CREZ II, Coming Soon to a Windy Texas Plain Near You?: Encouraging the Texas Renewable Energy Industry Through Transmission Investment*

I. Introduction

Modern society would not exist without electricity, but surprisingly little attention is paid to electric power generation, that magical phenomenon that makes your laptop, iPhone, and air conditioning possible. Of the energy sources in the world, oil receives by far the most attention, but oil is a transportation fuel and not a major source of electric power generation in the developed world.[1]

Electric power is mostly generated from coal, natural gas, hydroelectric plants, nuclear power plants, and, to a far smaller but growing extent, renewable energy sources such as wind and solar energy.[2] While one cannot see into the future, it seems as if the push towards renewable sources of power is continuing to gain momentum (however slowly) in the United States. This push is driven by, for better or worse, environmental concerns about carbon-emitting fossil-fuel power sources, and the movement that is already well under way in much of Europe.[3]

As that movement progresses, the practical challenges involved in developing an electric industry with large-scale renewable power generation will move to the forefront, and government actors will have to craft

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1. *See, e.g.*, U.S. ENERGY INFO. ADMIN., INTERNATIONAL ENERGY OUTLOOK 2013, at 93 & tbl.13 (2013), *available at* http://www.eia.gov/forecasts/ieo/pdf/0484(2013).pdf, *archived at* http://perma.cc/KL7K-V8GH (displaying net electricity generation from liquids, which includes petroleum, for Organisation for Economic Co-operation and Development countries where "electricity markets are well established and consumption patterns are mature").

2. *Id.* at 94–96; *see also* U.S. ENERGY INFO. ADMIN., SHORT-TERM ENERGY AND WINTER FUELS OUTLOOK (STEO) 11 (2014) [hereinafter SHORT-TERM ENERGY], *available at* http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf, *archived at* http://perma.cc/D24X-9FA6 (projecting that electricity generation from renewable sources will increase by 2.2% in 2014).

3. *See* EUROPEAN COMMISSION, EU ENERGY IN FIGURES 16 figs., 23–27 fig. & tbls. (2012), *available at* http://ec.europa.eu/energy/publications/doc/2012_energy_figures.pdf, *archived at* http://perma.cc/6WGQ-93BL (showing the growth in European Union renewable energy production from 9% of total generation in 1995 to 20% in 2010 and outlining projected corresponding declines in greenhouse-gas emissions); SHORT-TERM ENERGY, *supra* note 2, at 11–12 (summarizing growth in electric power generation from renewable sources by comparing renewable-source consumption to fossil-fuel emissions).

legislative solutions to overcome those challenges. In fact, states are already beginning to address the hurdles that have emerged. This Note will explore one of those hurdles and one state's efforts to overcome it: renewable power transmission in the State of Texas. Specifically, this Note will explore how Texas should proceed in following up what has been lauded by many as a very successful approach to solving the problem of renewable power transmission.

As any movie fan knows, sequels can be risky endeavors. For every *Godfather II*, there are an annoyingly large number of *Halloween II*s or *Jaws: The Revenge*.[4] Unfortunately, when it comes to legislation, policy makers do not really have the option of quitting while ahead and never legislating in an area again after a success (as this author at least wishes Hollywood had done after *Halloween* and *Jaws*). Time passes and frequently legislatures must revisit issues they have already addressed in the past.[5]

In 2005, the Texas Senate passed a piece of legislation that, while perhaps not the legislative equivalent of the original *Godfather*,[6] turned out to be a very successful law: Senate Bill 20.[7] This bill started the Competitive Renewable Energy Zone (CREZ) process, an effort to improve transmission infrastructure so as to encourage renewable-energy production in Texas, particularly wind-energy production.[8] The issue of transmission was, is, and will be a critical issue in the renewable-energy industry. For Texas's renewable-energy industry to continue to grow, before long it will become incumbent upon Texas to release its sequel to CREZ. This Note will endeavor to evaluate how CREZ II[9] should be shaped to be as close as possible to the legislative *Godfather II* and not *CREZ: The Revenge*.

In recent years, wind-energy production has begun to emerge as a potential large-scale electric-power source.[10] Wind energy has shown itself

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4. THE GODFATHER: PART II (Paramount Pictures 1974); JAWS: THE REVENGE (Universal Pictures 1987). To further illustrate the point, there were actually *two* distinct *Halloween II*s released at different points in the tortured history of the franchise. HALLOWEEN II (Universal Pictures 1981); HALLOWEEN II (Dimension Films 2009).

5. *See* Jacob E. Gersen, *Temporary Legislation*, 74 U. CHI. L. REV. 247, 247, 255–56 (2007) (highlighting the wide range of issues that legislatures have chosen to address with temporary legislation).

6. THE GODFATHER (Paramount Pictures 1972).

7. S. 20, 79th Leg., 1st Called Sess. (Tex. 2005).

8. *See infra* subpart II(C).

9. This Note will use "CREZ II" as a shorthand to refer to the path forward for electric-transmission investment designed to encourage renewable energy in Texas, which could or could not take the form of a process styled as a successor to the CREZ process. The recommendations this Note discusses, generally speaking, apply regardless of the form and style of future efforts in this area.

10. This Note will largely use the terms *wind energy* and *renewable energy* relatively interchangeably. Wind energy produces significantly more power than solar energy in the United States; the wind-energy industry is growing at a comparably fast pace, and wind energy is, in the author's opinion, therefore the most relevant source of renewable electricity production. RACHEL GELMAN, U.S. DEP'T OF ENERGY, NAT'L RENEWABLE ENERGY LAB., 2012 RENEWABLE ENERGY

to be increasingly competitive in the marketplace,[11] and it provides a growing share of electricity generation in the United States,[12] now the second largest wind-energy producer in the world.[13] Therefore, issues relating to wind-energy development will be a prominent component of energy policy in the years to come. As the largest wind-energy producer in the United States, Texas is the national leader in the field.[14]

Perhaps the greatest challenge that the wind-energy industry faces is transmission, i.e., getting the power from the wind-rich areas that are largely distant from areas of high energy demand to those high-demand areas.[15] As a general matter, areas with the greatest wind resources are rural whereas the areas with the greatest energy demand are urban.[16] Generally speaking, capacity to transmit power across that distance is not preexisting, so transmission capacity must be developed to get the wind energy to market, which is very expensive.[17] Therefore, a "chicken and egg" problem manifests that hampers wind-energy development: wind developers will not build

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DATA BOOK 18 (Mike Meshek ed., 2013), *available at* http://www.nrel.gov/docs/fy14osti/60197.pdf, *archived at* http://perma.cc/G8SF-J4Y9. However, generally speaking, the transmission challenges faced by the wind-energy industry also apply to efforts to encourage other forms of renewable power generation, particularly solar power generation. *See, e.g.*, *Transmission*, NAT'L RENEWABLE ENERGY LABORATORY (Oct. 21, 2012), http://www.nrel.gov/electricity/transmission/transmission.html, *archived at* http://perma.cc/4HNG-TURJ (discussing the transmission challenges with respect to both wind and solar power development).

11. Ryan Wiser & Mark Bolinger, U.S. DEP'T OF ENERGY, 2013 WIND TECHNOLOGIES MARKET REPORT 59–62 (2014), *available at* http://emp.lbl.gov/sites/all/files/lbnl-6809e.pdf, *archived at* http://perma.cc/G398-TSVK.

12. *2012 U.S. Wind Industry Market Update*, AM. WIND ENERGY ASS'N (May 2013), http://awea.files.cms-plus.com/FileDownloads/pdfs/AWEA%20U.S.%20Wind%20Industry%20Annual%20Market%20Update%202012_1383058080720_3.pdf, *archived at* http://perma.cc/ME9P-JQ6D.

13. *See* Alyssa Danigelis, *Top 10 Countries on Wind Power*, DISCOVERY NEWS (Jan. 25, 2013, 12:00 PM), http://news.discovery.com/tech/alternative-power-sources/top-10-countries-wind-power-130130.htm, *archived at* http://perma.cc/R3XB-K4D2 (charting the top ten countries in total wind-power capacity).

14. *State Wind Energy Statistics: Texas*, AM. WIND ENERGY ASS'N (Apr. 10, 2014), http://www.awea.org/Resources/state.aspx?ItemNumber=5183, *archived at* http://perma.cc/NR2R-3NEQ.

15. *See* Miriam Fischlein et al., *States of Transmission: Moving Towards Large-Scale Wind Power*, 56 ENERGY POL'Y 101, 110 (2013) (quoting a Texas energy stakeholder as saying that the top three challenges for the wind industry are "transmission, transmission and transmission").

16. *See* ERNEST E. SMITH ET AL., TEXAS WIND LAW § 7.02[1] (2014) (noting that "significant numbers of [Texas] wind farms" are located in the West and Panhandle, distant from "heavily populated areas, such as the Dallas/Fort Worth metroplex, Houston, and Central Texas"). While solar power is not yet as economically viable as wind energy, the same principle applies to solar power generation. Solar power requires large pieces of land to place solar panels, so large-scale solar projects must necessarily be located distant from power demand. *See* Robert Glennon & Andrew M. Reeves, *Solar Energy's Cloudy Future*, 1 ARIZ. J. ENVTL. L. & POL'Y 91, 103 (2010) (referencing a study that found that a solar thermal plant requires approximately 6,000 acres to produce 1,000 megawatts of power compared to the 640–1,280 acres a coal or nuclear plant requires to produce the same amount).

17. *See* SMITH ET AL., *supra* note 16, § 7.02[1] (detailing the lengthy process and large amounts of capital required to develop transmission capacity).

projects where there is no capacity to get their power to market, and governments and utilities will not build transmission lines to regions where there is no existing power generation.[18]

Texas, through the CREZ process, took a step toward solving its transmission woes through government action,[19] building transmission capacity over the past six years to establish a transmission infrastructure which "support[s] a total of 18,456 MW of renewable generation,"[20] an increase of 11,553 MW of capacity at a cost of over $6.5 billion.[21] To a significant degree, this investment has facilitated the state's unparalleled boom in wind-energy development—the state has 12,354 MW of installed wind-power-generation capacity compared to 5,829 MW in the second most productive state, California.[22] The success of Texas's wind-energy industry and the CREZ process's role in stimulating it has shown a possible path forward for other states seeking to fortify renewable-energy production within their own borders.

Part II of this Note will seek to evaluate if and why CREZ was a success. Part III will then investigate what other efforts to encourage renewable power generation through transmission investment can teach about possible areas for improvement. Finally, given that, by some estimates, the increased capacity to transmit wind energy in Texas provided by CREZ may be fully utilized within only a few years,[23] that energy demand continues to grow, and that some experts predict the price of electricity from fossil fuels will increase

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18. *Id.*; Becky H. Diffen, *Competitive Renewable Energy Zones: How the Texas Wind Industry is Cracking the Chicken & Egg Problem*, 46 ROCKY MOUNTAIN MIN. L. FOUND. J. 47, 49 (2009); *see also* Kenneth B. Driver, *Building and Paying for New Transmission Needed to Get Renewable Energy to Market*, *in* ENERGY, UTILITY, TRANSPORTATION AND ENVIRONMENTAL LAW FOR THE 21ST CENTURY 27 (Peter V. Lacouture ed., 2013) ("The growth in the amount of renewable energy resources in the United States poses a major challenge for the nation's transmission grid, which must be extended and expanded to transmit renewable energy from distant renewable resources to customers.").

19. SMITH ET AL., *supra* note 16, § 7.02[2].

20. Ernest E. Smith & Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 TEX. J. OIL GAS & ENERGY L. 165, 205 (2009).

21. PUB. UTIL. COMM'N OF TEX., COMPETITIVE RENEWABLE ENERGY ZONE PROGRAM OVERSIGHT: CREZ PROGRESS REPORT NO. 14, at 10 (2014) [hereinafter CREZ PROGRESS REPORT NO. 14], *available at* http://www.texascrezprojects.com/page29602253.aspx, *archived at* http://perma.cc/3SRT-ECNY; Smith & Diffen, *supra* note 20, at 205.

22. AM. WIND ENERGY ASS'N, U.S. WIND INDUSTRY FIRST QUARTER 2014 MARKET REPORT: EXECUTIVE SUMMARY 5 fig. (2014), *available at* http://awea.files.cms-plus.com/FileDownloads/pdfs/1Q2014%20AWEA%20Public%20Report.pdf, *archived at* http://perma.cc/VJ47-K38H.

