

TEXAS ENVIRONMENTAL LAW JOURNAL

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The purpose of the *Texas Environmental Law Journal* is to provide members of the Environmental and Natural Resources Law Section of the State Bar of Texas and the public with legal articles and recent development columns on relevant environmental and natural resources law issues. The *Journal* also provides news of Section activities and other events pertaining to this area of law. The *Journal* is the leading source for articles on Texas environmental and natural resources law.

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The *Texas Environmental Law Journal* is an official publication of the Environmental and Natural Resources Law Section of the State Bar of Texas and is published jointly with the University of Texas School of Law's *Texas Environmental Law Journal*. In 1990, the Environmental and Natural Resources Law Section reached an agreement with this student organization at the University of Texas School of Law to co-produce the *Journal* as the *Texas Environmental Law Journal*. The students' involvement began with the summer issue in 1990.

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With Volume 39, the *Journal* changed from a quarterly publication to a triannual publication (Fall, Winter, and Spring & Summer). Also, the *Journal* is no longer carrying the "Changes in the Environment" section. Those announcements can be found on the Section's website at www.texenrls.org.

LETTER FROM THE EDITORS

Dear Readers,

In this issue's Lead Article, "The Allocation of Water During Times of Drought: TCEQ's Proposed Rules Under Texas Water Code § 11.053," **Douglas G. Caroom** looks at the Texas Commission on Environmental Quality's recently proposed and controversial rules related to its authority under recently enacted legislation to allocate water during periods of drought or other water shortage emergencies. In his Article, Mr. Caroom not only provides a history and analysis of the proposed rules, but focuses on the comments the rule has received. Mr. Caroom warns that the rules could eventually lead to litigation.

In the first of two Student Notes, "Better Together: Co-Siting Wind and Solar Production in Texas," **David Francis** advocates for co-siting, the placement of wind and solar generation at one site, in Texas. Mr. Francis explains how co-siting would allow utilities to harness the power of both of these alternative energy sources in a way that minimizes the effects of both sources' intermittent characteristics. Mr. Francis additionally explores why Texas is uniquely situated and how the state's climate would allow it to maximize the benefits derived from co-siting. Finally, this Note looks at how policy-makers can incentivize co-siting as an energy solution in Texas.

In our second Student Note, "Groundwater Rights and the Endangered Species Act: Potential ESA Suits When S.B. 332 is Implemented," **Catherine Bennett** warns of Senate Bill 332's potential implications. The bill, which amends chapter 36 of the Texas Water Code, recognizes landowners' ownership interest and right to produce the groundwater below their land. Ms. Bennett argues that, if the legislation allows for mismanagement of the aquifer, there could be increased litigation under the Endangered Species Act. Ms. Bennett's concerns are made all the more timely given the Texas Supreme Court's recent decision in *Edwards Aquifer v. Day*, where the court confirmed that landowners have an ownership interest in groundwater before they produce it and held that the Edwards Aquifer Authority's regulation of that groundwater may constitute a taking that requires just compensation.

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THE ALLOCATION OF WATER DURING TIMES OF DROUGHT: TCEQ'S PROPOSED RULES UNDER TEXAS WATER CODE § 11.053

BY DOUGLAS G. CAROOM

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I. INTRODUCTION

The Texas Commission on Environmental Quality (TCEQ) recently proposed rules to implement its new authority under Texas Water Code § 11.053 to enter emergency orders allocating water during “a period of drought or other emergency shortage of water.”¹ When the rules were proposed, TCEQ staff advised the Commissioners, “*Rulemaking will be very controversial on all issues* including definitions, how suspensions and adjustments are made, drought contingency plans, conditions for issuing an order, and appeal procedures.”² In this prognostication, the staff was certainly correct.

The draft rules have generated considerable interest and significant comments.³ Many are concerned, in spite of assurances to the contrary in comments that accom-

1 TEX. WATER CODE ANN. § 11.053(a) (West 2011).

2 Memorandum from Stephanie Bergeron Perdue, Deputy Dir., Office of Legal Services, Tex. Comm'n on Env'tl. Quality to Commissioners, Tex. Comm'n on Env'tl. Quality (Sept. 29, 2011), available at http://www.tceq.texas.gov/assets/public/legal/rules/rule_lib/proposals/11033036_pex.pdf.

3 The draft rules are currently scheduled for Commission consideration and adoption on April 11, 2012. *Editor's Note*: Revised proposed rules were released for review on March 23, 2012, after this article was scheduled for publication. See Tex. Comm'n on Env'tl. Quality, Docket No. 2011-1252-RUL. *Consideration of the adoption of new 30 TAC Chapter 36, Suspension or Adjustment of Water Rights During Drought or Emergency Water Shortage* (Mar. 23, 2012), available at <http://www7.tceq.state.tx.us/uploads/eagendas/Agendas/2012/4-11-2012/2011-1252-RUL.pdf>. Staff has proposed additional restrictions that may be used by the commission on favored municipalities and power generators exempted from a priority call to substantially tighten the rules, and both ensure that exemption from the priority call is necessary and to encourage planning to meet future water and not relying on future exemptions. However, the underlying

pany the draft rules, that the rules would give TCEQ the authority to allocate water during drought or emergency conditions in a manner that does not conform to the prior appropriation rule of “first in time is first in right.” Because perfected surface water rights, based upon the priority principle, are constitutionally protected property rights,⁴ the issue merits serious examination.

This article will explore the historical and legal background behind the legislature’s adoption of Texas Water Code § 11.053, describe TCEQ’s proposed rules, and summarize as well as address the issues raised in comments submitted on the draft rules.⁵

II. BACKGROUND—LAW PRIOR TO THE 82ND SESSION

The law of prior appropriations, reflected by Texas Water Code § 11.027’s straightforward declaration that “first in time is first in right,” dates back to 1889 when the law of prior appropriations was adopted for the arid portions of the state.⁶ The Irrigation Act of 1913 expanded the application of the prior appropriation doctrine to the entire state.⁷

Although riparian rights derived from both civil and common law grants of land from the State of Texas or one of its predecessor sovereigns were originally not included within the prior appropriation doctrine,⁸ the Water Rights Adjudication Act⁹ provided for adjudication and definition of all such unrecorded claims of water rights, including establishing priority dates for their administration within the priority system. Only rights to the use of water for domestic and livestock purposes were excluded from the adjudication process.¹⁰ Additionally, other uses defined by Texas Water Code § 11.142 are authorized without obtaining a permit and are not on the prior appropriation system. Besides domestic and livestock uses, these include: non-commercial fish and wildlife purposes, drilling and production of oil and gas, sediment control associated with surface mining activities, historic cemeteries, and mariculture activities.¹¹

The Wagstaff Act, adopted in 1931,¹² provided the water use preference list currently found in Texas Water Code § 11.024. The Wagstaff Act ranked uses in the following order: domestic and municipal, agricultural and industrial, mining, hydroelec-

issues regarding the priority system, compensation, reconciling with section 11.139 have not been addressed.

4 See *Tex. Water Comm’n v. Wright*, 464 S.W.2d 642, 647 (Tex. 1971).

5 See 36 Tex. Reg. 7463 (2011) (to be codified at 30 TEX. ADMIN. CODE §§ 36.1–.8) (proposed Nov. 4, 2011).

6 Act of Mar. 19, 1889, 21st Leg., R.S., ch. 88, § 2, 1889 Tex. Gen. Laws 1128 [hereinafter Irrigation Act of 1889].

7 Act of Apr. 9, 1913, 33rd Leg., R.S., ch. 171, § 1, 1913 Tex. Gen. Laws 358 [hereinafter Irrigation Act of 1913].

8 See, e.g., Irrigation Act of 1889, *supra* note 6 (no provision for sovereign grants of land); Irrigation Act of 1913, *supra* note 7 (same).

9 See TEX. WATER CODE ANN. §§ 11.301–.341 (West 2011).

10 *Id.* § 11.307.

11 *Id.* §§ 11.142, 11.1421, 11.1422.

12 Act of 1931, 42d Leg., R.S., ch. 128, 1931 Tex. Gen. Laws 217 [hereinafter Wagstaff Act].

tric power, navigation, recreation, and “other beneficial uses.”¹³ This preference list was established to apply “in appropriating state water,” *i.e.*, in the permitting process.¹⁴ The Wagstaff Act also provided for future municipal use by making all new appropriations (following its adoption), for purposes other than domestic and municipal use, subject to further appropriation for municipal and domestic use without condemnation or compensation.¹⁵ This aspect of the Wagstaff Act, never tested or seriously applied by the state agency, was repealed by the legislature’s adoption of Senate Bill (S.B.) 1 in 1997.¹⁶

S.B. 1’s repeal of the Wagstaff Act’s authorization of further appropriation of water to meet future municipal needs was part of a broader, more comprehensive water planning and management system established by this landmark legislation.¹⁷ Municipalities and others with growing future water demands were made part of the comprehensive statewide water-planning process reflected by Texas Water Code Chapter 16, subchapter C.¹⁸ Thus, rather than relying upon taking water from existing uses, S.B. 1 required municipalities and others to plan to develop new supplies to meet their future needs.¹⁹

Significantly, S.B. 1 also provided a mechanism to address emergency water shortages by adopting Texas Water Code § 11.139.²⁰ Like the Wagstaff Act, this provision makes use of water, for purposes other than domestic and municipal, available for use to satisfy water needs that present an imminent threat to public health and safety.²¹ Unlike the Wagstaff Act, Texas Water Code § 11.139 requires compensation for the holder of the water right that is required to forego its supply to make water available to meet those emergency needs.²²

III. 2009 DROUGHT AND TCEQ SUNSET REPORT

Following adjudication of water rights in a river basin, TCEQ can establish a watermaster program to manage use under water rights in the stream segment.²³ Currently, TCEQ has three established watermaster programs: the Rio Grande Watermaster (serving the Middle and Lower Rio Grande Basin, below Falcon and Amistad Reservoirs); the South Texas Watermaster (serving the Nueces, San Antonio, Guadalupe, Lavaca and adjacent coastal basins); and the Concho River Watermaster (serving the Concho River segment of the Colorado River Basin, administered via

13 TEX. WATER CODE ANN. § 11.024 (West 2011); see Wagstaff Act, *supra* note 12, at 217.

14 TEX. WATER CODE ANN. § 11.024 (West 2011); see Wagstaff Act, *supra* note 12, at 217.

15 Wagstaff Act, *supra* note 12, at 218.

16 Act of June 2, 1997, 75th Leg., R.S., ch. 1010, § 9.01, 1997 Tex. Gen. Laws 3610, 3682 [hereinafter S.B. 1].

17 *Id.* at 3610-14.

18 *Id.*

19 *Id.*

20 *Id.* at 3629-31.

21 TEX. WATER CODE ANN. § 11.139 (West 2011); see Wagstaff Act, *supra* note 12, at 218.

22 TEX. WATER CODE ANN. §§ 11.139(h)-(j) (West 2011).

23 *Id.* § 11.326.

the South Texas Watermaster's Office).²⁴ In these areas, a water user must advise the watermaster of his intent to divert or use water and the watermaster may approve or disapprove the diversion if water supplies are short, based on the priority system.²⁵

TCEQ is responsible for administration of water rights in the areas of Texas without a watermaster, but TCEQ is not well-equipped to do so. Water right holders need not seek permission from TCEQ prior to diverting or storing state water.²⁶ During the drought of 2009, Dow Chemical Company (a senior water right holder near the mouth of the Brazos River) made a priority call, demanding that junior water right holders cease storing and diverting state water so that Dow's needs under its senior right could be satisfied.²⁷ After some deliberation and consideration, TCEQ issued a letter to all water right holders in the Brazos River Basin, suspending diversion and storage of state water for non-municipal uses under all water rights junior to 1980.²⁸ TCEQ's authority to take action to enforce senior water rights seems relatively clear from the general grant of authority contained in Texas Water Code § 5.013(a)(1). However, in this author's opinion, TCEQ was without authority to exempt municipal users from the priority call and the suspension order enforcing it.²⁹

In response to this situation, the Sunset Advisory Commission, first in the staff report and ultimately in that Commission's January 2011 Decision, recommended that the TCEQ Executive Director's authority to curtail water use during water shortages and times of drought be clarified.³⁰ Specifically, the Sunset Commission found:

Statute clearly authorizes TCEQ to manage water rights, including the issuance, adjudication, cancellation and enforcement of those rights, including protecting senior water rights. However, statute does not expressly articulate the agency's duties to enforce the allocation of water to permit holders in areas without a water master program. . . . Statute does not expressly state under what circumstances TCEQ can curtail the right to divert state water under a water right to ensure senior rights are protected and adequate supplies are available for domestic and municipal needs.³¹

24 Tex. Comm'n. on Env'tl. Quality, *Rights to Surface Water in Texas* 14 (Mar. 2009), available at http://www.tceq.state.tx.us/publications/gi/gi-228.html/at_download/file.

25 *Id.*

26 30 TEX. ADMIN. CODE §§ 304.15(a), (g) (2008) (Tex. Comm'n on Env'tl. Quality, Regulation of the Use of State Water or Water Courses) (a declaration of intent is necessary).

27 2011 TEX. SUNSET COMM'N, SUNSET ADVISORY COMMISSION GUIDELINES: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND ON-SITE WASTEWATER TREATMENT RESEARCH COUNCIL 56 (Jan. 2011), http://www.tceq.texas.gov/assets/public/comm_exec/sunset/SSAC-Commission-Decision-Jan2011.pdf [hereinafter TEX. SUNSET COMM'N.].

28 Letter from Mark Vickery, Exec. Dir., Tex. Comm'n on Env'tl. Quality to Water Right Holder (Aug. 8, 2011), available at <http://www.tceq.texas.gov/assets/public/agency/8-8-11brazos-muni-power.pdf>.

29 A municipal user might petition TCEQ for relief from the priority call under Texas Water Code § 11.139, but no statutory authority exists for such broad action on the Executive Director's own motion.

30 See TEX. SUNSET COMM'N., *supra* note 27.

31 *Id.* at 54.

Upon the basis of this finding, the Sunset Commission staff report recommended statutory changes to clarify that the Executive Director “only during a water shortage or other emergency . . . may curtail a water right holder’s water use or otherwise allocate water to maximize the beneficial use of state water.”³²

Responding to the staff recommendation, TCEQ’s Executive Director stated the agency’s support for clarification of “the Executive Director’s authority to curtail water use in water shortages and times of drought as an additional tool to ensure fairness in determining the best use of state water.”³³ Like the Executive Director’s response to the 2009 Brazos River priority call, this seems to foreshadow a departure from a strict application of the prior appropriation doctrine.

IV. LEGISLATIVE HISTORY OF TEXAS WATER CODE § 11.053

House Bill (H.B.) 2694, the TCEQ sunset bill in the 82nd Legislature, extended the life of the agency and adopted statutory changes.³⁴ It addressed TCEQ’s drought emergency authority to allocate water by adding Texas Water Code § 11.053.³⁵ Comparing the differences in the provisions of H.B. 2694 on § 11.053 as introduced, engrossed, and enrolled is enlightening.³⁶

As introduced, H.B. 2694 would have provided the Executive Director *carte blanche* authority to suspend or adjust water rights during drought conditions. Proposed new section 11.053(b) provided:

- (b) The executive director in ordering a suspension or an allocation adjustment under this section shall ensure that an action taken:
- (1) maximizes the beneficial use of water;
 - (2) minimizes the impact on water rights holders; and
 - (3) prevents the waste of water.³⁷

As initially proposed, the legislation made no mention of the prior appropriation doctrine, and could have been construed to give the Executive Director authority to suspend its operation under drought conditions—which would completely frustrate the purposes underlying the prior appropriation doctrine.

As adopted by the House and sent to the Senate, H.B. 2694’s new Texas Water Code § 11.053 read, in part:

32 *Id.* at 57.

33 *Id.* at 58a (emphasis added).

34 See H.B. 2694, Act of June 17, 2011, 82nd Leg., R.S., 2011 Tex. Sess. Law Serv. ch. 1021 § 5.03 (hereinafter H.B. 2694).

35 See TEX. SUNSET COMM’N., *supra* note 27, at 57–58c; TEX. WATER CODE ANN. § 11.053 (West 2011).

36 See H.B. 2694, *supra* note 34.

37 TEX. WATER CODE ANN. §§ 11.053(b)(1)–(3) (West 2011).

- (b) During a period of drought or other emergency shortage of water, the executive director by order may:
 - (1) temporarily suspend the right of any person who holds a water right to use the water, *in accordance with the priority of water rights established by Section 11.027*; and
 - (2) adjust the diversion of water by water rights holders to address an imminent hazard to public health.
- (c) The executive director in ordering a suspension or adjustment under this section shall ensure that an action taken:
 - (1) maximizes the beneficial use of water;
 - (2) minimizes the impact on water rights holders;
 - (3) prevents the waste of water; and
 - (4) *to the greatest extent practicable, conforms to the order of preferences established by Section 11.024.*³⁸

Thus, the engrossed bill added *both* Texas Water Code § 11.027 prior appropriation requirements *and* Texas Water Code § 11.024 preference of uses—apparently as potentially coequal considerations for the Executive Director in ordering suspension or adjustment of water uses under drought and emergency conditions.

As passed, H.B. 2694 resolved the uncertainty created by the introduced version of the bill (which omitted any mention of the priority system in § 11.053) and the engrossed version of the bill (which invoked both the priority doctrine of § 11.027 and the preference list of § 11.024).³⁹ The enrolled bill retains both § 11.027 and § 11.024, but makes the Executive Director's implementation of §11.024 preferences subject to the priority doctrine of § 11.027.⁴⁰ It provides the following:

Sec. 11.053. EMERGENCY ORDER CONCERNING WATER RIGHTS.

- (a) During a period of drought or other emergency shortage of water, as defined by commission rule, the executive director by order may, *in accordance with the priority of water rights established by Section 11.027*:
 - (1) temporarily suspend the right of any person who holds a water right to use the water; and
 - (2) temporarily adjust the diversions of water by water rights holders.
- (b) The executive director in ordering a suspension or adjustment under this section shall ensure that an action taken:
 - (1) maximizes the beneficial use of water;
 - (2) minimizes the impact on water rights holders;
 - (3) prevents the waste of water;
 - (4) takes into consideration the efforts of the affected water rights holders to develop and implement the water conservation plans and drought contingency plans required by this chapter;
 - (5) to the greatest extent practicable, conforms to the order of preferences established by Section 11.024; and

38 See H.B. 2694, *supra* note 34 (emphasis added).

39 *Id.*

40 *Id.*

- (6) does not require the release of water that, at the time the order is issued, is lawfully stored in a reservoir under water rights associated with that reservoir.⁴¹

Thus, the Executive Director's obligation to conform to the § 11.024 preferences, included in § 11.053(b)(5), is subject to the § 11.053(a) limitation that the Executive Director's order must be in accordance with § 11.027 priorities.⁴²

V. 2011 PRIORITY CALLS

During 2010, the drought abated and TCEQ did not have to deal with priority calls; however, in 2011, the drought was back, as were priority calls in multiple basins throughout the state.⁴³ Two letters, sent by TCEQ to water right holders in the Brazos River Basin⁴⁴ and Llano River Watershed,⁴⁵ are noteworthy in several regards:

- Both letters were written during the summer of 2011, prior to the September 1, 2011, effective date of H.B. 2694.
- Both letters suspend diversion under state surface water permits, junior to a specified date, due to a priority call from a senior appropriator.
- In both cases, junior rights for municipal use and power generation are exempted from the priority call.
- In both cases, domestic and livestock rights are recognized to be "superior" and exempt from the priority call.
- In both cases, junior municipal rights are required to implement water use restrictions under their drought contingency plans, although this was not a requirement of the initial priority call on the Brazos River.

Thus, a relatively clear pattern of TCEQ's responding to priority calls in areas without a watermaster appears to be emerging. Against this background, TCEQ's proposed rules and the comments on them can be evaluated.

VI. TCEQ'S PROPOSED RULES

As required by Texas Water Code § 11.053(c), TCEQ proposed rules to implement the drought emergency allocation authority provided by H.B. 2694 on November 4,

41 *Id.* (emphasis added).

42 *Id.*

43 *Letters to Water Rights Holders*, TEX. COMM'N ON ENVTL. QUALITY (Feb. 8, 2012), <http://www.tceq.texas.gov/response/drought/letters.html>.

44 Mark Vickery, *supra* note 28.

45 Letter from Zak Covar, Deputy Exec. Dir., Tex. Comm'n on Env'tl. Quality to Water Right Holder (July 5, 2011), *available at* <http://www.tceq.texas.gov/assets/public/agency/7-5-11llano-warning.pdf>.

2011.⁴⁶ The proposed rules would become new Chapter 36 of TCEQ's rules found in Title 30 of the Texas Administrative Code.⁴⁷

Section 11.053(c) requires TCEQ's rules to address the following areas: (1) providing definitions of a "drought or other emergency shortage of water" for purposes of invoking emergency order authority; (2) specifying the conditions under which the Executive Director may issue such an order; (3) specifying the terms of such an order, including duration and extensions; and (4) specifying procedures, including notice, opportunity for hearing, and appeal to the Commission.⁴⁸ As described below, the proposed rules address each of these areas, although whether statutory guidance and legislative intentions are satisfied by the proposed rules is open to debate in some instances.

TCEQ's "drought" definition under proposed rule § 36.2(2) is extremely broad. A drought, for purposes of invoking TCEQ's emergency authority, can exist when *any one of the following conditions exist*: (1) conditions in all or part of a watershed are classified as at least "moderate" by the National Drought Mitigation Center; (2) streamflows are below the 33rd percentile for the period of record; or (3) the demand for surface water exceeds the available supply.⁴⁹

Regarding the conditions under which the Executive Director might issue an emergency order, the proposed rules generally track statutory provisions, without providing much additional guidance.⁵⁰

Similarly, regarding the terms of such orders, the proposed rule § 36.6 proposes a 180-day maximum duration with 90-day extensions.⁵¹ So far as other terms of the order are concerned, the draft rules provide little specificity, particularly with regard to whether the orders may exempt preferred junior rights from the priority call of a senior water right holder.⁵² However, such exemptions for preferred use seem to be contemplated. Proposed rule § 36.7(b) suggests that water conservation and drought contingency measures may be required of preferred junior uses that are not suspended or adjusted.⁵³ Similarly, portions of the Takings Impact Assessment that accompanies the rule proposal indicate that TCEQ would be able to consider preferences of uses such as a municipality's need for drinking water, and allow these rights to continue taking water.⁵⁴

46 TEX. WATER CODE ANN. § 11.053(c) (West 2011); 36 Tex. Reg. 7463 (2011) (to be codified at 30 TEX. ADMIN. CODE §§ 36.1–36.8) (proposed Nov. 4, 2011) (Tex. Comm'n on Env'tl. Quality).

47 36 Tex. Reg. 7463 (2011) (to be codified at 30 TEX. ADMIN. CODE §§ 36.1–36.8) (proposed Nov. 4, 2011) (Tex. Comm'n on Env'tl. Quality).

48 TEX. WATER CODE ANN. § 11.053 (West 2011).

49 36 Tex. Reg. 7467 (2011) (to be codified at 30 TEX. ADMIN. CODE §§ 36.2) (proposed Nov. 4, 2011) (Tex. Comm'n on Env'tl. Quality).

50 See *id.* at 7466–7468.

51 *Id.* at 7468.

52 See *id.* at 7466–7468 (noting absence of other specific order terms).

53 See *id.*

54 See *id.* at 7466.

Proposed rule § 36.8 addresses notice and hearing, but simply provides that an order issued without notice and hearing shall establish the time and place for a hearing before the Commission to affirm, modify, or set aside the order.⁵⁵

VII. COMMENTS ON THE PROPOSED CHAPTER 36 RULES

Twenty-eight written comments on the proposed rules were received by TCEQ.⁵⁶ Commenters can be generally categorized as follows: farmers and agricultural groups (6); river authorities and water districts (5); industry (including oil and gas); (4); electric power generators (3); state agencies (3); environmental/citizen groups (3); law firms (2); and municipalities (2).⁵⁷

The most numerous groups of commenters appear to be water right holders, likely to be cut off by a priority call, but not in the group of preferred users that might survive a priority call even though they possess junior rights.⁵⁸ The most common substantive comments on the proposed rules can be generally summarized as follows:

- The priority system should not be circumvented by emergency orders. The draft rules appear to allow for and contemplate continued exemption of preferred junior users. This would violate the prior appropriation system and could result in a taking of property without compensation.⁵⁹ (A majority of comments, 15 of 28, reflect all or part of this concern.) E.g., Comments of Trinity River Authority and Texas Farm Bureau.
- The “drought” definition is too broad and allows the possibility of emergency orders when a genuine emergency does not exist.⁶⁰ (Second most common concern—13 of 28.) E.g., Comments of Texas Parks and Wildlife Dept. and National Wildlife Federation.
- Implementation of conservation and drought contingency measures should be mandatory, particularly for preferred junior users.⁶¹ (Mixed comments: 9 favoring mandatory conservation and 1 opposed.) E.g., Comments of Texas Dept. of Agriculture and Lower Neches Valley Authority.
- Compensation should be required for senior rights that are curtailed to make water available for junior preferred, non-curtailed users. Several commenters suggested the Texas Water Code § 11.139 standards and procedures would be appropriate.⁶² (5 comments.) E.g., Comments of Texas Irrigation Council and Lower Colorado River Authority.

55 *Id.* at 7468.

56 Public comments for 36 Tex. Reg. 7466 (2011) (to be codified at 30 TEX. ADMIN. CODE ch. 36) (proposed Nov. 4, 2011) (Tex. Comm’n on Envtl. Quality) [hereinafter Public Comments], available at <http://www.tceq.texas.gov/assets/public/legal/sep/comments-rule-proposal-dec2011.pdf>.

57 *Id.*

58 *See id.*

59 *Id.* at 18, 23, 33, 39, 78–80, 84, 86, 93, 97–100, 104.

60 *Id.* at 16, 18, 24, 28, 38, 45, 48, 61, 79, 90–91, 99, 110, 112.

61 *Id.* at 11, 43, 46, 62, 70, 78, 94, 107, 110.

62 *Id.* at 40, 81, 83, 85, 98, 101–104.

- The duration of the emergency order—up to 180 days, with 90-day extensions—is too long. Closer control and more frequent review should be required.⁶³ (6 comments.) E.g., Comments of Lloyd Gosselink Rochelle & Townsend and Dallas Water Utilities.
- The preference of junior uses pursuant to Texas Water Code § 11.024 is appropriate and desirable. (6 comments, including a municipality and power generators.) E.g., City of Waco and American Electric Power.⁶⁴

Other comments, less frequent but noteworthy, include the following:

- Stakeholder and public involvement should precede entry of any emergency order, in an effort to develop a more workable solution for all involved parties. E.g., Texas Irrigation Council and Webb & Webb.⁶⁵
- Exemption from a priority call should be available only for preferred users who have exhausted all other alternative supplies. E.g., Lower Colorado River Authority and Texas Dept. of Agriculture.⁶⁶
- The proposed rules (insofar as they depart from the priority system) are contrary to legislative intent and/or beyond the statutory authorization. E.g., Dallas Water Utilities and Trinity River Authority.⁶⁷
- Domestic and livestock users are not all “senior” and “superior” rights and should not necessarily be entitled to make priority calls or be exempted from priority calls and conservation requirements. E.g., Lower Colorado River Authority and Texas Irrigation Council.⁶⁸
- The rules should require that emergency orders be initiated only by water right holders (e.g., by a priority call) and not by the Executive Director on his own initiative. E.g., Titanium Envir. Services and Lower Colorado River Authority.⁶⁹
- Notice and hearing provisions of the draft rules are too vague and should be specified clearly, as the constitutional validity may depend upon the due process available under the rules. E.g., National Wildlife Federation and Lloyd Gosselink Rochelle & Townsend.⁷⁰

VIII. CONCLUSION

The foregoing description of comments is neither comprehensive nor exhaustive, and involves the exercise of subjective judgment in the categorization and summary of comments. Nevertheless, a clear pattern emerges: *There is significant concern that these rules allow TCEQ to favor preferred users during drought or emergencies at the expense of senior*

63 *Id.* at 7, 25–26, 43, 51, 54, 94.

64 *Id.* at 15–16, 28–29.

65 *Id.* at 86, 115.

66 *Id.* at 40, 108.

67 *Id.* at 23, 98.

68 *Id.* at 39, 85, 86.

69 *Id.* at 41, 71.

70 *Id.* at 42, 52–53.

water right holders, in a manner contrary to the prior appropriation system, without compensation.

As currently proposed, TCEQ's draft rules provide little in the way of specific guidance or limitations on the Executive Director's authority to issue orders allocating water during drought conditions. This is particularly troublesome in light of the Executive Director's recent practices implementing priority calls. If not modified prior to adoption, litigation could easily follow—either challenging the rules themselves or actions taken under them.

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GROUNDWATER RIGHTS AND THE ENDANGERED SPECIES ACT: POTENTIAL ESA SUITS WHEN S.B. 332 IS IMPLEMENTED

BY CATHERINE BENNETT

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I. INTRODUCTION

In the spring of 2011, the Texas Legislature passed a groundwater bill whose ultimate impact may result in an avalanche of lawsuits under the Endangered Species Act (ESA). Senate Bill 332 (S.B. 332) purports to acknowledge landowners’ rights to the groundwater below their land as real property.¹ If the bill significantly hampers groundwater regulation, it threatens the responsible management of an increasingly important resource.

In Texas, groundwater has enjoyed a colorful history of treatment in the law. While surface water rights are governed by a permitting system that gives priority to the most senior rights holders (while the state remains the only actual “owner” of that water),² groundwater has historically been governed by the “rule of capture,” which allows landowners a chance to pump the water beneath their land as long as they are

1 Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, 2011 Tex. Gen. Laws 3224 (codified at TEX. WATER CODE ANN. §§ 36.002 & 36.101 (West 2011)).

