the shortfalls,'" thus allowing utilities to put off compliance into the indefinite future.[148]

Like Texas, California has a renewable energy certificate program; however, California's program has not been as successful as its Texas counterpart due to the ease utilities have in avoiding compliance.[149] In California, utilities are penalized for non-compliance on a case-by-case basis; thus, there is no standardized penalty for non-compliance.[150] Additionally, RPS compliance can be excused if utilities can show that their non-compliance was due to a lack of transmission capacity as long as a reasonable effort was taken to obtain renewable power, which has proven to

142. Stahl et al., *supra* note 52, at 101.

143. *Id*.

144. Broehl, *supra* note 121, at 29–30.

145. *Id*. at 29 ("Since the law was passed in 2002, the [Public Utility Commission] has approved 95 power purchase agreements (PPA) for 5.9 GW of clean power capacity, more than enough to achieve the legal standard, it says. But [as of 2009] only about 400 MW of the contracted generation has come online and the proportion of new renewable power has fallen from 14% in 2004 to 12.7% in 2007 as demand for electricity has grown.").

146. *Id*. at 29.

147. Behles, *supra* note 19, at 181.

148. *Id.* at 173.

149. Stahl et al., *supra* note 52, at 101–02; Golden, *supra* note 17, at 704 (California does not have a credit trading system in place due to political pressure to eliminate it from the wording of SB 1078.).

150. Stahl et al., *supra* note 52, at 102.

be a standard that is easy to meet.[151] In order to have a successful RPS, California needs to abandon the myriad of excuses utilities are allowed to use in order to avoid compliance.[152]

C. The Problem With Unviable Projects and Inadequate Transmission

California has not been successful in preventing unviable projects.[153] This is very significant in a state that touts itself as being committed to renewable energy sources because it has resulted in the failure of many projects.[154]

> "A common reason for projects to fail is the difficulty of securing adequate transmission capacity, which should have surfaced and been resolved in the request for offer stage. Notably, the Public Utilities Code requires that the criteria for ranking and selection of resources include 'needed transmission investments and ongoing utility expenses resulting from integrating and operating eligible renewable energy resources.'"[155]

Because of the landscape within the state, utilities have incentives to try to site their renewable generation in remote locations, which results in higher transmission costs and requires greater capital investment. As a result, projects have failed because they did not pick the most viable projects, which does not happen in Texas where projects are determined by their ultimate viability.[156]

"Texas has successfully required contract terms that penalize construction delays and other types of operational issues. These provisions have helped eliminate incentives for proposing projects that are likely to prove unviable" and which are cost competitive.[157] The Texas system provides little incentive for developers to propose projects with a high probability of not being completed because such bidders will either fail to garner the original contract, or face stiff penalties for procuring an

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151. *Id.*

152. Broehl, *supra* note 121, at 30 (There is a "'list of excuses or reasons why the utilities can say we weren't able to meet our RPS goals, such as the failure of a project, the lack of transmission, or lack of bids to the RPS process.'").

153. Behles, *supra* note 19, at 182 (In California, there is no deterrent for bidders to propose projects that are unlikely to be built for various reasons.).

154. *Id.*

155. *Id.*

156. *Id.* at 185.

157. *Id.* at 186–87.

incomplete contract.[158] By requiring stronger contract terms, California can minimize the costs of contract failure, thus reducing the cost of renewable development and hopefully incentivize developers to engage only in projects that are likely to be successfully completed.[159] California has taken a cue from CREZ classifications in Texas through the creation of the Renewable Energy Transmission Initiative (RETI), which, like the CREZ in Texas, is designed to bring transmission to areas that are ideal for renewable energy.[160] The RETI program has allowed for the construction of four major new transmission lines within the state at a cost of four billion dollars.[161] California also allows for some special cost-sharing schemes for the financing of transmission in specifically designated areas.[162] In addition, California allows for Independent System Operators to recover construction costs from generators who use the newly built transmission lines that serve areas designated as prime renewable energy sources.[163]