23. *See* TRIP DOGGETT, ELEC. RELIABILITY COUNCIL OF TEX., BUSINESS AND COMMERCE QUARTERLY UPDATE 8 fig. (2014) [hereinafter ERCOT 2014 REPORT], *available at* http://www.senate.state.tx.us/75r/senate/commit/c510/downloads/2014/QR_0114-ERCOT.pdf, *archived at* http://perma.cc/6CN8-79CF (projecting wind energy generation will reach 15,843 MW through 2014 and 18,202 MW through 2016); SMITH ET AL., *supra* note 16, § 7.02[3][c] ("Many wind farm developers have expressed concern that the CREZ lines may become congested in the relatively near future.").

steadily over the coming decades,[24] possibly making wind power more competitive, this Note will seek to provide a framework for CREZ II in Part IV, taking lessons from Parts II and III.

II. The Original Release: CREZ

A. The Emergence of the Texas Wind-Energy Industry

Texas and the oil and gas industry are closely intertwined, an association that virtually anyone would immediately make if asked about energy production in the state, yet Texas is also the largest wind-power producer in the country. How did this happen? The wind boom in Texas began in the late 1990s and early 2000s[25] and was driven by a number of factors. For one, Texas is blessed with a lot of land that is prime for wind-energy development.[26] During this period, "[w]ind power [became] more cost effective due to major improvements in technology . . . economies of scale in production, increased tax incentives [such as the federal production tax credit (PTC)], and lower financing costs."[27] Further, Texas was one of the first states to create a renewable portfolio standard (RPS) when it restructured the electricity industry in 1999.[28] The Texas RPS mandated 2,000 MW of renewable power generation by 2009.[29] Finally, the nature of Texas's electric grid, managed by the Electric Reliability Council of Texas (ERCOT), facilitated the remarkable expansion of wind generation.[30] The Texas electric market is unique. Everywhere else in the lower forty-eight states, power is provided through either the Eastern Interconnection or Western Interconnection.[31] Consequently, "any electricity that enters the grid immediately becomes a part of a vast pool of energy that is constantly moving in interstate commerce."[32] Therefore, almost every electric grid except for

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24. *See* Coral Davenport, *Large Companies Prepared to Pay Price on Carbon*, N.Y. TIMES, Dec. 5, 2013, http://www.nytimes.com/2013/12/05/business/energy-environment/large-companies-prepared-to-pay-price-on-carbon.html, *archived at* http://perma.cc/T776-RVE7 (quoting an Exxon Mobil spokesperson as saying that "'[u]ltimately, we think the government will take action through a myriad of policies that will raise the prices and reduce demand' of carbon-polluting fossil fuels").

25. *See* Diffen, *supra* note 18, at 49 (observing that in the ten years prior to 2009, "the wind industry in the United States . . . exploded," with the most dramatic growth occurring in Texas).

26. *See id.* at 57 (noting that the state has been called "a superb wind resource" and that "the state has even been called the 'Saudi Arabia of Wind'" (quoting AUSTIN CLEAR AIR INITIATIVE, ENRICHING ECONOMY AND ENVIRONMENT: MAKING CENTRAL TEXAS THE CENTER FOR CLEAN ENERGY 78 (2002)).

27. *Id.* at 52 (footnotes omitted).

28. David A. King, *Interregional Coordination of Electric Transmission and Its Impact on Texas Wind*, 8 TEX. J. OIL GAS & ENERGY L. 309, 313 (2013).

29. *Id.* Texas met that goal in 2005. *Id.* The legislature increased the mandate to 5,880 MW to be reached by 2015 and set a target of 10,000 MW to be reached by 2025; the 2025 target was met by 2011. *Id.*

30. Diffen, *supra* note 18, at 57.

31. New York v. FERC, 535 U.S. 1, 7 (2002).

32. *Id.*

ERCOT in Texas is regulated by the federal government through the Federal Energy Regulatory Commission (FERC), including the Southwest Power Pool (SPP) which covers a relatively small part of the state.[33] In contrast, ERCOT, contained completely within the state of Texas, covers most of the state and therefore "falls exclusively under the jurisdiction of PUCT [the Public Utility Commission of Texas], with laws established by the Texas legislature."[34] ERCOT's management and policies have proven to be particularly well suited to the wind-power industry compared with other grids.[35]

These combined factors led to exponential growth in wind energy generation in Texas in the late 1990s and early 2000s; the state went from almost no generation in the late 1990s to meeting its initial RPS mandate of 2,000 MW by 2005,[36] and then surpassing California as the largest wind-energy producer in the country in 2006.[37]

B. Congestion and the Chicken and Egg

As the boom progressed, grid congestion due to growing wind-energy development and a lack of transmission infrastructure began to be a problem.[38] Decisions as to where to place wind projects were clearly being

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33. LAWRENCE R. GREENFIELD, FED. ENERGY REGULATORY COMM'N, AN OVERVIEW OF THE FEDERAL ENERGY REGULATORY COMMISSION AND FEDERAL REGULATION OF PUBLIC UTILITIES IN THE UNITED STATES 10, 12 (2010), *available at* http://www.ferc.gov/about/ferc-does/ferc101.pdf, *archived at* http://perma.cc/MYX5-Z2LG; *see also Welcome to SPP*, SOUTHWEST POWER POOL, http://www.spp.org/, *archived at* http://perma.cc/G54D-64Z9 ("SPP is mandated by [FERC] to ensure reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity.").

34. Ross Baldick & Hui Niu, *Lessons Learned: The Texas Experience*, *in* ELECTRICITY DEREGULATION 182, 184 (James M. Griffin & Steven L. Puller eds., 2005). ERCOT is a nonprofit whose primary mission is ensuring the reliability of the grid, whereas PUCT is the governmental agency charged with oversight of Texas utilities. *About ERCOT*, ERCOT, http://www.ercot.com/about/index, *available at* http://perma.cc/Q8YP-UZY6.

35. *See* Diffen, *supra* note 18, at 59 (describing ERCOT policies that have aided the development of wind energy production in Texas such as "a standardized interconnection process that avoids discriminating against new plants," "a market-based subzonal congestion management scheme," and "a 'Postage-Stamp' system for determining transmission rates" that standardizes power transportation costs); E-mail from Lisa Chavarria, Partner, Stahl, Bernal Davies, Sewell & Chavarria, LLP, to author (Apr. 6, 2014, 4:04 PM CST) (on file with author). As Lisa Chavarria explains:

> Electricity prices have been historically higher in ERCOT making it a more attractive market. The 'postage stamp pricing' and other regulatory differences between ERCOT and SPP also makes ERCOT an easier/better place to interconnect. Plus ERCOT has gotten really good at dispatching wind to ensure a lot of it gets on the grid—ERCOT is a good place for wind developers.

E-mail from Lisa Chavarria, *supra*.

36. King, *supra* note 28, at 313.

37. SMITH ET AL., *supra* note 16, § 1.01.

38. Diffen, *supra* note 18, at 65–66.

made largely based off of transmission considerations rather than based off of the quality of the wind resources in a given area.[39]

A few words here about the mechanics of electric-energy transmission in the United States will be useful. Historically, transmission issues were much simpler. For most of its existence, the electric market in the United States was vertically integrated from the power-generation stage to the market stage.[40] This format made transmission investment a relatively simple process: generally, a single company would build power lines to get its own power to customers.[41] But the electric industry has transformed over the past several decades as power generation has decoupled from retail electric sale to customers[42]—a change that has allowed the existence of power producers that do not sell the power directly to customers.[43] Now, those power producers must have transmission capacity to get their electricity to retail providers that then sell the power to consumers,[44] a problem exacerbated for renewable power generation mostly distant from energy demand.[45]

Further complicating the issue, while electric transmission has historically been subject to federal regulation as a part of interstate commerce,[46] the states have been "the primary actors with regard to transmission line siting. As a result, 'the nation's transmission grid is an interconnected patchwork of state-authorized facilities.'"[47]

The separation between power production and retail sale, combined with the fact that transmission infrastructure is very expensive, dictates that securing transmission capacity is one of the greatest challenges faced by prospective wind-energy producers, and one that was a dominant feature of the Texas wind industry in its infancy. One particular area that began to experience transmission congestion was McCamey, Texas, an early target for developers of wind-energy projects.[48] Eventually, wind generation in this region overwhelmed existing transmission, and ERCOT periodically had to tell some wind farms to stop producing power.[49] As a result, many wind-

39. *See id.* at 62–64 (describing how wind developers were avoiding the Panhandle region, for example, despite the fact that the region has very promising wind resources).

40. James Griffin & Steven L. Puller, *Introduction: A Primer on Electricity and the Economics of Deregulation*, *in* ELECTRICITY DEREGULATION, *supra* note 34, at 1, 2.

41. *Id.*

42. *Id.* at 2–3.

43. *See id.* at 3 (discussing the rise of wholesale trading).

44. *See id.* (noting the expanded "geographic scope of wholesale generation markets").

45. *See* SMITH ET AL., *supra* note 16, § 7.02[1] (highlighting the distance transmission lines must travel between wind farms and densely populated areas in Texas).

46. Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L. REV. 1801, 1814 (2012).

47. *Id.* (quoting Piedmont Envtl. Council v. FERC, 558 F.3d 304, 310 (4th Cir. 2009)).

48. Diffen, *supra* note 18, at 65. McCamey had been one of the great successes of the Texas wind boom, with the Texas Legislature even declaring McCamey the "Wind Capital of Texas" in 2001. *Id.*

49. *Id.*

power generators could not sell their power[50] or could not provide the power that they were contractually obligated to provide to a power purchaser.[51]

ERCOT, under PUCT's direction, stepped in to address the transmission problem, beginning construction in 2003 on new lines and finishing in 2006 with an upgraded capacity of 1,000 MW at a cost of $157 million.[52] But, the flaws in the transmission scheme were still apparent.[53] Thus, developers moved on from the McCamey area rather than deal with the problematic transmission improvement process.[54] Becky Diffen and others have described this situation as the "chicken and egg problem" of wind energy transmission.[55]

The chicken and egg problem arises because:

> Wind generation can be built very quickly, but transmission lines take significantly longer to obtain permits and be built. Developers and project financiers are unwilling to build projects when there is not adequate transmission because of the risk that the energy generated cannot be transported to places that need it. However, new transmission cannot be built unless there is a proven need, and that need does not arise until interconnection agreements are signed, security is posted, and wind farms are built. Thus, we have a chicken and egg problem because the developers cannot build wind farms without transmission, and the utilities cannot build transmission without wind farms.[56]

The CREZ process[57] was Texas's solution to its statewide chicken and egg problem.

C. Senate Bill 20

In 2005, the Texas Legislature passed Senate Bill 20 amending § 39.904 of the Texas Utilities Code.[58] The bill added subsections (g)–(j) mandating the beginning of the CREZ process.[59] The added subsections outlined that PUCT was to consult with ERCOT and establish competitive renewable

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50. *Id.*

51. *See* FPL Energy, LLC v. TXU Portfolio Mgmt. Co., 426 S.W.3d 59, 62 (Tex. 2014) (adjudicating a breach of contract claim where the defendant wind-energy generator argued it should not be held liable because its inability to meet its contractual obligations was due to ERCOT's curtailment orders).

52. Diffen, *supra* note 18, at 66.

53. *See id.* at 67 (pointing out the various problems developers had with these new lines including long wait times and capital requirements).

54. *Id.*

55. *E.g.*, SMITH ET AL., *supra* note 16, at § 7.02[1]; Diffen, *supra* note 18, at 66.

56. Diffen, *supra* note 18, at 49.

57. TEX. UTIL. CODE ANN. § 39.904 (West 2007); 16 TEX. ADMIN. CODE § 25.174 (2013) (Pub. Util. Comm'n of Tex., Competitive Renewable Energy Zones).

58. UTIL. § 39.904. *See generally* Diffen, *supra* note 18, at 69 (providing background on the content of Senate Bill 20 and the creation of the CREZ plan).