2 TEX. WATER CODE ANN. §§ 11.121, 11.207 (West 2011) (“No person may appropriate any state water... without first obtaining a permit from the commission to make the appropriation.” *Id.* § 11.121).

not malicious or wasteful.³ Some have remarked that this Rule of Capture has evolved into the “law of the biggest straw,” where only the deepest pumps truly have a chance to capture groundwater.⁴ The state does not regulate the appropriation of groundwater.⁵ Instead, the legislature has allowed for the creation of local governmental entities called groundwater conservation districts, which are governed by a locally elected board (often comprised of groundwater users) who are granted authority to manage the groundwater within their district.⁶ While surface water law is well-adapted to suit the needs of the arid West, groundwater law in Texas is not. The reasons for this separate treatment of surface and groundwater can mostly be blamed on a historic lack of understanding of the nature of groundwater, particularly its hydrological connection to other bodies of water both below and above the ground.⁷

While the Texas legislature has acknowledged the importance of this connection through its formulation of groundwater management districts, the newest groundwater legislation only strengthens property owners’ rights to groundwater. S.B. 332 affirms in law the right of capture and the right to a fair chance of production of the water under landowners’ property.⁸ The critics of this language are concerned that the bill will create a future of unlimited rights to water for property owners, regardless of the state of depletion of aquifers, because groundwater management districts will not be able to risk (or win, for that matter) potential constitutional takings claims against them if they try to limit pumping.⁹ Even without an avalanche of takings claims against groundwater management districts, districts could face a flurry of preemptive permit applications following the passing of such legislation as surface owners attempt to take advantage of their property right before groundwater is depleted. Regardless of the actual effect of S.B. 332, the state inevitably faces depletion of groundwater as demand for water in Texas increases with population growth.¹⁰ This reality poses problems for aquatic endangered species, which could be affected by the lower water levels in aquifers.

3 See Chris Lehman, *Hung Out To Dry?: Groundwater Conservation Districts and the Continuing Battle to Save Texas’s Most Precious Resource*, 35 TEX. TECH L. REV. 101, 103 (2004).

4 *Id.*

5 See *id.*

6 See *id.*

7 See *Houston & Tex. Cent. Ry. Co. v. East*, 81 S.W. 279, 281 (Tex. 1904) (“Because the existence, origin, movement, and course of such waters, and the causes which govern and direct their movements, are so secret, occult, and concealed that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would, therefore, be practically impossible”); see also Stephanie E. Hayes Lusk, Comment, *Texas Groundwater: Reconciling the Rule of Capture With Environmental And Community Demands*, 30 ST. MARY’S L.J. 305, 309 (1998).

8 Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, § 1, sec. 36.002, 2011 Tex. Gen. Laws 3224 (codified at TEX. WATER CODE ANN. § 36.002 (West 2011)).

9 Hearing on S.B. 332 Before the House Nat. Resources Comm., 82nd Leg., R.S. (Apr. 05, 2011) (statement of Charles W. Rhodes, Professor, South Texas College of Law) [hereinafter Rhodes], available at <http://www.house.state.tx.us/video-audio/committee-broadcasts/committee-archives/player/?session=82&committee=390&ram=11040511390>.

10 Lehman, *supra* note 3, at 107.

A bill that upholds (and possibly strengthens) the Rule of Capture and grants surface owners a property right in the water below the ground could give rise to ESA suits, depending on the impacts to the aquifer. Professor Jean O. Melious writes that “[w]hen states allocate water among competing users by issuing water rights, the effects on endangered species could lead to state ESA liability.”¹¹ Section II of this Note discusses S.B. 332 and its implications on the Rule of Capture in Texas. Section III explores the ESA “take” prohibition and how it has been applied. Section IV discusses the process of listing a species as endangered, analyzing a pertinent Texas case, and discussing recent petitions.

II. GROUNDWATER IN TEXAS: BACKGROUND AND S.B. 332

Senator Troy Fraser filed S.B. 332 on January 12, 2011, during the 82nd legislative session as an amendment to chapter 36 of the Texas Water Code.¹² After passing the Senate and House, the Governor signed it on June 17, 2011, and the bill became law September 1, 2011.¹³ In the bill’s original form, § 36.002(a) was amended to grant a vested “ownership interest and right to produce groundwater below the surface of the landowner’s real property.”¹⁴ Section 36.002(b) would have prohibited discrimination by the districts between owners or lessees and assignees (this was rephrased in the enacted version).¹⁵

The Senate committee made several changes to the bill. The term “landowner” was defined to include both owners and lessees or their successors.¹⁶ A section of findings was added to show the legislature valued development, preservation, and use of groundwater as “vital to public safety, welfare, and economic progress.”¹⁷ Thus, groundwater conservation districts and subsidence districts were affirmed as an essential means of implementing Texas groundwater law and protecting landowners’ ownership interests.¹⁸ This section, however, did not make it into the final bill. Section 36.002(b) was amended to provide that the landowners are entitled to a fair chance of production as long as they do not cause malicious drainage or negligent subsidence.¹⁹

11 Jean O. Melious, *Enforcing the Endangered Species Act Against the States*, 25 WM. & MARY ENVTL. L. & POL’Y REV. 605, 612 (2001).

12 History, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/billlookup/History.aspx?LegSess=82R&Bill=SB332>.

13 Bill Stages, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/BillLookup/BillStages.aspx?LegSess=82R&Bill=SB332>.

14 Introduced Version, Tex. S.B. 332, 82nd Leg., R.S., § 1, sec. 36.002(a) (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/billtext/pdf/SB00332I.pdf#navpanes=0>.

15 *Id.* at sec. 36.002(b).

16 Sen. Comm. on Nat. Resources, Sen. Comm. Report, Tex. S.B. 332, 82nd Leg., R.S., § 1, sec. 36.001(6-a) (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/billtext/pdf/SB00332S.pdf#navpanes=0>.

17 *Id.* at § 2, sec. 36.0011.

18 *Id.*

19 *Id.* at § 3, sec. 36.002(b).

The final text of the bill removed the word “vested” from the bill altogether, saying that the landowner owns the groundwater beneath him as real property.²⁰ Amended § 36.002(b)(1) provides that landowners (including lessees, heirs, and assigns) can drill below their property as long as they do not cause waste or malicious drainage of other property or negligently cause subsidence.²¹ Section (b) now also provides that this right to drill for groundwater “does not entitle a landowner . . . to the right to capture a specific amount of groundwater.”²² Revised section (c) says “nothing in this code shall be construed as granting the authority to deprive or divest a landowner” of these groundwater ownership rights.²³ Section (d) provides that the bill does not prevent groundwater districts from prohibiting or limiting drilling if a landowner has failed to comply with permit and spacing requirements.²⁴ The bill also claims that the ability of specific districts to regulate production is unaffected.²⁵ Specifically, the Edwards Aquifer Authority, the Harris-Galveston Subsidence District, and the Fort Bend Subsidence District are named as districts whose ability to regulate groundwater will not be affected.²⁶

Amended § 36.101(a) allows districts to “make and enforce rules . . . limiting groundwater production based on tract size or the spacing of wells, to provide for conserving, preserving, protecting, and recharging of groundwater” for the purpose of preventing degradation of water quality and water waste.²⁷ Section 36.101(a) also requires districts to: 1) consider all groundwater uses and needs; 2) develop fair rules; 3) consider groundwater ownership and rights; 4) consider the public interest in preservation, protection, and recharge as well as controlling subsidence; and 5) consider the goals of the district’s management plan.²⁸ Further, districts may not discriminate between lands irrigated for production that are or are not participating in a federal conservation program.²⁹

The author’s statement of intent describes the bill as a clarifying the Rule of Capture for landowners over groundwater.³⁰ The statement describes that the bill “gives the landowner the right to capture the groundwater without being held liable for damage to others.”³¹ The bill is explained as a response to groundwater conservation districts’ arguments that landowners do not have an interest in groundwater until they capture it.³² The statement of intent says that the “bill clearly defines that

20 Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, § 1, 2011 Tex. Gen. Laws 3224 (current version at TEX. WATER CODE ANN. § 36.002 (West 2011)).

21 *Id.*

22 *Id.*

23 *Id.*

24 *Id.*

25 *Id.*

26 *Id.*

27 *Id.* § 2 (current version at TEX. WATER CODE ANN. § 36.101 (West 2011)).

28 *Id.*

29 *Id.*

30 Sen. Comm. on Nat. Resources, Bill Analysis, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/analysis/pdf/SB00332F.pdf#navpanes=0>.

31 *Id.*

32 *Id.*

a property owner has a vested ownership interest in, and the right to produce, the groundwater below the surface of their [sic] property.”³³ The bill anticipates no fiscal implications for the state, but it allows that fiscal impacts to groundwater and conservation districts would depend on the number of suits filed because of the bill.³⁴

A. THE RULE OF CAPTURE IN TEXAS

Texas first adopted the Rule of Capture from English common law in the famous *Houston & Texas Central Railway Co. v. East* case in 1904.³⁵ This ruling allowed landowners to withdraw an unlimited amount of water from below their land as long as they did not act maliciously or intentionally to deprive their neighbors of the same.³⁶ The case initially stood only for the principal that landowners had no tort claim against each other for deprivation of groundwater; however, many commentators since argued that the holding in *East* has been used to create a property right in water, which will forever prevent an easy solution to groundwater regulation problems in Texas.³⁷ The Sierra Club recently described the Rule of Capture as having an “entirely private focus and complete inattention to public consequence.”³⁸

The Texas Legislature made several attempts to slow the force of the Rule of Capture after *East*, including the addition of the Conservation Amendment to the Texas Constitution in 1917.³⁹ The Amendment granted the legislature authority to create conservation districts to manage groundwater more carefully.⁴⁰ The creation of the Edwards Aquifer Authority (EAA), too, imposed a cap on withdrawals from the Edwards Aquifer and mandated that users applying for a permit demonstrate they were engaged in beneficial use in the twenty-one years before the EAA went into effect.⁴¹ Further, in 1997, the legislature enacted Senate Bill 1 (S.B. 1) and gave groundwater conservation districts the authority to charge fees and to keep water within their district.⁴² In 2001, the legislature passed Senate Bill 2 (S.B. 2), which was meant to further strengthen groundwater conservation districts’ authority and help coordinate the local entities.⁴³ However, S.B. 2’s success at streamlining local regulation is not

33 *Id.*

34 Fiscal Note, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/fiscalnotes/pdf/SB00332F.pdf#navpanes=0> (May 24, 2011 version).

35 *Houston & Tex. Cent. Ry. Co. v. East*, 81 S.W. 279, 280 (Tex. 1904). Note also that England’s use of the Rule of Capture was hardly controversial because it receives a large amount of rainfall and has ample bodies of surface water.

36 *Id.*

37 See, e.g., Eric Opiela, Commentary, *The Rule of Capture in Texas: An Outdated Principle Beyond Its Time*, 6 U. DENV. WATER L. REV. 87, 89 (2002).

38 Memorandum on Senate Bill 332, As Passed By the Texas Senate, Lone Star Chapter, Sierra Club, 1 (Mar. 31, 2011) [hereinafter Lone Star Chapter] (http://texas.sierraclub.org/water/Memo_onSB332asPassedbySenate.pdf) [hereinafter Sierra Club].

39 Lusk, *supra* note 7, at 321–22.

40 See *id.* at 322.

41 Edwards Aquifer Authority Act, 73rd Leg., R.S. ch. 626, §§ 1.14, 1.16, 1993 Tex. Gen. Laws 2360–61 (amended 1995); see Lusk, *supra* note 7, at 325–26.

42 Act of June 22, 1997, 75th Leg., R.S., ch. 1010, §§ 4.33, 435 sec. 36.122, 36.207, 1997 Tex. Gen. Laws 3648–49.

43 Lehman, *supra* note 3, at 104.

agreed upon.⁴⁴ Nonetheless, all these measures reveal a certain amount of legislative consensus, or at least awareness, about the dangers of unmitigated power to pump from aquifers under the Rule of Capture. While some saw this legislation as an end to the Rule of Capture, effectuating the beginning of a more careful management of an increasingly precious resource,⁴⁵ S.B. 332 raises new questions about the possibility of that goal.

B. POTENTIAL IMPLICATIONS OF S.B. 332

While S.B. 332's statement of intent claims its purpose is simply to clear up some judicial confusion about the Rule of Capture,⁴⁶ it arguably goes further than the common law Rule of Capture. In Professor Charles W. Rhodes' testimony before the House Natural Resources Committee, he explained that giving landowners a right to water still in the ground is an unprecedented expansion of the Rule of Capture, which previously meant that a person owns a resource only once that person captures the resource.⁴⁷ Further, he noted that the term "vested interest" triggers a constitutional takings problem because the phrase designates a right that cannot be divested without just compensation under constitutional law.⁴⁸ Though the word "vested right" was removed by the House and replaced simply with "ownership right" in the final version of the bill, the wording remains in the statement of intent.⁴⁹ Even without the "vested right" language, the bill seems to create a right to groundwater separate from a regulatory grant. If the language has the effect of giving landowners (or their lessees, heirs, or assigns) a right to groundwater, this bill could allow landowners to sue groundwater conservation districts under the Texas and U.S. constitutions⁵⁰ for "taking" their opportunity to produce if water in an aquifer was scarce enough to make new pumping permits impossible.

While the bill's language grants an ownership right for landowners in uncaptured water, it also recognizes the importance of preservation and of groundwater conservation districts generally, and claims it will not affect the operation of several districts.⁵¹ The language may have been intended to garner support from both sides, but its effect is one of supporting conflicting interests. Even without the shadow of S.B. 332, groundwater conservation districts are often subject to political pressures.⁵²

44 *Id.* at 104-106.

45 Lusk, *supra* note 7, at 309.

46 Sen. Comm. on Nat. Resources, Bill Analysis, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/analysis/pdf/SB00332F.pdf#navpanes=0>.

47 Rhodes, *supra* note 9.

48 *Id.* (citing U.S. CONST. amend. V; *Landgraf v. USI Film Prods.*, 511 U.S. 244, 266 (1994)).

49 Sen. Comm. on Nat. Resources, Bill Analysis, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/analysis/pdf/SB00332F.pdf#navpanes=0> ("This bill clearly defines that a property owner has a vested ownership interest in, and the right to produce, the groundwater below the surface of their property").

50 TEX. CONST. art. I, § 17(a), U.S. CONST. amend. V.

51 Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, § 1, 2011 Tex. Gen. Laws 3224 (current version at TEX. WATER CODE ANN. § 36.002 (West 2011)).

52 Matthew Carson Cottingham Miles, *Water Wars: A Discussion of the Edwards Aquifer Water Crisis*, 6 S.C. ENVTL. L.J. 213, 223 (1997).

In its memo about the bill, the Sierra Club noted that groundwater conservation districts are often underfunded and have little political power despite the bill's textual acknowledgement.⁵³ Their ability to effectively regulate pumping in the face of vested ownership rights to the groundwater for all landowners is questionable.

Further, the language of the bill meant to exempt the Edwards Aquifer Authority, the Harris-Galveston Subsidence District, and the Fort Bend Subsidence District from the effects of the bill implies troubling consequences.⁵⁴ First, it seems to be an admission by the bill's supporters that it will lead to less protection for aquifers. Second, if the bill confers a constitutionally protected property right, it will presumably apply to everyone in the state. Thus, the wording that the bill "does not affect the ability" of those districts to regulate groundwater is unconvincing.⁵⁵

Regions without a groundwater conservation district have even fewer protections against unmitigated pumping of an aquifer after the bill. Since aquifers know no political boundaries, the activities of neighboring and unregulated areas affect groundwater conservation districts nearby, further undermining the districts' effectiveness as guardians of groundwater. In her testimony before the House Natural Resources Committee, Austin environmental attorney Deborah Trejo makes the point that, to avoid property takings claims, groundwater conservation districts may have to permit pumping even when aquifer levels are low (a foreseeable outcome for an underfunded groundwater conservation district faced with lawsuits), and in doing so, the districts may violate their Constitutional mandate.⁵⁶ Article XVI, § 59 of the Texas Constitution requires "preservation" and "conservation" of groundwater.⁵⁷ Groundwater conservation districts could be vulnerable to suits on both sides.

Groundwater conservation districts, which were originally created to combat the over-pumping of aquifers,⁵⁸ may cease to be a barrier to over-pumping of aquifers after S.B. 332. Federal intervention to protect aquatic endangered species may be an unavoidable result of the bill's attempt to keep government regulation of groundwater rights at bay.

III. PROVING A "TAKE" OF AN ENDANGERED SPECIES IN TEXAS

The ESA was enacted in 1973 to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" and to "provide a program for the conservation of such endangered and threatened

53 Lone Star Chapter, *supra* note 38, at 2.

54 Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, § 1(e), 2011 Tex. Gen. Laws 3225 (current version at TEX. WATER CODE ANN. § 36.002 (West 2011)).

55 *Id.*

56 Hearing on S.B. 332 Before the House Nat. Resources Comm., 82nd Leg., R.S. (Apr. 05, 2011) (statement of Deborah Trejo), available at <http://www.house.state.tx.us/video-audio/committee-broadcasts/committee-archives/player/?session=82&committee=390&ram=11040511390>.

57 TEX. CONST. art. XVI, § 59.

58 Lusk, *supra* note 7, at 322.

species.”⁵⁹ The ESA protects 1,300 endangered species in the United States.⁶⁰ The state of Texas has sixty-four animal and thirty plant species federally listed as either endangered or threatened.⁶¹ At least twenty-eight of those animals are aquatic.⁶² The most common plaintiffs in ESA suits are environmental conservationists seeking to preserve species.⁶³ These public interest plaintiffs may also be joined by parties who have an economic interest in seeing a particular habitat preserved, whether or not that interest is directly related to the species’ survival.⁶⁴

A. ESA PROCEDURE: WHO CAN SUE?

To bring an endangered species “take” suit, a plaintiff must have standing to sue in federal court.⁶⁵ Plaintiffs may bring suit for the purpose of protecting an endangered species, either through the general provisions of the *Administrative Procedure Act* (APA), which enable challenges to agency actions, or through the ESA itself.⁶⁶ To challenge an agency action under the APA, a plaintiff must show that: 1) he or she has suffered an injury in fact or an invasion of a legally protected interest; 2) the injury is fairly traceable to the challenged action; and 3) the injury is redressable by the court’s decision.⁶⁷ The plaintiff’s complaint must also fall within the “zone of interests” that the ESA is meant to protect.⁶⁸ The plaintiff must also show that the agency action complained of is final.⁶⁹

The ESA also has a citizen suit provision that grants standing to private citizens:

A) to enjoin any person, including the United States and any other governmental instrumentality or agency . . . who is alleged to be in violation of any provision of this Act or regulation issued under authority thereof; or B) to compel the Secretary to apply . . . the prohibitions set forth in . . . section 4(d) or section 9(a)(1)(B) of this Act with respect to the taking of any resident endangered species or threatened species within any State; or C) against the

59 16 U.S.C. § 1531 (2011).

60 See Press Release, Dep’t of the Interior, Fish and Wildlife Service Announces Work Plan to Restore Biological Priorities and Certainty to Endangered Species Listing Process (May 10, 2011) (<http://www.doi.gov/news/pressreleases/Fish-and-Wildlife-Service-Announces-Work-Plan-to-Restore-Biological-Priorities-and-Certainty-to-Endangered-Species-Listing-Process.cfm>).

61 *Endangered and Threatened Species*, TEX. PARKS AND WILDLIFE <http://www.tpwd.state.tx.us/huntwild/wild/species/endang/index.phtml> (last visited Feb. 18, 2012).

62 *Id.*

63 Paul Boudreaux, *Understanding “Take” in the Endangered Species Act*, 34 ARIZ. ST. L.J. 733, 737 (2002).

64 Miles, *supra* note 52, at 225 (discussing the Guadalupe-Blanco River Authority’s tourism interests that depended on spring flows as much as the Fountain Darters did).

65 *Allen v. Wright*, 468 U.S. 737, 750–51 (1984).

66 5 U.S.C. §706(2) (2011) , 16 U.S.C. § 1540(g)(1) (2011).

67 *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–61 (1992).

68 *Allen*, 468 U.S. at 751.

69 5 U.S.C. § 704 (2011).

Secretary where there is alleged a failure of the Secretary to perform any act or duty under section 4 [listing provision] which is not discretionary⁷⁰

B. WHO CAN BE SUED?

The ESA applies to both federal agencies and private individuals. Specifically, Section 7 of the ESA requires that federal agencies' actions do not jeopardize endangered species or destroy or modify the species' habitats that have been designated as critical.⁷¹ Federal defendants can also include agencies that have made arbitrary or capricious decisions under the APA.⁷² Section 9 applies to non-federal defendants. Section 9 prohibits the "take" of an endangered species.⁷³ "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."⁷⁴ The term "harm" has been further defined to mean "an act which actually kills or injures wildlife"; "[s]uch act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."⁷⁵ "Person" as defined by the ESA can mean entity, employee, agent, department or instrumentality of any state, municipality, or political subdivision of a state, or any other entity subject to the jurisdiction of the ESA.⁷⁶ Thus, a groundwater district, an individual pumper, a state agency, or Texas itself could be joined as defendants in an ESA suit.

C. CONSTITUTIONALITY OF THE ESA IN TEXAS

In several cases, the constitutionality of the ESA has been challenged where the species in question exist only within the state of Texas. At the heart of the challenges are concerns that Congress does not have the authority to regulate a species that has questionable connections to interstate commerce. But decisions in several courts suggest that the uniqueness of a species to the state of Texas will not mean it is denied ESA protection.⁷⁷

In *Shields v. Babbitt*, plaintiff landowner sought summary judgment to find the ESA, as it applied to the Edwards Aquifer species, unconstitutional because regulating those species could not be considered a regulation of interstate commerce.⁷⁸ Defendants United States Department of the Interior, United States Fish and Wildlife Service (FWS), and the Sierra Club also sought summary judgment that the ESA's application was constitutional and that the plaintiffs' claims were not ripe because no legal action had been instigated against them.⁷⁹ To prove the Edwards Aquifer species

70 16 U.S.C. § 1540(g)(1) (2011).

71 *Id.* § 1536(a)(2).

72 5 U.S.C. § 706(2)(A) (2011).

73 16 U.S.C. § 1538(a) (2011).

74 *Id.* § 1532(19).

75 50 C.F.R. § 17.3 (2011).

76 16 U.S.C. § 1532(13).

77 *See, e.g.,* *Shields v. Babbitt*, 229 F.Supp.2d 638 (W.D. Tex. 2000), *vacated*, *Shields v. Norton*, 289 F.3d 832 (5th Cir. 2002); *GDF Realty Inv. Ltd. v. Norton*, 326 F.3d 622 (5th Cir. 2003).

78 *Shields*, 229 F.Supp.2d 638.

79 *Id.*

affected interstate commerce, the federal defendants attached sworn testimony from a related case before the court at the same time.⁸⁰ The testimony included statements by former Director of the City of New Braunfels Parks and Recreation Department David Whatley, who had witnessed out-of-state visitors coming to observe the Edwards Aquifer endangered species.⁸¹ It also included statements by Tom Brandt, director of the San Marcos Fish Hatchery, who gave tours to out-of-state scientists to observe the endangered Fountain Darter and Texas Blind Salamander.⁸² The testimony also included statements from University of Texas zoology Professor Emeritus Clark Hubbs, who was involved in university-conducted field trips to San Marcos and Comal Springs for out-of-state students and professors.⁸³ He testified that Fountain Darters were captured and sent to museums around the world before the ESA was enacted.⁸⁴ The federal defendants attached an affidavit of a legal assistant to Sierra Club's counsel, who personally visited the Endangered Species exhibit in San Marcos and observed out-of-state license plates in the parking lot.⁸⁵

In its analysis, the court aligned itself with its decision in *Sierra Club v. San Antonio*, saying that the ESA should protect species even if the species themselves are not bought and sold throughout the states as long as "they substantially affect interstate commerce of some kind."⁸⁶ The court relied on the Supreme Court's test in *U.S. v. Lopez*, which designates three categories of commerce that fall within Congress' power to regulate, including: 1) the use of channels of interstate commerce; 2) the instrumentalities of interstate commerce; and 3) activities bearing a substantial relation to interstate commerce.⁸⁷ Using the Supreme Court's test from its decision in *U.S. v. Lopez*, the court found that applying the ESA to the Edwards Aquifer species fell into two appropriate categories of regulation.⁸⁸

First, the court found that applying the take prohibition of the ESA was within Congress's power to regulate the "channels of interstate commerce" because Congress has a need to control the transport of endangered species through habitat preservation.⁸⁹ The court also found that prohibiting the take of endangered species fell into the category of regulating the channels of interstate commerce because it is Congress' responsibility "to keep the channels of interstate commerce free from immoral and injurious uses."⁹⁰ Because Congress authorizes the Secretary of the Interior to create

80 *Id.* at 648 (citing *Sierra Club v. City of San Antonio*, No. MO-96-CA-97 (W.D. Tex. 1996), *vacated*, 112 F.3d 789 (5th Cir. 1997)).

81 *Id.*

82 *Id.*

83 *Id.*

84 *Shields v. Babbitt*, 229 F.Supp.2d 638, 648 (W.D. Tex. 2000), *vacated*, *Shields v. Norton*, 289 F.3d 832 (5th Cir. 2002).

85 *Id.*

86 *Id.* at 655.

87 *Id.* at 657-59 (citing *United States v. Lopez*, 514 U.S. 549 (1995)).

88 *Id.*

89 *Id.*

90 *Shields v. Babbitt*, 229 F.Supp.2d 638, 658 (W.D. Tex. 2000), *vacated*, *Shields v. Norton*, 289 F.3d 832 (5th Cir. 2002) (citing *Nat'l Ass'n of Home Builders v. Babbitt*, 130 F.3d 1041, 1046 (D.C. Cir. 1997)).

recovery plans for endangered species, the court found that Congress indirectly regulates the pumping of aquifers, which is done for the purpose of irrigating crops sold in interstate commerce.⁹¹ The court held that Congress has the authority to regulate channels of interstate commerce “where the pressures of interstate commerce place the existence of species in peril.”⁹²

In analyzing whether the ESA take provision substantially affects interstate commerce for the Edwards Aquifer, the court looked for a limiting principle that “identifies ‘judicially enforceable outer limits’ to Congress’ exercise of power under the Commerce Clause.”⁹³ The limiting principle is necessary only where the statute at issue lacks a jurisdictional element that ensures, “through case-by-case inquiry, that the take of the endangered species in question affects interstate commerce.”⁹⁴ Because the ESA take provision has no such language, the court found a limiting principle in the need for genetic diversity.⁹⁵ The court said the take provisions of the ESA are necessary to “ensure the future availability of endangered species for commercial value for exploitation and for genetic benefits.”⁹⁶ Finally, the court determined that the take provision of the ESA as applied to the Edwards Aquifer “substantially affects” interstate commerce because: 1) biodiversity has an economic value in commerce and extinction diminishes the value of species as resources; 2) the take is a product of destructive interstate competition; and 3) pumping water from the aquifer for irrigation was an activity that sufficiently made the regulation of Edwards species an “economic activity.”⁹⁷

The 5th Circuit upheld the constitutionality of the ESA in *GDF Realty v. Norton*, where plaintiff landowners challenged the constitutionality of the ESA as it applied to cave invertebrates found in only two counties in Texas.⁹⁸ The plaintiffs attempted to alleviate concerns about the invertebrates by giving several acres to a non-profit environmental organization and building gates around sensitive areas, but FWS refused to state that future development on the property would not cause a take of the species.⁹⁹ FWS also refused the plaintiff’s application for an incidental take permit.¹⁰⁰ The plaintiffs then sued on the grounds that the regulation of the cave invertebrates was not a regulation of interstate commerce and was therefore unconstitutional.¹⁰¹

In its analysis, the court cited the three categories in *Lopez* and limited its discussion to the third category, “those activities that substantially affect interstate commerce,” because the fact that the protection of the species was an intrastate activity

91 *Id.*

92 *Id.*

93 *Id.* at 659 (quoting *United States v. Bird*, 124 F.3d 667, 677 (5th Cir. 1997)).

94 *Id.*

95 *Id.* at 660.

96 *Shields v. Babbitt*, 229 F.Supp.2d 638, 660 (W.D. Tex. 2000), *vacated*, *Shields v. Norton*, 289 F.3d 832 (5th Cir. 2002).

97 *Id.* at 663.

98 *GDF Realty Inv. Ltd. v. Norton*, 326 F.3d 622, 625 (5th Cir. 2003).

99 *Id.* at 625–26.

100 *Id.* at 626.

101 *Id.* at 626–27.

was undisputed.¹⁰² To determine whether protecting the invertebrates “substantially affects” interstate commerce, the court used the four considerations laid out in *U.S. v. Morrison*.¹⁰³ The 5th Circuit’s own test consisted of two ways an intrastate activity might substantially affect interstate commerce if: 1) the activity alone has a substantial effect; and 2) the activity’s effects have a substantial effect on interstate commerce if they are aggregated with similar activities.¹⁰⁴ The court noted that, though in *Morrison* the court acknowledged never having upheld a case where the intrastate activity was not economic in nature, *Lopez* provided that the *de minimis* character of the individual instances of the case were not important as long as the general regulatory scheme bore a substantial relationship to commerce.¹⁰⁵

The 5th Circuit cited *Lopez* for the principle that Congress has the power to regulate where the object of the regulation relates to interstate commerce.¹⁰⁶ Although the plaintiff’s development of the property into a supermarket would have an effect on interstate commerce, the court acknowledged that more was needed before the activity could be regulated under the Commerce Clause.¹⁰⁷

Though evidence was presented that researchers from out of state traveled to see the invertebrates, the court found that the impact of a take on those scientific industries was “far too attenuated to pass muster” and did not rise to the level of a substantial relationship to interstate commerce.¹⁰⁸ Similarly, the invertebrates’ possible future value to medicine was also too attenuated to count as a substantial effect on interstate commerce.¹⁰⁹ But the court found that the take of the invertebrates could be aggregated with the take of endangered species everywhere because the purpose of the ESA was to protect the value of genetic heritage of many species.¹¹⁰ While the court found the loss of species would have an economic effect, it also acknowledged that most takes would result from economic activity.¹¹¹ Further, the ESA’s scope was found to be national rather than local.¹¹²

Finally, the court’s analysis of the invertebrates’ “interdependence of species compels the conclusion that regulated takes under [the] ESA do affect interstate commerce.”¹¹³ Because the court found that the ESA is an economic regulatory scheme, and that the invertebrates were part of it, the take of the invertebrates could

102 *Id.* at 628 (citing *United States v. Lopez*, 514 U.S. 549, 558–59 (1995)).

103 *Id.* (citing *United States v. Morrison*, 529 U.S. 598, 609 (2000)).

104 *GDF Realty Inv. Ltd. v. Norton*, 326 F.3d 622, 629 (5th Cir. 2003).

105 *Id.* at 630 (citing *Morrison*, 529 U.S. at 613; *Lopez*, 514 U.S. at 558).

106 *Id.*

107 *Id.* at 634 (“Neither the plain language of the Commerce Clause, nor judicial decisions construing it, suggest that, concerning substantial effect *vel non*, Congress may regulate activity (here, Cave Species takes) solely because non-regulated conduct (here, commercial development) by the actor engaged in the regulated activity will have some connection to interstate commerce.”)