CONCLUSION

"[E]xperience in several US states and European countries shows that inadequate purchase obligations, overly broad renewable energy eligibility guidelines, unclear regulatory rules, insufficient enforcement, and wavering political support can all doom an RPS to certain failure."[164] In contrast, the success of the Texan RPS shows that a well-designed and carefully implemented program can result in a state known for its oil and gas to become a leader of renewable power, specifically wind power, in the United States and the world.[165] Texas has a successful RPS, which has been able to provide confidence to developers of renewable energy as well as retail electricity suppliers, ensuring long-term investment in the least costly renewable facilities.[166] Texas has successfully lowered risks for developers

158. Langniss & Wiser, *supra* note 30, at 530.

159. Behles, *supra* note 19, at 187. In California, "[u]tilities have a strong economic incentive to develop new expensive facilities because rate recovery is based in part on capital expenditures. Due to this incentive, utilities are not economically encouraged to evaluate all possible options for integrating renewables such as increased energy efficiency. Thus, current economic incentives do not sufficiently encourage innovative renewable energy development rather than other more cost effective solutions." *Id.* at 183.

160. "One of RETI's primary objectives is to identify these prime renewable energy source locations and develop long-term, 'cost effective and environmentally benign' transmission development plans to provide access to these untapped resources." Houser, *supra* note 1, at 167.

161. *Id.*

162. Wiseman et al., *supra* note 4, at 858.

163. Houser, *supra* note 1, at 167.

164. Langniss & Wiser, *supra* note 30, at 533.

165. *Id*. at 527, 533–34.

166. *Id*. at 532.

and utilities, thus breeding an environment for a successful RPS.[167] Texas has been successful because of the state's strong legislative support for the RPS, a committed state administrator in the Public Utilities Commission, abundant wind, and favorable transmission rules.[168] Though Texas is not diverse in its renewable portfolio, it has successfully used low-cost wind power in large-scale developments.[169] Surprisingly, the wind industry in Texas is growing in confidence and is beginning to compete on equal footing with other generating sources, which are perceived as being more traditional.[170]

California can learn a great deal from the success of Texas. Primarily, the state has to decide if it really is committed to its RPS and if so, it needs to institute changes in order to make it effective. One of the largest changes that must be made in order for California to meet its RPS goals is that the state must adopt measures to force compliance. This can be done by having mandatory sanctions for non-compliance that are high enough that non-compliance becomes more costly than compliance. Additionally, the state needs to close present loopholes, which tend to encourage the appearance of compliance through non-viable projects. If a state is committed to a renewable standard, it must make non-compliance costly while also making compliance easy. Compliance can be made easier by the use of a credit trading market that prefers efficient and cost effective projects. As seen in Texas, market forces can push for a quick increase in renewable energy development.

In addition to closing loopholes and encouraging compliance, California needs to make compliance easier in an administrative sense. Currently the state utilizes too many agencies for renewable siting and production. By having a number of agencies engaged in the process, transaction costs are increased and delays are inevitable. The state needs to streamline the process in order to encourage investment and show a commitment to the process. By having various stages, there are more stages where individuals can intervene in the process, allowing for a greater potential of inconsistent decisions and requirements among the various agencies. Unlike Texas, California does not have the pleasure of not having to work with the FERC in certain instances. However, the state can give authority of the entire siting, licensing, and completing processes to one agency that can maintain a consistent process. Finally, California needs to prevent unviable projects and take a greater interest in developing sufficient

167. *Id*. at 527.
168. *Id*. at 532, 534.
169. *Id*. at 534.
170. *Id*. at 534.

transmission to the areas that have the most potential for renewable energy development. For California to be successful in meeting their RPS and becoming a world leader again in renewable energy, the state needs to make a greater commitment to its success and energy independence. Surprisingly, renewable energy development is an area where California can learn from Texas.