59. UTIL. § 39.904; Diffen, *supra* note 18, at 69.

energy zones in areas with strong renewable-energy resources and "develop a plan to construct transmission capacity necessary to deliver to electric customers, in a manner that is most beneficial and cost-effective" considering the level of financial commitment of renewable-energy generators in those areas in doing so.[60] The next step was for PUCT to enact rules to implement the CREZ process according to the legislature's (somewhat terse) mandate.[61]

D. The CREZ Process

PUCT Substantive Rule 25.174 was adopted in December 2006.[62] The Rule established that there would be a CREZ docket of hearings through which PUCT would determine the zones where transmission investment would be focused, connecting those zones to areas of high electricity demand.[63] The Rule explained that PUCT would select the zones based off of a consideration of the quality of the renewable-energy resources, the level of financial commitment by potential generators, and whether the construction of transmission capacity to deliver power to electric customers would be in the most beneficial and cost-effective manner.[64]

PUCT identified four main regions as prime for potential transmission improvements: the Gulf Coast, the McCamey area, central-western Texas, and the Panhandle.[65] Fairly early on, the Gulf Coast was removed from consideration,[66] as an ERCOT study noted that the region had a lower capacity factor (a measurement of the wind-power-generation potential of a particular location)[67] than the other regions and that the region requires the least transmission investment per MW for wind farms to get their power to market.[68] The study also noted that new bulk transmission lines would be

60. UTIL. § 39.904(g).

61. Diffen, *supra* note 18, at 69. It is notable that the CREZ process was initiated by such a simple mandate, leaving the actual details to PUCT.

62. 16 TEX. ADMIN. CODE § 25.174; Diffen, *supra* note 18, at 69.

63. 16 TEX. ADMIN. CODE § 25.174(d).

64. *Id.*

65. ELEC. RELIABILITY COUNCIL OF TEX., ANALYSIS OF TRANSMISSION ALTERNATIVES FOR COMPETITIVE RENEWABLE ENERGY ZONES IN TEXAS 31 (2006) [hereinafter ERCOT TRANSMISSION STUDY], *available at* http://www.ercot.com/news/presentations/2006/ATTCH_A_CREZ_Analysis_Report.pdf, *archived at* http://perma.cc/Z4Q8-6APY.

66. *See* ELEC. RELIABILITY COUNCIL OF TEX., COMPETITIVE RENEWABLE ENERGY ZONES (CREZ) TRANSMISSION OPTIMIZATION STUDY 2 tbl.1 (2008) [hereinafter ERCOT FINAL STUDY], *available at* http://www.ercot.com/news/presentations/2008, *archived at* http://perma.cc/5S82-DU6X (identifying the zones designated for further study by PUCT).

67. *Id.* at 8, 57.

68. *Id.* at 57. ERCOT forecasted that the Gulf Coast region would have a capacity factor at the projected Level 1 of increased MW production of 38.3% compared to 40.1%, 40.5%, and 43.2% for the central-western, McCamey, and Panhandle regions, respectively. *Id.* at 46 tbl.5. The transmission capital costs for the same level of increased production were projected to be $15 million for the Gulf Coast, as opposed to $376 million, $320 million, and $265 million for the other regions, respectively. *Id.*

needed in order to support further wind-energy development in West Texas and that the Panhandle region had an especially high capacity factor.[69]

The CREZ hearings began in January 2007.[70] The process was a substantial one in scope with a wide swath of stakeholders involved.[71] Along the way, a number of studies were commissioned regarding the plans for investment, providing technical data, and projecting various scenarios of investment allocation.[72] These scenarios considered different levels of increased transmission capacity divided up along different regions prime for wind-energy production.[73] One such study was the GE Ancillary Services Study, which "concluded that with existing technology and operations, the grid could manage 15,000 MW of wind without radical alterations."[74] This study was commissioned early in the process, which explains why it only considered the effect of up to 15,000 MW of wind power.[75] All but one of the scenarios PUCT selected for consideration projected total wind-energy transmission capacity after the new lines were installed of over 15,000 MW, which was the benchmark established in the Ancillary Services Study.[76]

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69. *Id.* at 57. Further, it was apparent from CREZ hearings that the bulk of the support from developers was for transmission investment in West Texas and the Panhandle. *See* E-mail from Lisa Chavarria, *supra* note 35. Describing the support for investment in those areas, Lisa Chavarria explained:

> [W]ind developers that had steel in the ground or were constructing projects in West Texas heavily supported the Central CREZ and McCamey. At that time, wind developers had a lot of areas leased in the [Panhandle] and wanted to send that wind into ERCOT. The wind resource in West Texas is very good but the [Panhandle] is excellent (some sites are rumored to be above a 50% capacity factor)[,] so they wanted to harness that resource[]. Because these areas had the most support[,] the Commissioners had the most confidence that the transmission in these areas would be used and useful and that was how the CREZs that moved forward were selected. I think only two or three developers supported any coastal spots.

Id.

70. Smith & Diffen, *supra* note 20, at 202.

71. *See id.* (describing the process as including over 65 intervening parties and 1,400 documents filed). The process included 24,000 MW of financial commitment testimony across 16 proposed zones. *Id.*

72. *See, e.g.*, ERCOT TRANSMISSION STUDY, *supra* note 65, at 1 (studying "the potential for wind generation development in Texas and the transmission improvements necessary to deliver . . . capacity to electric customers").

73. *See, e.g.*, ERCOT FINAL STUDY, *supra* note 66, at 2 tbl.1 (studying the transmission plans for four scenarios of wind generation).

74. Smith & Diffen, *supra* note 20, at 205.

75. *Id.*

76. Tex. Pub. Util. Comm'n, *Commission Staff's Petition for Designation of Competitive Renewable Energy Zones*, Docket No. 33672, at 11 tbl.1 (Aug. 15, 2008) [hereinafter CREZ Final Order] (final order designating certain areas as CREZs). In response to motions for rehearing, PUCT subsequently released an updated order on rehearing. Tex. Pub. Util. Comm'n, *Commission Staff's Petition for Designation of Competitive Renewable-Energy Zones*, Docket No. 33672, at 30 (Oct. 7, 2008) (final order on rehearing designating certain areas as CREZs). The substantive portions discussed above were not materially altered by the Order on Rehearing.

On August 15, 2008, PUCT filed its Final Order.[77] PUCT chose as the CREZ plan of investment a scheme that would spend over $6.7 billion[78] to build transmission lines adding 11,553 MW of capacity designated to support renewable-energy production connecting West Texas and the Panhandle to electric demand,[79] which would complement the existing capacity to transmit 6,903 MW of renewable energy to reach a total of 18,456 MW.[80] The regions selected included, critically, the northern part of the Texas Panhandle[81]—an area that is actually outside of the ERCOT electric grid that covers most of the state. The northern part of the Panhandle is covered by SPP,[82] which also covers several states to the north of Texas.[83] That part of the Panhandle is also one of the windiest areas in Texas.[84] Unfortunately, along with the chicken and egg problem in that region, there is also significant dissatisfaction with SPP among wind-power producers in comparison to ERCOT, which further depresses wind production in that grid.[85] PUCT chose to connect the region to power demand in ERCOT even though it was not previously connected to the ERCOT grid at all, opening up that extraordinarily windy area to increased wind-energy development.[86]

With the Final Order in place, the CREZ process moved on to the next stage: construction of the transmission lines. The estimated completion date for the projects was the end of 2013; almost all of the projects met that goal.[87]

However, the Panhandle investments, which have proven problematic in some ways, represent one hiccup in the process. Unfortunately, those investments have encountered stability problems and have provided less capacity than anticipated power generation.[88] As a result, a Panhandle Renewable Energy Zone (PREZ) study was commissioned, which studied two scenarios for future investment of an added capacity of either 5,043 MW

77. CREZ Final Order, *supra* note 76, at 1.

78. CREZ PROGRESS REPORT NO. 14, *supra* note 21, at 10.

79. CREZ Final Order, *supra* note 76, at 11.

80. Smith & Diffen, *supra* note 20, at 205.

81. *See* Diffen, *supra* note 18, at 74 fig.1 (showing the regions chosen for investment).

82. *Id.* at 64.

83. *About SPP*, SOUTHWESTERN POWER POOL, http://www.spp.org/section.asp?pageid=1, *archived at* http://perma.cc/ZSM3-DJMZ.

84. Diffen, *supra* note 18, at 62.

85. *See id.* at 64 (noting the adverse factors associated with the Panhandle region's connection to the SPP grid that contribute to the lack of wind farm development in that area); *supra* note 33.

86. *See* Smith & Diffen, *supra* note 20, at 204–07 (explaining PUCT's rationale for choosing a comprehensive transmission optimization plan connecting the Panhandle region to the ERCOT grid).

87. CREZ PROGRESS REPORT NO. 14, *supra* note 21, at 6 tbl.

88. *See* SHUN-HSIEN HUANG ET AL., ELEC. RELIABILITY COUNCIL OF TEX., PANHANDLE RENEWABLE ENERGY ZONE (PREZ) STUDY: STUDY REPORT 3–4 (2014) [hereinafter PREZ REPORT], *available at* http://www.ercot.com/content/news/presentations/2014/Panhandle%20Renewable%20Energy%20Zone%20Study%20Report.pdf, *archived at* http://perma.cc/Z9NM-UC6P (describing stability problems and the mismatch between transmission capacity and demand).

or 7,845 MW.[89] That need, however, is driven by extraordinary demand for transmission in the region due to the huge growth in wind power generation,[90] which, in turn, can be interpreted as a sign of the success of this piece of the CREZ process.

Now that the CREZ process has reached its completion, we can take a step back and evaluate what the process can tell us about the effectiveness of using improvements in transmission infrastructure to facilitate wind-energy development.

E. Learning from Success

Renewable-energy advocates and many who champion good governance have almost universally praised the CREZ experience.[91] The reason for this praise seems fairly obvious: in the simplest terms, the CREZ process did what it set out to do. Over $6.5 billion of transmission lines were built, enabling the windiest parts of the state to connect to regions where the power could actually be used.[92] Before CREZ, there was less than 7,000 MW of renewable-energy transmission capacity.[93] Thanks to CREZ, Texas was able to reach 12,000 MW[94] of wind energy generation and the capacity to transmit over 18,000 MW of renewable energy.[95]

This type of massive growth would have been impossible without CREZ. When the process began, there was concern about whether wind energy development would come to fill the increased transmission capacity; basically, whether Texas was building a very expensive egg that would never hatch.[96] That concern has clearly turned out to be unfounded.[97]

There are several notable factors that enabled CREZ's success. Because the project was limited to ERCOT—which the federal government does not

89. *Id.* at 5.

90. *See id.* at i (noting that the need to enhance the system's strength is due to increased wind generation output in the region).

91. *See, e.g.*, King, *supra* note 28, at 319 n.69 (citing several commentators and industry experts that have recommended that other states should adopt Texas's CREZ approach). *But see* Klass & Wilson, *supra* note 46, at 1846–47 (noting that Texas has been criticized for not engaging in sufficient long-term planning with the CREZ process).

92. CREZ PROGRESS REPORT NO. 14, *supra* note 21, at 10.

93. CREZ Final Order, *supra* note 76, at 2.

94. AM. WIND ENERGY ASS'N, *supra* note 22, at 5.

95. CREZ Final Order, *supra* note 76, at 11; CREZ PROGRESS REPORT NO. 14, *supra* note 21, at 2.

96. *Cf.* Casey Wren, *Texas Renewable Energy Update: If You Build It, Will They Come?*, *in* ENERGY, UTILITY, TRANSPORTATION AND ENVIRONMENTAL LAW FOR THE 21ST CENTURY, *supra* note 18, at 58, 58 (questioning whether the renewable energy market will make use of the newly developed transmission capacity).

97. *See* SMITH ET AL., *supra* note 16, § 7.02[3][C] (noting that developers are already concerned that transmission capacity may be congested in the near future).

regulate[98]—and because Texas has almost no federal land,[99] it was not subject to federal oversight. This absence of federal involvement allowed the project to escape what is normally a major regulatory hurdle.[100] Transmission investment efforts virtually everywhere else in the country do not enjoy this advantage.[101] Further, because the entire project was confined to one state, the level of complexity was substantially decreased.[102]

Additionally, Texas smoothly cleared one of the greatest hurdles to successful transmission development: determining who pays.[103] The CREZ investments were paid for by all of the taxpayers of Texas, regardless of whether they would directly benefit from the lines that were being built.[104] Texas chose to spread the cost across the entire tax base rather than trying to put the burden on generators or power retailers, which avoided a complicated struggle between the interested parties. By placing the cost on the citizens of Texas[105]—many of whom will not directly benefit from the power—the state effectively decided that encouraging wind energy is in the interest of the entire state. Texas will recoup the cost of the CREZ investment from its citizens' electric bills, which PUCT estimates will be recovered over the next 15–20 years at about $70–$100 a year.[106]

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98. Baldick & Niu, *supra* note 34, at 184.