108 *Id.* at 637.

109 *Id.* at 637–38.

110 *GDF Realty Inv. Ltd. v. Norton*, 326 F.3d 622, 639–640 (5th Cir. 2003).

111 *Id.* at 639.

112 *Id.*

113 *Id.* at 640.

be aggregated to all other ESA takes.¹¹⁴ Therefore, the constitutionality of the ESA to exclusively Texas-based species was upheld.¹¹⁵

Though these two cases reached the same conclusion through slightly different analyses, they demonstrate that a suit seeking to apply the ESA to Texas species will probably succeed on constitutional grounds.

D. SIERRA CLUB V. LUJAN: PROVING TAKE FOR LOW SPRING LEVELS

The case that spurred the legislative creation of the Edwards Aquifer Authority began in February 1990 when the Guadalupe-Blanco River Authority notified the Secretary of the Department of the Interior of its intent to sue under the ESA.¹¹⁶ The San Marcos Gambusia, the Fountain Darter, the San Marcos Salamander, and Texas Wild Rice were all listed as endangered species that inhabited the springs fed by the Edwards Aquifer and were all affected by low aquifer levels due to over-pumping.¹¹⁷ Within a few months, the Sierra Club joined the cause and filed the suit as plaintiff.¹¹⁸ The suit claimed that FWS inadequately protected spring flows, which were necessary for the survival of the endangered species, and this amounted to a take.¹¹⁹ The plaintiffs sought to compel FWS “to restrict pumping from the Edwards Aquifer . . . and to develop and implement recovery plans for certain endangered and threatened species found in the Aquifer” and two of the springs the Aquifer feeds.¹²⁰ In that way, the suit was both an attack on the federal government and a criticism of Texas groundwater law.

The court recognized the Sierra Club’s standing to sue because: 1) it gave timely notice of intent to sue; and 2) its members enjoy the Edwards system and species and intend to continue doing so.¹²¹ In addressing causation, the defendant’s actions were found to be a violation of Section 4 of the ESA because not giving information about the minimum spring flows that could protect the endangered species left federal and state entities that regulate pumping without that information for planning and permitting.¹²² The court considered this omission by FWS an allowance of a taking of the endangered species.¹²³ The court found that the federal action “increased the risk of jeopardy to the continued existence of the endangered species in question.”¹²⁴

114 *Id.* at 639–640.

115 *Id.* at 640–41.

116 See Miles, *supra* note 52, at 224–25.

117 *Sierra Club v. Lujan* No. MO-91-CA-069, 1993 WL 151353, at *8–9 (W.D. Tex. Feb. 1, 1993); see also Miles, *supra* note 52, at 225.

118 Miles, *supra* note 52, at 225.

119 See Todd H. Votteler, *The Little Fish That Roared: The Endangered Species Act, State Groundwater Law, and Private Property Rights Collide Over the Texas Edwards Aquifer*, 28 ENVTL. L. 845, 856 (1998).

120 *Id.*

121 *Sierra Club v. Lujan*, 1993 WL 151353, at *26–27.

122 *Id.* at *27.

123 *Id.* at *28.

124 *Id.*

The court recognized the unique ecosystems of the Comal Springs and the San Marcos Springs in its decision: The Fountain Darter, Texas Wild Rice, the Texas Blind Salamander, and the Marcos Gambusia were all endangered, while the San Marcos Salamander was listed as threatened.¹²⁵ The San Marcos Recovery Plan (“Plan”) had already been formed to protect conditions for these species, but FWS had failed to implement it at the time of the suit.¹²⁶ The federal defendants tried to argue that the Secretary had discretion to delay the implementation of the Plan, citing a case in which the Secretary delayed a decision to close a campground while awaiting the results of an environmental impact statement.¹²⁷ But the court distinguished the case that the defendants cited, explaining that recovery plans “are supposed to spell out what is biologically required to prevent extinction and permit recovery of endangered species.”¹²⁸ In other words, the plans themselves were a first step that was necessary to guide the actions of the state.

The neglected Plan, which was adopted in 1985 by a team of scientists chosen by FWS, recognized five “major steps” that would need to be taken for the endangered species in the San Marcos Spring system to be protected.¹²⁹ First, the Plan called for FWS to define minimum springflows.¹³⁰ At the time the action was filed, the agency had not taken steps to conduct this research or fund another party to conduct it.¹³¹ The court added that “[k]nowledge of the minimum springflow requirements of the species is vital to any Federal, State, regional, or local government or private entity which wishes . . . to avoid action adding to the threat, or wish[es] to avoid the consequences of the ‘blunt axes’ of Federal intervention forged by Congress under ESA §§ 7 and 9”¹³² Second, the Plan also called for FWS to pursue consultations with other agencies, which however, have the potential to result in a court order cutting off federal funding to all activities directly or indirectly authorizing pumping from the aquifer.¹³³ Third, the Plan also called for the implementation of groundwater controls, which would involve cooperation with local authorities to set up pumping limits.¹³⁴ No steps were taken by FWS to establish controls until a suit was filed, more than five years after the Plan was originally formed.¹³⁵ Fourth, FWS was supposed to develop a contingency plan to place endangered species in refuge aquariums if water levels dropped to dangerously low amounts.¹³⁶ The court found that the defendants did not put a contingency plan into place until the spring had almost ceased to flow in 1990.¹³⁷ Finally, the Plan provided for artificially augmenting the natural spring

125 *Id.* at *5.

126 *Id.* at *11.

127 *Sierra Club v. Lujan* No. MO-91-CA-069, 1993 WL 151353, at *11 (W.D. Tex. Feb. 1, 1993).

128 *Id.* at *11-12.

129 *Id.* at *19.

130 *Id.*

131 *Id.*

132 *Id.* at *20.

133 *Sierra Club v. Lujan* No. MO-91-CA-069, 1993 WL 151353, at *20 (W.D. Tex. Feb. 1, 1993).

134 *Id.* at *21.

135 *Id.*

136 *Id.*

137 *Id.*

flow to prevent “catastrophic loss.”¹³⁸ However, both the state environmental agency and FWS voiced concern with the risk of the movement of “bad water” and the unreliability of an augmentation feasibility study due to a lack of information on the endangered species.¹³⁹

Because FWS had not established minimum spring flows or compelled the state to establish controls, the court required FWS to determine within 45 days of the judgment the minimum springflow levels before a take would occur.¹⁴⁰ Ultimately, the Edwards Aquifer Authority limited permitted pumping to 450,000 acre-feet per year.¹⁴¹

Finally the court compelled the Texas legislature to regulate groundwater pumping within the boundaries of the aquifer or it would allow the federal government to intervene and regulate for the state.¹⁴² During the following legislative session, the legislature passed Senate Bill 1477 and created the Edwards Aquifer Authority to regulate groundwater.¹⁴³

E. PROVING A TAKE AFTER S.B. 332

In the wake of S.B. 332, ESA suits attempting to prove a take of an endangered species face several challenges. For federal defendants under Section 7, a plaintiff must be able to show that the action jeopardizes or causes adverse modification to the animal and that the agency caused the jeopardy or adverse modification.¹⁴⁴ For plaintiffs bringing suits against non-federal defendants, the causation hurdle remains; the plaintiff must prove the action causes a take of the species and the defendant caused the action.¹⁴⁵

Proving that an action—in this case, pumping or permitting a pump—causes a take of a species may lead to battles of experts and of modeling. First, for purposes of combating the effects of S.B. 332, ESA cases will only be viable where the connection between pumping and groundwater levels can be proven. While the Edwards Aquifer is particularly susceptible to changes in water levels,¹⁴⁶ not all aquifers’ hydrological connections will be as obvious. In most cases, plaintiffs try to bring these cases before the action that will presumably cause the harm to the species begins, so they inevitably rely on predictions to make their claims.¹⁴⁷ For purposes of the Edwards Aquifer and its two featured connected bodies, this argument has already been fought and won by *Sierra Club v. Lujan* above.¹⁴⁸ But for bringing suits in other groundwater conservation

138 *Id.* at *22.

139 *Sierra Club v. Lujan* No. MO-91-CA-069, 1993 WL 151353, at *22 (W.D. Tex. Feb. 1, 1993).

140 *Id.* at *32.

141 Miles, *supra* note 52, at 227.

142 *Id.* at 226.

143 *Id.* at 227.

144 See 16 U.S.C. § 1536(a)(2) (2011).

145 *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–61 (1992) (setting out standing requirements for bringing an ESA take suit).

146 Ronald Kaiser, *Groundwater Management in Texas: Evolution or Intelligent Design?*, 15 KAN. J.L. & PUB. POL’Y 467, 482 (2006).

147 Boudreaux, *supra* note 63, at 734.

148 See generally *Sierra Club v. Lujan* No. MO-91-CA-069, 1993 WL 151353 (W.D. Tex. Feb. 1, 1993).

districts, plaintiffs would have to use modeling, along with studies about the needs of the species, to show that proposed pumping would result in a drop in flow levels that would harm the species or deprive it of habitat necessary for its survival and would thus constitute a take. These studies are not always readily available.¹⁴⁹

Proving that the defendant caused the action holds its own difficulties. A suit against an individual pumper might be difficult for this reason: Aquifers are pumped by many users at once.¹⁵⁰ Groundwater conservation districts are a natural target for this prong of proving causation because they are often the rulemaking bodies with the authority—however formidable or not that might be in reality—to distribute permits to pump. Presumably, a take suit could be brought before a permit was issued to a user by a groundwater district. Groundwater conservation districts have hearings built into their procedural rules for permitting at which challenges could be raised.¹⁵¹

Groundwater conservation districts are not the only regulatory bodies in the line of potential fire for causing a take. Recent litigation proposes to hold the Texas Commission on Environmental Quality (TCEQ) responsible for failure to protect springflows for the purposes of maintaining habitat for the whooping crane.¹⁵² The Aransas Project, a non-profit environmental corporation, brought suit in 2010 against the commissioners of TCEQ and the South Texas Watermaster for failing to ensure fresh water flow into San Antonio Bay during 2008–2009, resulting in a taking of the endangered whooping crane.¹⁵³ The Aransas Project seeks to bind the state to create a water plan that leaves enough water in the river basins to allow for the survival of blue crabs, which rely on some fresh water to dilute salinity.¹⁵⁴ The crabs are the whooping cranes' main source of food.¹⁵⁵ Whether the low fresh water levels actually do result in a take of the whooping crane is disputed in the case.¹⁵⁶ Also, one of the larger water rights holders, the Guadalupe Blanco River Authority, claims that the success of the suit for the whooping crane would mean threatened availability of water for users with permits to withdraw from the rivers.¹⁵⁷ TCEQ is charged with regulating the water

149 Perhaps it would be fair to say these studies are *rarely* readily available. Often requiring the work input of several agencies at once, they are expensive and time consuming. See *Sierra Club*, where the FWS was compelled to conduct the study by court order. See *id.* at *33.

150 James R. Rasband, *Priority, Probability, and Proximate Cause: Lessons From Tort Law About Imposing ESA Responsibility for Wildlife Harm on Water Users and Other Joint Habitat Modifiers*, 33 ENVTL. L. 595, 598–99 (2003).

151 See, e.g., NORTH PLAINS GROUNDWATER CONSERV. DIST., RULES OF NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT (describing procedures for contested matters included protested hearings at Rule 24), available at <http://www.npwd.org/Rule%20changes%2008/Microsoft%20Word%20-%20Final%20%20Rules%202009.pdf>.

152 *Aransas Project v. Shaw*, No. C-10-75, 2011 WL 6033036 (S.D. Tex. Dec. 5, 2011).

153 *Id.* at *1.

154 See *id.*; see also *Suit Over Water for Whooping Cranes Going to Trial*, HOUS. CHRON., Dec. 4, 2011 [hereinafter *Whooping Cranes*], <http://www.chron.com/news/article/Suit-over-water-for-whooping-cranes-going-to-trial-2343464.php>.

155 See *Whooping Cranes*, supra note 154.

156 *Aransas Project*, 2011 WL 6033036, at *1.

157 Matthew Tresaugue, *Whooping Cranes at Center of Water Dispute*, HOUS. CHRON., Nov. 28, 2011, <http://www.chron.com/default/article/Whooping-cranes-at-center-of-water-dispute-2299546.php>.

rights established by the existing surface water rights system in Texas, and it claims its current regulatory scheme allows for the protection of inflows to bays.¹⁵⁸ The trial took place in early December 2011 at the United States District Court for the Southern District of Texas in Corpus Christi.¹⁵⁹ Its final outcome may pave the way for future plaintiffs to challenge the Texas water appropriation system itself through the ESA rather than through the administrative law process. It is important to note that indirect involvement in the action resulting in the take has been used successfully in litigation to place blame on a local authority. In a Florida case, *Loggerhead Turtle v. the County Council of Volusia County*, the county was held liable for the deaths of turtles that followed car lights away from the water to their peril because the county had authorized beach driving.¹⁶⁰

IV. LISTING A SPECIES AS ENDANGERED

If suing an actor for causing the take of a species is an inevitable result of low water levels in Texas, then another foreseeable result of the depletion of aquatic habitats is the future listing of new endangered species. Congress has called the endangered species listing process “the keystone of the Endangered Species Act.”¹⁶¹ As water becomes scarcer in Texas (both because of persistent drought and as a result of S.B. 332), petitioning FWS to list affected aquatic species is a measure conservationists may ultimately have to take. Listing a species is often very unpopular among local landowners who share the species’ habitat. For better or for worse, the listing of species has halted major projects in the past.¹⁶² Section 4 of the ESA is dedicated to the endangered species listing process.¹⁶³

The power to list a species lies with the Department of the Interior and the Department of Commerce.¹⁶⁴ Citizens can also petition for the listing of a species.¹⁶⁵ In determining whether to list a species as endangered or threatened, the agencies consider five factors:

- (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or

158 State Official Defendants’ Reply in Support of Rule 12(b) and Burford Abstention Motions, *Aransas Project v. Shaw*, 2011 WL 6033036 (2010) (No. C-10-75).

159 *Aransas Project v. Shaw*, No. C-10-75, 2011 WL 6033036 (S.D. Tex. Dec. 5, 2011).

160 *Loggerhead Turtle v. County Council of Volusia County*, 148 F.3d 1231 (11th Cir. 1998).

161 Kevin Cassidy, Comment, *Endangered Species’ Slippery Slope Back to the States: Existing Regulatory Mechanisms and Ongoing Conservation Efforts Under the Endangered Species Act*, 32 ENVTL. L. 175, 187 (2002).

162 See, e.g., *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978) (The Telleco Dam and Reservoir Project was a federally funded project that was virtually complete before ESA suits were filed on behalf of the snail darter, a species listed as endangered after the dam had been funded, and these suits halted the Project’s progress).

163 16 U.S.C. § 1533 (2011).

164 See Cassidy, *supra* note 161.

165 16 U.S.C. § 1533(b)(3)(A).

educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or E) other natural or manmade factors affecting its continued existence.¹⁶⁶

Only one of these factors must be present to show a species is either endangered or threatened.¹⁶⁷ As the federal agencies in the Barton Springs Salamander case were reminded, these factors must be considered “solely on the basis of scientific and commercial data available.”¹⁶⁸ Section 4(b)(1)(B) also allows FWS to consider conservation efforts made by the states to protect threatened species.¹⁶⁹ It can also consider “species which have been (i) designated as requiring protection . . . pursuant to any international agreement; or (ii) identified as in danger of extinction, or likely to become so within the foreseeable future, by any State agency”¹⁷⁰ However, despite the cooperative language of the listing procedure, listing agencies often rely too heavily on state conservation plans and deprive certain species of the opportunity for listing.¹⁷¹ In the Barton Springs Salamander case, below, the agency was prepared to leave the salamander off the endangered species list in exchange for a state conservation plan that was untested and had yet to be employed.¹⁷²

The ESA further requires that the listing agency designate critical habitats for the endangered species.¹⁷³ Critical habitats are areas “(I) essential to the conservation of the species and (II) which may require special management considerations or protection.”¹⁷⁴ Though agencies do not always complete this step, some believe it is among the most important parts of the listing process.¹⁷⁵ In addition to allowing more complete protection for endangered species, James Salzman further points out that designating critical habitat makes causation easier to prove for conservationists in litigation, and it allows landowners who have endangered species on their property to accurately anticipate what projects will be possible on their property.¹⁷⁶

A. SAVE OUR SPRINGS ALLIANCE V. BABBITT: LISTING THE BARTON SPRINGS SALAMANDER

The Barton Springs Salamander case is an apt illustration of how an ESA listings suit has played out in Texas. Plaintiffs Save Our Springs Alliance and Dr. Mark Kirkpatrick filed a citizen enforcement suit in October 1996, challenging Secretary of the Department of the Interior Bruce Babbitt’s decision not to list the Barton Springs

166 *Id.* § 1533(a)(1).

167 *See id.*

168 *Save Our Springs v. Babbitt*, 27 F. Supp. 2d 739, 747 (W.D. Tex. 1997), *aff’d*, *Save Our Springs Alliance Inc. v. Babbitt*, 115 F.3d 346 (5th Cir. 1997).

169 16 U.S.C. § 1533(b)(1)(B).

170 *Id.*

171 Cassidy, *supra* note 161, at 190.

172 *Save Our Springs*, 27 F. Supp. 2d at 744.

173 16 U.S.C. § 1533(b)(2).

174 *Id.* § 1532(5)(A)(i).

175 James Salzman, *Evolution and Application of Critical Habitat Under The Endangered Species Act*, 14 HARV. ENVTL. L. REV. 311, 311-12 (1990).

176 *Id.* at 319-320, 330.

Salamander as an endangered species.¹⁷⁷ Kirkpatrick originally filed a petition in 1992 to list the salamander as endangered because it is a unique species to the Barton Springs area and is affected by pollution and water shortages.¹⁷⁸ This petition triggered a requirement that Babbitt make a finding within 90 days as to whether the petition presented information that would warrant the listing.¹⁷⁹ Babbitt missed the 90-day deadline but eventually determined that the listing might be warranted based on the petition.¹⁸⁰ Babbitt then missed the next twelve-month deadline to determine whether listing was warranted, but eventually proposed to list the salamander as endangered.¹⁸¹ At the end of the proposal period, Babbitt had a legal duty to make a final determination about the salamander: list it as endangered, withdraw it from listing, or determine that there was too much disagreement about the scientific accuracy of information about the species and extend the deadline for six months to accommodate study.¹⁸² Babbitt extended the deadline.¹⁸³

Kirkpatrick then sued Babbitt to compel a decision and the court found that Babbitt violated his duty to act within the statutory periods required by the ESA.¹⁸⁴ Babbitt appealed, claiming that a moratorium on listing species had prevented him from making the final decision.¹⁸⁵ Once the moratorium was lifted, FWS opened a notice and comment period to determine whether the state offers additional protection; by the end of the comment period, no state protection had been found.¹⁸⁶ While FWS biologists prepared the final rule to list the salamander as endangered, Texas state officials met with the Department of the Interior and carved out a conservation agreement signed by the Texas Parks and Wildlife Department, the Texas Natural Resources Conservation Commission (now TCEQ), and the Texas Department of Transportation, as well as FWS.¹⁸⁷ Less than three months later, Babbitt had withdrawn the listing of the salamander as endangered citing “new information” that justified its removal.¹⁸⁸

The district court found evidence of political influence over Babbitt’s decision to withdraw the salamander from listing.¹⁸⁹ It cited FWS’s handbook, which provides that once the notice and comment period has ended, agency employees should refrain from “engaging in activities or substantive discussions related to the rule making with

177 *Save Our Springs*, 27 F. Supp. 2d at 741.

178 *Id.*

179 *Id.*

180 *Id.* at 741–42.

181 *Id.* at 742.

182 *Id.*

183 *Save Our Springs v. Babbitt*, 27 F. Supp. 2d 739, 742 (W.D. Tex. 1997), *aff’d*, *Save Our Springs Alliance Inc. v. Babbitt*, 115 F.3d 346 (5th Cir. 1997).

184 *Id.* at 742, 748.

185 *Id.* at 742.

186 *Id.*

187 *Id.*

188 *Id.*

189 *Save Our Springs v. Babbitt*, 27 F. Supp. 2d 739, 745 (W.D. Tex. 1997), *aff’d*, *Save Our Springs Alliance Inc. v. Babbitt*, 115 F.3d 346 (5th Cir. 1997).

anyone outside the Department.”¹⁹⁰ Because the agency purportedly made its decision not to list the salamander because of the conservation agreement with the Texas agencies, the court found Babbitt had considered factors not based on scientific and commercial data but based on political pressure.¹⁹¹ Though conservation agreements like the one made with Texas are permitted under the ESA, the court found that Babbitt failed to determine that the conservation agreement here met ESA requirements.¹⁹² The withdrawal of the Barton Springs Salamander was found to be arbitrary and capricious, and summary judgment was granted to the plaintiff.¹⁹³

On appeal, Babbitt challenged the district court’s decision to deny the State of Texas its motion to intervene because it was filed on the day the summary judgment briefs were due and was therefore not timely.¹⁹⁴ The 5th Circuit then affirmed the lower court’s ruling.¹⁹⁵

B. LISTING A SPECIES AFTER S.B. 332

Twelve species of freshwater mussels native to Texas have been petitioned for listing with FWS.¹⁹⁶ In October 2011, FWS released a twelve-month finding that five of the freshwater mussels are endangered or threatened and that FWS will make determinations about the species’ critical habitat during the proposed rule development.¹⁹⁷ The decision in the Barton Springs Salamander case shows that courts are wary of trusting state conservation plans to replace the federal listing process. Courts are also likely to be suspicious of political pressures that oppose listing and will not tolerate outside influence on FWS’s decision.¹⁹⁸ Salzman points out that designating habitat can serve as a “lightening [sic] rod” for controversies.¹⁹⁹ High-profile cases like *Tennessee Valley Authority v. Hill*, in which the listing of the snail darter halted a project of more than \$100 million,²⁰⁰ are most likely reasons for the critical habitat debate’s polarizing effects.

Though Texas is a traditional advocate of property rights, the potential for endangered species suits S.B. 332 may create cannot be underestimated. Professor Melious points out that “[i]n two of the three federal court decisions involving water rights and the ESA, the use of existing water rights were [sic] significantly curtailed to protect

190 *Id.* at 745–46 (citation omitted).

191 *Id.* at 747–48.

192 *Id.* at 747.

193 *Id.* at 748.

194 *Save our Springs Alliance, Inc. v. Babbitt*, 115 F.3d 346, 347 (5th Cir. 1997).

195 *Id.* at 348.

196 *Watch Species Fact Sheet: Freshwater Mussels, Keeping Texas First: Tracking the Economic Impact of Federal Action of Endangered Species, Air and Water*, TEX. COMP. OF PUB. ACCT., http://www.texasahead.org/texasfirst/species/watch/freshwater_mussel.php (last visited Feb. 20, 2012).

197 Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List Texas Fatmucket, Golden Orb, Smooth Pimpleback, Texas Pimpleback, and Texas Fawnspoot as Threatened or Endangered, 76 Fed. Reg. 62,166, 62,166 (Oct. 6, 2011) (to be codified at 50 C.F.R. pt. 17).

198 *See Save Our Springs v. Babbitt*, 27 F. Supp. 2d 739, 747–48 (W.D. Tex. 1997), *aff’d*, *Save Our Springs Alliance Inc. v. Babbitt*, 115 F.3d 346 (5th Cir. 1997).

199 Salzman, *supra* note 175, at 335.

200 *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 172 (1978).

endangered species. In the third case, all the water from the new federal reservoir was dedicated to endangered species protection.”²⁰¹

In sum, these cases and principles show that endangered species suits as a response to over-pumping of aquifers have a great chance of being filed and succeeding, but the ESA is not ultimately an ideal solution to the problems of water scarcity. Solving over-pumping one species at a time will not only lead to piecemeal treatment of water rights in the law, it will afford certain areas little relief. If the connection between aquifers and streams is too difficult to prove, or if an ecosystem is not home to a candidate for endangered listing, the ESA will not prevent those groundwater conservation districts from allowing over-pumping. Regardless of the outcomes of individual lawsuits over the ESA, water scarcity as a result of over-pumping of aquifers is likely to result in a flurry of litigation. The ESA is a “big federal stick,” which local governments will work to avoid at all costs.²⁰²

V. CONCLUSION

Not only are ESA suits possible in the future as a result of S.B. 332, they are probably inevitable. They may be inevitable even without the effects of S.B. 332 if Texas fails to manage its groundwater supply prudently. This note shows that the likelihood of success under an ESA lawsuit is great enough that it may bring groundwater management to an impasse.

The ESA and S.B. 332 represent two traditionally opposed interests: environmental conservation and property rights. David Schanbacher, director of the Natural Resources Policy Division in the office of the Texas Comptroller of Public Accountants and advisor to the Comptroller on Endangered Species Initiatives, illustrated this tension when he expressed frustration at the petition to list the twelve species of Texas mussels as endangered: “I’m not making light of endangered species, but, at what point does the balance shift from protecting the needs of people to protecting the needs of creatures?”²⁰³

A statement made by Todd H. Votteler in his article suggests a different way of seeing the endangered species crisis: “The fountain darter at Comal Springs is typically the first species to be affected by declining springflow, and therefore the population of the darter serves as an early warning indicator of stress of the Edwards Aquifer system.”²⁰⁴ Instead of seeing endangered species as an enemy to economic progress, both sides of the argument could benefit from extracting themselves from the perceived zero-sum game of conservation lawsuits. The conditions of its native species forewarn Texas of problems it will ultimately have to face. S.B. 332 misses the point

201 Melious, *supra* note 11, at 611 (quoting J. David Aiken, *Balancing Endangered Species Protection and Irrigation Water Rights: The Platte River Cooperative Agreement*, 3 GREAT PLAINS NAT. RESOURCES J. 119, 124 (1999)).

202 *Id.* at 605.

203 Judith Pannebaker, *Schanbacher – Endangered Species v. Strong Texas Economy*, BANDERA COUNTY COURIER, Aug. 26, 2010, http://www.bccourier.com/Archives/News_detail.php?contentId=6439.

204 Votteler, *supra* note 119, at 853.

with its panicked protection of water as real property. In a perfect world, with proper conservation measures in place, neither endangered species suits nor S.B. 332 would be necessary.

**VI. AUTHOR'S EPILOGUE: THE EFFECT OF EDWARDS AQUIFER
AUTHORITY V. DAY**

The premise of this Note is that S.B. 332 represented an expansion of property rights in groundwater and that the historical success of Endangered Species Act (ESA) suits in Texas could lead to a chaotic flurry of suits that would result in a legal impasse. The Texas Supreme Court recently reached a decision in *Edwards Aquifer Authority v. Day*,²⁰⁵ rendering this result seemingly inevitable. In its decision, the court determined that landowners have an ownership interest in groundwater "in place" before they produce it and that the Edwards Aquifer Authority's (EAA) regulation of that groundwater may constitute a taking of property that requires just compensation.²⁰⁶

In 1994, Day bought several hundred acres of land overlying the Edwards Aquifer for the purpose of growing oats and peanuts and grazing cattle.²⁰⁷ A water well on Day's property had been drilled in the 1950s, but its pump had not been used since before 1983.²⁰⁸ The well flowed under its own artesian pressure into a lake on the property.²⁰⁹ The lake was also fed by a creek, and Day's predecessors used the water from the lake for irrigation and recreation.²¹⁰ Day applied to the EAA, which was created one year before Day purchased his land, for permission to use the well or drill a replacement well.²¹¹ The Edwards Aquifer Act ("Act") requires a permit for withdrawals from the Edwards Aquifer unless the well is producing less than 25,000 gallons a day for domestic or livestock use.²¹² In granting permits, EAA gives preference to users who were withdrawing and using the groundwater before June 1, 1993, and generally water cannot be withdrawn from wells drilled after that date.²¹³ Applicants' annual withdrawal amount is determined by how much water they pumped and put to beneficial use from June 1, 1972, to May 31, 1993.²¹⁴ Users who can prove they operated

205 *Edwards Aquifer Authority v. Day*, No. 08-0964 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf>.

206 *Id.* at 1, 45.

207 *Id.* at 1-2.

208 *Id.*

209 *Id.*

210 *Id.*

211 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 2 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf>.

212 Edwards Aquifer Authority Act, 73rd Leg., R.S. ch. 626, §§ 1.15, 1.33, 1993 Tex. Gen. Laws 2360-61 (amended 1995).

213 *Id.* at § 1.14(e).

214 *Id.* at § 1.16(a).

a well for three or more years during this historical period are entitled to obtain a permit for the average amount they pumped during this period.²¹⁵

Day sought authorization to withdraw 700 acre-feet of water per year and provided documents showing that Day's predecessors said they irrigated Coastal Bermuda grass from the well during the historical period.²¹⁶ Before EAA acted on Day's application, Day drilled a new well.²¹⁷ Soon after, EAA denied the majority of Day's request, determining that the withdrawals of Day's predecessors were not put to "beneficial use," and instead granted a permit for 14 acre-feet.²¹⁸ On appeal at district court, Day sued EAA for taking his property without compensation.²¹⁹ EAA impleaded the state of Texas as a third party defendant, seeking indemnification for the takings claim.²²⁰ The district court determined that the water Day's predecessor used from the lake remained groundwater and that Day should be granted authority to pump the amount he requested.²²¹ It also granted summary judgment to EAA on the takings claims and other constitutional claims.²²²

On appeal, the Fourth Court of Appeals reversed the decision, agreeing with EAA that groundwater that had drained through artesian pressure into the lake had become surface water and could not be considered in EAA's calculation of use during the historical period.²²³ However, the appeals court also held that the constitutional claims should not have been dismissed.²²⁴

The Texas Supreme Court began by considering whether EAA was right to limit Day's permit to 14 acre-feet.²²⁵ The court analyzed the definition of state water and the definition of groundwater in the Texas Water Code (TWC).²²⁶ Though groundwater, "water percolating below the surface of the earth,"²²⁷ is not included within the definition of state water,²²⁸ the court acknowledged that the TWC allows for the changing character of water.²²⁹ The court held that groundwater that enters a watercourse or

215 *Id.* at § 1.16(e).

216 *Day*, No. 08-0964, slip op. at 5.

217 *Id.* at 6.

218 *Id.*

219 *Id.*

220 *Id.* at 7.

221 *Id.*

222 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 7 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf>.

223 *Id.* at 8.

224 *Id.*

225 *Id.*

226 *Id.* at 9 (citing TEX. WATER CODE ANN. §§ 11.021(a), 35.002(5) (West 2011)).