99. *See A Spread of One's Own*, ECONOMIST, Nov. 19, 1998, http://www.economist.com/node/176738, *archived at* http://perma.cc/UP3F-C24V (noting that the federal government owns less than 2% of Texas land). In other states, particularly in the west, the presence of federal land forces the involvement of federal land agencies that often have dilatory and elaborate processes for approving land uses. *See* SMITH ET AL., *supra* note 16, § 6.03 (noting that wind farms on federal land have to reckon with the National Environmental Policy Act).

100. *See* Baldick & Niu, *supra* note 34, at 184 (suggesting that the "presence of a single regulatory authority over ERCOT" circumvents typical regulatory disputes that exist in most other states).

101. *See id.* ("The jurisdictional arrangement for ERCOT is unlike the case in the other lower forty-seven states where jurisdiction is split between the FERC and state public utility commissions.").

102. It was possible to limit the effort to Texas because of the size of the state and the reality that Texas has both the wind resources and the population to utilize the energy it can produce. In contrast, many states must try to find a way to cooperate with other states when they invest in transmission infrastructure. *See* Klass & Wilson, *supra* note 46, at 1831 ("With perhaps the exception of Texas, . . . most states are dependent on other states for energy imports or exports and cannot construct transmission lines for such interstate imports and exports without working with other states.").

103. Michael J. Thompson, *The Conundrum of Multistate Electric Transmission Expansion: Who Will Pay?*, *in* ENERGY, UTILITY, TRANSPORTATION AND ENVIRONMENTAL LAW FOR THE 21ST CENTURY, *supra* note 18, at 11, 12.

104. *See, e.g.*, SUSAN COMBS, TEX. COMPTROLLER'S OFFICE, TEXAS POWER CHALLENGE: GETTING THE MOST FROM YOUR ENERGY DOLLARS 11 (2014) [hereinafter COMPTROLLER CREZ REPORT] ("The PUC has begun to study whether *future transmission infrastructure* costs should continue to be paid by *all ratepayers* . . . ."). Further, because of the intrastate nature of the project, the question of which states pay and in what proportion was avoided.

105. *See id.* at 2, 11 (outlining the mechanism that will recover the cost of the CREZ transmission upgrades); CREZ PROGRESS REPORT NO. 14, *supra* note 21, at 10 (noting the substantial ultimate cost of the CREZ process).

106. COMPTROLLER CREZ REPORT, *supra* note 104, at 11.

This approach is not universally popular by any means. The chairman of PUCT released a public letter in May of 2014 questioning the wisdom of continued taxpayer funding of transmission lines to encourage renewable energy.[107] She noted the problems with stability in the Panhandle examined in the PREZ report and commissioned a study to examine whether transmission improvement costs should be borne by wind-energy producers going forward.[108] The Texas Comptroller of Public Accounts released a similar report outlining the public funding that the wind-energy industry has received, including CREZ.[109] She argues:

> The renewable sector has benefitted most from the $6.9 billion CREZ transmission infrastructure that is already in place. It should not proceed with future investments that would require significant infrastructure development over opportunities to maximize the existing grid, especially if these investments require tax abatements or other subsidies to be financially viable.[110]

The chairman and comptroller raise viable further arguments against the funding of transmission to encourage renewable energy.[111] However, for the most part, their criticisms center around objections to continued subsidization of the wind-energy industry, which the chairman describes as a "mature" industry while questioning the wisdom of the (currently expired) PTC,[112] and the comptroller urges should be made to "stand on its own feet."[113]

There is no doubt that important facet of CREZ is its operation as a subsidy, and there are a variety of reasons to support or oppose some level of subsidization of the renewable energy industry. But the wisdom of subsidies to encourage renewable energy is beyond the scope of this Note, though it is worth noting that the most common rationales for encouraging renewable energy are not mentioned or dealt with by the chairman or comptroller: namely, its environmental and clean-air benefits as a replacement of fossil-fuel power generation.[114] Rather, this Note seeks to evaluate the *effectiveness*

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107. Memorandum from Donna Nelson, Chairman, Pub. Util. Comm'n of Tex., to Kenneth W. Anderson Jr., Comm'r, Pub. Util. Comm'n of Tex., & Brandy D. Marty, Comm'r, Pub. Util. Comm'n of Tex. 2 (May 29, 2014) [hereinafter PUCT Chairman CREZ Memo], *available at* http://www.puc.texas.gov/agency/about/commissioners/nelson/pp/Memo_42079_05292014.pdf, *archived at* http://perma.cc/8FKV-BH3H.

108. *Id.* at 2–3.

109. COMPTROLLER CREZ REPORT, *supra* note 104, at 11–13.

110. *Id.* at 15.

111. *See* COMPTROLLER CREZ REPORT, *supra* note 104, at 15 (raising concerns about the burden of the CREZ costs on Texas electric ratepayers, among other concerns); PUCT Chairman CREZ Memo, *supra* note 107, at 2–3 (expressing concern that renewable-power production puts particular strain on the grid).

112. PUCT Chairman CREZ Memo, *supra* note 107, at 1.

113. COMPTROLLER CREZ REPORT, *supra* note 104, at 14.

114. *See Renewable and Alternative Fuels*, ENVTL. PROTECTION AGENCY, http://www.epa.gov/otaq/fuels/alternative-renewablefuels/index.htm, *archived at* http://perma.cc/9BCN-3VR7 (discussing the benefits of increased use of renewables as opposed to fossil fuels). It is also worth noting that this particular subsidy is in part necessitated by the nature of the power source, as

of the subsidy, and it has been extremely effective as discussed above, to a significant degree because it is not just a financial benefit, but also a solution to a problem other actors have difficulty solving, i.e., the chicken and egg problem. As noted by both the chairman and comptroller, the financial viability of renewable generation has been largely dependent on the (currently expired) federal PTC;[115] however, when in effect, the PTC has been available in every state, and other states spend a large amount of money subsidizing renewable energy but few have had the success of the Texas wind-energy industry enabled by CREZ.[116] Therefore, if Texas decides to continue to support its renewable-energy industry—which it may not as shown by public statements, such as these by government officials—transmission investment utilizing taxpayer funds has proven effective.

In sum, the actual mechanics of the CREZ process worked smoothly. The idea was simple but effective and tailored to the problem. Texas addressed its chicken and egg problem by making a couple of critical moves. First, it commissioned studies to evaluate the best areas for development as measured by both a region's natural wind resources and developers' financial commitment. Next, it built transmission to the selected areas well beyond existing generation, allocating the costs of construction to all ratepayers. This approach required Texas to have faith that generation would develop to fill the capacity—and it has.

III. The Other New Releases: The Renewable Energy Transmission Initiative, Western Renewable Energy Zones, and Tres Amigas

This Part will explore three other high-profile efforts to address the renewable energy transmission problem: California's Renewable Energy Transmission Initiative (RETI),[117] the Western Governor's Association's (WGA) Western Renewable Energy Zones (WREZ) initiative,[118] and the private Tres Amigas Superstation project.[119] These efforts provide context and a comparison to assess what improvements can be made for CREZ II.

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discussed in Part I, which creates a hurdle that as a structural matter is difficult for renewable power producers to overcome.

115. COMPTROLLER CREZ REPORT, *supra* note 104, at 13; PUCT Chairman CREZ Memo, *supra* note 107, at 1.

116. *State Wind Energy Statistics: Texas*, *supra* note 14.

117. *Renewable Energy Transmission Initiative (RETI)*, CAL. ENERGY COMMISSION, http://www.energy.ca.gov/reti, *archived at* http://perma.cc/9753-MSSU.

118. *Western Renewable Energy Zones*, W. GOVERNOR'S ASS'N, http://www.westgov.org/rtep/219-western-renewable-energy-zones, *archived at* http://perma.cc/7E2L-GR5Q.

119. *Overview*, TRES AMIGAS LLC, http://www.tresamigasllc.com/about-overview.php, *archived at* http://perma.cc/3T3X-PWRR.

A. The West: The Renewable Energy Transmission Initiative and Western Renewable Energy Zones

1. The Renewable Energy Transmission Initiative.—At least in terms of size (and perhaps only in those terms) there is no state more similar to Texas than California.[120] California was a leader in the early years of the American wind-energy industry. Despite having relatively poor wind resources compared to a state like Texas, California was the first state to aggressively invest in and incentivize renewable energy.[121] California has put in place one of the most aggressive RPSs in the country, requiring 33% of electricity sold in California to be generated by renewable resources by 2020.[122] As of April 2014, California had 5,830 MW of installed wind-energy-generation capacity, the second most in the country.[123] California's enormous electric demand, combined with its RPS, makes electric transmission a vital issue for the state. As recently as 2010, California was off the pace that would be needed to reach its RPS goal at that time;[124] however, a recent surge has put the state on pace to meet even its current goal.[125] In 2013, 18.77% of its power used came from renewable sources,[126] up from 10.61% in 2008.[127] However, transmission remains a significant barrier to continued growth in the industry, and realistically, California's transmission efforts must deal with both getting its wind resources to market and importing renewable

120. *See State Area Measurements and Internal Point Coordinates*, U.S. CENSUS BUREAU (Jan. 1, 2010), https://www.census.gov/geo/reference/state-area.html, *archived at* http://perma.cc/FP2T-FQ33 (showing that California is closest in size to Texas in terms of square miles); *State Rankings—Statistical Abstract of the United States: Resident Population—July 2009*, U.S. CENSUS BUREAU, https://www.census.gov/compendia/statab/2012/ranks/rank01.html, *archived at* http://perma.cc/PVW4-HPPB (noting that Texas and California are the two most populous states).

121. *See* KATE GALBRAITH & ASHER PRICE, THE GREAT TEXAS WIND RUSH 74 (2013) (describing the early days of the California wind industry).

122. CAL. PUB. UTIL. CODE § 399.11(a) (West 2014).

123. *State Wind Energy Statistics: California*, AM. WIND ENERGY ASS'N (Apr. 10, 2014), http://www.awea.org/Resources/state.aspx?ItemNumber=5232, *archived at* http://perma.cc/ECD8-MPP5.

124. Deborah Behles, *Why California Failed to Meet Its RPS Target*, 17 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163, 164 (2011). A major reason why was a lack of transmission infrastructure. *Id.* at 171–72.

125. ETHAN N. ELKIND, CLIMATE CHANGE & BUS. RESEARCH INITIATIVE, RENEWABLE ENERGY BEYOND 2020: NEXT STEPS FOR CALIFORNIA 1 (2013).

126. *Total Electricity System Power: 2013 Total System Power in Gigawatt Hours*, CAL. ENERGY COMMISSION ENERGY ALMANAC, *available at* http://www.energyalmanac.ca.gov/electricity/total_system_power.html, *archived at* http://perma.cc/L3MA-4SDB.

127. *Total Electricity System Power: 2008 Total System Power in Gigawatt Hours*, CAL. ENERGY COMMISSION ENERGY ALMANAC, *available at* http://www.energyalmanac.ca.gov/electricity/system_power/2008_total_system_power.html, *archived at* http://perma.cc/HB3A-85QC.

power into the state in order to meet its RPS, as the state already imports a substantial amount of renewable energy.[128]

California's efforts to improve electric transmission to facilitate renewable energy are necessarily shaped by the nature of its electric market. California's electric market is far more fragmented than Texas's, with overlapping regulatory bodies and stakeholders, all of which are further subject to federal regulation.[129] Therefore, there are a multiplicity of interested parties involved in any major statewide transmission improvement efforts.

In 2008, California began RETI in order to get stakeholders together to address the transmission issues that must be overcome to reach the state's RPS mandate.[130]

In Phase 1 and Phase 2, RETI's mission was to identify Competitive Renewable Energy Zones (CREZs)[131] that are the most promising regions for increased transmission investment to encourage renewable-energy development.[132] Phase 1 was completed in January 2009[133] and Phase 2 was completed in 2010,[134] identifying a total of 64 CREZs[135] and creating a conceptual plan for potential investment.[136] Phase 3, as of yet unfinished, is

128. *See* Klass & Wilson, *supra* note 46, at 1836–37 (stating that California's RPS goal "can only be fulfilled through significant wind development and transmission buildout both within and outside of California").

129. *See* Timothy P. Duane, *Greening the Grid: Implementing Climate Change Policy Through Energy Efficiency, Renewable Portfolio Standards, and Strategic Transmission System Investments*, 34 VT. L. REV. 711, 743, 767–68 (2010) (discussing several of the actors in the California electric market).

130. *California Renewable Energy Transmission Initiative Mission Statement*, CAL. ENERGY COMMISSION 3 (Apr. 25, 2008) [hereinafter *RETI Mission Statement*], http://www.energy.ca.gov/reti/Mission_Statement.pdf, *archived at* http://perma.cc/F6NK-ZZE5. Texas is not the only state that has to deal with the chicken and egg problem of wind energy development. *See Renewable Energy Transmission Initiative (RETI): Frequently Asked Questions (FAQ)*, CAL. ENERGY COMMISSION 4–6 [hereinafter *RETI FAQ*], http://www.energy.ca.gov/reti/RETI_FAQ.PDF, *archived at* http://perma.cc/Y5EH-KR9P (explaining why transmission investment cannot be left to the free market if California is to meet its RPS mandate).

131. Sound familiar?

132. *RETI Mission Statement*, *supra* note 130, at 3–4.

133. RETI STAKEHOLDER STEERING COMM., RENEWABLE ENERGY TRANSMISSION INITIATIVE: PHASE 1B, FINAL REPORT, at ES-2 (2009) [hereinafter RETI PHASE 1B REPORT], *available at* http://www.energy.ca.gov/2008publications/RETI-1000-2008-003/RETI-1000-2008-003-F.PDF, *archived at* http://perma.cc/FTP9-95BU.

134. *See* RETI STAKEHOLDER STEERING COMM., RENEWABLE ENERGY TRANSMISSION INITIATIVE: PHASE 2B, FINAL REPORT 2-2 (2010) [hereinafter RETI PHASE 2B REPORT], *available at* http://www.energy.ca.gov/2010publications/RETI-1000-2010-002/RETI-1000-2010-002-F.PDF, *archived at* http://perma.cc/M887-UTH9 (stating that the RETI Stakeholder Steering Committee voted to accept the final Phase 2 report on May 3, 2010).

135. *See id.* at 1-7 tbl.1-3 (displaying all CREZs by name).

136. RETI STAKEHOLDER STEERING COMM., RENEWABLE ENERGY TRANSMISSION INITIATIVE: PHASE 2A, FINAL REPORT 1-8 to 1-9 (2009) [hereinafter RETI PHASE 2A REPORT], *available at* http://www.energy.ca.gov/2009publications/RETI-1000-2009-001/RETI-1000-2009-001-F-REV2.PDF, *archived at* http://perma.cc/X2VE-M2DJ.

intended to develop transmission plans with California's utilities to service the identified CREZs.[137]

The idea behind RETI is that it will provide an analytical framework for decision makers to use to make decisions about transmission projects.[138] "RETI's goal is to build broad-based and, to the extent possible, consensus support for approval and construction of these major transmission facilities."[139] In this regard, at least two commentators believe that the data collection process undertaken by RETI was quite a success.[140]

RETI is not, however, a "procurement mechanism" to fund transmission projects.[141] Its primary purpose, as mentioned previously, is to identify regions for investment for decision makers based on the regions' renewable energy potential. As one commentator noted: "Perhaps more difficult, however, is determining who should pay for the billions of dollars of new transmission investment identified as needed. RETI argues that many of those investments provide system benefits, and therefore their costs should not be borne primarily by renewable generators . . . ."[142]

While RETI was inspired by Texas's CREZ experience, there are key differences between the two. Unlike the Texas CREZ process, RETI was structured to play an advisory role rather than to operate as a process for directly building transmission improvement projects.[143] RETI identified a large number of CREZs based on its analysis of the wind resources and transmission needs of the state, ranking their viability and providing a conceptual plan.[144] In contrast to CREZ, RETI was not an initiative empowered by the state and administered by a state agency, such as the California Public Utility Commission (CPUC), to actually build transmission lines to identified CREZs.[145] Instead, RETI was an effort involving many parties, and with no authority or funding to build out transmission capacity, therefore, if its efforts were to have an impact they had to be acted upon by those with the power to do so—utilities and electric retailers under the supervision of CPUC.[146]

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137. *RETI FAQ*, *supra* note 130, at 4.

138. *Id.* at 2–3.

139. *Id.* at 2.

140. Duane, *supra* note 129, at 772; Brian Scaccia, *California's Renewable Energy Transmission Initiative as a Model for State Renewable Development and Transmission Planning*, 3 CLIMATE L. 25, 47 (2012) ("The RETI process has been largely successful in its efforts to provide a comprehensive, workable plan for renewable energy development in the state of California.").

141. *RETI FAQ*, *supra* note 130, at 9.

142. Duane, *supra* note 129, at 773.

143. *See RETI FAQ*, *supra* note 130, at 1–2 (introducing the purpose of RETI as an entity meant to bring together stakeholders and advise them).

144. RETI PHASE 1B REPORT, *supra* note 133, at ES-3 to ES-6; RETI PHASE 2A REPORT, *supra* note 136, at 1-1; RETI PHASE 2B REPORT, *supra* note 134, at 1-5 to 1-9.

145. *See RETI FAQ*, *supra* note 130, at 2–3, 9 (noting that RETI's goal is to provide information for decision makers and that it is not a procurement program); *supra* subparts II(C)–(D).

146. *RETI FAQ*, *supra* note 130, at 2–3.

On one hand, this approach has the benefit of creating a resource that can be of ongoing value to CPUC and the state's utilities. Transmission upgrades to facilitate renewable-energy development are and will be needed on a continual basis over the years if renewable power is going to be a significant source of electric production.[147] By treating the need as a continuing one and not as a stand-alone investment, the problem was conceptualized correctly, and at least in theory, CPUC and utilities can now invest in transmission infrastructure to encourage renewable energy over time.[148] On the other hand, the hard process of actually funding and initiating the investment is not addressed and is largely left to the utilities.[149]

The chicken and egg problem has not been solved by RETI, and the California wind-energy industry has not experienced the boom that Texas has.[150] RETI, while helpful, has not encouraged renewable-energy development to the degree that CREZ did, which built out transmission capacity to the windy regions significantly beyond existing generation only to have the generation grow to fill it.[151]

California has seen some large-scale transmission investment, such as Southern California Edison's Tehachapi Renewable Transmission Project, designed to move 4,500 MW of wind energy out of the Tehachapi wind resource area.[152] While the project predates RETI,[153] it is an example of the sort of individual projects undertaken by an electric power retailer that RETI would later facilitate.[154] This retailer-utility-centered approach may work for California, and at least in recent years California has managed to accelerate the pace of its renewable-energy growth despite not solving the chicken and

147. *See id.* at 2–3 (recognizing the urgent need for transmission upgrades).

148. *See* Duane, *supra* note 129, at 772 (highlighting the significance of RETI's planning and evaluation model).

149. *Id.* at 773.

150. *See WINDExchange: Installed Wind Capacity*, U.S. DEPARTMENT ENERGY, http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp, *archived at* http://perma.cc/NW4C-L6KV (illustrating state-by-state progression of installed wind capacity from 1999 to 2013, with Texas starting at 184 MW and ending at 12,354 MW while California started at 1,616 MW and ended at 5,829 MW).

151. By providing a large-scale investment project to connect up wind energy generation, Texas provided certainty to generators that if they built wind farms, then they would be able to get their electricity to market. *See generally* Wren, *supra* note 96 (describing the investment and development of the CREZ initiative that increased the transmission capacity in the region).

152. Press Release, Edison Int'l, Southern California Edison Celebrates Milestone for a Major Renewable Transmission Project (May 4, 2010), *available at* http://newsroom.edison.com/releases/southern-california-edison-celebrates-milestone-for-a-major-renewable-transmission-project, *archived at* http://perma.cc/848K-UL43.

153. *See RETI Mission Statement*, *supra* note 130, at 2 (describing the 2004 formation of the study group to develop energy from the Tehachapi Wind Resource Area).

154. *RETI FAQ*, *supra* note 130, at 7–8.

egg problem as CREZ did.[155] However, it has not experienced the exponential growth that CREZ spurred on.[156]

Outside of meeting the state's RPS, utilities and retailers do not have the broad mandate to encourage renewable energy on behalf of the taxpayers of California;[157] instead they endeavor to purchase the cheapest power for their ratepayers.[158] Even as the state is now expected to reach its 2020 RPS goal, the utility-centered approach has its limits, as the utilities' interest in renewable energy only extends as far as its RPS obligation.[159] As a result, if a utility is on pace to meet its RPS obligation, it has little incentive to develop more resources or encourage the development of the most viable renewable resources.[160] California, through other governmental efforts, has in recent years been a renewable-power success story,[161] but the transmission issue remains and has not been fully solved by RETI.

2. Western Renewable Energy Zones.—A notable effort to address the problem of regional cooperation with regard to renewable-energy transmission is the WGA's WREZ initiative.[162] The WREZ initiative is very similar to RETI but also is structured to not only get stakeholders in a single state together, but to get stakeholders from across the Western Interconnection together to improve regional renewable-energy transmission planning.[163] In order to achieve a more efficient allocation of renewable resources, commentators have emphasized the need to improve regional cooperation with regard to electric transmission.[164] As one commentator

155. *See supra* notes 119–20.

156. *See WINDExchange: Installed Wind Capacity*, *supra* note 150 (charting Texas wind energy generation growing from 2,736 MW in 2006 to 12,354 MW in 2013, compared to 2,376 MW to 5,829 MW, respectively, in California).

157. *Cf.* ELKIND, *supra* note 125, at 1 ("With utilities already poised to meet the 2020 RPS, they now have little incentive to sign new renewable energy contracts.").

158. *See CPUC Mission*, CAL. PUB. UTIL. COMMISSION, http://www.cpuc.ca.gov/PUC/aboutus/pucmission.htm, *archived at* http://perma.cc/TV9N-9STF (asserting that it is part of the CPUC's mission to provide service at "reasonable rates"); *RETI FAQ*, *supra* note 130, at 4 (stating that the challenge for the energy market in California is to "foster the development of a large *quantity* of renewable resources, at the lowest possible cost").

159. *See* ELKIND, *supra* note 125, at 9 (noting that as California utilities are already set to meet the 2020 RPS goal, they have little incentive to improve the grid to facilitate renewable power generation).

160. *Id.*

161. *Id.*

162. W. GOVERNORS' ASS'N & U.S. DEP'T OF ENERGY, WESTERN RENEWABLE ENERGY ZONES – PHASE 1 REPORT 19 (2009) [hereinafter WREZ PHASE 1 REPORT], *available at* http://www.csg.org/programs/policyprograms/NCIC/documents/WREZ091.pdf, *archived at* http://perma.cc/DT8U-Q8JN.

163. *Id.* at 2.

164. *See, e.g.*, David J. Hurlbut, *Multistate Decision Making for Renewable Energy and Transmission: An Overview*, 81 U. COLO. L. REV. 677, 678, 683 (2010) (outlining the need for regional management and the issues associated with collective management of renewable resources); King, *supra* note 28, at 325 (stating the potential benefits of regional cooperation may outweigh the benefits of state isolation by comparing regional efforts with Texas's CREZ); Klass

noted: "Challenges such as reducing carbon emissions and increasing energy security—and maintaining system reliability while doing so—cross state lines, as do the most cost-effective solutions."[165]

California is an excellent example. California is not blessed with the most abundant renewable-energy resources in the country.[166] However, as mentioned above, it is dedicated to encouraging renewable-energy development and has one of the most aggressive RPSs in the country.[167] Therefore, there is a clear incentive for states that have superior renewable-energy resources and perhaps less electric demand to find terms to cooperate with California to transmit that renewable energy into California.[168] However, as of yet, interregional cooperation has been a struggle.[169]

WREZ is an effort to change that. WREZ is a collaboration between the WGA and the federal government.[170] It was designed to identify Renewable Energy Zones (REZs) with promising renewable resources; develop a conceptual transmission plan to move power from REZs to high-demand areas; coordinate procurement to support commercial transmission projects and a regional market for renewable resources; and build interstate cooperation to facilitate transmission approvals, allocate costs, and ensure cost recovery.[171]

The latest WREZ report was released in February 2012.[172] The report is a summary of interviews conducted with "25 utilities, 11 public utility commissions . . . and two provincial energy ministries to learn their views on potential collaboration to develop []REZ hubs" that had been identified in previous reports.[173] The report concluded that based off of current and projected transmission improvements: "[S]ome of these lines will reach []REZ hubs, [but] most will remain inaccessible. Continued isolated procurement by individual utilities will not lead to major development of these renewable-rich areas and the requisite transmission."[174]

& Wilson, *supra* note 46, at 1803 (stating that policies designed to encourage renewable energy will only be effective with regional cooperation).