227 TEX. WATER CODE ANN. § 35.002(5).

228 *Id.* § 11.021(a) ("The water of ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state")

229 *Day*, No.08-0964, slip op. at 9 (citing TEX. WATER CODE ANN. § 11.023(d) ("When it is put or allowed to sink into the ground, water appropriated under Subsection (c) of this section loses its character and classification as storm water or floodwater and is considered percolating groundwater.")).

irrigation ditch “wholly loses its character as groundwater and becomes state water.”²³⁰ The court acknowledged that the TWC creates an exception by allowing landowners to apply for an authorization to transport groundwater down a waterway and retain ownership in it.²³¹ But since Day’s predecessors did not have authorization to transport groundwater in this way, the groundwater that arrived in Day’s lake had become surface water and could not be factored into EAA’s permit.²³² Further, the court held that, because Day’s predecessors did not measure the water flowing from the well or the water they pumped from the lake for irrigation and because the lake’s principle use was for recreation and not irrigation, EAA’s decision to permit only 14-acre-feet was reasonable.²³³

On the issue of whether landowners owned groundwater in place, before they produced the water for beneficial use, the court determined that there was no reason groundwater should be treated differently from oil and gas in the law.²³⁴ First, the court held that the Rule of Capture does preclude an interpretation granting ownership in groundwater before it is captured.²³⁵ The court acknowledged that it had never addressed whether the Rule of Capture prevented finding ownership rights in groundwater in place but cited oil and gas cases for the proposition that Rule of Capture and ownership rights in place could coexist.²³⁶ The court rejected EAA’s argument that rights in groundwater should be treated differently from rights in oil and gas because the *Houston & Tex. Cent. Ry. Co. v. East* case recognizes no correlative rights to groundwater.²³⁷ Because *East* did not rule out actions for waste or malicious use, the court found it worked similarly to oil and gas law in that “the rule of capture does not preclude an action for drainage of oil and gas due to waste.”²³⁸ Though the court noted that groundwater regulation has to take into account factors like future needs and environmental impacts, it agreed with the state that both water and mineral rights “are governed by the same fundamental principle: each represents a shared resource that *must* be conserved under the Constitution.”²³⁹ Despite the differences between oil and gas that the court pointed out, it held that “we see no basis in these differences to conclude that the common law allows ownership of oil and gas in place but not groundwater.”²⁴⁰ The court cited an oil and gas case for a restatement of oil and gas ownership rights and held that this case now “correctly states the common law regarding the ownership of groundwater in place.”²⁴¹

230 *Id.* at 9.

231 *Id.* at 10 (citing TEX. WATER CODE ANN. § 11.042(b)).

232 *Id.* at 10.

233 *Id.* at 10–11.

234 *Id.* at 11.

235 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 11 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf>.

236 *Id.* at 20.

237 *Id.* at 23 (citing *Houston & Tex. Cent. Ry. v. East*, 81 S.W. 279, 280 (Tex. 1904)).

238 *Id.*

239 *Id.* at 25 (emphasis in original).

240 *Id.* at 26.

241 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 26 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf> (quoting *Elliff*,

Citing the language added to the TWC by S.B. 332, the court's holding comported with the Texas Legislature's recent pronouncement "that a landowner owns the groundwater below the surface of the landowner's land as real property."²⁴²

On the issue of takings claims, the court wrote an overview of the history of groundwater conservation districts and their responsibilities.²⁴³ It held that "landowners do have a constitutionally compensable interest in groundwater" and that, because of this holding, the regulatory scheme of EAA would need to be assessed to see if it resulted in a compensatory taking.²⁴⁴

Citing the Supreme Court's summary in *Lingle v. Chevron U.S.A. Inc.*, the court recited two categories of action that could be considered *per se* takings: (1) where the owner suffers a permanent physical invasion of the property; and (2) where there is a complete deprivation of all economically beneficial use.²⁴⁵ Outside of these *per se* categories, *Lingle* confirmed the factors in *Penn Central Transp. Co. v. New York City* as controlling in determining whether a taking had occurred.²⁴⁶ These include "[t]he economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations," and "the character of the governmental action," including whether and to what extent it affects property interests and for what purpose.²⁴⁷ The Texas Supreme Court added to this that "surrounding circumstances must be considered in applying 'a fact-sensitive test of reasonableness.'"²⁴⁸ The court found that, for Day, the first *per se* category—"physical invasion of property"—did not apply and that the record evidence for the second *per se* category and the first *Penn Central* factor—deprivation of all economically beneficial use of property—was inconclusive because it may or may not be impossible for Day to raise cattle and grow crops with the amount EAA had granted him.²⁴⁹ For the second *Penn Central* factor—interference with investment-backed expectations—the court found that Day may not have necessarily understood that, because of the Act, he would have been so restricted from accessing the water beneath his property.²⁵⁰ Analyzing the

v. Texon Drilling Co., 210 S.W.2d 558, 561 (Tex. 1948) ("In our state the landowner is regarded as having absolute title in severalty to the oil and gas in place beneath his land. The only qualification of that rule of ownership is that it must be considered in connection with the law of capture and is subject to police regulations. The oil and gas beneath the soil are considered a part of the realty. Each owner of land owns separately, distinctly and exclusively all the oil and gas under his land and is accorded the usual remedies against trespassers who appropriate the minerals or destroy their market value.")).

242 *Id.* at 27 (citing Act of June 17, 2011, 82nd Leg., R.S., ch. 1207, § 1, sec. 36.002, 2011 Tex. Gen. Laws 3224 (current version at TEX. WATER CODE ANN. § 36.002 (West 2011))).

243 *Id.* at 28–34.

244 *Id.* at 36.

245 *Id.* at 37–38 (quoting *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 538 (2005)) (internal quotation marks omitted).

246 *Id.* at 38.

247 *Id.* (quoting *Lingle*, 544 U.S. at 538–39) (internal quotation marks omitted).

248 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 38 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf> (quoting *Sheffield Dev. Co. v. City of Glenn Heights*, 140 S.W.3d 660, 672) (internal quotation marks omitted).

249 *Id.* at 39.

250 *Id.* at 40.

third *Penn Central* factor—the nature of the government action—while acknowledging that groundwater “[r]egulation is essential to its conservation and use,” the court determined that the regulations may still go too far and require compensation even though such compensation could make regulation of groundwater more expensive.²⁵¹ It held, “a landowner cannot be deprived of all beneficial use of the groundwater below his property merely because he did not use it during an historical period and supply is limited.”²⁵² The court concluded that the record did not support summary judgment for EAA on the issue of takings and affirmed the appellate court’s reversal of the summary judgment against Day’s taking claims.²⁵³ The court acknowledged that the extent to which takings claims would burden EAA was unknown, but the burden on the state was not a reason to dismiss the applicability of a takings claim.²⁵⁴ The court dismissed the rest of Day’s constitutional claims as having no merit.²⁵⁵

If there were any doubts about the potential impact of S.B. 332 on the ability of groundwater conservation districts to effectively regulate aquifer levels, the Texas Supreme Court’s decision in *Edwards Aquifer v. Day* confirmed that there will be an impact and that the impact could be significant. The statement of intent in S.B. 332, which acknowledges a vested right in unproduced groundwater,²⁵⁶ is now affirmed, and Texas will be under pressure from both landowners and endangered species conservationists as resources become more scarce.

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251 *Id.* at 45.

252 *Id.* at 45.

253 *Id.* at 47-49.

254 *Edwards Aquifer Authority v. Day*, No. 08-0964, slip op. at 46-47 (Tex. Feb. 24, 2012), available at <http://www.supreme.courts.state.tx.us/historical/2012/feb/080964.pdf>

255 *Id.*

256 Sen. Comm. on Nat. Resources, Bill Analysis, Tex. S.B. 332, 82nd Leg., R.S. (2011), available at <http://www.legis.state.tx.us/tlodocs/82R/analysis/pdf/SB00332F.pdf#navpanes=0>.

BETTER TOGETHER: CO-SITING WIND AND SOLAR PRODUCTION IN TEXAS

BY DAVID FRANCIS

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I. INTRODUCTION

In 2007, the Intergovernmental Panel on Climate Change (IPCC) released an assessment on climate change, revealing that the rate of warming over the last fifty years was nearly double that of the last century.¹ An international consensus that climate change poses a real threat to global welfare has since led to a relatively widespread recognition of the need to transition to cleaner, low-carbon energy.

However, the task of transitioning to a renewables-heavy electricity mix has proven daunting. In 2009, about 37% of the U.S. energy supply was derived from petroleum and 21% from coal, meaning that well over half of the national energy portfolio consists of these two carbon-intensive technologies.² A mere 8% of the nation's supply

1 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS 5 (S. Solomon et al. eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

2 *Renewable Energy Consumption and Electricity Preliminary Statistics 2010*, U.S. ENERGY INFO. ADMIN., fig.1 (June 28, 2011), <http://www.eia.gov/renewable/annual/preliminary>.

came from “renewable” sources.³ Finally, energy derived from wind power represented only 11% of the renewable supply, while solar energy constituted a relatively miniscule 1% of the renewable supply.⁴

Reducing the proportion of the nation’s nonrenewable supply and shifting towards consumption of renewable sources will be difficult enough, but consideration of projected growth in energy consumption makes matters all the more difficult. Total U.S. primary energy consumption is expected to grow by 14% from 2008 to 2035, representing an annual growth rate of 0.5%.⁵ It will be one thing to keep up with demand, but ensuring that renewable sources maintain their relatively modest share of total supply poses a different and more difficult challenge. Most difficult, however, will be to actually *increase* the nation’s proportion of supply derived from renewables even as total supply itself necessarily increases. That is, the challenge will be to ensure that the renewable “slice of the pie” continues to grow larger relative to the rest of the pie, even as the rest of the proverbial “pie” grows.

In Texas, this problem is particularly pressing. The state is expected to grow faster than the rest of the country—Texas’ population is projected to double by 2050.⁶ Consequently, the Electric Reliability Council of Texas (ERCOT) expects that energy demand at peak times will increase “approximately 2% per year between now and 2050, requiring a nearly 50% increase in installed generation capacity by that date. . . .”⁷ Whatever energy problems the rest of the country may face in the future, Texas is sure to encounter those problems in a particularly strong way.

Fortunately, Texas is in a unique position to address this problem. The state largely exists on its own power grid.⁸ ERCOT manages the Texas grid, which represents 85% of the state’s electric consumption.⁹ This relative independence allows Texas to experiment more or less as it sees fit with renewable sources.

Aside from having its own electric grid, the state’s geography and climate are particularly conducive to the placement and utilization of renewable energy. Wind and solar energy, in particular, are renewables that Texas is uniquely well-positioned to harness. Through “co-siting,”—the placement of wind and solar generation at a single site such that utilities are able to harness the power of both sources in a way that integrates the intermittent characteristics of both sources while more fully utilizing existing transmission infrastructure—Texas can better position itself to harness both of these energy resources.

3 *Id.*

4 *Id.*

5 U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2010: WITH PROJECTIONS TO 2035, at 2 (2010) [hereinafter ANNUAL ENERGY OUTLOOK 2010] available at [http://www.eia.doe.gov/oiaf/archive/aeo10/pdf/0383\(2010\).pdf](http://www.eia.doe.gov/oiaf/archive/aeo10/pdf/0383(2010).pdf).

6 GOVERNOR’S COMPETITIVENESS COUNCIL, 2008 TEXAS STATE ENERGY PLAN 5 (2008), available at http://governor.state.tx.us/files/gcc/2008_Texas_State_Energy_Plan.pdf.

7 *Id.* at 24.

8 See Kate Galbraith, *Texplainer: Why Does Texas Have its Own Power Grid?*, Tex. Trib., Feb. 8, 2011, <http://www.texastribune.org/texas-energy/energy/texplainer-why-does-texas-have-its-own-power-grid>.

9 About ERCOT, ELEC. RELIABILITY COUNCIL OF TEX., <http://www.ercot.com/about/> (last visited Oct. 9, 2010).

Part II of this Note compares and contrasts Texas' experiences with wind and solar production, respectively. Part III reviews the benefits of various forms of co-siting wind and solar generation. Finally, Part IV discusses the need for government intervention and concludes with recommendations for how best to encourage co-siting.

II. BACKGROUND: WIND AND SOLAR ENERGY IN TEXAS

A. THE HISTORY OF TEXAS WIND ENERGY

Texas has been called the "Saudi Arabia of wind energy," and the state is ranked nationally in potential wind capacity, second only to North Dakota.¹⁰ Texas' annual wind energy potential has been calculated at 1,190 billion kWhs.¹¹ The state's wind potential, however, might not be readily apparent to a visitor in any of the state's major metropolitan areas. Cities like Dallas, Houston, Austin, and San Antonio lie more or less in the eastern half of the state. On the other hand, the Panhandle region, the waters along the coastline south of Galveston, and the mountainous terrain of the Pecos Mountains in west Texas present the best opportunities for harvesting wind energy.¹²

This geographic disparity between wind potential and electricity consumption no doubt has played a part in delaying Texas' embrace of wind power. Indeed, California, which does not possess nearly the aggregate wind potential of Texas,¹³ had installed over 1,600 wind turbines by 1999, when Texas had only about 180.¹⁴ California, however, was able to locate wind farms in places like the San Geronio Pass, nestled between the population centers of Southern California's Inland Empire and the Palm Springs metropolitan area.¹⁵ Were Texas' population centers located as closely to its wind resources, perhaps it might have joined California as an early adopter of wind power.

In 1999, Texas finally embraced its wind potential by passing Senate Bill 7 (S.B. 7), which created the state's first renewable portfolio standard (RPS).¹⁶ S.B. 7 was Texas' first attempt at an energy policy that embraced renewable sources.¹⁷ Among other things, the RPS required that Texas' competitive electricity providers install 2,000 MW of new renewable energy capacity by 2009, and each individual provider

10 Becky H. Diffen, *Competitive Renewable Energy Zones: How the Texas Wind Industry is Cracking the Chicken & Egg Problem*, 46 ROCKY MTN. MIN. L. FOUND. J. 47, 57 (2009).

11 See *American Wind Energy Association Reports Top 20 Wind Producing States*, GREEN ENERGY NEWS (Apr. 16, 2009) [hereinafter GREEN ENERGY NEWS], <http://www.renewable-energy-news.info/american-wind-energy-association>.

12 See *Wind Power in Texas*, TEX. ST. ENERGY CONSERV. OFFICE, http://www.seco.cpa.state.tx.us/Maps/re_maps-wind-tx.htm (last visited Oct. 10, 2010).

13 See GREEN ENERGY NEWS, *supra* note 11.

14 TEX. COMP. OF PUB. ACCTS., THE ENERGY REPORT 160 ex.11-1 (2008), available at <http://www.window.state.tx.us/specialrpt/energy/renewable/wind.php>.

15 See *County of Riverside General Plan - Hearing Draft: Western Coachella Valley Area Plan*, RIVERSIDE COUNTY INTEGRATED PROJECT, 23, http://www.rcip.org/Documents/general_plan/vol2/w_coachella_valley/f_02.pdf (last visited Oct. 10, 2010).

16 Act of June 18, 1999, 76th Leg., R.S., ch. 405, § 1, 1999 Tex. Gen. Laws 2543.

17 Diffen, *supra* note 10, at 58.

was required to provide its share of the 2,000 MW in proportion to its share of total competitive energy sales.¹⁸ S.B. 7 received near unanimous support in both houses of the Texas legislature.¹⁹

Less than seven years later, the RPS requirement was met, and in 2005 the legislature passed Senate Bill 20 (S.B. 20), which increased the RPS to 5,880 MW by 2015, and set a non-binding target of 10,000 MW by 2025.²⁰ To facilitate the RPS, S.B. 20 also created a Renewable Energy Credit (REC) trading program, whereby utility providers that exceed their obligations under the RPS earn credits that they can sell to utilities who have not met their RPS requirements.²¹ At least one observer has commented that there is “no doubt that the combination of Texas’ excellent wind resource and a well thought out and implemented RPS/REC system [is] largely responsible for the rapid growth the Texas wind industry has experienced.”²²

It may, however, be the case that the industry partially owes its relative success to another factor—namely, the federal Renewable Electricity Production Tax Credit (PTC). The PTC grants a tax credit to producers of electricity generated by “qualified energy resources.”²³ Originally enacted in 1992, the PTC has been renewed and subsequently modified, most recently by the American Recovery and Reinvestment Act of 2009 (ARRA).²⁴ Currently, the PTC offers a credit amount of 2.2 cents/kWh.²⁵

The PTC, however, has a checkered history. It expired at the end of 2001, was extended to 2003, and then expired and was not renewed until 2004, when it was extended through 2005.²⁶ The PTC has been periodically extended ever since,²⁷ but the resultant uncertainty has had a measurable effect on the growth of the wind industry, essentially driving the wind energy investment cycle.²⁸ After the PTC expired in 1999, the wind industry slowed significantly in 2000, and when the PTC was retroactively

18 Act of June 18, 1999, 76th Leg., R.S., ch. 405, § 39, sec. 39.904, 1999 Tex. Gen. Laws 2543, 2598.

19 Diffen, *supra* note 10, at 58.

20 Drew Thornley, *Texas Wind Energy: Past, Present, and Future*, 4 ENVTL. & ENERGY L. & POL’Y J. 68, 72–73 (2009) (citing Act of Aug. 2, 2005, 79th Leg., 1st C.S., ch. 1, § 3, sec. 39.904, 2005 Tex. Gen. Laws 1, 1).

21 *Id.* at 73.

22 Ernest E. Smith & Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 TEX. J. OIL GAS & ENERGY L. 165, 172 (2009–2010).

23 I.R.C. § 45 (West 2010) (“Qualified energy resources” is defined in subsection (c)(1) to include wind, biomass, geothermal, solar, and hydroelectric energy, among others.)

24 See American Recovery and Reinvestment Act of 2009, H.R. 1, 111th Cong. § 1101 (2009).

25 *Renewable Electricity Production Tax Credit (PTC)*, DATABASE OF ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, U.S. DEP’T OF ENERGY ET AL., http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US13F (last updated June 3, 2011).

26 *Id.*

27 *Id.*

28 Merrill Jones Barradale, *Impact of Policy Uncertainty on Renewable Energy Investment: Wind Power and PTC 1* (U.S. Ass’n for Energy Econ. & Int’l Ass’n for Energy Econ. Working Paper No. 08-003, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1085063 (“It is generally understood that the pattern of repeated expiration and short-term renewal of the federal production tax credit (PTC) causes a boom-bust cycle in wind power plant investment in the U.S.”).

extended through 2001, the industry quickly saw renewed growth.²⁹ A similar lull in wind development occurred when the PTC temporarily expired a few years later.³⁰ However, one commentator suggested that the ARRA PTC extension has at least had the effect of “removing PTC renewal uncertainty for a little while.”³¹

At any rate, growth of Texas’ wind sector over the last decade has been rapid. In 1999, Texas’ installed wind capacity of 184 wind turbines lagged far behind California’s 1,616 and constituted a mere 7.4% of the nation’s wind capacity.³² By the time of S.B. 20’s enactment and the creation of the second, more stringent RPS timetable, Texas’ wind generation capacity increased more than tenfold to 1,992 units.³³ By 2008, Texas had a whopping 7,113 wind turbines, far surpassing California as the nation’s wind leader and constituting nearly 28% of the nation’s wind capacity.³⁴

B. CREZ FRAMEWORK

Despite the progress Texas has made in terms of the growth of its wind industry, it will likely continue to face obstacles. The classic problem remains that the majority of the state’s population is located far from its wind resources and thus transmission difficulties abound. There is, however, an additional problem: Particularly in the years immediately after the enactment of the S.B. 7 RPS, it was common for wind turbine operators to shut down turbines when the wind was blowing because of congestion on the transmission lines connecting the turbines to the grid.³⁵ Therefore, the existing transmission infrastructure was inadequate to accommodate additional wind capacity.

S.B. 20 included provisions aimed at responding to these issues. Under S.B. 20, after consulting with ERCOT and other appropriate regional transmission organizations, the state Public Utility Commission (PUC) was required to designate Competitive Renewable Energy Zones (CREZs) in which resources and land areas were sufficient to develop renewable generation capacity.³⁶ In determining which of ERCOT’s recommended zones would make the final list of CREZs, PUC considered those areas with the best wind resources and the most financial commitments from interested parties.³⁷ Then, PUC had to develop a plan to construct transmission capacity sufficient to deliver electricity from the CREZs to urban load centers.³⁸

In 2008, ERCOT released its Transmission Optimization Study, which “focused on recommendations to determine types of transmission methods that would best transmit wind generation from CREZs in west Texas across the state to east

29 U.S. ENERGY INFO. ADMIN. ANNUAL ENERGY OUTLOOK 2005 – WITH PROJECTIONS TO 2025, at 59 (2005), available at [http://www.eia.gov/FTP/ROOT/forecasting/0383\(2005\).pdf](http://www.eia.gov/FTP/ROOT/forecasting/0383(2005).pdf).

30 *Id.*

31 See Barradale, *supra* note 28, at 20.

32 See Thornley, *supra* note 20, at 75.

33 See *id.*

34 See *id.*

35 Kathryn B. Daniel, Comment, *Winds of Change: Competitive Renewable Energy Zones and the Emerging Regulatory Structure of Texas Wind Energy*, 42 TEX. TECH L. REV. 157, 166 (2009).

36 Act of Aug. 2, 2005, 79th Leg., 1st C.S., ch. 1, § 3, sec. 39.904, 2005 Tex. Gen. Laws 1, 2.

37 Daniel, *supra* note 35, at 163.

38 See *id.* at 164.

Texas where the power flows would be redistributed to load centers”³⁹ Among ERCOT’s recommended scenarios, PUC selected Scenario 2.⁴⁰ Scenario 2 was chosen in part because it was designed to be easily adaptive to any added future transmission infrastructure.⁴¹ It includes five CREZs: two in the Texas Panhandle and three in Central Texas.⁴² Of the three Central Texas CREZs, the Central West CREZ stretches from Ector to Borden County, the Central CREZ is centered around Nolan, Coke, Sterling, and Mitchell Counties, and the McCamey CREZ stretches from northern Brewster County through southern Pecos County, then Crockett and Irion Counties, taking in the southern portions of Upton and Reagan Counties along the way.⁴³ For one not entirely familiar with the nuances of west Texas county geography, it may be best to simply note that these three CREZs are located just north, east, and south of the Midland area, respectively.

PUC expects this process and all CREZ transmission projects to be complete by the end of 2013.⁴⁴

C. TEXAS’ SOLAR ENERGY POTENTIAL

While the majority of Texas’ renewable portfolio standard consists of wind power, S.B. 20 does include a target requirement of 500 MW from non-wind renewable sources.⁴⁵ It is likely that the non-wind requirement was meant to address the fact that the state’s current renewable portfolio is overwhelmingly dominated by wind power. In 2010, electricity derived from wind accounted for over 95% of all renewable energy capacity in Texas.⁴⁶ Put another way, of the 11,111.4 MW of total renewable energy capacity in Texas, 10,630.3 MW came from wind and, most strikingly, only 50.5 MW came from solar sources.⁴⁷

Outsiders might be justifiably shocked to learn that Texas’ solar energy production is so miniscule. Though Texas’ geography is incredibly diverse, the Chihuahuan

39 *Id.* at 167 (citing ELEC. RELIABILITY COUNCIL OF TEX. (ERCOT), COMPETITIVE RENEWABLE ENERGY ZONES (CREZ) TRANSMISSION OPTIMIZATION STUDY 11 (2008) [hereinafter TRANSMISSION OPTIMIZATION STUDY], available at <http://ercot.com/news/presentations/2008>).

40 *Id.* at 168.

41 *Id.* at 171.

42 TRANSMISSION OPTIMIZATION STUDY, *supra* note 39, at 24–25 (describing Scenario 2 and depicting the five CREZs in that scenario).

43 *Id.* at 25 fig.5.

44 Tex. Pub. Util. Comm’n, *Commission Staff’s Petition for Selection of Entities Responsible for Transmission Improvements Necessary to Deliver Renewable Energy from Competitive Renewable Energy Zones*, Docket No. 35665, 3 (Mar. 30, 2009) (order on rehearing), available at http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/35665_1340_615958.PDF.

45 Act of Aug. 2, 2005, 79th Leg., 1st C.S., ch. 1, § 3, sec. 39.904, 2005 Tex. Gen. Laws 1, 1–2. (“Of the renewable energy technology generating capacity installed to meet the goal of this subsection after September 1, 2005, the commission shall establish a target of having at least 500 megawatts of capacity from renewable energy technology other than a source using wind energy.”).

46 *Existing/New REC Capacity*, ELEC. RELIABILITY COUNCIL OF TEX., <https://www.texasrenewables.com/publicReports/rpt5.asp> (last visited Feb. 6, 2012).

47 *Id.*

Desert, most of which lies in Northern Mexico, stretches into far west Texas.⁴⁸ Thus, insofar as a desert climate makes for a good solar resource, far west Texas would seem to be as good a place for solar power as Arizona, Nevada, or California. The desert regions of far west Texas contain not only the sunniest areas in the state, but also some of the sunniest areas in the nation.⁴⁹ Of course, like Texas' wind potential, solar potential decreases rapidly as one travels further east; “[c]ompared to East Texas, West Texas experiences 75% more direct solar radiation.”⁵⁰ Where average direct normal insolation along the Gulf Coast might be around 5,000 MJ/m² per year, far west Texas can see over 9,000 MJ/m² per year.⁵¹

The primary concern with solar power is its expense. According to Paul Komor of the Pew Center on Global Climate Change, “[t]he question of whether photovoltaics will ‘work’ in a specific geographical location is one of economics and cost-effectiveness, not technical feasibility.”⁵² The more aggregate sunlight available, the lower the cost of solar on a per-kilowatt-hour basis.⁵³ Thus, west Texas is the first place Texas should look in terms of developing a large-scale public solar resource.

Additionally, there is sufficient solar radiation throughout Texas to power distributed solar systems, such as residential solar water heaters or off-grid photovoltaic (PV) panels.⁵⁴ Indeed, distributed solar systems are relatively common throughout Texas. Such off-grid systems can provide varying degrees of cost-effectiveness, and users may qualify for municipal power rebates like one sponsored by the City of Austin's own Austin Energy.⁵⁵ As of April 2011, Austin Energy's rebate program included more than 1,200 customer-owned solar systems, 100 commercial projects, 37 municipal projects, and 32 school installations, totaling more than 4.7 MW of generation capacity.⁵⁶ The program includes not only rebates for solar use, but loans to finance solar system installation as well.⁵⁷

As helpful as such incentives have been, they imply that something is inherently preventing solar energy from becoming more popular in the absence of incentives. Indeed, the state RPS seemed to have little effect in terms of spurring solar development; in the absence of any mandate as to exactly which of the qualifying “renewables” should be preferred, market conditions have led to the creation of a largely

48 *Chihuahuan Desert*, BUREAU OF LAND MGMT., http://www.blm.gov/wildlife/pl_56sum.htm (last visited Oct. 22, 2010).

49 *Texas' Renewable Energy Resources*, TEX. ST. ENERGY CONSERV. OFFICE, fig.3, <http://www.infinitepower.org/ressolar.htm> (last visited Oct. 23, 2010).

50 *Id.*

51 See *id.* at fig.4 (Where “[i]nsolation is the total amount of solar radiation that strikes a particular location over a given period of time. . . .” *Id.*).

52 Paul Komor, PEW CTR. ON GLOBAL CLIMATE CHANGE, WIND AND SOLAR ELECTRICITY: CHALLENGES AND OPPORTUNITIES 10 (2009), available at <http://www.pewclimate.org/docUploads/wind-solar-electricity-report.pdf>.

53 *Id.*

54 *Texas' Renewable Energy Resources*, *supra* note 49.

55 *Power Saver Program: Solar Photovoltaics*, AUSTIN ENERGY, <http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/solar%20rebates/index.htm> (last visited Jan. 15, 2012).

56 *Id.*

57 *Id.*

wind-centric renewable portfolio. Paul Komor's emphasis on the relative cost-effectiveness of solar appears to hold true: Without a doubt, the cost of solar power has made it previously irrelevant in Texas.

In 2007, the approximate levelized cost for solar electricity (LCOE) was anywhere from 28 to 42 cents/kWh for utility-scale solar PVs, while for distributed solar PV (typically off-grid home or other private use), the cost was from 46 to 59 cents/kWh.⁵⁸ Both statistics were much higher than for natural gas or wind technology: The costs for wind and natural gas were 9-12 cents/kWh and 5-10 cents/kWh, respectively.⁵⁹

However, costs are fluid, and in a mere two years the costs for solar energy declined dramatically. By 2009, another study set costs at 8.6 to 19.4 cents/kWh for utility-scale PVs, a marked reduction over the 2007 figures.⁶⁰ These cost reductions are in large part due to the development of thin-film technologies, in which a very thin film layer of PV material is applied directly on a backing material like glass or steel.⁶¹ Thin-film uses less PV material, has manufacturing benefits over conventional silicon PV material, and can be applied directly to preexisting surfaces like windows or roofing.⁶²

Despite these and other cost improvements for solar technology, it is true that solar has yet to become directly cost-competitive with wind or natural gas. Solar electricity "will remain a niche technology unless: (a) the costs of solar come down significantly; (b) the costs of fossil-based electricity go up significantly . . . ; or (c) solar is mandated through, for example, solar set-aside in renewable portfolio standards (RPSs) or feed-in tariffs" (like those in the European Union).⁶³

Fortunately, it appears reasonably certain that all three of these contingencies could occur. First, solar costs are predicted to continue to fall, in some places reaching cost-parity with conventional electricity in a matter of years.⁶⁴ Second, the price of oil rose over the past decade and after a collapse in prices following the onset of the

58 Komor, *supra* note 52, at 6. The term "levelized cost of electricity" is defined in Komor's report as "a price per kWh that covers both the first costs of the technology itself, as well as the ongoing fuel as well as operation and maintenance . . . costs of keeping the technology operating." *Id.* at 7.

59 *Id.*

60 Richard M. Swanson, *Photovoltaics Power Up*, 324 SCI. MAG. 891, 891 (2009).

61 See Komor, *supra* note 52, at 18.

62 *Id.* Thin film "lends itself to continuous manufacturing (thin-film PV can be produced in a continuous sheet for potentially lower manufacturing costs than crystalline silicon PV) There are a number of promising thin-film technologies and approaches, some in commercial use, and more under development. More research, however, is needed to refine thin-film production methods with the goal of low-cost, high-volume manufacturing of reliable and durable PV cells." *Id.*

63 *Id.* at 17.

64 See Adam Vaughan, *Costs of Solar Energy Will Match Fossil Fuels by 2013*, *Claims Solarcentury*, THE GUARDIAN, May 12, 2009, <http://www.guardian.co.uk/environment/2009/may/12/solar-energy-price-fall> (reporting one prediction that solar energy will become cost-competitive with fossil fuels in the UK within the next few years); Press Release, Int'l Energy Agency, IEA Sees Great Potential for Solar, Providing Up to a Quarter of World Electricity by 2050 (May 11, 2010) (http://www.iea.org/press/pressdetail.asp?PRESS_REL_ID=301) (reporting that, with effective policies in place, PV solar will achieve grid parity at residential scales by 2020 and "at utility-scale in the sunniest regions by 2030").

2008-2009 recession is forecast to rise once again.⁶⁵ Natural gas prices are projected to rise as well.⁶⁶ Third, as this Note will explain, Texas could easily engage in demand-pull policies aimed at creating a market for solar.

III. CO-SITING SOLAR AND WIND POWER GENERATION

A. ADVANTAGES OF CO-SITING

Solar and wind energy complement each other. Specifically, each technology comes with variability concerns, which can be partially mitigated by the other. Because Texas has both strong solar and wind resources, pairing these two energy resources seems to make sense. As noted above, the primary barriers to greater use of wind and solar energy are “high costs, transmission availability, and variability of output.”⁶⁷ While cost issues may be becoming less of an obstacle, the latter two barriers can be mitigated by co-siting.

On the one hand, Texas’ solar resource is like the wind resource: It is substantial, but it is nowhere near the population centers that would consume electricity derived from the resource. On the other hand, the two resources are dissimilar: Whereas Texas’ best wind resources tend to run from the Panhandle southward,⁶⁸ the best solar resources lie in the westernmost corner of the state.⁶⁹ There is, however, a small region where the two resources overlap.

Portions of far west Texas’ arid deserts spill over into the southwestern edges of the windy region. Within the CREZ framework, a portion of the McCamey CREZ (specifically, the western portion stretching into Pecos and Brewster counties) lies well within the boundaries of the Chihuahuan Desert.⁷⁰ This portion is thus well-suited for solar development and is also already designated as an area ripe for wind development.⁷¹ Specifically, those westernmost portions of the McCamey CREZ offer ideal insolation potential and thus would be a great location for concentrated solar power (CSP), which generally requires direct sunlight, as opposed to sunlight diffused

65 See ANNUAL ENERGY OUTLOOK 2010, *supra* note 5, at 131 (2010) (forecasting an average 1.1% per year increase in imported low-sulfur light crude oil through 2035, the forecast’s time horizon).

66 See *id.* at 133–34 (forecasting small price increases in all forms of natural gas through 2035, the forecast’s time horizon).

67 See Komor, *supra* note 52, at 12.

68 See *Potential Electricity Production on Windy Lands in Texas*, THE WIND COAL., <http://www.windcoalition.org/policy/transmission> (last visited Oct. 30, 2011) (map of Texas depicting wind characteristics 80 meters above ground).

69 See *Texas’ Renewable Energy Resources*, *supra* note 49 (“Compared to East Texas, West Texas experiences 75% more direct solar radiation”).

70 Compare McCamey, PUB. UTIL. OF TEX.: CREZ TRANSMISSION PROGRAM INFO. CTR., <http://www.texascrezprojects.com/mccamey.aspx> (last visited Feb. 6, 2012), and Michael J. Moore, *The Phylogeny and Phylogeography of Gypsophilic Plants in the Chihuahuan Desert*, OBERLIN C. BIOLOGY DEP’T, <http://www.oberlin.edu/faculty/mmoore/gypsophily.html> (last updated Apr. 29, 2010) (map depicting location of the Chihuahuan Desert relative to West Texas counties, including Pecos and Brewster counties).

71 See Diffen, *supra* note 10, at 80.

through clouds.⁷² As such, potential CSP in Texas would likely be restricted to western McCamey and far west Texas.

The wind and the sun are both variable resources—that is, the wind can blow one minute and stand still the next. Similarly, nighttime, unpredictable weather patterns, and cloud cover affect insolation.⁷³ As a result, wind and solar power generation depend on these variables.⁷⁴ Wind often blows increasingly at night, resulting in more electricity generation at night than during daytime.⁷⁵ At the same time, sunshine is best captured during daytime hours and therefore can partially mitigate the variability concerns inherent in wind generation.

Synergies between multiple renewable technologies have been taken advantage of in other settings. Denmark, for example, balances its large share of wind power (almost 20% of its overall generation) with an interconnection with hydroelectric power in Norway and Sweden.⁷⁶ Closer to home, the concept of co-siting is being explored in the context of solar and natural gas. In California, for instance, projects like the City of Palmdale's Hybrid Power Plant Project will pair concentrated solar thermal heat with heat from a natural gas plant to drive a single steam turbine, thus going beyond the concept of co-siting independent generation systems and instead fully integrating both sources of energy into a single power plant (since both sources drive a single turbine).⁷⁷ A similar facility was recently built in Israel.⁷⁸

Furthermore, “wind electricity does not require 100% backup with dispatchable generation.”⁷⁹ Thus, if solar were used as a co-sited mitigator of generation variability (in lieu of storage technology or a dispatchable fossil-fuel source), such solar genera-

72 Moore, *supra* note 70 (westernmost portions of McCamey CREZ lead into the desert); Rachel Oliver, *All About: CSP*, CNN (Mar. 12, 2007), http://articles.cnn.com/2007-11-12-world/eco.about.csp_1_csp-solar-power-electricity?_s=PM:WORLD (“where PV [photovoltaic solar technology] relies on mirrors to directly translate the sun’s rays into energy, CSP uses the sun to heat water, or other liquids, to high temperatures, whose resulting steam is then used to drive turbines that create electricity. . . . Whereas PV can work on cloudy days, CSP needs direct sunlight – and a lot of it, which means the only practical places on Earth CSP plants can really work are in deserts.”).

73 Komor, *supra* note 52, at 5 (“The wind and sun are variable resources, meaning that their availability as an energy source fluctuates due to weather patterns, clouds, and cycles of day and night. The electricity output from power plants dependent on these variable resources varies accordingly.”).

74 *Id.*

75 *Id.* (“In the case of wind electricity, electricity generation is sometimes greatest at night when electricity demand is lowest.”).

76 AMERICA’S ENERGY FUT.: PANEL ON ELEC. FROM RENEWABLE RESOURCES, ELECTRICITY FROM RENEWABLE RESOURCES: STATUS, PROSPECTS, AND IMPEDIMENTS 265 (2010) [hereinafter AMERICA’S ENERGY FUT.].

77 *City of Palmdale Hybrid Power Plant Project*, CAL. ENERGY COMM’N, <http://www.energy.ca.gov/sitingscases/palmdale/index.html> (last modified Aug. 15, 2011).

78 Chris de Morsella, *World’s First Solar Gas Hybrid Power Plant Launched in Israel*, THE GREEN ECON. POST (Jun. 26, 2009), <http://greeneconomypost.com/solar-gas-hybrid-power-plant-3368.htm>.

79 See Komor, *supra* note 52, at 15.

tion would not need to be so great as to fully duplicate the generation potential of the wind generation it is backing up.

The combination of wind and solar generation at a single site also mitigates problems associated with the high cost of building the lengthy transmission lines connecting wind generation to electricity consumers. Adding solar generation potential alongside wind turbines would increase the wattage available for transmission across power lines, thus enabling Texas ratepayers (who will fund the CREZ transmission lines⁸⁰) to get more bang for their transmission line buck. “Though no transmission line is loaded to capacity all of the time, increasing the usage [of the transmission line] through co-location could improve the economics of additional transmission capacity by smoothing temporal variations in electricity generation.”⁸¹

In short, Texas should seriously consider co-siting because “[i]ntegration of the intermittent characteristics of wind and solar power . . . is *critical* for large-scale deployment of renewable energy.”⁸²

B. CO-SITING VARIANTS

The phrase “co-siting” proves to be fairly vague; there are multiple ways to effectuate the benefits of complementary wind and solar production.

1. PHYSICAL CO-SITING

Physical co-siting involves the location of solar panels and wind turbines on the same site, sharing a single substation. Developers on most Texas wind farms hesitate to place wind turbines near substations because of the risk of damage to the substation resulting from a blade flying off a turbine and hitting the substation.⁸³ This land immediately surrounding such substations would seem to be ripe for placement of a solar array. Further, a wind farm in far west Texas (especially in western portions of the McCamey CREZ), where there is little competing land use, would seem to be ripe for solar development, as large swaths of desert land might otherwise go unused.

The benefits of physical co-siting are substantial. Aside from the benefits realized by co-siting generally, such as mitigation of generation variability, physical co-siting could provide for substations and transmission lines shared with existing wind generation, thus realizing the economic efficiencies of co-siting in a particularly effective manner relative to the other co-siting alternatives. Also, as mentioned above, there is

80 Press Release, Elec. Reliability Council of Tex., ERCOT Files Wind Transmission Options with Commission (Apr. 2, 2008) [hereinafter Elec. Reliability Council of Tex.] (http://www.ercot.com/news/press_releases/show/255) (noting that “[t]he cost of transmission is . . . rolled into costs that all ratepayers pay. . .”).

81 AMERICA’S ENERGY FUT., *supra* note 76, at 263.

82 *Id.* at 285 (emphasis added.).

83 Telephone Interview with David Power, Deputy Director, Public Citizen (Oct. 29, 2010).

potential for concentrated solar production (CSP) in west Texas, where the physical co-siting would be most feasible.

2. DISTRIBUTED CO-SITING

The benefits of co-siting may be realized even if the plants are not physically on the same site.⁸⁴ In “distributed co-siting,” solar production is not physically at the same site as the complementary wind turbines but instead takes the form of off-grid, distributed solar production systems located at homes or businesses that are served by the wind generation. Solar production can supplement the wind-derived electricity and thus achieve the benefits of physical co-siting. One benefit of distributed co-siting is that it avoids the transmission losses that occur when electricity is transmitted over hundreds of miles. Because the generation occurs at the site of consumption, there are virtually no transmission losses. This system, however, foregoes the economies of scale inherent in a utility-scale, physically co-sited CSP array.

In a way, the nuts-and-bolts of such a scheme are already in place. Distributed solar production exists all over Texas, although not as part of a distributed co-siting system, since distributed solar production is not placed with regard to whether the facilities are also served by electricity derived from wind. The task in establishing distributed co-siting systems, then, is to ensure that distributed solar generation serves and occurs in areas that are particularly strongly served by wind generation—that is, areas where the variability problems associated with wind power might manifest themselves. For instance, the Dallas-Fort Worth area is where the bulk of the state’s wind power is currently transmitted because it is closer to the wind generation than cities like Houston.⁸⁵ Under CREZ Scenario 2, also, the bulk of the electricity generation from the new CREZs will flow to the Dallas-Fort Worth area.⁸⁶ Therefore, the Dallas-Fort Worth area would seem to be a likely candidate for this type of distributed co-siting, and under a distributed co-siting scheme, the area could be singled out for particularly strong incentives aimed at encouraging distributed solar in an effort to complement base-load generators and mitigate the effects of the variability of wind power.

3. CO-SITING ALONG EXISTING TRANSMISSION

A third alternative seems to be an intermediate choice between physical co-siting and distributed co-siting. This intermediate choice would place solar production anywhere along the transmission lines connecting the CREZs to the rest of the grid—that is, between the wind production and the population centers that it serves.

There are, however, two main problems with this third alternative. First, in Texas, placing solar production along the transmission lines connecting west Texas CREZs to urban load centers means that solar production is not being placed in the sunnier parts of west or far west Texas, the ideal location for solar production. Thus, on a per-kilowatt-hour basis, solar production would be costly relative to, for instance, physical co-siting. Second, placing solar production alongside transmission lines would still require the construction of additional transmission substations to connect the solar

84 AMERICA’S ENERGY FUT., *supra* note 76, at 263–64.

85 TRANSMISSION OPTIMIZATION STUDY, *supra* note 39, at 10–11.

86 *Id.* at 10.

production with the transmission grid, thus further aggravating the cost factor. These two problems render this intermediate siting option less feasible.

4. SOLAR-ONLY ZONES IN FAR WEST TEXAS

A fourth variant on the co-siting theme can be identified. As previously mentioned, the best solar resource for utility-scale solar generation is located in far west Texas. To the extent that the Scenario 2 CREZs are not located far enough west for utility-scale solar, there is the possibility of placing such large solar installations at appropriate sites in far west Texas and then connecting those sites, via transmission lines, to the rest of the grid either by merging with transmission lines at the CREZs or elsewhere. However, this option is subject to even greater cost obstacles than those associated with the third co-siting alternative described above. More transmission line capacity from the CREZs to sites even further west and additional transmission substations would need to be constructed. In a sense, this alternative duplicates the current CREZ framework by creating solar-generation areas akin to CREZs. Thus, although this option presents the greatest promise for harvesting solar potential while still drawing on the transmission lines built for CREZs, it loses many of the benefits associated with the first two co-siting options and could prove extremely expensive. Therefore, it is not feasible.

5. CONSUMER-FUNDED PHYSICAL CO-SITING

Finally, there is a sort of “inverted” distributed co-siting model, wherein end-users pay a premium to fund installation of utility-scale solar arrays at the CREZ sites, essentially funding physical co-location.⁸⁷ There are pros and cons to this approach, which this Note terms “consumer-funded physical co-siting.”⁸⁸

This consumer-funded co-siting approach incorporates advantages of both the physical co-siting and distributed co-siting schemes. First, since production would be located in west Texas, there is a potential for use of CSP technology, as in the first physical co-siting scheme. Second, also like physical co-siting, this model delivers wattage at a lower per-kilowatt-hour cost than the distributed system. Where end-users in the standard distributed co-siting scheme would essentially pay for their own small-scale PV solar arrays, in the inverted distributed scheme they instead pay a premium for wattage produced by a much larger, utility-scale CSP system.⁸⁹ Therefore, taking advantage of economies of scale, the consumer would pay less for the same wattage production, and the premium to buy into the system would be less than the cost of a private, off-grid PV array.⁹⁰

87 Conversation with Professor David Adelman, The University of Texas School of Law (Nov. 12, 2010) (Professor Adelman provided inspiration for the notion of consumer-funding of utility-scale solar arrays).

88 Although all co-siting options presented here ultimately involve at least some consumer funding (through the paying of rates by end-consumers), I will refer to this option as “consumer” funded because consumers *directly* fund installation and operation of co-sited solar through premiums that they (and only they) will pay.

89 Of course, the consumer who pays into this system would not directly receive the electricity generated by “his” solar investment, rather, the proportion of the overall electricity mix generated by solar simply grows by an increment.

90 Adelman, *supra* note 87.

However, there are several problems with this option. Consumer-funded physical co-siting involves transmission losses, since generated electricity would need to travel across the hundreds of miles of transmission lines between, for example, the McCamey CREZ and Dallas. Also, there is the possibility that, in a distributed scheme, consumers (particularly residential consumers) may simply value the fact that the appearance of a PV solar system on their property signals their environmental conscientiousness to the public. To the extent that an “inverted” distributed co-siting scheme alters this by instead having the consumer pay in to fund a portion of a larger solar array hundreds of miles away, the consumer’s use of solar power loses some of its value as an environmental status symbol, since the consumer’s use of the solar power is entirely inconspicuous.

A balancing of the pros and cons of the consumer-funded co-siting scheme must consider the degree to which the cost of transmission losses outweighs the savings achieved by taking advantage of economies of scale and use of more versatile⁹¹ CSP technology.⁹² It is likely that transmission losses are outweighed by the savings achieved by using utility-scale solar over distributed solar. Larger installations typically have lower costs per watt of production.⁹³ Specifically, in sunny climates, the January 2012 index cost of electricity from a typical 2-kW residential PV system was 29.14 cents per kWh.⁹⁴ A typical larger, 50-kW system operated at 19.63 cents per kWh.⁹⁵ The same source set the retail price for solar electricity from industrial installations at only 15.31 cents per kWh.⁹⁶ This suggests that, even taking grid transmission losses into account, the economies of scale achieved by large installations outweigh cost savings achieved by smaller, off-grid systems. Indeed, only an average of 7% of electricity generated in the U.S. was lost in transmission in 2009.⁹⁷ All else constant, it would seem that the cost of electricity from off-grid distributed solar systems would have to be substantially lower before savings achieved through avoidance of transmission losses outweighed economies of scale achieved by large-scale utility systems.

91 CSP may be more versatile than PV technology because some CSP systems are capable of storing the energy they produce. See U.S. DEP’T OF ENERGY, ENERGY BASICS: THERMAL STORAGE SYSTEMS FOR CONCENTRATING SOLAR POWER, http://www.eere.energy.gov/basics/renewable_energy/thermal_storage.html (describing methods by which certain CSP systems can actually store thermal energy for later consumption).

92 Adelman, *supra* note 87.

93 See John Farrel, *Distributed, Small Scale Solar Competes with Large-Scale PV*, RENEWABLE ENERGY WORLD (Nov. 8, 2010), <http://www.renewableenergyworld.com/rea/blog/post/2010/11/distributed-small-scale-solar-competes-with-large-scale-pv>.

94 *Solar Electricity Prices*, SOLARBUBB, <http://www.solarbuzz.com/facts-and-figures/retail-price-environment/solar-electricity-prices> (last visited Feb. 6, 2012) (“This Price Index is based upon a standard 2 kilowatt peak system, roof retrofit mounted. It is connected to the electricity grid and has battery back up to allow it to operate during times of electricity downtime. It is therefore also suitable as an Index for off grid Residential uses. The Price Index includes full system integration and installation costs.”).

95 *Id.*

96 *Id.*

97 *Frequently Asked Questions: How Much Electricity Is Lost in Transmission and Distribution in the United States?*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/tools/faqs/faq.cfm?id=105&t=3> (last updated June 15, 2011).

The other purported advantage of a distributed scheme relative to a consumer-funded, physically co-sited scheme—the potential for green-minded consumers to devalue physically co-sited solar panels relative to distributed, on-site solar due to the fact that their solar usage would be entirely inconspicuous—is more difficult to quantify but must be considered together with the fact that inconspicuous usage cuts both ways. While some consumers might prefer to have their green credentials (in the form of PV panels) on-site for all to see, other consumers (or more specifically, their neighbors and neighborhood associations) might prefer to avoid the visual dissonance of an unsightly rooftop PV array. It is therefore difficult to say whether a consumer’s willingness-to-pay out of a desire for conspicuous usage of renewable energy would have any effect on the larger issue, which is the choice between distributed or physically co-sited (consumer-funded) solar generation.

SUMMARY OF CO-SITING OPTIONS

In sum, the relative merits of each of the five co-siting schemes can be summed up as follows:

	1: Physical Co-Siting	2: Distributed Co-Siting	3: Solar placed along transmission route	4: Solar placed farther west than CREZs	5: Consumer- Funded Co-Siting
Mitigates variability?	Yes	Yes ⁹⁸	Yes	Yes	Yes
Uses existing CREZ transmission/substations?	Yes	No	Somewhat	Somewhat	Yes
CSP potential?	Yes	No	No	Yes	Yes
Economies of scale?	Yes	No	Yes	Yes	Yes
Avoids transmission losses?	No	Yes	No	No	No

Because of the costs associated with options 3 and 4, the choice seems to be between physical co-siting, distributed co-siting, and consumer-funded co-siting. While physical co-siting and consumer-funded co-siting offer the most benefits, distributed co-siting is the easiest scheme to stimulate from a legislative standpoint, since many of the mechanisms for such a scheme already exist in the context of distributed solar incentives. A key advantage of the consumer-funded co-siting scheme is that it may

98 If strategically placed in locales particularly served by wind-generated electricity.

be the most politically viable option, since it would be funded only by willing participants and therefore would not require substantial public investment.

IV. IMPETUS FOR INTERVENTION

Before specific legislative recommendations are addressed, an obvious question must be answered: If co-siting is such a good idea, why isn't it already being done? If the private sector has not seen it fit to co-site, why should the public sector intervene? Most apparently, there has been no co-siting of wind and solar generation because solar energy itself has historically proved inordinately expensive.⁹⁹

There is, however, another key reason that explains why wind and solar co-siting will likely not be achieved without government intervention. Despite the broader benefits of co-siting, wind and solar developers are not enthusiastic about the idea. From developers' point of view, co-siting entails lost profits, and this makes the concept commercially infeasible.¹⁰⁰ This is because, in siting wind turbines or solar arrays, developers look for sites with specific characteristics.¹⁰¹ To "diminish the risk factor for investment," these characteristics must be present in a way that makes the site optimal for development.¹⁰² As such, rarely will any given site will be equally suitable for both wind and solar production. Since any one site will be better suited for one technology than the other, developers would be irrational in siting both wind and solar at that site.¹⁰³ For instance, if a site is better suited for wind than solar, investing in solar generation on that site would divert limited resources from funding the construction of the higher-return technology (wind) and thus waste money—even if the site would have been suitable for solar.¹⁰⁴

Not only are developers' financial resources finite, transmission resources are finite as well. For instance, wind farms are often sized so that their average production is far below the capacity of the transmission resource, so that the entire wind farm can remain operational (producing electricity) even at the windiest times without overloading the transmission lines.¹⁰⁵ This is done to avoid having to shut down turbines at windy times, since a turbine lying dormant in the wind cuts into the profitability of

99 See Komor, *supra* note 52, at 6 tbl.1 (in 2007, the approximate levelized cost for solar electricity (LCOE) was anywhere from 28 to 42 cents/kWh for utility-scale solar PV, while for distributed solar PV—typically off-grid home or other private use—the cost was from 46 to 59 cents/kWh. Both statistics were much higher than for natural gas or wind technology, which cost 9-12 cents/kWh and 5-10 cents/kWh, respectively.)

100 See Telephone Interview with Andy Bowman, Founder & President, Pioneer Green Energy (Nov. 23, 2010).

101 *Id.*

102 *Id.*

103 *Id.*

104 *Id.*

105 *Id.*

the wind farm.¹⁰⁶ Therefore, the prospect of backing up wind generation¹⁰⁷ with solar generation (in an attempt to more fully use transmission lines) is not at all attractive to private developers, who (naturally) fund generation with the intent of maximizing profits.

The interests of private developers diverge from the interests of the broader rate-paying public and are in direct conflict with the public interest. It is the general public who will fund the CREZ transmission infrastructure through payment of higher utility rates.¹⁰⁸ Where the interests of Texas ratepayers thus lie in maximizing usage of the transmission infrastructure for which they are paying, developers are instead concerned with avoiding wasted generation. That is, the rate-paying public is interested in avoiding wasted transmission capacity for want of maximized generation capacity, whereas private wind and solar developers are interested in avoiding wasted generation capacity for want of sufficient transmission capacity. Of course, this is only true within the context of the current regulatory scheme. The legislature could better align the interests of interested parties by altering Texas' regulation of renewables.

V. POLICY RECOMMENDATIONS

A. CREATE A MARKET FOR SOLAR ENERGY

The first task in encouraging the co-siting of wind and solar generation must be to encourage solar development generally. Texas' renewable portfolio is overwhelmingly dominated by wind, with solar energy lagging far behind.¹⁰⁹

The state should use demand-pull incentives to create an initial market for solar. The RPS already contains a 500-MW non-wind target.¹¹⁰ However, this is only a "target" and not a binding requirement.¹¹¹ The legislature should modify the RPS non-wind target to ensure that PUC and all other interested parties read the non-wind target as mandatory. Legislators sought to alter the non-binding nature of the 500-MW non-wind target by changing the language of S.B. 20 and substituting the word "goal" for "target." For example, Representative Yvonne Gonzalez Toureilles introduced a bill that would have substituted a non-wind "goal" for the current "target."¹¹² The bill also would have increased the target to 4000 MW of non-wind generation by 2020.¹¹³ To date, however, no such bill has passed. The legislature should finally give teeth to the

106 See Bowman, *supra* note 100.

107 But see *supra* text accompanying note 79 (wind electricity does not require full, 100% backup with dispatchable generation, so solar generation would not need to be so great as to fully duplicate the generation potential of the wind generation it is backing up, and this would partially mitigate the concerns of private developers regarding redundant generation capacity).

108 Elec. Reliability Council of Tex., *supra* note 80 (noting that "[t]he cost of transmission is 'uplifted to load;' [meaning that] it is rolled into costs that all ratepayers pay . . .").

109 See *supra* text accompanying note 47.

110 Act of Aug. 2, 2005, 79th Leg., 1st C.S., ch. 1, § 3, sec. 39.904, 2005 Tex. Gen. Laws 1, 1-2.

111 See Diffen, *supra* note 10, at 69 (citing TEX. UTIL. CODE ANN. § 39.904(a) (West 2011)).

112 Tex. H.B. 3145, 81st Leg., R.S. (2009).

113 *Id.* (allowing "small-scale" wind generation to partially meet this requirement).

non-wind target by passing a bill altering S.B. 20 in such a way that the target becomes a mandatory requirement, and it should consider heightening the mandatory requirement from 500 MW to a more substantial number.

The legislature should then further amend the RPS by establishing a specific solar carve-out. Currently, the statute does not specify to what extent the 500-MW non-wind target will be met with solar power.¹¹⁴ Within the context of the Texas RPS, a qualifying “renewable energy technology” is simply “any technology that exclusively relies on an energy source that is naturally regenerated over a short time and derived . . . from the sun . . . or from moving water or other natural movements and mechanisms of the environment.”¹¹⁵ Specifically approved technologies include not only wind and solar, but also geothermal, hydroelectric, and biomass, among others.¹¹⁶ So, while it is possible that the 500-MW carve-out for non-wind sources may lead to increased solar generation, the RPS may need further refinement (in the context of a specific solar carve-out) to ensure a market for solar beyond what the market currently supports.

Other states have enacted solar carve-outs. For example, Massachusetts’ RPS contains a solar carve-out that compels electricity retailers to supply 34,164 megawatt-hours (MWh) from solar in 2010.¹¹⁷ New Jersey’s solar carve-out requires suppliers and providers to procure at least 2,518 gigawatt-hours (GWh) from in-state solar electric generators by 2021.¹¹⁸ Delaware passed an RPS that requires that 3.5% of the state’s renewable energy come from solar photovoltaics by 2025.¹¹⁹ To ensure that solar constitutes a meaningful portion of Texas’ non-wind requirement, Texas should adopt a solar carve-out within the framework of its current RPS.

This recommendation would be uniformly beneficial to any of the aforementioned co-siting schemes because there can be no co-siting of wind and solar production if there is not a market for both kinds of electricity.

B. ENCOURAGE DISTRIBUTED CO-SITING

As previously mentioned, the benefits of co-siting may still be realized where off-grid distributed solar systems are located at homes or businesses that are particularly served by the wind sources. The most direct way to stimulate distributed co-siting is to simply focus consumer solar incentives on those load centers that are particularly heavily served by wind-generated electricity.

Texas already uses incentives to encourage consumer use of solar energy. Texas allows a corporation or other entity subject to the state franchise tax to deduct the cost

114 Act of Aug. 2, 2005, 79th Leg., 1st C.S., ch. 1, § 3, sec. 39.904, 2005 Tex. Gen. Laws 1, 1-2 (“Of the renewable energy technology generating capacity installed to meet the goal of this subsection after September 1, 2005, the commission shall establish a target of having at least 500 megawatts of capacity from renewable energy technology other than a source using wind energy.”).

115 TEX. UTIL. CODE ANN. § 39.904(d) (West 2011).

116 *Id.*

117 225 MASS. CODE REGS. 14.07 (LexisNexis 2011).

118 N.J. ADMIN. CODE. § 14:8-2.3 (2011).

119 DEL. CODE ANN, tit. 26, § 364(a) (2011).

of a solar-energy device from the franchise tax.¹²⁰ Firms engaged in the manufacture, sale, or installation of solar-energy devices are themselves exempted from the franchise tax.¹²¹ Also, the state recently enacted Property-Assessed Clean Energy (PACE) legislation that allows municipalities to provide loans to property owners for energy efficiency and renewable-energy improvements to their property.¹²² This statute, because of its focus on approving loan-making ability on a municipality-by-municipality basis,¹²³ could be modified to allow the state to consider whether the municipality is particularly heavily served by wind-generated electricity, thus encouraging distributed co-siting. In 2010, however, the Federal Housing Finance Agency (FHFA) effectively put PACE financing on hold nationwide, citing concerns with PACE liens that must be satisfied before a mortgage lender receives any money in a foreclosure action.¹²⁴ This option is thus precluded pending FHFA's resolution of the matter.

The Texas Department of Rural Affairs (TDRA), through the Renewable Energy Demonstration Pilot Program (REDPP), offers grants to rural counties and municipalities for projects that use wind power or solar power "to help meet energy needs for water treatment or wastewater treatment facilities."¹²⁵ The REDPP program's budget will likely be less than \$500,000 in fiscal year 2012.¹²⁶ Though small, it provides inspiration for a legislative scheme for incentivizing distributed co-siting. In determining which local government entities will receive REDPP grants, TDRA considers a host of factors, including the location of the proposed project.¹²⁷ The legislature could consider authorizing funds for similar municipal grant programs, with primary consideration focused on whether the municipality is located within the grid in a way that results in it being particularly heavily served by wind-generated electricity. Recall that the bulk of the electricity generation from the Scenario 2 CREZs will flow to the Dallas-Fort

120 TEX. TAX CODE ANN. § 171.107 (West 2011) (The franchise tax is Texas' equivalent to a corporate tax.).

121 *Id.* § 171.056 (West 2010).

122 Act of June 19, 2009, 81st Leg., R.S., ch. 655, § 1, 2009 Tex. Gen. Laws 1470, 1470 (to be codified at TEX. LOC. GOV'T CODE § 376).

123 *Id.* at 1471.

124 See Press Release, Fed. Housing Fin. Agency, FHFA Statement on Certain Energy Retrofit Loan Programs (July 6, 2010) (<http://www.fhfa.gov/webfiles/15884/PACESTMT7610.pdf>); see also Steven A. Liverpool, *Paralyzing the PACE: Florida's Property Assessed Clean Energy Program Likely Strangled by Fannie Mae and Freddie Mac*, FLA. GREEN BLDG. LAW (July 19, 2010), <http://floridagreenbuildinglaw.com/2010/07/19/paralyzing-the-pace-florida%E2%80%99s-property-tax-assessed-clean-energy-program-likely-strangled-by-fannie-mae-and-freddie-mac>.

125 *Renewable Energy: Renewable Energy Grants*, TEXAS DEPARTMENT OF AGRIC., <http://www.tdra.state.tx.us/TxDRA/programs/renewenergy.aspx> (last visited Oct. 30, 2010).