165. Hurlbut, *supra* note 164, at 678.

166. GALBRAITH & PRICE, *supra* note 121, at 73–74 (explaining that California is ranked nineteenth in the country in wind-power capacity because of its geography).

167. *See supra* note 117 and accompanying text.

168. *See* King, *supra* note 28, at 321 (noting export opportunities for wind-rich states).

169. *See generally* Klass & Wilson, *supra* note 46 (discussing barriers to interregional cooperation such as cost-allocation disputes, speed, and state power over transmission-line siting).

170. WREZ PHASE 1 REPORT, *supra* note 162, at 2.

171. *Id.* at 2–3; *WREZ Frequently Asked Questions*, W. GOVERNORS' ASS'N, http://www.westgov.org/102-articles/initiatives/222-wrez-frequently-asked-questions, *archived at* http://perma.cc/8NWX-TVZN.

172. Lisa Schwartz, W. GOVERNORS' ASS'N, RENEWABLE RESOURCES AND TRANSMISSION IN THE WEST: INTERVIEWS ON THE WESTERN RENEWABLE ENERGY ZONES INITIATIVE (2012) [hereinafter WREZ PHASE 3 REPORT].

173. *Id.* at vi.

174. *Id.*

The utilities largely indicated that their interest was in developing REZs close to their location rather than in the most technically viable zones.[175] Additionally, the report noted:

> While utilities and regulators were nearly universal in their support of the open season approach to amass financial support for transmission projects, it likely is insufficient to develop long interstate lines to []REZ hubs. The chicken and egg problem remains: Generators will not make financial commitments for transmission absent a power purchase agreement with utilities, which will not sign such agreements absent transmission assurance.[176]

This latest report emphasizes that the real struggle is the step not yet taken. Identifying the REZs did little to alleviate the problems involved in improving regional transmission to facilitate renewable-energy development[177] because merely providing information identifying zones that are well suited for renewable-power generation does not change the economic perspective of utilities.[178] Without an actor to actually pay for and build the transmission, operating with a mandate to more efficiently develop renewable resources, the information will not be most efficiently utilized; WREZ demonstrated that utilities cannot be expected or counted on to build transmission to encourage renewable energy except to comply with an applicable RPS, even when provided extensive data about the most promising regions for development.[179] Therefore, utilities cannot be counted on to solve the chicken and egg problem. As of yet, no meaningful agreement to cooperate in sharing costs to build transmission connecting areas identified by WREZ as prime for renewable generation to electric demand has emerged.[180] Like RETI, the WREZ initiative falls short of overcoming the hurdle of transmission standing in the way of the growth of the renewable-power industry.

B. The Impact of Private Investment: The Tres Amigas Superstation

Private investment in transmission can also have a significant impact on the development of renewable energy generation, as demonstrated by the Tres Amigas Superstation project.

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175. *Id.* at 12, 16 tbl.5.

176. *Id.* at ix.

177. *See id.* at 16 tbl.15 (noting that the preferred renewable energy zones identified by utility stakeholders did not align with the areas WREZ deemed most economic).

178. *See id.* at 30 (noting that cost and cost-effectiveness was the overwhelming driver for utilities' "resource planning and procurement").

179. *Id.* at vi–vii.

180. *See id.* at xi–xii (recommending that parties consider "harmonizing renewable energy credits" across jurisdictions and modifying "cost recovery statutes in order to facilitate interstate transmission lines").

Tres Amigas is a planned $2 billion private project in New Mexico that aims to connect the electric grids of the country together with new conductive technology.[181] As stated on the project's website:

> Tres Amigas, LLC will unite the nation's electric grid. Utilizing the latest advances in power grid technology, Tres Amigas is focused on providing the first common interconnection of America's three power grids to help the country achieve its renewable energy goals and facilitate the smooth, reliable and efficient transfer of green power from region to region.[182]

In theory, the Tres Amigas project will provide the capability for states to more efficiently import or export energy, including allowing the transfer of energy produced from renewable sources to states that have less abundant renewable resources. This capability could be very impactful if a federal RPS were to be adopted or if states enact RPSs that allow for the importation of renewable energy, allowing exportation and importation that could greatly encourage development in an economically efficient manner.

Further, Tres Amigas touts on its website:

> By creating a market hub for renewable power, the Tres Amigas SuperStation will increase the incentive to build new transmission infrastructure . . . thereby enabling green energy producers to reach multiple national markets. For example, wind farms operating within the Texas Interconnection could feed into the Tres Amigas SuperStation and export their power to California . . . and Chicago . . . , [or] wherever the renewable energy is needed.[183]

While the potential seems tremendous for Tres Amigas—which is nearing the beginning of construction[184]—significant barriers remain that could keep it from having a significant impact on renewable-energy development, or even being profitable for that matter.[185] For one, many states' RPSs as of now do not count generation from outside the state, which limits the demand for renewable-energy importation.[186] If this remains the case, the viability of Tres Amigas could be in jeopardy in the absence of a national RPS.

Equally crucial is the question of Texas's participation. PUCT is hesitant to agree to interconnect ERCOT with Tres Amigas out of a fear of

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181. Kate Galbraith, *Texas' Isolated Electric Grid Could Add Outside Ties*, TEX. TRIB. (Mar. 30, 2012), http://www.texastribune.org/2012/03/30/texas-isolated-electric-grid-could-add-outside-tie, *archived at* http://perma.cc/J6AG-LQWD.

182. *Overview*, TRES AMIGAS LLC, *supra* note 119.

183. *Benefits*, TRES AMIGAS LLC, http://www.tresamigasllc.com/about-benefits.php, *archived at* http://perma.cc/6FU4-GC8Z.

184. Edward Klump, *Bid to Connect Grid Needs Buy-in from Independent Texas*, ENERGYWIRE, ENV'T & ENERGY PUBLISHING (Feb. 21, 2014), http://www.eenews.net/stories/1059994882, *archived at* http://perma.cc/X53D-5SKT.

185. *Id.*

186. WREZ PHASE 3 REPORT, *supra* note 172, at 53.

subjecting ERCOT to federal regulation.[187] Donna Nelson, the PUCT chairman, once said: "There's no way we would support any [projects like Tres Amigas] if we didn't have commitment from FERC that it didn't threaten our jurisdiction . . . . [I have] always been a little leery in believing that [such projects] wouldn't cause a problem with FERC."[188] In 2010, FERC denied an application by Tres Amigas for a disclaimer of jurisdiction over ERCOT if it were to interconnect.[189] However, the order noted that "[t]he Commission did not grant the disclaimer as requested, but stated that, upon receipt of a valid application . . . the Commission could issue an order . . . allowing interconnection and transmission of electric energy between ERCOT and the Project while retaining the jurisdictional *status quo*."[190]

Hope remains that ERCOT could interconnect and retain its prized exemption from federal regulation, and there is still time to consider the matter as Tres Amigas plans to interconnect the Eastern and Western grids before Texas.[191] At the very least, SPP—which covers the Panhandle, is already subject to federal regulation from its position in interstate commerce, and therefore has nothing to lose from interconnection—has agreed to interconnect and has been approved by FERC, thus bringing part of Texas into the scope of the Tres Amigas project.[192] However, given the fact that ERCOT covers most of the state, and Texas is the largest wind-energy producer[193] and second largest state in the country, its absence from the project would be a major liability. Nevertheless, the Tres Amigas project is an intriguing private transmission investment and a concept that should factor into government decision making when addressing the problem of renewable-power transmission.

IV. Crafting a Sequel: CREZ II

If wind energy generation is to continue to grow as a portion of the electric generation mix in Texas, the transmission infrastructure of the state will necessarily have to change and develop to facilitate that growth, a reality addressed already by the state with the CREZ process. Further, other states will have to address analogous issues if they wish to emulate Texas's success. This Part will take stock and look forward to CREZ II, recommending changes to be implemented based off of the lessons from the first CREZ and other efforts to encourage renewable-energy development through transmission-infrastructure investment as discussed in Parts II and III.

187. Galbraith, *supra* note 181.

188. *Id.*

189. Tres Amigas LLC, 132 FERC ¶ 61,232. paras. 2–4 (2010).

190. *Id.* at para. 4 (footnote omitted).

191. Klump, *supra* note 184.

192. Sw. Power Pool, Inc., 143 FERC ¶ 61,030, paras. 1, 10 (2013).

193. *See* ERCOT 2014 REPORT, *supra* note 23, at 8 (noting Texas's position at the forefront of the wind energy industry).

A. The Changing Political and Economic Climate

Before beginning a discussion of recommendations for CREZ II, it is worth taking a moment to discuss today's political and economic climate and how it has changed in the years since CREZ was initiated.

Since the CREZ process began, the economic climate in the United States has changed significantly. In 2008, the Great Recession hit, and after the initial wave of spending attempting to resuscitate the economy, government spending has been a lot harder to come by.[194] Texas's economy has been better off than most,[195] but even Texas's budget shrank substantially in the years following the Great Recession.[196] With less money to go around in general, less money might be available to spend on transmission infrastructure.

The political environment around renewable energy and wind energy has changed substantially as well. At the national level, renewable-energy investment has been politicized to a significant degree in recent years. President Barack Obama has been a supporter of renewable-energy investment, both in rhetoric and substance;[197] however, this support has generated aggressive opposition from Congressional Republicans, including objections to investments made in the stimulus package passed in the early days of the Obama Administration.[198] This opposition has also manifested in fights over the Production Tax Credit (PTC), a key to the economic viability of renewable-energy projects.[199] The history of the PTC has been marked by

194. *See* Budget Control Act of 2011, Pub. L. No. 112-25, 125 Stat. 240 (codified as amended in scattered sections of 2 U.S.C.) (imposing budget sequestration significantly limiting federal discretionary spending).

195. Wendell Cox, *The Texas Growth Machine*, CITY J., Winter 2013, *available at* http://www.city-journal.org/2013/23_1_texas-growth.html, *archived at* http://perma.cc/5SDP-L7WY.

196. *See, e.g.*, *Texas House Budget Proposes Sweeping Cuts*, TEX. TRIB. (Jan. 19, 2011), http://www.texastribune.org/2011/01/19/texas-house-budget-proposes-sweeping-cuts, *archived at* http://perma.cc/QP9W-MUS6 (stating that the Texas House proposed cutting the state's budget by 16.6% during the 2011 legislative session).

197. President Barack Obama, Address to Joint Session of Congress (Feb. 24, 2009), *available at* http://www.whitehouse.gov/the_press_office/Remarks-of-President-Barack-Obama-Address-to-Joint-Session-of-Congress, *archived at* http://perma.cc/P27D-J45R ("And to support that innovation, we will invest fifteen billion dollars a year to develop technologies like wind power and solar power . . . .").

198. For example, the reaction to the failure of the solar power company Solyndra, a recipient of federal loan guarantees, reached a particular level of vitriol. *See generally Solyndra Scandal*, WASH. POST, http://www.washingtonpost.com/politics/specialreports/solyndra-scandal, *archived at* http://perma.cc/TU7M-GKSK (aggregating the newspaper's extensive coverage of the story).

199. *See* SMITH ET AL., *supra* note 16, § 5.01[1] ("It would be difficult to overstate the importance of the PTC in encouraging the development of utility grade wind farms.").

expirations and renewals,[200] but opposition has grown in recent years.[201] The PTC expired at the end of 2013[202] and has become a partisan issue, particularly in the House of Representatives where it has little backing among House Republicans.[203]

The expiration of the PTC has serious implications as a part of the changing economics of the renewable-energy industry. The economic competitiveness of wind energy is threatened both by the expiration of the PTC and the natural-gas boom enabled by fracking and horizontal drilling.[204] A slowing down of the wind industry will diminish the need for transmission improvements. On the other hand, renewable-energy technology continues to improve, changing what areas are economically viable for development and increasing the profitability of wind farms.[205]

Further, the politicization of renewable energy could have an impact on support of the wind industry at the state level, including in Texas. The Texas government has historically been very supportive of the wind industry.[206] However, the political calculus may have changed over the past several years. The Tea Party and libertarian movements have emerged as powerful forces in the Republican Party,[207] and those groups have expressed opposition to anything that could be seen as "corporate welfare."[208] This conviction has

200. ERIC LANTZ ET AL., U.S. DEP'T OF ENERGY, NAT'L RENEWABLE ENERGY LAB., IMPLICATIONS OF A PTC EXTENSION ON U.S. WIND DEVELOPMENT, at iv (2014), *available at* http://www.nrel.gov/docs/fy14osti/61663.pdf, *archived at* http://perma.cc/YB7U-UMA9; SMITH ET AL., *supra* note 16, § 5.01[1].