126 *Id.*

127 *Renewable Energy Demonstration Pilot Program: 2011 Application Guide*, TEXAS DEP'T OF RURAL AFFAIRS, 11-13 (2010), <http://www.tdra.state.tx.us/TxDRA/Libraries/cdbgDocs/cdbgRenewableEnergyRedppAppGuide2011v2.sflb.ashx> (factors include the type of project, the project's application of innovative technology, the project's widespread application, whether the project demonstrates favorable cost-benefit analysis over the long term, the project's potential for collaboration with other agencies and entities, and the project's location).

Worth area.¹²⁸ An ideal distributed co-siting grant program would provide funds for municipalities (like those in the D-FW area) that the municipalities, in turn, could pass on to local property owners in the form of rebates for the purchase of small-scale, off-grid solar systems. The Austin Energy solar rebate program is an example of such a municipal rebate program.¹²⁹

For guidance in the mechanics of a solar rebate scheme, the legislature could look to its own past legislation. In 2009, for example, State Senator Troy Fraser introduced S.B. 545, which would have established utility-administered incentive programs for residential, commercial, and industrial customers to install solar panels.¹³⁰ Though not ultimately passed, S.B. 545 set the initial rebate amounts at \$2.40 per watt of installed capacity for systems with a total capacity of 10 KW or less, and \$1.50 per watt for systems with capacities between 10 and 2,000 KW.¹³¹

In short, though distributed co-location might not provide all the benefits of true, physical co-location, it would prove relatively simple to stimulate from a legislative standpoint.

C. ENCOURAGE PHYSICAL CO-SITING

The best locations for physical co-siting of wind and solar generation are those in far west Texas. Also, physical co-siting is the best way to effectuate the benefits of co-siting (in terms of increased transmission line usage, more effective land use, shared substations, and climate benefits in terms of far west Texas' CSP potential).

To the extent that solar-friendly RPS policies are successful in creating demand for utility-scale solar generation, established CREZs (specifically Scenario 2's McCamey CREZ) could be the most likely locations for solar generation. The transmission infrastructure would already be in place, and thus the costs of utility-scale solar would be mitigated. However, the McCamey CREZ ultimately selected in Scenario 2 has its transmission and substation infrastructure located mostly in the eastern half of the CREZ.¹³² If CSP generation were to be constructed in the western reaches of the CREZ, it would require the construction of additional substations and transmission lines to reach the transmission infrastructure in the eastern half of the CREZ. At a cost of \$2 million to \$4 million per mile,¹³³ the task of extending transmission capacity westward through the McCamey CREZ would prove prohibitive for private companies.

Unlike private firms, public entities like the Lower Colorado River Authority Transmission Services Corporation (LCRA TSC) build transmission lines at PUC's direction.¹³⁴ That is, LCRA TSC will follow PUC's direction in identifying routes for

128 TRANSMISSION OPTIMIZATION STUDY, *supra* note 39, at 10.

129 *Power Saver Program: Solar Photovoltaics*, *supra* note 55.

130 Tex. S.B. 545, 81st Leg., R.S. (2009).

131 *Id.* § 2; *cf. supra* text accompanying notes 91-94 for price of solar electricity from solar installations of various sizes.

132 See McCamey, *supra* note 70.

133 See Komor, *supra* note 52, at 22.

134 See LCRA and CREZ, Lower Colo. River Auth., <http://www.lcra.org/energy/trans/crez/index.html> (last visited Feb. 6, 2012).

transmission lines.¹³⁵ PUC, in turn, carries out the intent of the legislature.¹³⁶ Thus, the legislature is actually not far removed from the transmission-siting process, and modifying transmission line plans in the McCamey CREZ to better accommodate the western half of the CREZ would not prove prohibitively difficult from the standpoint of legislative mechanics. Whether such legislation would prove politically popular remains unanswered.

While any CSP installation might be best located in the westernmost reaches of the CREZ,¹³⁷ PV arrays could more easily be placed near existing transmission lines and substations in the eastern half of the CREZ. Because PV is not as reliant on direct insolation and can work even on cloudy days,¹³⁸ the fact that direct solar insolation decreases as one moves eastward is not damning to PV generation in the eastern reaches of the McCamey CREZ.¹³⁹

Perhaps the simplest way to stimulate physical co-siting would be to simply instruct PUC to require that a certain percentage of all electricity generated in the CREZs and transmitted through the CREZ transmission infrastructure come from solar generation. This could be accomplished by modifying § 39.904 of the Texas Utility Code, which directs and instructs PUC with regard to its designation and management of the CREZs,¹⁴⁰ to instruct PUC to establish a minimum solar requirement to be met by project developers within an individual CREZ. PUC would need to take the unique characteristics of each CREZ into consideration in setting any minimum solar requirements for that individual CREZ. Factors taken into consideration could include:

- Average solar exposure within the CREZ;
- Ability of existing transmission/substation infrastructure to reach and accommodate solar resource;
- Potential for land use conflicts within the CREZ (desert areas of western McCamey CREZ would be more suitable for large solar arrays than would agriculture-heavy panhandle CREZs); and
- Potential for CSP versus PV usage.

There are also various tax incentives that the state could modify to stimulate physical co-siting. Texas already has a basic property tax exemption for the increase in property value due to installation of solar or wind devices, but the exemption applies only for small-scale, off-grid systems.¹⁴¹ While there is no analogous state tax exemption for utility-scale wind or solar, one could be created for co-sited solar assets.

Presumably, one reason for the nonexistence of any property tax exemption for utility-scale solar (where the produced electricity is not consumed on-site) is the fact that the state would be foregoing substantial revenues, since the appraised amount of increase in property value foregone would be very high in the case of large-scale production on otherwise low-value rural land. It is highly unlikely that a full exemption of 100% of appreciated value would prove any more attractive to state lawmakers in the

135 See *id.*

136 See TEX. UTIL. CODE ANN. § 39.904 (West 2011).

137 See *supra* discussion accompanying note 72.

138 Oliver, *supra* note 72.

139 Power, *supra* note 83.

140 See generally TEX. UTIL. CODE ANN. § 39.904 (West 2011).

141 TEX. TAX CODE ANN. § 11.27(a) (West 2011).

case of co-siting. Therefore, a more politically viable option is to exempt the percentage of the property appreciation arising as a result of the installation of co-sited solar assets. While this would obviously not be as effective in stimulating co-siting as would a full, 100% exemption, the fact that the state does not offer an exemption *at all* in the case of non-co-sited utility-scale solar could prove a strong incentive for producers to co-site when they decide to build solar generation.

Finally, the state could decrease the regulatory burden for installation of co-sited generation. Often, since wind farms tend to be built in rural areas, zoning ordinances, building regulations, and permitting requirements tend not to be significant barriers.¹⁴² That is not to say, however, that construction of wind farms or solar arrays is not without regulatory consequence. Most of the relevant laws here are at the level of local government, but the state can still play a role in ensuring that co-sited generation gets preferential treatment.

Arizona's experience in lessening the regulatory burden imposed on owners of PV systems is worth reviewing for guidance in this area. "Traditionally, counties and municipalities in Arizona have been free to adopt their own requirements and assign their own fees for a permit."¹⁴³ Arizona's statewide solar-permitting standards, however, limit what local governments can require of solar owners in the permitting process.¹⁴⁴ Among other things, Arizona keeps permitting fees low by mandating that any building or permitting fees assessed for solar construction be directly attributable to the expenses incurred by the local authority in rendering the services for which the fee is charged.¹⁴⁵ That is, the fee cannot exceed the actual cost of issuing the permit, and the state cannot realize a profit from the permitting.¹⁴⁶ Furthermore, local governments cannot set fee rates without public notice and a hearing on the matter.¹⁴⁷

Colorado goes one step further, requiring that local permitting authorities charge the lesser between the cost for the permit or \$500 (in residential settings) or \$1,000 (in commercial applications).¹⁴⁸ The statute applies only to off-grid use at residential or commercial sites, however.¹⁴⁹ A higher fee-cap might be more appropriate for larger,

142 Diffen, *supra* note 10, at 61 ("Wind farms tend to be built in rural areas, so most zoning ordinances, building regulations, and permitting requirements do not apply.").

143 *Arizona Incentives/Policies for Renewables & Efficiency: Solar Permitting Standards*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=AZ23R&re=1&ee=1 (last updated Jan. 6, 2012).

144 See Act of May 23, 2008, 2008 Ariz. Sess. Laws 241.

145 ARIZ. REV. STAT. ANN. § 11-323(B) (2011).

146 *Id.*

147 *Id.* § 11-323(C) ("Before adoption of a fee for service or an additional or separate charge pursuant to this section, a county shall hold a public hearing on the issue with at least fifteen days' published notice.").

148 COLO. REV. STAT. ANN. § 31-15-602(4)(b) (WEST 2011) ("A municipality may not charge permit fees to install an active solar energy device or system that, in aggregate, are in excess of the lesser of the municipality's actual costs in issuing the permit or five hundred dollars for a residential application or one thousand dollars for a nonresidential application.").

149 *Id.* § 31-15-602(4)(a) ("The energy code shall apply to any commercial or residential building in the municipality . . .").

utility-scale systems. Texas can look to these statutes to formulate restrictions on local permitting specifically in the context of co-sited generation.

D. ENCOURAGE CONSUMER-FUNDED CO-SITING

In any co-siting scenario, consumers ultimately bear the brunt of the costs. Therefore, the up-front costs of funding a co-siting scheme could become political barriers. However, the assumption that consumers would be averse to the perceived costliness of co-siting schemes (or even solar incentivization generally) is only a general one and is not uniformly applicable to all consumers. The state could take advantage of some consumers' willingness to pay more for renewable energy by establishing a program whereby consumers essentially buy-in to utility-scale solar arrays in west Texas CREZs (the aforementioned consumer-funded co-siting system).¹⁵⁰ Potential residential PV owners, for instance, might be willing to buy in to such a program, which could ultimately result in cost savings relative to a residential PV installation.

Texas could emulate other states by requiring utilities to offer green power options to consumers by law. For instance, in Colorado, utilities serving more than 40,000 customers must offer green energy programs that allow consumers to pay premiums for electricity derived from renewables.¹⁵¹ New Mexico has a similar law,¹⁵² as does Virginia.¹⁵³ Texas could further accomplish this by encouraging the spread of consumer opt-in renewable energy programs like Austin Energy's GreenChoice program. Austin Energy customers can opt to pay slightly more per kilowatt-hour in return for Austin Energy's contracting to purchase power from renewable sources to meet the consumer's needs.¹⁵⁴ For every consumer who joins the program, the proportion of renewable power in Austin Energy's mix grows larger,¹⁵⁵ thus increasing demand for renewables generally.

Like GreenChoice, these laws create demand for renewables, but to directly fund construction of co-sited solar, Texas could build on these laws by requiring that utilities provide consumers with two options. Under the first option, consumers could simply pay a premium for all-green electricity, as in GreenChoice and the aforementioned Colorado law. Under the second option, however, consumers would pay that same premium, but their choice would not immediately result in the utility contracting to purchase any renewable electricity. Instead, the utility would remit the

150 See discussion *supra* Section III.B.5.

151 COLO. REV. STAT. § 40-2-124 ("The utility must have an optional pricing program in effect that allows retail customers the option to support through utility rates emerging renewable energy technologies.").

152 N.M. CODE R. § 17.9.572.15 (LexisNexis 2011) ("Each public utility shall offer a voluntary renewable energy tariff for those customers who want the option to purchase additional renewable energy.").

153 VA. CODE ANN. § 56-577 (West 2011) ("[I]ndividual retail customers of electric energy within the Commonwealth, regardless of customer class, shall be permitted . . . [t]o purchase electric energy provided 100 percent from renewable energy from any supplier of electric energy licensed to sell retail electric energy within the Commonwealth . . .").

154 *GreenChoice: Answers to Frequently Asked Questions*, AUSTIN ENERGY, <http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Choice/faq.htm> (last visited Feb. 6, 2012).

155 *Id.*

premium—the difference between the utility’s standard rate for non-green electricity and what the consumer is actually paying for his electricity under this more expensive plan—to the state. The state, in turn, could use this revenue to fund construction of co-sited, utility-scale solar arrays. Thus, the consumer derives satisfaction from knowing that he is, in a way, buying “his” solar panels and placing them under the bright west Texas sunshine, while the state is able to construct large, utility-scale solar arrays in a manner that results in no cost to the taxpayer (indeed, if the state was left with ownership of the solar arrays, it would essentially be obtaining valuable, revenue-generating assets for free, and it could either sell those assets or sell the electricity generated by them).

Going one step further to market this system to consumers as a cheaper equivalent to installation of small-scale home PV arrays, the state could modify its solar property tax exemption¹⁵⁶ to benefit participants in the plan. For instance, the state could determine the appreciation to the value of the property on which the solar arrays are co-sited, prorate out the portion of appreciation that stems from the consumer’s own investment (however small), and then exempt that amount from the consumer’s own property taxes. This would treat the consumer’s small share of the co-sited solar array as if it were his own home PV array, thus reinforcing the notion that this whole intricate system is just a cheaper way for him to receive clean, solar electricity. Although the consumer would not own the share of the solar array for which he paid through his rate premiums, this plan should not be any less attractive to him than a standard renewables-only electricity plan because the price would be the same. Furthermore, once the co-sited solar arrays are built out, the utility would cease remitting the premium to the state and instead keep it while contracting to purchase the consumer’s electricity from renewable sources, essentially converting the plan into a GreenChoice-like, renewables-only plan.

This plan would admittedly not result in a huge proliferation of co-sited solar arrays, because construction of the arrays would be limited by the rate at which consumers joined the program. It is, however, basically costless to the state, and therefore whatever benefits it would provide would almost certainly outweigh the plan’s costs. Indeed, the state could turn around and sell the solar assets, thus profiting from the process. The state would profit even if it sold the assets far below “cost,” since the state did not pay anything for them—thus making the assets very attractive to private developers, who could purchase co-sited solar assets at heavily discounted prices.

As far as the consumer is concerned, the plan is no more expensive than a renewables-only plan, so green-minded consumers who might otherwise choose to install their own home PV arrays can opt to go the cheaper co-siting route, while still

156 TEX. TAX CODE ANN. § 11.27(a) (West 2011).

realizing the tax benefits they would have received if they had installed their own PV system.

VI. CONCLUSION

This Note began by describing the “lay of the land” with regard to Texas’ established wind industry and the more nascent solar industry. After describing how various forms of co-siting can complement Texas’ wind industry, stimulate the state’s solar industry, and better serve its electricity needs, it described the need for public-sector intervention and portrayed various mechanisms by which the state can stimulate wind-solar co-siting. Some are more viable than others, while some are more aggressive. All of them are workable.

Governments simply must be willing to get creative if they are going to act on climate change in a meaningful yet politically viable way. As solar energy becomes more viable, its attractiveness as a complement to existing wind generation will increase. With targeted policies aimed at co-siting solar and wind generation, Texas can improve its existing renewables portfolio, better ensure the long-term success of its renewables program, and take a leading role in the global war on carbon emissions.

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AIR QUALITY

CROSS-STATE AIR POLLUTION RULE – HELPFUL OR HARMFUL?

On July 6, 2011, the Environmental Protection Agency (EPA) finalized the Cross-State Air Pollution Rule (CSAPR), requiring utilities in twenty-seven states east of the Rocky Mountains and the District of Columbia to reduce power plant emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x). Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48,208 (Aug. 8, 2011) (to be codified at 40 C.F.R. pts. 51, 52, 72, 78, and 97). The CSAPR replaces the vacated 2005 Clean Air Interstate Rule (CAIR), and follows a 2008 decision by the United States Court of Appeals for the District of Columbia, which directed EPA to promulgate new standards pursuant to the Clean Air Act’s (CAA) requirements related to the transport of air pollution across state boundaries. *Id.* at 48,212; *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008).

EPA intended to require compliance with the CSAPR in two phases: (1) the annual SO₂ and NO_x emissions reduction program scheduled to start on January 1, 2012, and (2) the seasonal NO_x emissions reduction program to start on May 1, 2012. 76 Fed. Reg. at 48211. However, Luminant, the largest energy provider in Texas, and the Attorney General of Texas filed suit to enjoin the enforcement of the CSAPR. Press Release, Attorney General of Texas, Texas Attorney General Greg Abbott Challenges EPA’s Flawed Cross-State Air Pollution Rules, (Sept. 22, 2011), <https://www.oag.state.tx.us/oagNews/release.php?id=3857>. On December 30, 2011, the D.C. Circuit Court of Appeals stayed enforcement of the rule pending resolution of the litigation. Consolidated Order, No. 11-1302, Doc. #1350421 1 (D.C. Cir. Dec. 30, 2011).

The CAA requires EPA to issue national ambient air quality standards (NAAQS) for each air pollutant that “cause[s] or contribute[s] to air pollution, which may reasonably be anticipated to endanger public health or welfare [and] the presence of which in the ambient air results from numerous or diverse mobile or stationary sources.” 42 U.S.C. § 7408(a)(1)(A), (B) (2011). In addition, the CAA’s “good neigh-

bor” provision requires states to prohibit any source or other type of emissions activity from emitting any air pollutant in amounts that will contribute significantly to another state’s achieving nonattainment status. *Id.* § 7410(a)(2)(D)(i)(I). In accordance with these provisions, the CSAPR’s purpose is to reduce emissions that “significantly affect the ability of downwind states to attain and maintain compliance with the 1997 and 2006 fine particulate matter NAAQS and the 1997 ozone NAAQS.” 76 Fed. Reg. at 48,208. To ensure compliance with state-level budget caps, EPA is issuing Federal Implementation Plans (FIPs) for each state covered by the rule, and these FIPs may later be replaced by State Implementation Plans (SIPs). *Id.*

The CSAPR requires reductions in ozone season NO_x emissions that cross state lines for states under the ozone requirements (twenty-seven states), and reductions in annual SO₂ and NO_x for states under the fine particulate matter requirements (twenty-three states). *Id.* at 48,210. Under the CSAPR, electric generating units in Texas will be regulated for annual NO_x and SO₂ emissions as well as peak season (ozone season) NO_x emissions. *EPA Final Cross-State Air Pollution Rule*, TEX. COMM’N ON ENVTL. QUALITY, <http://www.tceq.texas.gov/airquality/sip/the-epas-transport-rule> (last updated Sept. 23, 2011). In other words, electric generating units in Texas will be subject to all three programs in the final rule. *Id.* In the proposed rule, Texas was only included in the ozone season program. *Id.* The Electric Reliability Council of Texas (ERCOT), the independent power system operator for Texas, summarized the general scheme of the complex rule:

Each unit will be given a set allocation of emissions allowances. At the end of the calendar year, resource owners must turn in one allowance for each ton of emissions of NO_x or SO₂ or be subject to penalties. Intrastate trading of allowances between resource owners is unlimited in the rule. However, interstate trading of allowances is capped – no state can have annual net imports of allowances of more than approximately 18% of the total state allocation of allowances. If this limit is exceeded, any resource owner that contributed to the excessive use of imported allowances will be subject to penalties.

See ELEC. RELIABILITY COUNCIL OF TEX., INC., IMPACTS OF THE CROSS-STATE AIR POLLUTION RULE ON THE ERCOT SYSTEM 2 (2011), available at http://www.ercot.com/content/news/presentations/2011/ERCOT_CSAPR_Study.pdf [hereinafter *ERCOT Report*].

EPA predicts that by 2014, this rule and other state and federal rules would lower power plant annual SO₂ emissions by 73% (approximately 6.4 million tons per year) and NO_x emissions by 54% (approximately 1.4 million tons per year) from the 2005 levels in the CSAPR region. *Cross-State Air Pollution Rule*, U.S. ENVTL. PROT. AGENCY, www.epa.gov/crossstaterule/index.html (last updated Jan. 3, 2012). In Texas, the new rule will require power plants to reduce SO₂ emissions by 42% (annual SO₂ budget is 243,954 tons per year) and NO_x emissions by 7% (annual NO_x budget is 133,595 tons per year). *EPA Final Cross-State Air Pollution Rule*, *supra*.

Owners of electric generating units who have emissions in excess of their annual allocations will have to surrender two allowances for every excess ton emitted as well as reduce their next year’s allocations by one allowance for each excess ton. *ERCOT Report*, *supra*, at 3. Noncompliance may also result in civil penalties, which can be as

high as \$37,500 per excess ton per day of noncompliance. *Id.* To reduce SO₂ emissions on such short notice, owners of coal-fired power plants may pursue four potential strategies. The first option is to use fuel with lower sulfur content. *Id.* For instance, plants that currently burn sub-bituminous coal can switch to ultra-low-sulfur coal, either in whole or in part. *Id.* The main obstacles to this option are that: (1) the demand for lower sulfur coal is predicted to exceed the mining and railroad capacity necessary to deliver the coal to Texas; (2) lower sulfur coal can lower the rated electrical capability of the electrical apparatus generator; and (3) the unit's air emissions permit may need to be revised to account for any unit modifications that result from these lower rates. *Id.* The second option is to use the existing SO₂ control equipment, such as scrubbers, more frequently and increase its effectiveness. *Id.* Unfortunately, this option only applies to a small group of coal plants in Texas. The third option is to use dry sorbent injection, which could provide for a 25%–30% reduction in emissions on units that do not currently use SO₂ control equipment. *ERCOT Report, supra*, at 3. This option, like the first, may require public notice and air permit modifications. *Id.* Lastly, the fourth option, which applies to both SO₂ and NO_x, is to reduce unit output. *Id.* This can be done in two ways: (1) through dispatching units down to minimum levels during the off-peak hours and up to maximum capacity during peak afternoon hours, or (2) through extended unit outages. *Id.* The obvious downside to this option is a shortage of capacity at a time when drought and heat waves have resulted in record loads across Texas and an enormous strain on the electric grid. *See id.*

ERCOT states that a reduction of NO_x emissions will likely require high capital cost unit retrofits since most of the low-cost options to reduce NO_x emissions are already being used to comply with existing air-quality regulations. *Id.* Extensive modifications of this nature will require years for permitting, design, and construction. *ERCOT Report, supra*, at 3. Therefore, to meet compliance standards for NO_x quickly, the most viable options are to reduce unit output or trade NO_x emissions allowances.

To evaluate the impact of the CSAPR on the Texas power system, ERCOT combined the compliance strategies and developed a prediction of the impact of three compliance scenarios based on different assumptions regarding the adequacy of the compliance strategies. *Id.* at 4. In the best-case scenario, ERCOT found that implementing the CSAPR would result in a power generation capacity reduction of as little as 1,200 megawatts (MW) during the peak months of the year (including summer) and 3,000 MW in the four off-peak months (March, April, October, and November). *Id.* In the second scenario, ERCOT assumed that it would be necessary to idle units in the off-peak months, rather than shut them down, to avoid high maintenance costs. *Id.* Thus, more units would need to be taken offline to meet emission reductions goals, and generation capacity would decrease up to 5,000 MW further in the fall and spring. *Id.* at 5. If possible market limitations on the availability of low-sulfur coal are also assumed, the reduction in capacity in those fall months could rise to 6,000 MW. *Id.* Therefore, even in the best-case scenario, there is likely to be a reduction of available operating capacity of at least 1,200 MW during the peak summer season, which would have led to rotating outages, had the scenario been in place in 2011. *ERCOT Report, supra*, at 5. Furthermore, as ERCOT notes, reductions in power generation capacity can exceed these estimates since they are based on uncertainties regarding technology effectiveness, fuel markets, availability of allowances, and the impact of unit modifications on maintenance requirements. *Id.* at 6.

The CSAPR will almost certainly carry heavy consequences for Texas; what exactly those consequences might be is a hotly debated issue. EPA and supporters of the rule declare that the CSAPR will help avoid tens of thousands of premature deaths and illnesses, save billions in health-care costs, lead to improvements in visibility in national and state parks, increase protection for sensitive ecosystems, boost the economy, and create jobs. *Cross-State Air Pollution Rule, supra*; see also Ceres, *New Study Shows How EPA Clean Air Rules Boost the Economy and Create Jobs*, BUSINESSWIRE (Nov. 17, 2011) <http://www.businesswire.com/news/home/20111117005825/en> (Nov. 17, 2011). EPA claims the rule will prevent up to 34,000 premature deaths and save up to \$280 billion in annual health costs, which outweighs the \$800 million in annual projected costs of the rule and the \$1.6 billion per year in capital investments already underway from previous rules. *Cross-State Air Pollution Rule (CSAPR)*. Promoters of the rule also project that the total amount of investment needed to comply with the rules will be \$94 billion, which would flow directly to American companies and create jobs. *Id.* In other words, compliance with the rule will provide jobs to engineers, electricians, pipefitters, boilmakers, millwrights, and iron workers, among others. *Id.*

However, Texas, several other states, and power generators argue that implementation of the CSAPR will lead to power outages, job losses, decreased tax revenue for local communities, and higher energy prices, among other consequences. Press Release, *supra*. For instance, Texas Attorney General Greg Abbott claims the CSAPR will directly jeopardize the jobs of approximately 1,500 IBEW members working at six different power plants across Texas as well as the jobs of approximately 500 Luminant workers. *Id.* Moreover, Abbott states that the cessation of operations at power plants will drastically reduce tax contributions and, thus, revenue to local communities; and the reduction in electrical power generation will lead to higher wholesale electricity prices, which will drive up retail prices for consumers. *Id.*

In addition, the CSAPR has stirred controversy over alleged procedural shortcomings during its adoption. Luminant, the biggest power producer in Texas, and Texas Attorney General Greg Abbott, representing the State of Texas, filed petitions to stay the effective compliance date with the D.C. Circuit Court of Appeals. *Id.* These petitions claim that EPA failed to comply with important provisions of the CAA and the Administrative Procedure Act (APA). *Id.* Collectively, these petitions argue: (1) EPA failed to give fair notice and an opportunity to provide comment since the proposed rule only included Texas in the ozone NO_x reduction program while the final rule includes Texas in all three; (2) Texas bears an unfair burden of reduction in comparison to its emissions contribution; (3) EPA relied on flawed methods that improperly elevated its modeled percentage of Texas SO₂ and NO_x emissions over actual conditions; (4) EPA altered the standards used to consider states to include Texas; and (5) EPA relied on just one downwind site that was actually in compliance with the federal standards but had a connection to Texas as a basis to twist emissions data and bring Texas under the CSAPR. Press Release, *supra*.

In early October, EPA acknowledged issues with the rule and announced its proposed revisions. EPA solicited public comments on this proposal through November 28, 2011. Matthew Tresaugue, *Texas Not Satisfied with EPA Changes to Cross-State Rule*, HOUSTON CHRONICLE (Oct. 6, 2011), <http://www.chron.com/news/houston-texas/article/Texas-not-satisfied-with-EPA-changes-to-2206725.php>. The revisions include

additional allowances for emissions in the trading program, removal of the cap on the number of credits that can be traded between states during the first two years, and an increase in the emissions cap for Texas. *Id.*

The D.C. Court of Appeals granted the motions to stay on December 30, 2011. Consolidated Order, *supra*, at 1.

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NATURAL RESOURCES

REGULATORY SHIFTS IN THE AFTERMATH OF DEEPWATER HORIZON

British Petroleum (BP), one of the companies responsible for the Deepwater Horizon catastrophe that began on April 20, 2010, received a permit to drill another well in the Gulf of Mexico on October 26, 2011, 554 days after the Deepwater Horizon explosion. Press Release, U.S. Bur. of Safety & Env'tl. Enforcement (BSEE), BSEE Approves First BP Drilling Permit to Meet Enhanced Regulations, (Oct. 26, 2011), *available at* <http://bsee.gov/BSEE-Newsroom/Press-Releases/2011/press10262011.aspx>. Since litigation between BP and the U.S. government is ongoing, BP has not paid any fines related to the oil spill. *Id.* However, BP set up a \$20-billion fund following the oil spill that has paid out \$6.14 billion to individuals and business as of December 1, 2011. Sakthi Prasad, *BP fund resumes payments to spill victims*, REUTERS, Jan. 4, 2012, *available at*, <http://www.reuters.com/article/2012/01/05/us-bpfund-idUSTRE80405H20120105>.

Federal regulations dealing with offshore drilling have changed since the Deepwater Horizon incident occurred. Some of these changes have come as a direct result of lessons learned from the Deepwater Horizon incident. The newly created Bureau of Safety and Environmental Enforcement (BSEE) stated that BP's newly permitted project meets the "enhanced safety requirements and standards established following the tragedy" in 2010 and that BP voluntarily implemented standards that go beyond BSEE's regulatory requirements. James O'Toole, *BP to resume drilling in Gulf of Mexico*, CNN MONEY (Oct. 31, 2011), http://money.cnn.com/2011/10/26/news/companies/bp_drill_gulf/index.htm.

The Deepwater Horizon incident highlighted regulatory weaknesses resulting from leasing, revenue collection, resource management, and safety and environmental oversight all being managed by one agency. In June 2010, the Minerals Management Service (MMS), was renamed the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) to better reflect its function. Press Release, BOEMRE, President's FY 2012 Budget Includes \$358.4 Million for BOEMRE Reorganization and Reforms to Strengthen Offshore Management and Regulation (Feb. 14, 2011), *available at* www.boemre.gov/ooc/press/2011/press0214.htm. During its brief existence (just over one year), one of BOEMRE's regulatory weaknesses was related to

the competing goals with which the regulating agency was charged with accomplishing: safety and environmental enforcement, responsible energy development, and revenue generation. Press Release, BOEMRE, BSEE Director Delivers Remarks at the International Regulators Forum 2011 Global Offshore Safety Summit Conference, (Nov. 4, 2011), *available at* <http://www.boemre.gov/ooc/press/2011/press1004.htm>. To address this problem, BOEMRE was replaced on October 1, 2011 with two new agencies: the Bureau of Ocean Energy Management (BOEM) and the earlier mentioned BSEE. *Id.* This separates the tasks of safety, environmental oversight, and enforcement (now assigned to BSEE) from offshore-resources management (assigned to BOEM). *Id.* Within BSEE, the Environmental Enforcement Division “provide[s] sustained regulatory oversight” focusing on “compliance by operators with environmental regulations, as well as making sure that operators keep the promises they made at the time they obtain their leases, submit their plans, and apply for their permits.” *Id.*

BSEE adopted new regulations and approaches that address the responsibilities with which it is charged. For example, BSEE expanded its regulatory scope to include contractors, which were not regulated in the past, as well as operators, *Id.* For the first time, operators must comply with performance-based standards that resemble those used currently by regulators in the North Sea (UK and Norway), to make “operators responsible for identifying and minimizing the risks associated with drilling operations.” Press Release, BSEE Director Delivers Remarks, *supra*. This has been accomplished via the adoption of two new rules pertaining to oil and gas operations in the Outer Continental Shelf that raise the standards for the oil and gas industry: (1) the Drilling Safety rule, and (2) the Workplace Safety or Safety and Environmental Management Systems (SEMS) rule. *Id.* The Drilling Safety rule sets standards for well design, casing, and cementing. The SEMS rule requires systematic identification of risks and the establishment of barriers to those risks. According to BSEE Director Michael Bromich, these rules will help ensure a better and safer drilling environment for all affected by and involved in such operations. *Id.*

Enforcement of the SEMS rule began in November 2011; to explain the delay, the agency cited the significant amount of work compliance would require for many operators. *Id.* In September 2011, the agency announced the SEMS II rule, which was intended to further the purposes of the original SEMS rule by including procedures allowing any employee to exercise Stop Work Authority should there be an activity or event that “poses a threat to an individual, property, or to the environment.” *Id.* SEMS II also establishes requirements

relating to the clear delineation of who possesses ultimate authority on each facility for operational safety; establishes guidelines for reporting unsafe work conditions that give all employees the right to report a possible safety or environmental violation and to request a government investigation of the facility; and requires third-party, independent audits of operators SEMS programs, which are extensions of the current SEMS rule. *Id.*

The government’s revamping of the regulatory agencies responsible for overseeing offshore drilling operations is intended to allow each agency to fulfill its mission ef-

ficiently and without conflicting goals. If each agency is successful, perhaps another Deepwater Horizon can be avoided.

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SOLID WASTE

ENCOURAGING GEOLOGIC SEQUESTRATION OF CO₂ STREAMS: REVISIONS TO RCRA'S HAZARDOUS WASTE MANAGEMENT REGULATIONS

Recently, the Environmental Protection Agency (EPA) proposed to revise its hazardous-waste management regulations under the Resource Conservation and Recovery Act (RCRA) to conditionally exclude some carbon dioxide (CO₂) streams from the definition of hazardous waste. Carbon Dioxide Streams in Geologic Sequestration, 76 Fed. Reg. 48,073 (Aug. 8, 2011) (to be codified at 40 C.F.R. pts. 260 and 261). To qualify for this exclusion, excluded CO₂ streams would have to be captured at a stationary source and injected underground for long-term storage in a process called Geologic Sequestration (GS). *Id.* In making this proposal, EPA concluded that the GS management of CO₂ streams will not present a substantial risk to human health or the environment. *Id.* Furthermore, EPA contends that this rule change will increase certainty regarding the regulatory treatment of GS and thus stimulate advancement in carbon capture and storage (CCS) technologies. *Id.*

RCRA gives EPA the authority to control hazardous waste throughout its existence, from generation, transportation, treatment, storage, and disposal. *Summary of the Resource Conservation and Recovery Act*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/lawsregs/laws/rcra.html> (last visited Nov. 8, 2011). EPA must identify and list exactly what qualifies as a hazardous waste. 42 U.S.C.A. § 6921 (West 2006). EPA has previously concluded that this responsibility also confers on it the ability to issue “conditional exemptions” when it determines that a particular hazardous waste might only pose a threat to welfare in limited circumstances that are otherwise accounted for under other regulatory programs. 76 Fed. Reg. at 48,080 (quoting 62 Fed. Reg. 6622, 6636 (Feb. 12, 1997) (to be codified at 40 C.F.R. pts. 260-266, 270)). EPA asserts that the listing power bestows broad authority and flexibility in “fashioning criteria for hazardous wastes to enter or exit the . . . regulatory system.” *Id.* It is under this authority and flexibility that EPA proposed the conditional exclusion of some CO₂ streams from the hazardous waste definition. *Id.*

EPA's proposed rule defines Geologic Sequestration as “the process of injecting carbon dioxide (CO₂) captured from an emission source into deep subsurface rock formations” for the purpose of permanent storage. *Id.* at 48,075. The GS process itself

is one of the major elements of a broader set of technologies referred to as carbon capture and storage (CCS). *Id.* CCS includes everything from actual capture and compression of CO₂ streams from stationary sources (including fossil-fuel power plants) to transportation and eventual storage of CO₂. *Id.* Based on this functionality, EPA is currently exploring CCS and GS as two climate change mitigation options alongside “energy conservation, efficiency improvements, . . . alternative fuels and renewable energy sources, including solar and wind power.” 76 Fed. Reg. at 48,076.

To protect public and environmental welfare, the proposed rule change provides detailed requirements regarding how CO₂ streams must be managed, captured, transported, and ultimately injected underground. *Id.* at 48,079. EPA would limit the CO₂ stream hazardous-waste exclusion in several important ways. *Id.* For instance, to qualify for the exclusion, the proposed rule mandates that “the owner or operator of the injection well provide an analysis of the physical and chemical characteristics of the CO₂ streams,” during the preliminary permit and subsequent operational GS phases. *Id.* Additionally, EPA restricted the types of GS wells that will qualify for the hazardous-waste exclusion (to what are known as Class VI wells only). *Id.* By restricting the injection of CO₂ streams to GS Class VI wells, EPA believes that the CCS can be conducted in a manner that protects Underground Sources of Drinking Water (USDW) from endangerment in accordance with the Safe Drinking Water Act (SDWA). *Id.* Based on these and other limitations, EPA concluded that “management in accordance with the conditions in [the proposed rule] will provide no reduced protection to human health and the environment.” 76 Fed. Reg. at 48,079.

According to EPA, “climate change is happening now,” and its effects are global. *Id.* at 48,076. EPA projects that climate change poses considerable future risks to both human health and the environment. *Id.* EPA cites the correlation between the recent warming trend and greenhouse gas (GHG) levels to suggest that human activities, including the combustion of fossil fuels that release CO₂ into the atmosphere, “very likely” contribute to the climate-change phenomenon. *Id.* EPA projects that, since fossil fuels are expected to remain the main source of energy production for the foreseeable future, atmospheric concentrations of CO₂ will continue to increase unless new technologies can reverse current trends. *Id.*

Under the plan that includes the proposed GS rule change, EPA asserts that CCS could allow for the near-term continued use of fossil-fuel-burning stationary sources in a manner that greatly reduces the associated CO₂ emissions, while alternative energy sources are concurrently developed. *Id.* Accordingly, CCS, including GS, are potentially key to achieving domestic GHG emissions reductions. 76 Fed. Reg. at 48,076. In turn, if appropriately utilized, these technologies could play a significant part in the mitigation of climate change. *Id.*

Scientists currently estimate that large stationary sources like coal-fired power plants emit approximately thirteen gigatons of CO₂ (GtCO₂) into the atmosphere each year. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CARBON DIOXIDE CAPTURE AND STORAGE 80 (Bert Metz et al. eds., 2005), available at http://www.ipcc.ch/pdf/special-reports/srccs/srccs_wholereport.pdf. On the other hand, EPA estimates that there is enough global GS capacity to permanently and safely store as much as 1,100 GtCO₂ underground. *Id.* at 221. More conservatively, lower-limit estimates (which exclude the more uncertain GS sources including deep saline deposits) approximate worldwide storage totals to be, at a bare minimum, 678 GtCO₂. *Id.* In other words, worldwide

GS sites possess enough capacity to store the entirety of global stationary source CO₂ emissions for at least several decades. *Id.*

At the national level, based on oil- and gas-field GS reservoirs alone, it has been estimated that the United States has approximately 98 GtCO₂ storage capacity. *Id.* at 222. Furthermore, close to 95% of the 500 largest stationary sources of CO₂ emissions (e.g., coal-fired power plants) in the United States are within fifty miles of a candidate GS site. J. J. DOOLEY ET AL., GLOBAL ENERGY TECH. STRATEGY PROGRAM, CARBON DIOXIDE CAPTURE AND STORAGE 29 (2006), available at http://www.battelle.org/news/06/CCS_Climate_Change06.pdf. Based on both the United States' incredible underground storage capacity and the close proximity of GS sites to so much of the stationary-source CO₂ production, EPA believes that CCS technologies "have the potential to contribute significantly toward meeting the goals of the nation's climate policy." *Geologic Sequestration*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/climatechange/emissions/co2_geosequest.html (last updated Apr. 14, 2011). Subsequently, by stimulating GS investigation and use, the proposed RCRA rule change is an essential step in the fight to mitigate climate change. *Id.*

Finally, in addition to the possible climate-change mitigation benefits, EPA believes that, if adopted, the GS CO₂ stream exclusion would result in substantial cost savings for generators of CO₂ streams. 76 Fed. Reg. at 48,090. Significantly, due to the uncertainty surrounding the state and individual facility participation rate, the savings projections for hazardous-waste treatment and storage are similarly uncertain. *Id.* Nevertheless, based on several assumptions made to account for the various unknowns, EPA projects that over the next 50 years CO₂ stream generation facilities would save between \$7.3 million and \$45 million annually under the proposed rule. *Id.* This cost savings is expected without "any discernable increase in negative impacts to human health and the environment," while only negligibly increasing costs (in the form of rule implementation) to EPA and state governments. *Id.*

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WATER QUALITY AND UTILITIES

IT'S ALL PIPES: TEXAS SUPREME COURT RULES IN *SHARYLAND V. ALTON*

On October 21, 2011, the Texas Supreme Court affirmed in part and reversed in part a decision from the Thirteenth Court of Appeals. *Sharyland Water Supply Corp. v. City of Alton*, No. 09-0223, 2011 WL 5042023, at *1 (Tex. Oct. 21, 2011). The supreme court's decision upheld the appellate court's ruling that a water-supply corporation could not pursue a breach of contract suit against a city. *Id.* But the court reversed the appellate holding that the economic loss rule barred the corporation's recovery against other contractors in negligence actions. *Id.* While solidifying the right of governmental immunity from liability, the decision limits the application of the economic loss rule against recovery in tort even when damages are purely monetary.

In the early 1980s, the City of Alton ("Alton") and Sharyland Water Supply Corporation ("Sharyland") entered into an agreement to treat and supply potable water to Alton's residents. *Id.* The Water Supply Agreement ("Agreement") specified that Alton would convey its water system to Sharyland, which was then responsible for the maintenance of the water lines after the first year, including keeping them up to code. *Id.* Fifteen years later, Alton contracted with three other companies to build a sanitary-sewer system, which was installed parallel to Sharyland's water main. *Id.* A connecting sewer line was built so that it crossed the water main, and Sharyland brought suit for breach of contract against Alton, claiming the proximity of the sewer line created a risk of contamination and forced the water supply line out of code. *Sharyland*, 2011 WL 5042023, at *1. Alton counterclaimed, seeking declarative relief to void the Agreement. *Id.* Sharyland also sued the sewage contractors for negligence and breach of contract as third-party beneficiaries of the sewer line contract. *Id.*

Alton attempted to assert immunity from suit, but the trial court and appellate court held that Alton waived immunity when it asserted its counterclaim. *Id.* at *2 (citing the "sue and be sued" language of TEX. LOC. GOV'T CODE § 51.103 (2011)).

In response to a motion by Sharyland, the trial court issued a declaratory judgment, ruling that the state rules establishing the distance requirements between sewer lines and potable water lines applied to Alton's sewer and water lines. *Id.* (citing 30 TEX. ADMIN. CODE § 217.13 (2008)). The jury at the trial court level also found that Alton breached its contract with Sharyland, that the sewage contractors breached their contracts with Alton, and that Sharyland was a third-party beneficiary of the sewer contracts. *Id.* The jury awarded damages for each of Sharyland's claims against the three contractors in equal amounts and granted reasonable attorney's fees for trial and appeal. *Sharyland*, 2011 WL 5042023, at *2. However, the trial court denied Sharyland injunctive relief. *Id.*

On appeal, the court decided that the damages awarded at trial could not be granted under Texas Local Government Code § 271.152 because the waiver of immunity was statutorily limited to particular claims. *Id.* (citing TEX. LOC. GOV'T CODE ANN. § 271.152 (2011)). The court of appeals refused to grant attorney's fees on Sharyland's contract claims. However, on remand, it allowed Sharyland to seek recovery of fees spent on its claim for declaratory judgment regarding the applicability of the Texas

Administrative Code regulations for water pipes and sewage lines. *Id.* The appellate court also held that the economic loss rule barred negligence claims by Sharyland because Sharyland's losses were purely economic and that Sharyland was not a third-party beneficiary to Alton's agreement with the sewage contractors. *Id.*

WAIVER OF IMMUNITY

In its appeal to the Texas Supreme Court, Alton asserted immunity from Sharyland's claims and Sharyland argued that: (1) Texas Local Government Code chapter 271 waives immunity from suit; (2) even if the Local Government Code does not provide a waiver of immunity, the court should not grant Alton immunity on claims connected to its counterclaim; and (3) Sharyland is owed an equitable waiver of immunity because of Alton's misconduct. *Id.*

The Texas Supreme Court agreed with Sharyland that the Local Government Code provides a waiver of immunity for Alton because the Agreement meets the requirements of the statute. *Sharyland*, 2011 WL 5042023, at *3 (citing TEX. LOC. GOV'T CODE ANN. § 271.151). It was undisputed that the contract was in writing, properly executed, and stated "the essential terms of the agreement for providing goods or services to the local government entity." *Id.* at *3 (citing TEX. LOC. GOV'T CODE § 271.151). However, the supreme court agreed with the appellate court that § 271.153 does not allow the recovery of money damages for breach of contract injuries. *Id.* Section 271.153 allows recovery when: (1) a balance is due to the claimant under a contract as it may have been amended; (2) there is an amount owed for a change in orders or additional work because of owner-caused delays; or (3) there is remaining interest on the contract as allowed by law. TEX. LOC. GOV'T CODE § 271.153(a). Subsection (b) prohibits consequential damages, exemplary damages, or damages from unabsorbed home office overhead. *Id.* § 271.153(b). Because breach of the Agreement could not be considered a balance owed to Sharyland or an amount owed after owner-caused delays, and there was no remaining interest, the court held the code did not allow for Sharyland's recovery of damages. *Sharyland*, 2011 WL 5042023, at *3.

On the issue of Alton's waiver of immunity when it filed a counterclaim, the Texas Supreme Court wrote that it need not reach the issue because Alton's counterclaim was defeated in summary judgment. *Id.* at *4. Citing its decision in *Reata Construction Corp. v. City of Dallas*, the court reasoned that a local government loses immunity upon asserting its own affirmative claims for monetary relief because adverse parties should be allowed to assert their own claims as an offset to the government's claims. *Id.* (citing *Reata*, 197 S.W.3d 371, 376 (Tex. 2006)). Though Sharyland and Alton disagreed on whether Alton's counterclaims were claims for monetary relief, the court found that the need to preserve Sharyland's offsetting claims disappeared when Alton's counterclaim was defeated in summary judgment. *Sharyland*, 2011 WL 5042023, at *4.

The supreme court rejected Sharyland's plea for an equitable waiver of immunity. *Id.* at *5. Citing its decision in *Natural Res. Conservation Comm'n v. IT-Davy*, the court recognized that waivers of immunity are generally the purview of the legislature and that allowing equitable waivers by conduct would burden the state with so much litiga-

tion that it would defeat the purpose of sovereign immunity in the first place. *Id.* (citing *IT-Davy*, 74 S.W.3d 849, 857 (Tex. 2002)).

ECONOMIC LOSS RULE

The economic loss rule is a court-derived doctrine that prohibits tort recovery when a product defect or failure: (1) causes damage only to itself; and (2) results only in economic loss. The Texas Supreme Court clarified its application of the economic loss rule in analyzing whether Sharyland could recover in its negligence suit against the sewage contractors. *Sharyland*, 2011 WL 5042023, at *6-9. The court of appeals held that Sharyland could not recover damages in tort because it had only suffered economic losses and therefore had to find its remedy in a contract claim. *Id.* at *8. But the supreme court found that the appellate court's application of the economic loss rule "both overstates and oversimplifies the economic loss rule." *Id.* The court noted first that it had only applied the economic loss rule in defective product cases and failure-to-perform contracts cases. *Id.* at *7. It held that the economic loss rule should not necessarily bar recovery in tort when the parties are not in contractual privity. *Id.* at *8. Explaining the policy behind this holding, the court added that, if the economic loss rule barred recovery, parties could simply avoid tort liability by entering into contracts. *Id.* Also, the court acknowledged that other courts have allowed recovery in tort even when there was no physical injury or property damage. *Sharyland*, 2011 WL 5042023, at *8.

Having clarified the appropriate application of the economic loss rule in Texas, the supreme court found that Sharyland sustained injury to its water system, beyond pure economic loss. *Id.* at *9. The court highlighted evidence showing that Sharyland's pipes experience over 100 leaks a year and that there was at least one leaking sewer pipe within six inches of a water pipe. *Id.* Because Sharyland's water system was brought out of compliance by the sewage line installation and because Sharyland was contractually obligated to keep its lines up to code, the sewage contracts caused actual injury to Sharyland. *Id.*

APPLICABILITY OF 30 TEX. ADMIN. CODE § 317.13

Though the appellate court did not reach the issue, the supreme court agreed with the trial court that the state rules for distance requirements between sewer lines and potable water lines apply to Alton's lines. *Sharyland*, 2011 WL 5042023, at *11 (citing 30 TEX. ADMIN. CODE § 217.13). Though the sewage contractors tried to claim that the code should only apply to "sewer mains" and not the smaller "service connections" at issue, the court found that the general meaning of "sewers" includes service connections. *Id.* at *12. Therefore, a plain reading of the rule includes Alton's sewer lines. *Id.*

REMEDIES

In its analysis of appropriate damages, the supreme court agreed with the lower decisions that the availability of remedies at law precluded the need for an injunction. *Id.* at *12. The jury found that the three contractors were each 20% negligent, 40% negligent, and 40% negligent. *Id.* at *13. Because finding joint and several liability for tortious actions in Texas requires that the defendant's percentage of responsibility be greater than 50%, the supreme court agreed with the appellate court that Sharyland

could not hold the contractors jointly and severally liable. *Id.* (citing TEX. CIV. PRAC. & REM. CODE ANN. § 33.013(b)(1) (2011)).

Though the appellate court held that Sharyland could recover attorney's fees against Alton for its declaratory judgment claim, the supreme court held that the declaratory judgment claim could not be segregated and that it was only a subset of the larger breach of contract claim against Alton. *Sharyland*, 2011 WL 5042023, at *13. It held private parties cannot avoid the government's "immunity from suit by characterizing a suit for money damages, such as a contract dispute, as a declaratory-judgment claim." *Id.* (quoting *IT-Davy*, 74 S.W.3d at 856).

On the issue of whether Sharyland could recover attorney's fees from the sewage contractors as a third-party beneficiary, the supreme court upheld the appellate court's decision. *Id.* at *10. Sharyland was not mentioned in the contracts, and there was no evidence that Sharyland was intended to receive a direct benefit as a result of the sewage contracts. *Id.* Because Sharyland's claim for attorney's fees was based on its third-party beneficiary status, the court concluded Sharyland could not recover attorney's fees against the contractors *Id.* at *13.

The court remanded Sharyland's negligence claims against the contractors, and reversed and rendered the appellate court's grant of attorney's fees for the declaratory judgment. *Id.* The rest of the appellate court's decision was upheld. *Sharyland*, 2011 WL 5042023, at *13. The *Sharyland* decision may make it easier for plaintiffs to include defendants in negligence actions in future suits.

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FEDERAL CASENOTES

UNITED STATES V. RANGE PROD. CO., NO. 3:11-CV-116-F, 2011 WL 2469731, AT *1 (N.D. TEX. JUNE 20, 2011)

INTRODUCTION

On January 18, 2011, the United States filed suit in federal district court to enforce an Emergency Administrative Order (EAO), originally issued by the Environmental Protection Agency (EPA) under the Safe Drinking Water Act (SDWA). *United States v. Range Prod. Co.*, No. 3:11-cv-116-F, 2011 WL 2469731, at *1 (N.D. Tex. June 20, 2011). In its EAO, EPA alleged contamination of groundwater from natural gas wells drilled by Range Production Company (Range) near Fort Worth in the Barnett Shale formation. *Id.* at *2. On January 20, 2011, Range appealed the EAO to the 5th Circuit. *Id.* at *3. The appeal is still pending. *Id.* On March 21, 2011, Range filed a motion to dismiss the district court's action based on two sections of the

Federal Rules of Civil Procedure: 1) § 12(b)(1)—lack of subject matter jurisdiction; or, alternatively, 2) § 12(b)(6)—failure to state a claim. *Id.* at *1. In its motion to dismiss, Range also argued that EPA violated procedural due process with its EAO. *Id.*

On March 22, 2011 the Texas Railroad Commission (RRC), which separately and concurrently investigated Range's production activities, determined the groundwater contamination was not caused by the Range wells. Oil & Gas Docket No. 7B-0268629, Commission Called Hearing to Consider Whether Operation of the Range Production Company Butler Unit Well No. 1H (RRC ID 253732) and Teal Unit Well No. 1H (RRC ID 253729) in the Newark East (Barnett Shale) Field, Hood County, Texas, are Causing or Contributing to Contamination of Certain Domestic Water Wells in Parker County, Texas (Tex. R.R. Comm'n, March 22, 2011), <http://www.rrc.state.tx.us/meetings/ogpfd/7B-68629-commcalled-epa.pdf>; see also News Release, Tex. R.R. Comm'n, *Railroad Commissioners Find Range Resources' Natural Gas Not Source In Parker County Water Wells* (Mar. 22, 2011), <http://www.rrc.state.tx.us/pressreleases/2011/032211.php>. RRC determined that the gas in the water was from the Strawn formation, a shallower formation than the Barnett. *Id.* The district court simply noted RRC's finding but did not give it any weight. *Range Prod.*, 2011 WL 2469731, at *4.

CONTAMINATED WELLS AND THE EMERGENCY ADMINISTRATIVE ORDER

In 2009, aiming for natural gas in the Barnett Shale, Range drilled two gas wells to depths of approximately one mile. *Id.* at *2. Two nearby residents had been and were continuing to use groundwater pumped from wells approximately 200-feet deep. *Id.* One of these water wellheads was 470 feet from a Range gas wellhead, and the other water wellhead was 120 feet from the same gas wellhead. *Id.* EPA alleged that both residents first noticed problems with their wells' water pressure and water quality in late 2009. *Range Production*, 2011 WL 2469731, at *2. In August 2010, EPA began conducting tests of water wells in the area. *Id.* EPA found methane and benzene in the water and determined that the contamination was likely caused by Range's gas drilling. *Id.*

On December 7, 2010, EPA issued an EAO to Range under the SDWA. *Id.* at *3. EPA alleged that the two Range gas wells caused the contamination of nearby water wells. *Id.* In its EAO, EPA further alleged that, by contaminating groundwater, the Range wells caused "an imminent and substantial endangerment" to people. *Id.* EPA directed Range to: (1) notify EPA within twenty-four hours whether it intended to comply with the EAO; (2) provide clean water to the users of the contaminated wells; (3) install explosivity meters at the houses of the well-water users; (4) submit a survey listing all water wells within 3,000 feet of the two gas wells; (5) submit a plan to conduct soil and air tests within fourteen days; and (6) to submit a plan to identify gas flow pathways to the Trinity Aquifer. *Range Production*, 2011 WL 2469731, at *3. The EAO also notified Range that it might be subject to a civil penalty of up to \$16,500 for each day of violation. *Id.*

THE DISTRICT COURT'S DECISION

Range argued that the court lacked subject matter jurisdiction under § 12(b)(1) because the EAO was not a final agency action. *Id.* at *5. The court rejected the argument, holding that the EAO qualifies as final agency action under the two-prong test of *Bennett v. Spear*: "(1) the action must mark the consummation of the decision-mak-

ing process, and not be of a tentative or interlocutory nature, and (2) the action must be one . . . from which legal consequence will flow.” *Id.* at *7 (quoting *Bennett v. Spear*, 520 U.S. 154, 177-8 (1997)). The court further found that the EAO itself indicates a decision was made and that Range may be subject to legal consequences in the way of significant penalties if the court grants relief. *Id.*

Regarding the § 12(b)(6) and procedural due process issues, Range argued that EPA did not plead facts showing that Range caused the contamination, as required by *Twombly* and *Iqbal*. *Id.* at *5 (citing *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555 (2007); *Ashcroft v. Iqbal*, 129 S. Ct. 1937, 1949 (2009)). Further, Range argued, since it was never afforded an opportunity to contest the findings supporting the EAO, Range was not afforded due process. *Range Production*, 2011 WL 2469731, at *8. EPA countered that it only need plead that Range violated the EAO, not that Range caused the contamination and that Range’s property interests do not require due process protection. *Id.* at *6-8. Disagreeing, the court held that Range’s due process rights were indeed implicated by the possibility of hundreds of thousands of dollars in penalties and surveying and testing costs. *Id.* at *6.

Range also argued that enforcing the EAO and assessing penalties without affording Range a chance to challenge EPA’s findings would violate procedural due process. *Id.* at *8. Citing 9th and 11th Circuit cases, Range argued that administrative penalties may only be based on actual, proven, not merely alleged violations. *Id.* (citing *Sackett v. U.S. Envtl. Prot. Agency*, 622 F.3d 1139, 1144 (9th Cir. 2010); *Tenn. Valley Auth. v. Whitman*, 336 F.3d 1236, 1258 (11th Cir. 2003)). EPA attempted to distinguish this case on the grounds that it was an emergency situation involving imminent danger, and “summary administrative action may be justified in emergency situations.” *Id.* (quoting *Hodel v. Virg. Surface Mining & Reclamation Ass’n, Inc.*, 452 U.S. 264, 299-300 (1981)).

Noting the strength of both sides’ arguments, the court admitted this is a difficult issue and declined to deliver a resolution. *Range Production*, 2011 WL 2469731, at *9. Instead, the court denied without prejudice Range’s motion to dismiss and stayed the litigation pending resolution of Range’s 5th Circuit appeal. *Id.* at *9. The court reasoned that it ought not to make a resolution because the pending 5th Circuit decision may “either (1) moot this action by invalidating the [EAO], or (2) provide the court with guidance and a framework with which to proceed, as it could provide . . . the answer to whether the 5th Circuit’s review sufficiently satisfies due process.” *Id.*

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WATER RIGHTS

S.B. 3: ADOPTION OF THE FIRST ENVIRONMENTAL FLOW RULES**INTRODUCTION**

In 2007, the Texas Legislature passed Senate Bill 3 (S.B. 3), which created a stakeholder process based on science and policy to protect environmental flows for each of the river basins and bay systems in Texas. Act of May 28, 2007, 80th Leg., R.S., ch. 1430, §§ 12.01–12.12, 2007 Tex. Gen. Laws 5848, 5901 (West) (codified at TEX. WATER CODE ANN. § 11.1471). Some river basins and bay systems are grouped together in regions for purposes of producing environmental flow standards. Environmental flow standards for each of the eleven regions are adopted by rule by the Texas Commission on Environmental Quality (TCEQ). TEX. WATER CODE ANN. § 11.1471(a) (West 2011). To date, TCEQ has adopted environmental flow standards for: (1) the Trinity, San Jacinto Rivers, and Galveston Bay region, and (2) the Sabine Neches Rivers and Sabine Lake Bay region. Tex. Comm'n on Env'tl. Quality, 30 TEX. ADMIN. CODE §§ 298.200–.240, 298.250–90 (2011). Although different scientific approaches and policy objectives made consensus in the first two regions difficult, the next two regions have been more successful in producing consensus opinions.

S.B. 3 established the Environmental Flows Advisory Group to oversee the process and set out the eleven bay and basin regions. TEX. WATER CODE ANN. § 11.0236 (West 2011). The advisory group created the Texas Environmental Flows Science Advisory Committee to provide science-based recommendations and also appointed Individual Basin and Bay Area Stakeholder Committees (BBASC). *Id.* §§ 11.02361(b), 11.02362(f). Each BBASC appoints a Basin and Bay Expert Science Team (BBEST) whose report is based on “all reasonably available science, without regard to the need for water for other uses, and the ... recommendations must be based solely on the best science available.” *Id.* § 11.02362(m). In developing recommended standards, the BBASC considers the BBEST recommendation “in conjunction with other factors, including the present and future needs for water for other uses related to water supply planning in the pertinent river basin and bay system.” *Id.* § 11.02362(o). Both the BBEST and the BBASC shall reach their recommendations by a consensus to the maximum extent possible. *Id.* § 11.02362(m). TCEQ takes the recommendations from these groups and other public input, as it weighs human and other competing water needs, economic impacts, and any other relevant factors. *Id.* § 11.1471(b). TCEQ then adopts by rule environmental flow standards for each basin and bay system. TEX. WATER CODE ANN. § 11.1471(a). At the same time, TCEQ can establish an amount of unappropriated water to be set aside to satisfy environmental flow standards if reasonable in light of human water needs. *Id.* § 11.1471(a)(2). Any new permit or amendment to an existing permit to increase the authorized amount is subject to the environmental flow standards. *Id.* § 11.1471(d).

TCEQ's stated reasoning for using set asides as opposed to special condition permits is that using special condition permits is better than trying to find available water. 36 Tex. Reg. at 2908. The commission views set-asides as a high level of protection, but just as before House Bill 3/S.B. 3, TCEQ can impose special conditions to protect environmental interests; “the commission wishes to maintain flexibility in

permit special conditions as it gains experience implementing the environmental flow standards.” *Id.*

TRINITY AND SAN JACINTO RIVER BASINS AND GALVESTON BAY RULE

The Trinity, San Jacinto Basins, and Galveston Bay region submitted their BBEST report on December 1, 2009, and the BBASC recommendations on May 28, 2010. Tex. Comm’n on Env’tl. Quality, 35 Tex. Reg. 10168, 10169 (2010) (to be codified at 30 TEX. ADMIN. CODE §§ 298.200–.240) (proposed Nov. 19, 2010). After a public notice and comment period, environmental flow standards were adopted on April 20, 2011. Tex. Comm’n on Env’tl. Quality, 36 Tex. Reg. 2908, 2914 (2011). The Trinity, San Jacinto Basins, and Galveston Bay BBEST did not reach a consensus and issued two distinct recommendations, each supported by about half of the members. Letter from Robert J. Huston, SAC Chairman, to Environmental Flows Advisory Group (March 19, 2010), *available at* http://www.tceq.state.tx.us/assets/public/permitting/watersupply/water_rights/eflows/nsacreview_memo_tsj.pdf. The Texas Environmental Flows Science Advisory Committee criticized the BBEST report for being unorganized and “difficult to digest,” not following a plan, and having trouble making interim decisions. Memorandum from the Texas Flows Advisory Science Committee to the Environmental Flows Advisory Group 2 (March 17, 2010), *available at* http://www.tceq.state.tx.us/assets/public/permitting/watersupply/water_rights/eflows/sacreviewmemo_tsj.pdf [hereinafter Memorandum from Science Committee]. Further, the advisory committee found that the BBEST did not consider all reasonably available science as most of its recommendation stemmed from the “opinion that available science is insufficient to allow defensible environmental flow analysis.” *Id.* at 4. TCEQ subsequently proposed environmental flow standards based on available information and recommendations from the BBASC and the BBEST. 35 Tex. Reg. at 10169.