201. *E.g.*, Nick Juliano, *Romney Comes Out in Firm Opposition to PTC Extension*, E&E DAILY, ENV'T & ENERGY PUBLISHING (July 31, 2012), http://www.eenews.net/stories/1059968098, *archived at* http://perma.cc/J3UU-AV9Y.

202. LANTZ ET AL., *supra* note 200, at iv.

203. Richard A. Kessler, *Republican Lawmakers Target PTC*, RECHARGE NEWS, Aug. 14, 2014, http://www.rechargenews.com/wind/1373053/Republican-lawmakers-target-PTC, *archived at* http://perma.cc/DSR9-GX8T.

204. *See* Ed Crooks, *Gas Threat to Wind Farm Growth*, FIN. TIMES, May 22, 2011, http://www.ft.com/intl/cms/s/0/4eedb5bc-8490-11e0-afcb-00144feabdc0.html#axzz3EG76J7yW, *archived at* http://perma.cc/YN92-L8K8 (noting the industry perspective that shale gas production limits the attractiveness of other forms of electric production).

205. *See Wind Turbine Technology Played Key Role in Wind Energy's Record-Breaking Growth and Cost Decline*, AM. WIND ENERGY ASS'N (Mar. 14, 2014), http://www.awea.org/MediaCenter/pressrelease.aspx?ItemNumber=6218, *archived at* http://perma.cc/RL7V-RHDV (describing the impact of wind-turbine-technology improvements).

206. One need only look to the state's RPS and CREZ investments themselves for evidence of that support.

207. *See* Andrew J. Perrin et al., *Political and Cultural Dimensions of Tea Party Support, 2009–2012*, 55 SOC. Q. 625, 626–29 (2014) (discussing the rise of Tea Party popularity among Republican voters); Robert Draper, *Has the 'Libertarian Moment' Finally Arrived?*, N.Y. TIMES MAG., Aug. 7, 2014, http://www.nytimes.com/2014/08/10/magazine/has-the-libertarian-moment-finally-arrived.html, *archived at* http://perma.cc/D3N-WKG3 (describing movement of libertarians from the fringe to the mainstream and how this shift has impacted voter trends).

208. *See* Ezra Klein, *The War Between the Tea Party and K Street*, WONKBLOG, WASH. POST (Oct. 11, 2013), http://www.washingtonpost.com/blogs/wonkblog/wp/2013/10/11/the-war-between-the-tea-party-and-k-street, *archived at* http://perma.cc/5MUA-8G89 (chronicling Tea Party opposition to favorable treatment for special business interests).

manifested in part through an opposition to investment in renewable energy, which is viewed as a sort of corporate handout. Instead, some argue that the free market should determine what forms of power generation succeed.[209] Opposition to the PTC has been a part of the fight against government investment in renewable energy.[210] Even among Texas Representatives, there was widespread opposition to the PTC during the last round of debates on the issue, despite the fact that many of those Representatives hail from districts with active wind-energy development and whose districts thus have benefited significantly from the Texas wind boom.[211]

These changes in the economic and political climate could emerge as impediments to the next generation of CREZ investment. Only time will tell if they will conspire to stymie the Texas renewable-energy industry's nation-leading growth.

B. Recommended Policy Approach

The discussion above yields several recommendations for how Texas should approach CREZ II. The following principles overlay specific recommendations that endeavor to incorporate lessons from past experience and project the best path to shape the future of the electric transmission grid so as to encourage renewable energy generation:

- Do not mess with success;
- Think long-term;
- Diversify the regions chosen for investment; and
- Invest in interstate renewable transmission capacity.

1. Do Not Mess with Success.—First, CREZ II should seek to repeat the successes of the original CREZ process. From the discussion above, it is clear that in solving the chicken and egg problem of renewable-power transmission CREZ has successfully and significantly encouraged renewable-energy development. The discussion of RETI and WREZ further demon-

209. *See e.g.*, TAD DEHAVEN, CATO INSTITUTE, POLICY ANALYSIS: CORPORATE WELFARE IN THE FEDERAL BUDGET 6, 8 (2012) (discussing government subsidies, including energy subsidies, and arguing that "[d]iverting resources from business preferred by the market to those preferred by policymakers leads to losses for the overall economy").

210. *See, e.g.*, Nicolas Loris, *Let the Wind PTC Die down Immediately*, HERITAGE FOUND. (Oct. 8, 2013), http://www.heritage.org/research/reports/2013/10/wind-production-tax-credit-ptc-extension, *archived at* http://perma.cc/4T7M-5YNM (stating the position of the influential conservative think tank that Congress should let the PTC expire in 2013).

211. *See, e.g.*, Letter from Mike Pompeo, Representative, U.S. House of Representatives, to John Boehner, Speaker of the House, U.S. House of Representatives (Sept. 21, 2012), *available at* http://www.eenews.net/assets/2012/09/24/document_pm_01.pdf, *archived at* http://perma.cc/894D-YZ5G (listing forty-six Republican members of the House of Representatives, including six from Texas, who signed the attached letter explaining the Representatives' opposition to an extension of the PTC).

strates that the CREZ process was far more effective than other similar endeavors in this arena.[212]

Thus, the mechanism by which PUCT obtained financial commitments in order to identify regions to invest in[213] should be retained, as this is an effective way to discern where demand for investment is concentrated. Additionally, the state's whole tax base should continue to share the cost. As other less successful efforts have revealed, deciding who should pay for transmission improvements has been a major impediment to achieving a significant impact.[214] Allocating the costs among all ratepayers seems to be the only practicable manner to fund a large-scale, transmission-improvement push for renewable power generation, as no other discrete actor has the funds or the mandate to do so.[215]

As discussed in subpart II(E), not everyone agrees that retaining taxpayer funding of these investments is wise, namely the PUCT Chairman and Texas Comptroller of Public Accounts.[216] The perspectives of the Chairman and Comptroller are understandable and likely shared by others in Texas, but their opposition mostly revolves around the notion that wind energy should not be subsidized any longer.[217] That normative question is beyond the scope of this Note; however, if Texas decides that encouraging renewable-energy production continues to be in the interest of the entire state, it should retain the basic funding mechanism of CREZ. That is not to say that some cost recovery could not theoretically come from power generators as well as the ratepayers of the whole state, though doing so would bring into play the politically complicated problem of cost allocation. Therefore, if the goal is to encourage renewable-energy production, the administrative simplicity and subsidization effects of funding the transmission under the auspices of the entire state should be replicated.

These were the elements of CREZ key to actually solving the chicken and egg problem. The strategy of using taxpayer funds to build out capacity well beyond existing generation is the only transmission strategy that has been shown to have a large-scale stimulating effect on renewable-energy development; in Texas it has facilitated the wind boom that the state has experienced.[218] RETI and WREZ, while inspired by CREZ, did not replicate this core element of its success, instead leaving the problem in the hands of the utilities operating within the framework of RPS and other incentives.[219]

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212. *See supra* subparts II(D), III(A).

213. *See* 16 TEX. ADMIN. CODE § 25.174 (2013) (Pub. Util. Comm'n of Tex., Competitive Renewable Energy Zone) (outlining the factors going into CREZ designations).

214. *See* Duane, *supra* note 129, at 773–75 (noting the challenges of, and RETI's failure in, addressing the cost-allocation question).

215. *See infra* text accompanying notes 218–20.

216. *See supra* notes 107–13 and accompanying text.

217. *See supra* note 113 and accompanying text.

218. *See supra* notes 103–06 and accompanying text.

219. *See supra* notes 143–46, 177–78 and accompanying text.

That approach has not resulted in the sort of efficient resource development CREZ enabled, as utilities act within their incentives to meet the RPS and buy cheap power.[220] In contrast, CREZ addressed the transmission question from a state-wide, resource-development perspective, allowing it to facilitate the development of the best resources and get that power to the most people, an approach that should be replicated.

PUCT has already taken some steps towards exploring building on CREZ's success, reacting to problems in the Panhandle and the huge demand for transmission capacity there by commissioning the PREZ study to consider another surge of transmission investment in the region, though, once again, that notion has been met with some backlash as shown by the comments of the PUCT Chairman and the Comptroller.[221] In sum, CREZ stands as an example of the stimulating effect that transmission investment can have on renewable-power generation. To replicate that success, core elements of the CREZ process should be retained.

2. Think Long-Term.—Texas must also think long-term in designing CREZ II. PUCT made a mistake in this regard during the CREZ process by relying on a GE study that it commissioned early in the process. The study evaluated the effects that the increased level of transmission capacity would have on the reliability of the grid but limited its examination to adding another 15,000 MW of power generation.[222] While PUCT ultimately chose a plan that exceeded that figure, its access to information about other scenarios was constrained to some degree by the GE study.[223] PUCT must have the foresight to anticipate the future of the electric market and not limit itself by thinking too short-term.

Transmission improvements to facilitate renewable-power generation are and will be an ongoing process, the need for which will not go away if the percentage of renewable-power generation continues to grow.[224] Texas can learn from the example of RETI and WREZ, both of which endeavored to provide information that could be used by decision makers over the coming years to inform transmission investment decisions on an ongoing basis.[225]

220. *See supra* notes 157–60, 177–79 and accompanying text.

221. PREZ REPORT, *supra* note 88, at i.

222. Smith & Diffen, *supra* note 20, at 205.

223. *Id.*

224. *See Today in Energy: The Mix of Fuels Used for Electricity Generation in the United States Is Changing*, U.S. ENERGY INFO. ADMIN. (Nov. 8, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=13731, *archived at* http://perma.cc/7LS8-3VNK (stating that renewable energy is continuing to grow as a source of electricity generation, "especially in Texas"); *supra* notes 14–17 and accompanying text.

225. *See* WREZ PHASE 1 REPORT, *supra* note 162, at 2 (describing WREZ's mission in part as providing information for decision makers across the Western Interconnection to make transmission investment decisions); *RETI FAQ*, *supra* note 130, at 2 (noting the usefulness of the RETI process to CPUC planning).

Such a strategy, incorporated into the framework of CREZ, could limit the amount of repetitious studying and evaluation that would have to be done to engage in another round of investment.

However, thinking inflexibly too far down the road is risky, as conditions do change. CREZ II must endeavor to build in as much flexibility as possible, rather than lock itself into long-term assumptions.

3. Diversify the Regions Chosen for Investment.—The CREZ plan that PUCT chose in the first CREZ process focused mostly on connecting the windy areas of West Texas and the Panhandle to the more populated areas of Central Texas.[226] This decision was a wise first step. Those regions had the most promising wind resources, were most in need of interconnection, and were the most expensive regions for wind developers and utilities to build transmission themselves.[227]

CREZ II should continue to focus most of its investment in those regions for the same reasons that they were chosen in the first place. However, the next CREZ should include investments in other parts of the state, such as the Gulf Coast and Rio Grande Valley. As noted in Part II, these regions were considered in the CREZ process, but ultimately it was decided that they were less promising than those that were selected.[228] A study that was commissioned in the process noted that the wind resource along the Gulf Coast was worse and that interconnection was cheaper to build for de-velopers.[229] The most demand and need was for improvements in the Panhandle and West Texas.[230] However, the Gulf Coast and South Texas today are significantly more viable for wind projects as a result of improvements in turbine technology that have increased the capacity factor of projects.[231] Additionally, the fact that building interconnection is cheaper is not exclusively a factor weighing against inclusion; there are benefits as well. The need may be less, but building transmission also comes at lower cost. There could be an exponential stimulating effect relative to the cost.

Geographically diversifying the CREZ zones included, rather than concentrating them exclusively in West Texas and the Panhandle, would broaden the constituency of wind energy across the state, which would, in

226. *See supra* notes 77–81 and accompanying text.

227. *See* ERCOT TRANSMISSION STUDY, *supra* note 65, at 45 tbl.5, 57–58 (outlining the relevant data on the proposed regions).

228. *See id.* at 31–34 & figs.9, 10 & 11 (detailing the proposed transmission solutions for the Gulf Coast and Rio Grande Valley region); *supra* notes 62–65 and accompanying text.

229. ERCOT TRANSMISSION STUDY, *supra* note 65, at 57.

230. *See* E-mail from Lisa Chavarria, *supra* note 35 (noting developer support for those regions).

231. *See, e.g.*, Press Release, Duke Energy, Duke Energy to Build Two Wind Power Projects in South Texas (Sept. 26, 2013), *available at* http://www.duke-energy.com/news/releases/20130 92601.asp, *archived at* http://perma.cc/R4N-5YKU (announcing two 200 MW wind farms in South Texas); *Wind Turbine Technology Played Key Role in Wind Energy's Record-Breaking Growth and Cost Decline*, *supra* note 205 (describing the impact of improvements in wind-turbine technology).

turn, broaden political support for the industry. By encouraging wind-energy development in these regions that could interconnect with the Houston metro area and East Texas, the state could work towards the diversification of power generation in that area, which is an important benefit of wind-energy development.[232]

Finally, looking long-term, encouraging development along the Gulf Coast and southern Texas could help encourage offshore wind-energy development. Commercial offshore wind energy generation has not yet emerged anywhere in the United States.[233] However, the potential is significant.[234] Including in CREZ II lines from the coast to heavily populated areas such as Houston could help ease the cost of development over the coming years. For these reasons, CREZ II should include a more diversified set of regions chosen for investment.

4. Invest in Interstate Renewable Transmission Capacity.—Finally, Texas should consider investing to facilitate interstate renewable-energy transmission. CREZ II could accomplish this through investment in SPP, a separate electric grid from ERCOT that covers part of the state. In the first CREZ, lines were run into SPP territory from ERCOT territory to bring power from the Panhandle to Central Texas.[235] Texas should consider amending that decision for CREZ II, investing in SPP infrastructure to improve the capability to move renewable power to demand in that grid along with continued investment in interconnection with ERCOT in the Panhandle already being contemplated with the PREZ study.[236] Lines serving SPP could supplement the expanded presence of ERCOT in the northern Panhandle, which has been successful from the standpoint of driving wind energy production.[237]

It is logical that the Texas government and PUCT would focus on the ERCOT grid, as it covers most of the state, and likewise that there might be a lack of interest in spending money on SPP, which serves only a small part of the state.[238] Developers also prefer to interconnect with ERCOT for a

232. An ERCOT study recently found that Houston is in need of significant transmission investment. ERCOT 2014 REPORT, *supra* note 23, at 20.

233. SMITH ET AL., *supra* note 16, ch. 9, at 9-1.

234. *See generally* Ben Deninger, Note, *The Twenty-First Century Offshore Wind Boom: Why Texas Is Leading the Way*, 44 TEX. ENVTL. L.J. 81 (2014) (discussing the offshore wind potential of the Texas Gulf Coast as well as the rest of the United States, as most major population centers are located near water).

235. *See supra* notes 81–86 and accompanying text.

236. *See* PREZ REPORT, *supra* note 88, at 5 (describing the two levels of increased MW capacity being evaluated for the Panhandle).

237. *See id.* at 4 (showing signed interconnection agreements from the Panhandle region for 4,338 MW additional wind generation capacity in the future).

238. *See supra* notes 33–34 and accompanying text.

variety of business reasons.[239] The state's focus reflects the standard goal when managing the electric grid of a state: getting power to its citizens. But power is a commodity, and there are potential future benefits to be gained for Texas in exporting wind power. To analogize, it is not as if the state encourages Texans to consume all of the oil and natural gas that the state produces. There is a lot of benefit to be had by investing in transmission to serve SPP, even though it serves states other than Texas, as SPP could be Texas's path to the exportation of wind energy throughout the country.

For example, ERCOT likely will not be able to interconnect with the Tres Amigas project for fear of losing its independence from federal regulation, despite the hopes of the Tres Amigas developers.[240] SPP, on the other hand, has already had interconnection with Tres Amigas approved and, as a separate grid trafficking in interstate commerce, is already subject to oversight by FERC.[241] Therefore, if Tres Amigas works out as planned, energy produced in the Panhandle could be exported to anywhere in the country enabled by Tres Amigas.[242] Through SPP, Texas could become a wind-energy exporter while still avoiding regulatory oversight of ERCOT by FERC.[243] Over the coming decades, this could be very valuable to the state, allowing wind-generated electricity to make it to heavily populated centers across the country, theoretically helping those states meet their RPS mandates.[244] This capability would be particularly valuable in the event of a national RPS.[245]

If Texas is unable to find a way to participate in the national energy market, these sorts of opportunities will be lost. At least one commentator

239. *See* E-mail from Lisa Chavarria, *supra* note 35 (listing several reasons developers prefer ERCOT, including higher electricity rates and regulatory differences).

240. *See* Galbraith, *supra* note 181 (describing Tres Amigas's desire for ERCOT to interconnect and the hesitance of ERCOT to do so). If FERC eventually does disclaim jurisdiction over ERCOT with regard to proposed interconnection, the logic for investment in SPP would not hold, as ERCOT would be able to export and import wind energy itself. *Id.*

241. *See supra* note 192 and accompanying text.

242. *See Benefits*, TRES AMIGAS LLC, *supra* note 183.

243. *See supra* notes 187–92 and accompanying text.

244. *See Benefits*, TRES AMIGAS LLC, *supra* note 183 (describing a future where renewable energy could be transmitted across the country through Tres Amigas).

245. A proposed Wyoming wind farm shows how much benefit there is to be had in exporting power, even without a national RPS. D. CORBUS ET AL., U.S. DEP'T OF ENERGY, NAT'L RENEWABLE ENERGY LAB., CALIFORNIA-WYOMING GRID INTEGRATION STUDY: PHASE 1—ECONOMIC ANALYSIS 1 (2014). The project could export 12,000 GWh of wind power into California annually, and economic benefits could exceed costs "between $2.3 billion and $9.5 billion over 50 years on a net present value basis." *Id.* at 49. The primary impediment to the project coming to fruition is, unsurprisingly, transmission infrastructure. *See id.* at 8–12 (describing how transmission costs are factored into the cost–benefit analysis). Thus, there is a lot of profit to be had if the hurdles to connecting the wind-resource-rich areas of the country to the areas of large energy demand, in this case Wyoming to California, can be overcome,.

has voiced concerns about Texas falling behind other states in renewable-energy development if it fails to cooperate regionally.[246] However, he notes that there is not universal support for power exportation even putting aside the question of FERC jurisdiction, again based on concerns about Texas investments benefiting other states.[247] This concern is legitimate, but one that arguably should fall by the wayside if the benefits of selling power in other states are great enough.

Texas need not go it alone on this either. Texas has been a leader in encouraging renewable energy through transmission improvements; it could become a leader in regional cooperation as well. Transmission investments serving SPP would indeed benefit the citizens of other states, but Texas could seek to come to agreements with those states to share the costs.[248] The experience of WREZ is informative with regard to the difficulties involved in such agreements but also of the desire to achieve such cooperation and the opportunities available to create a more efficient allocation of renewable power across states.[249] However, there are disadvantages to involving other states, and by extension FERC, at all, as one of the strengths of CREZ was that it was relatively simple by excluding such extraneous actors altogether.[250] But at some point the advantages of power exportation may outweigh the cost of those complications, particularly given that, unlike other state and regional efforts, Texas will not be dependent on those actors to take action[251]—they can always be left by the wayside if need be.

Regardless, in the near term, investment in SPP to improve the grid's ability to transmit wind power to demand seems unlikely. For one, Tres Amigas is not up and running and there is no clear benefit to be had in the absence of large-scale, long-distance power export capability as there is more demand for the power in ERCOT. Further, even once it is, investing in SPP territory will be politically difficult given how small a piece of Texas it covers.[252] SPP is also unpopular with developers.[253] What seems more likely is more CREZ investment connecting to ERCOT in SPP territory—despite

246. *See* King, *supra* note 28, 339–47 (discussing the potential consequences, such as Texas losing wind projects and harming its own ratepayers, if Texas's jurisdictional independence from FERC becomes a barrier to future wind development).

247. *See id.* at 343 (describing how former PUCT Commissioner Barry Smitherman expressed concern, regarding the Tres Amigas project, that citizens of other states would be benefiting from the CREZ investments of Texas citizens).

248. *See id.* at 334–35 (describing PJM Interconnection's cost allocation strategy where 50% of costs of regional electric lines would be allocated on a regional basis; the strategy is designed to prevent customers of one state from bearing the costs of another state's policy decisions).

249. *See supra* section III(A)(2). *See generally* WREZ PHASE 3 REPORT, *supra* note 172 (discussing the results of interviews conducted with utilities and PUCs that were designed to learn their views on potential collaboration to develop WREZ hubs).

250. *See supra* subpart II(A).

251. *See* Baldick & Niu, *supra* note 34, at 184 (noting that PUCT has exclusive jurisdiction over ERCOT).

252. *See supra* note 33 and accompanying text.

253. *See supra* note 239 and accompanying text.

the problems that have been encountered—because of the explosion of wind development in the region, showing the desire among wind developers to have access to the ERCOT market. At some point this could produce conflict with SPP, as these transmission lines are arguably exporting power that could be generated to serve the citizens that get their electricity from SPP.

Despite these short-term realities, Texas decision makers should keep an open mind. The benefits of power exportation out of SPP could be manifold down the road, and cooperation with SPP could set the table for such a scenario.[254]

If one squints hard enough, a future becomes almost visible where a Texas electric market exists where ERCOT and SPP remain separate, but SPP lines run further south into Texas to capture wind energy to export, and ERCOT lines run all through the Panhandle to bring power down to the cities of Central Texas. Such a dynamic, should it come to pass, would follow the precedent of the first CREZ line incursions from ERCOT territory into SPP territory and provide tantalizing capabilities for Texas wind power generation in the twenty-first century.

V. Conclusion

Transmission stands as one of the greatest impediments to the development of renewable energy. This problem does not have a simple solution. Texas, through the CREZ process, has done better than most at solving the core chicken and egg problem of renewable-energy transmission, providing certainty to developers so that they can invest in renewable generation without fear that they will not be able to get that power to market.

To a significant degree, this success is unique to Texas, whose efforts have been enabled by its strong wind resource, large population, and a

254. The Mariah Project, a proposed wind farm in the north Panhandle, shows the promise of such a scenario, as it plans to position itself to feed into both SPP and ERCOT, looking at a future where it might be able to export power through Tres Amigas. *See* SCANDIA WIND SW. LLC, THE MARIAH WIND POWER PROJECT 2, *available at* http://www.scandiawind.com/images/Mariah brosjyre_orig_korr2.pdf, *archived at* http://perma.cc/6EMN-BVNV (explaining that phase one of the project will involve connecting 1,200 MW into ERCOT and 1,000 MW into Eastern Interconnection). Jens Petersen noted that the Mariah Project's position at the hinge of ERCOT and SPP is not critical to the early stages of the project. E-mail from Jens Petersen, Managing Dir., Alpha Wind Energy, to author (Apr. 2, 2014, 8:42 PM CST) (on file with author). But, discussing the long-term implications of the Mariah Project, Petersen said:

> This is probably the only place in the world where you have the option to connect to more than one viable grid. If the ERCOT grid gets saturated over time it will be possible to obtain [two] connections and sell power at any given time to whatever grid has the highest price. . . .
>
> It is important to note that we see the Texas Panhandle as the place in the world right now where wind energy can be produced at the lowest possible price [per] kWh. At the same time the potential for construction is almost endless. This means that in the future this will be one of the most important hubs for wind energy production in the USA.

Id. The Mariah Project, at least theoretically, will be situated such that if there is a day when it makes economic sense, it can sell power throughout the country to the best price available.

relatively simple electric market that stands largely immune from federal regulation. The problem, it turns out, is far simpler for Texas than for other states, as Texas is able to operate in its own sphere without federal involvement and without a need to cooperate with other states. Still, its example provides a useful case study for other states to strive for and an example of the growth that is possible with aggressive state investment.

But Texas should not rest on its laurels. In order to maintain its position as a leader in the renewable-power industry, it must learn from the past and from other transmission investment efforts. The day will come again when Texas will have to act to address the renewable-energy transmission question, or else lose its pole position in this burgeoning industry. The CREZ process came about to a significant degree not because of projected future congestion but because of pressure from existing congestion created by a bottleneck of wind-energy development.[255] This could happen again, and soon. ERCOT projects that through 2016 wind power generation will reach 18,202 MW[256] as opposed to present transmission capacity of 18,456 MW.[257] This Note attempts to suggest some improvements that could be incorporated into these efforts for CREZ II. The sequel will almost never be viewed as the shining success of the first release, but Texas should be able to avoid the unenviable fate of the worst sequels and continue to push forward as a leading state in the American renewable-energy industry.

—R. Ryan Staine

255. *See supra* subpart II(B).

256. ERCOT 2014 REPORT, *supra* note 23, at 8.

257. *See supra* note 20 and accompanying text.