The adopted environmental flow standards include four measurement points in the Trinity River Basin and two measurement points in the San Jacinto River Basin. 30 TEX. ADMIN. CODE § 298.225(c)(1)–(6) (West 2011). The flow regime consists of a subsistence flow, one level of base flows, and one level of high-flow pulses for each season. *Id.* § 298.220. The pulse-flow requirement includes a trigger rate, volume in acre-feet, and duration. *Id.* § 298.220(d). If the river flow is higher than the trigger requirement, there must be two pulses per season in all seasons. *Id.* § 298.220(d)(1). The environmental flow standards do not require a water user to release stored water to create a pulse flow. *Id.* § 298.220(d)(2). In response to critiques from groups regarding the need to better protect inflows to Galveston Bay, a seasonal requirement was added with an annual target frequency varying between 50%–75%. *Id.* § 298.225(a); Memorandum from Science Committee, *supra* at 5. The Trinity, San Jacinto Rivers, and Galveston Bay Stakeholder Committee and BBEST met on February 29, 2012, in Conroe, Texas to continue development of a work plan that satisfies Tex. Water Code § 11.02362(p). *Trinity and San Jacinto Rivers and Galveston Bay Stakeholder Committee and Expert Science Team*, TEX. COMM’N ON ENVTL. QUALITY, http://www.tceq.texas.gov/permitting/water_rights/eflows/trinsanjacgalbaystake.html (last updated Dec. 8, 2011).

SABINE AND NECHES RIVER BASIN ENVIRONMENTAL FLOW STANDARDS

The BBEST for the Sabine and Neches basin prepared a consensus report based on the best available science for the Sabine Neches Basin. Memorandum from

Science Committee. The Texas Environmental Flows Science Advisory Committee's review specifically noted that the use of a decision tree was important in making key decisions and moving forward without revisiting conclusions. *Id.* However, the BBASC concluded that more study was needed before they could recommend environmental flow regimes. SABINE AND NECHES RIVERS AND SABINE LAKE BAY BASIN AND BAY AREA STAKEHOLDER COMM., RECOMMENDATION REPORT 50-51 (2010), available at http://www.tceq.state.tx.us/assets/public/permitting/watersupply/water_rights/eflows/2010snbbasc_finalrecommendations.pdf [hereinafter Sabine and Neches Recommendation Report]. Therefore, TCEQ did not receive a flow recommendation from the BBASC, but rather a recommendation to take no action. *Id.* TCEQ based its decision on considerations of science, public interests, relevant factors, and available information and recommendations from the BBEST. 35 Tex. Reg. at 10174.

The environmental flow standards for the Sabine and Neches basins include eleven measurement points in the two basins. 30 TEX. ADMIN. CODE § 298.280 (West 2011). This was a decrease from twelve measurement points in the proposed rule due to comments submitted by the BBASC as an alternative recommendation to TCEQ's proposed standards. 36 Tex. Reg. at 2908. The environmental flow standards include a subsistence flow, base flow, and high-flow pulses, all of which vary by season. 30 TEX. ADMIN. CODE § 298.275. The pulse-flow requirement includes a trigger rate, a volume in acre-feet, and a duration. *Id.* The environmental flow standards do not require a water user to release stored water to create a pulse flow. *Id.* § 298.275(d)(2). On April 20, 2011, TCEQ made further changes to the environmental flow standards, stating "[t]he commission acknowledges concerns related to low flow levels. Therefore, specific values for the base flow standards for all of the measurement points in the adopted § 298.280 were increased by 10% over the proposed standards." 36 Tex. Reg. at 2917.

REACTIONS TO THE NEW ENVIRONMENTAL FLOW STANDARDS

Conservation groups including National Wildlife Federation, the Lone Star Chapter of the Sierra Club, and Galveston Bay Foundation criticized the most recent TCEQ rules as inadequate. Press Release, National Wildlife Federation and Lone Star Chapter Sierra Club, Galveston Bay Drought Conditions Prescribed by TCEQ (Oct. 19, 2011), available at <http://texas.sierraclub.org/press/newsreleases/20111019TrinityDroughtRules.pdf> [hereinafter Conservation Groups Press Release]. They suggested TCEQ Commissioners strengthen the environmental flow standards to a level that protects Texas's fish and wildlife. *Id.*; see also Press Release, Lone Star Chapter Sierra Club, Statement of Ken Kramer on TCEQ Adoption of Weak Environmental Flow Standards for Galveston Bay and Sabine Lake and Associated River Basins (Apr. 20, 2011), available at <http://texas.sierraclub.org/press/newsreleases/20110420a.asp> [hereinafter Sierra Club Press Release]. These groups are urging TCEQ to reconsider the recently adopted environmental flow standards. See Sierra Club Press Release. For its part, the Commission has acknowledged concerns relating to low flow levels and "that further analyses and studies may need to be performed in the future to determine whether the adopted standards, once implemented, are providing sufficient flow variability." 36 Tex. Reg. at 2908.

According to some environmental groups, Texas's recent extreme drought reduced the flow of freshwater into Galveston Bay, causing hyper-saline waters that are inhospitable to wildlife, specifically affecting the bay's oyster industry. Amy Hardberger,

New TCEQ Rules Threaten Bay Health, TEXAS WATER SOLUTIONS BLOG (Sept. 22, 2011), <http://blogs.edf.org/texaswatersolutions/2011/09/22/new-tceq-rules-threaten-bay-health/>. Beyond the threat to commercial fishing industries and economic consequences to the region, Hardberger also points out the devastating effect this could have on fish and wildlife in the Galveston Bay area. *Id.* Conservationists argue that TCEQ's environmental flow standards will allow new upstream water users to pump the Trinity and San Jacinto rivers nearly dry and reduce summer flows to levels even lower than current drought levels more than half the time. Conservation Groups Press Release.

Water suppliers also had concerns about TCEQ's environmental flow standards for these basins. *Id.* The Trinity River Authority in its comments on the proposed environmental flow standards noted "because the water planning process must consider all relevant rules and regulations, it is very likely that numerous long-term projects, such as importing water across basin divides or developing new reservoirs—strategies that are paramount to meeting anticipated demands—will be made unviable. This would result in large water deficits with significant economic impacts." *Id.* In addition, the Angelina & Neches River Authority commented that the cost/benefit analysis for the public does not consider the potential impacts to future water supplies. *Id.* TCEQ responded that "application of the adopted flow standards to the water use scenarios had very little impact on water availability...the proposed standards are not expected to have significant fiscal implications." *Id.* Additionally, TCEQ responded that under S.B. 3's adaptive management provisions, the BBASC will have future opportunities to re-evaluate the issue of balancing human and other competing needs for water. *Id.*

FUTURE RULEMAKINGS

The BBEST for the Colorado and Lavaca Rivers and Matagorda and Lavaca Bays completed its recommendations on March 1, 2011. *Colorado and Lavaca Rivers and Matagorda and Lavaca Bays Basin and Bay Stakeholder Committee and Expert Science Team*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/permitting/water_rights/eflows/colorado-lavaca-bbasc (last updated Jan. 6, 2012). The BBASC submitted its recommendations on August 30, 2011. *Id.* The Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays BBEST completed its recommendations on March 1, 2011. *Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee and Expert Science Team*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/permitting/water_rights/eflows/guadalupe-sanantonio-bbasc (last updated Nov. 21, 2011). The BBASC submitted its recommendations on September 1, 2011. *Id.* In both regions, the expert science teams reached consensus. Andrew Sanson, *Keeping Rivers Flowing*, TEXAS PARKS AND WILDLIFE, July 2011, available at http://www.tpwmagazine.com/archive/2011/jul/ed_4_rivers/index.phtml (last visited Jan. 11, 2012). Additionally, the Colorado and Lavaca Bay and Basin Area Stakeholder Committee submitted the first consensus report by a BBASC. ENVIRONMENTAL STEWARDSHIP, *Environmental Flows Allocation Process Colorado and Lavaca Rivers, Matagorda and Lavaca Bays Consensus Recommendations*, available at <http://environmental-stewardship.org/EFStakeholderCommittee.aspx> (last visited Oct. 31, 2011). The Guadalupe BBASC came very close to a consensus, issuing a majority report with some dissent. GSA BBASC, ENVIRONMENTAL FLOW STRATEGIES AND RECOMMENDATIONS REPORT, at i. (Sept. 1, 2011), available at <http://www.tceq.state.tx.us/assets/public/>

permitting/watersupply/water_rights/eflows/20110901gsabbasc_report.pdf. The TCEQ must adopt environmental flow standards for each of these regions probably in Subchapters D and E by September 1, 2012. Environmental Flows Advisory Group, *Revised Schedule*, TEX. COMM'N ON ENVTL. QUALITY (May 27, 2010), available at http://www.tceq.state.tx.us/assets/public/permitting/watersupply/water_rights/eflows/20100527efag_eflowschedule.pdf

BBEST reports for the Nueces River and Corpus Christi and Baffin Bays, Brazos River and Associated Bay and Estuary System, and the Rio Grande, Rio Grande Estuary, and Lower Laguna Madre were due by March 1, 2012. *Id.* The Rio Grande BBEST did not submit its report by March 1, instead asking for an extension of time. The BBASC comments are due September 1, 2012, and TCEQ must adopt environmental flow standards by September 1, 2013. *Id.*

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PUBLICATIONS

CHRISTINE A. KLEIN, *THE DORMANT COMMERCE CLAUSE AND WATER EXPORT: TOWARD A NEW ANALYTICAL PARADIGM*, 35 HARV. ENVTL. L. REV. 131 (2011).

INTRODUCTION

Water shortages present dual challenges to the states, who often seek to import water from their neighbors while simultaneously limiting their own water exports. Christine A. Klein, *The Dormant Commerce Clause and Water Export: Toward a New Analytical Paradigm*, 35 HARV. ENVTL. L. REV. 131, 131 (2011). However, attempts to limit a state's water exports may run into dormant Commerce Clause challenges. The dormant Commerce Clause is invoked when a state government passes legislation that would interfere with the federal government's constitutional authority under the Commerce Clause to regulate interstate commerce. The doctrine bars states from so acting, even in the absence of conflicting federal legislation. The Supreme Court established a framework for analyzing this issue in *Sporhase v. Nebraska*. 458 U.S. 941 (1982). In her article, Christine A. Klein criticizes this framework and suggests a new framework for approaching dormant Commerce Clause challenges to water export laws.

SPORHASE V. NEBRASKA FRAMEWORK

Sporhase v. Nebraska involved a dormant Commerce Clause challenge to a reciprocity provision in a Nebraska statute that allowed the export of groundwater to other states only if they would in turn allow water exports to Nebraska. 458 U.S. at 944.

In its analysis, the Court stated that water is an article of commerce and applied a dormant Commerce Clause analysis to the Nebraska law. *Id.* at 954-55. The Court held that the reciprocity provision was not “narrowly tailored to the conservation and preservation rationale” and therefore was unconstitutional. *Id.* at 957-58. The Court explained how a reciprocity provision might be constitutional:

If it could be shown that the State as a whole suffers a water shortage, that the intrastate transportation of water from areas of abundance to areas of shortage is feasible regardless of distance, and that the importation of water from adjoining States would roughly compensate for any exportation to those States, then the conservation and preservation purpose might be credibly advanced for the reciprocity provision.

Id. at 958.

CRITICISMS OF THE *SPORHASE V. NEBRASKA* ANALYSIS

Klein highlights four issues arising from the *Sporhase* decision. First, she argues that asking whether groundwater is an article of commerce was the wrong question. Klein, *supra*, at 138. She notes that “[t]he *Sporhase* majority failed to maintain a consistent focus for its inquiry, shifting from a consideration of groundwater to a consideration of simply water.” *Id.* This question and the ultimate decision, Klein argues, was motivated by “a desire to support [federal] governmental regulation of groundwater.” *Id.* But the dissent criticized this approach, arguing that the proper question was whether the reciprocity provision “runs afoul of the unexercised authority of Congress to regulate interstate commerce.” *Sporhase*, 458 U.S. at 962 (Rehnquist, J., dissenting).

Second, Klein criticizes the *Sporhase* opinion for overriding state water law. Klein, *supra*, at 139. States take varied approaches to allocating water rights. *Id.* As Klein notes, allocation tends to vary regionally, with western states generally adopting the prior appropriation doctrine and eastern states the riparian doctrine. *Id.* Moreover, groundwater and surface water are frequently allocated under different rules within the same state. *Id.* Despite acknowledging the nuances of state water law, the Court concluded that water is an article of commerce to avoid “curtail[ing] the affirmative power of Congress to implement its own policies concerning such regulation.” *Sporhase*, 458 U.S. at 953. Klein argues that by ignoring the nuances inherent in state water law and shifting to an article-of-commerce analysis, the Court conducted “an analysis more appropriate to the affirmative rather than the dormant aspect of the Commerce Clause.” Klein, *supra*, at 141.

Third, Klein brings attention to the opinion’s focus on water scarcity. *Id.* The Court noted that a state’s conservation measures are “not irrelevant in the Commerce Clause inquiry” and that “a demonstrably arid State conceivably might be able to marshal evidence to establish a close means-end relationship between even a total ban on the exportation of water and a purpose to conserve and preserve water.” *Sporhase*, 458 U.S. at 953, 958. The Court’s focus on water scarcity “suggest[s] that a showing of threatened scarcity might bolster the constitutionality of export restrictions,” giving a “hint to future regulators.” Klein, *supra*, at 141.

Fourth, Klein observes that *Sporhase* and subsequent Supreme Court Commerce Clause cases have created a regulatory void in the context of water regulation. *Id.*

The *Sporhase* decision “cast a constitutional cloud on state regulation.” *Id.* at 142. At the same time, since the 1982 decision, the Court has been more willing to limit Congress’s power under the Commerce Clause. In 1991, for example, the Court invalidated a federal statute prohibiting firearms in school zones. *United States v. Lopez*, 514 U.S. 549 (1995). This decision ended a sixty-year period “during which the court had rejected virtually every Commerce Clause challenge to federal legislation brought before it.” Klein, *supra*, at 142. Moreover, since *Sporhase*, “the Court has demonstrated less appetite for congressional regulation of water.” *Id.* (citing as an example *Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng’rs*, 531 U.S. 159 (2001)). Klein argues that limiting the scope of the affirmative Commerce Clause “without a concomitant adjustment of the dormant Commerce Clause” will likely cause a void in which states are unable to regulate water because of the dormant Commerce Clause, while Congress also lacks the authority to regulate because of the limited scope of the affirmative Commerce Clause. *Id.* at 143.

KLEIN’S SUGGESTED ANALYSIS

Klein presents three “analytical adjustments” to bring water regulation “into doctrinal harmony with modern dormant Commerce Clause jurisprudence.” *Id.* at 143. First, the Court should ask the “right” question: whether the dormant Commerce Clause—without any Congressional action—invalidates the state regulation. *Id.* at 144 (citing *Sporhase*, 458 U.S. at 961 (Rehnquist, J., dissenting)). This idea was supported by Rehnquist’s assertion that “the authority of Congress under the power to regulate interstate commerce may reach a good deal further than the mere negative impact of the Commerce Clause in the absence of any action by Congress.” *Sporhase*, at 161-162. In other words, determining whether something is an article of commerce determines whether Congress has the authority to regulate it. Klein, *supra*, at 144. Also, Klein argues that since Congress’s authority to regulate through the affirmative Commerce Clause goes further than what states are prohibited from regulating by the dormant Commerce Clause, the Court in *Sporhase* should have analyzed whether the dormant Commerce Clause prohibited the regulation rather than whether Congress has the authority to regulate the issue. *Id.*

Klein suggests that water regulation analysis should follow the trend of waste disposal import cases. *Id.* at 145. Like water-export regulations, waste disposal import regulations are frequently subject to dormant Commerce Clause challenges that historically tended to be subject to article-of-commerce analysis. *See, e.g., City of Philadelphia v. New Jersey*, 437 U.S. 617, 628 (1978). However, the Court has gradually shifted its analysis away from whether waste disposal is an article of commerce to whether the challenged regulation impermissibly affects commerce. *See, e.g., C & A Carbone, Inc. v. Town of Clarkston*, 511 U.S. 383, 390-91 (1994). By 1994, “the Court had begun to refine its dormant Commerce Clause analysis.” Klein, *supra*, 146. Despite this shift, the Court in *C & A Carbone* still held that the regulation impermissibly burdened commerce. *C & A Carbone*, 511 U.S. at 392. Klein suggests that courts reviewing water-export regulations follow this trend away from article-of-commerce analysis. Klein, *supra*, at 144-45.

Second, Klein advocates that the Court take an approach that recognizes the “legal, geographic, and hydrogeological” nuances involved in water regulation. *Id.* at 147. She recommends recognizing “the water continuum,” which she defines as a spectrum with water as a natural resource (for example, groundwater) on the one end to water

as a commodity (for example, water that is incorporated into a product) on the other end. *Id.* Klein argues that knowing water's place in the spectrum will allow courts to ask the right questions concerning a challenged state regulation of water. *Id.* They can then determine whether the water is subject to a usufructuary right, "giving owners the right to use a particular quantity of water in a particular way," as opposed to water that "has been incorporated into a product" and is likely subject to traditional property rights. *Id.* at 147-48. Then, courts can "determine with precision the impacts of state regulation on interstate commerce." *Id.* at 148.

Finally, Klein recommends that the Court "restrict the scope of the [dormant Commerce Clause] doctrine as applied to water regulation, at least in cases where states are engaged in legitimate conservation efforts." Klein, *supra*, at 148. The changing analysis of waste-disposal cases would be a good model and the "water continuum" approach would give guidance on when dormant Commerce Clause analysis is appropriate. *Id.*

Klein offers the 2007 waste-disposal case *United Haulers Ass'n v. Oneida-Herkimer Solid Waste Management Authority* as an example of dormant Commerce Clause analysis that should be extended to water-regulation cases. *Id.* (citing 550 U.S. 330 (2007)). *United Haulers* involved a dormant Commerce Clause challenge to a flow control ordinance "requiring that all solid waste generated within the Counties be delivered to the Authority's processing sites," where the Authority was a public benefit corporation. *United Haulers*, 550 U.S. at 336. The Court did not question whether garbage is an article of commerce. *Id.* Instead, the Court held that flow control ordinances that benefit a public rather than a private facility "do not discriminate against interstate commerce for purposes of the dormant Commerce Clause." *Id.* at 342. The Court reasoned that—unlike laws benefitting private entities—laws that benefit public entities "may be directed toward any number of legitimate goals unrelated to protectionism." *Id.* at 343. In contrast to private entities, government, is "vested with protecting the health, safety, and welfare of its citizens." *Id.* at 342. The Court articulated that holding otherwise "would lead to unprecedented and unbounded interference by the courts with state and local government." *Id.* at 343. Moreover, since local government typically handles waste disposal, courts should hesitate to interfere in its regulation. *United Haulers*, 550 U.S. at 343-344.

Because the Court found the flow control ordinance to be nondiscriminatory, it analyzed it under the test in *Pike v. Bruce Church, Inc.* *Id.* at 346 (citing 397 U.S. 137 (1970)). This test allows courts to uphold the law "unless the burden imposed on interstate commerce is clearly excessive in relation to the putative local benefits." *Id.* (internal quotations omitted). The Court held that "any arguable burden does not exceed the public benefits of the ordinance." *Id.*

Klein argues that, if the public-private distinction from *United Haulers* was extended "to water export restrictions, the Court could close the regulatory gap that threatens to leave water resources under-regulated." Klein, *supra*, at 150. Rather than apply the strict scrutiny test, requiring the restriction to be narrowly tailored to the state's purpose—as the Court did in *Sporhase*—, courts would apply the *Pike v. Bruce Church* test. Then, water-export restrictions would more likely be upheld, particularly in cases of water conservation since those restrictions would be imposed for public benefit.

TARRANT REGIONAL WATER DISTRICT V. HERMANN

In Klein's conclusion, she mentions a recent Texas case that may provide an opportunity for courts to revisit the dormant Commerce Clause analysis in the context

of water regulation. *Id.* at 151 (citing *Tarrant Reg'l Water Dist. v. Hermann*, 656 F.3d 1222 (10th Cir. 2011)). On September 7, 2011, the Tenth Circuit Court of Appeals decided the case. *Tarrant Reg'l*, 656 F.3d at 1222. *Tarrant Regional* involves a dormant Commerce Clause challenge by a Texas water district to an Oklahoma permitting statute that establishes different criteria for granting permits for in-state versus out-of-state water use. *Id.* at 1228. While Texas and Oklahoma (along with Arkansas and Louisiana) entered into a compact to apportion water in the Red River Basin, Tarrant sought to obtain water not subject to the compact. *Id.* To do so, Tarrant negotiated an agreement whereby Oklahoma groundwater-rights owners would export water to Texas. *Id.* To get the water, Tarrant needs to obtain a permit from the Oklahoma Water Resources Board (OWRB), but being an out-of-state applicant, Tarrant is subject to judgment based on different criteria than an in-state applicant. *Id.*

The Tenth Circuit upheld the district court's grant of summary judgment on the dormant Commerce Clause claim. *Id.* at 1239. In considering this claim, the appellate court noted that "Congressional consent can transform unconstitutional state action into permissible state action." *Tarrant Reg'l*, 656 F.3d at 1233. Moreover, the court recognized "the principle that whether Congress has consented to state regulation of interstate commerce depends on the language of the particular federal statute." *Id.* at 1235. In upholding Oklahoma's statutes, the court did not dispute the *Sporhase* definition of water as an article of interstate commerce. *Id.* Instead, the court focused on whether Congress had consented to state protectionism by approving the Red River Compact. *Id.* The court reasoned that an interstate compact becomes federal law when ratified by Congress, so that a compact cannot be challenged under the dormant Commerce Clause. *Id.* at 1236. Analyzing the language of the compact, the court held that "broad language of key Compact provisions inoculates the Oklahoma statutes challenged here from dormant Commerce Clause attack." *Id.* at 1237.

By using the Red River Compact to circumvent Tarrant's dormant Commerce Clause challenge of Oklahoma's protectionist state law on water exports, the Tenth Circuit was able to avoid the need to revisit the water-as-an-article-of-commerce definition. In fact, the court accepted this definition without questioning it. Tarrant Regional filed a petition for a writ of certiorari with the Supreme Court on January 19, 2012, and asked the Court to revisit the issue. *Tarrant Reg'l Water Dist. v. Hermann*, No. 11-889, 2012 WL 167019. Thus, it remains to be seen whether the Supreme Court or a court in a future case—where there is no interstate compact to insulate dormant Commerce Clause challenges—will take the opportunity to revisit the *Sporhase* articulation of a dormant Commerce Clause challenge as Klein suggests.

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WASHINGTON UPDATE

FRACKING WASTEWATER – EPA TO REGULATE WASTEWATER DISCHARGES FROM HYDRAULIC FRACTURING**PLAN TO DEVELOP STANDARDS TO REGULATE HYDRAULIC FRACTURING WASTEWATER DISCHARGES**

The Environmental Protection Agency (EPA) recently announced that it intends to regulate the wastewater produced in the growing hydraulic fracturing industry. Press Release, U.S. Env'tl. Prot. Agency, EPA Announces Schedule to Develop Natural Gas Wastewater Standards, *available at* <http://yosemite.epa.gov/opa/admpress.nsf/3881d73f4d4aaa0b85257359003f5348/91e7fad4b114c4a8525792f00542001!OpenDocument>. Hydraulic fracturing, or “fracking” as it is commonly known, is used to extract underground oil and gas resources found in sources such as coalbeds and shale gas formations. *Hydraulic Fracturing Background Information*, ENVTL. PROT. AGENCY, http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydrowhat.cfm (last updated Dec. 7, 2011). The process is made possible by injecting fracking fluid into the ground, allowing oil and gas to move more freely from rock pores to production wells. *Id.* Fracking fluid is commonly composed of water and various chemical additives. *Id.* Eventually, underground pressure causes the fracking fluid to rise to the surface, resulting in wastewater that must then be disposed of. *Id.* Wastewater can be disposed of in ways that include “discharge into surface water or underground injection.” *Id.*

On October 20, 2011, EPA announced a schedule to develop national standards for the disposal of wastewater produced during natural gas extraction from underground coalbed and shale formations. Press Release, *supra*. The announcement follows the priorities set out in President Obama’s Blueprint for a Secure Energy Future and is also consistent with the Secretary of Energy Advisory Board’s recommendations on steps to support the safe development of natural gas resources. *Id.* Currently, there is no comprehensive set of federal hydraulic fracturing regulations on disposal of wastewater, leaving the states authority over the matter. *Id.* To assess what federal regulations should be put into place and how they will be implemented, EPA states that it needs time to gather appropriate data, meet and consult with stakeholders from both industry and health organizations, and solicit public input. *Id.* Proposed rules to ensure proper wastewater treatment for coalbed and shale formations will be available in 2013 and 2014, respectively. *Id.* The timeline for wastewater regulation relating to coalbed formation extraction is shorter than that for shale formation because the information-gathering process for coalbed formation has already begun. *Id.* While forming the new standards, EPA will analyze “the potential for cost-effective steps for pretreatment of this wastewater based on practices and technologies that are already available and being deployed or tested by industry to reduce pollutants in these discharges.” Press Release, *supra*.

The announcement of the development of hydraulic wastewater disposal standards is part of EPA’s Effluent Guidelines Program, “which sets national standards for industrial wastewater discharges based on best available technologies that are economically achievable.” *Id.* The program creates national standards that “establish pollution

control obligations for all facilities that discharge wastewater within an industrial category or subcategory.” U.S. ENVTL. PROT. AGENCY, EPA 821-R-09-006, TECHNICAL SUPPORT DOCUMENT FOR THE PRELIMINARY 2010 EFFLUENT GUIDELINES PROGRAM PLAN 1-2 (Oct. 2009), available at http://water.epa.gov/lawsregs/guidance/cwa/304m/archive/upload/2009_11_17_guide_304m_2010_tsdplan.pdf [hereinafter SUPPORT DOCUMENT]. EPA aims to establish national effluent guidelines that ensure facilities with similar characteristics meet similar minimum effluent standards, regardless of their location and the nature of the water they use. *Id.* In pursuing this goal, EPA will assess

(1) the performance and availability of the best pollution control technologies or pollution prevention practices for an industrial category or subcategory as a whole; (2) the economic achievability of those technologies, which can include consideration of costs, effluent reduction benefits, and affordability of achieving the reduction in pollutant discharge; (3) non-water-quality environmental impacts (including energy requirements); and (4) such other factors as the EPA Administrator deems appropriate.

Id.

When EPA considers new wastewater treatment facilities or the process of disposal in general, it considers the performance and cost of what is being proposed. *Id.* at 3-1. EPA also weighs affordability within the industry being regulated. *Id.* at 3-5. Thus, EPA not only evaluates what standards and technologies will improve the pollution prevention process, but also whether they will be cost-effective and practically achievable.

Shale gas hydraulic fracturing is already subject to federal regulation; shale gas fracking facilities are barred from directly discharging wastewater into waterways. Press Release, *supra*. In contrast, coalbed formation wastewater disposal is currently unregulated federally in regard to pre-treatment or discharge into waterways; thus, its regulation is left to the states. *Id.* Current federal wastewater discharge regulations mandate that the wastewater from shale fracking first go through a water-treatment facility to avoid contamination of the water supply. *Id.* However, EPA analysis suggests that many of these treatment facilities are inadequate in removing harmful chemicals from the wastewater. *Id.* Therefore, improving these facilities in an economically sustainable way will be a significant goal when setting national standards. *Id.*

The CWA makes states primarily responsible for establishing, reviewing, and revising water quality standards. SUPPORT DOCUMENT, *supra*, at 1-1. Some within the oil and gas industry support the current state regulatory regime under the rationale that states better understand local issues. Roberta Rampton, *Leave fracking rules to states: Anadarko CEO*, REUTERS (Nov. 13, 2011 1:58 PM), <http://www.reuters.com/article/2011/05/10/us-anadarko-fracking-idUSTRE7497EU20110510>. However, certain events have led EPA to propose bolstering state standards. For example, some states have allowed wastewater from hydraulic fracturing to be treated by substandard facilities (as classified by EPA), resulting in inadequately treated wastewater and contamination once the wastewater is reintroduced to the water supply. Nicholas Kusnetz, *EPA Plans to Issue Rules Covering Fracking Wastewater*, PROPUBLICA (Oct. 20, 2011), <http://www.propublica.org/article/epa-plans-to-issue-rules-covering-fracking-wastewater/>

single. High levels of pollutants in water from several state-provided water samples have spurred EPA to propose the regulation of hydraulic fracturing discharge. Press Release, *supra*.

STUDY ON THE RELATION BETWEEN HYDRAULIC FRACTURING AND DRINKING WATER

EPA is conducting a study to better understand the impact of hydraulic fracturing on drinking water and groundwater. EPA's *Study of Hydraulic Fracturing and Its Potential Impact on Drinking Water Resources*, ENVTL. PROT. AGENCY, <http://www.epa.gov/hfstudy/index.html> (last updated Dec. 23, 2011). The study will consider the "full lifespan of water in hydraulic fracturing, from acquisition of the water, through the mixing of chemicals and actual fracturing, to the post-fracturing stage, including the management of flowback and produced water and its ultimate treatment and disposal." *Id.*

The study is expected to be completed in 2014 with an update on initial search results released in 2012. *Id.* In early November 2011, EPA reported that it had conducted an initial literature review, received information from the oil and gas industry on chemicals and practices used in hydraulic fracturing, discussed initial plans for case studies with landowners and state, local, and industry representatives, and conducted baseline sampling. Press Release, *supra*. All activities conducted were approved by the Scientific Advisory Board when presented in the draft plan and will provide the foundation for the overall study. *Id.* To address the various issues covered, EPA will use a transdisciplinary research approach, relying on expertise in "environmental and petroleum engineering, ground water hydrology, fate and transport modeling, and toxicology." ENVTL. PROT. AGENCY, EPA 600-R-11-122, PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES 20 (Nov. 2011), available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/upload/hf_study_plan_110211_final_508.pdf.

Existing data will be analyzed, as well as data collected from retrospective and prospective case studies. *Id.* Retrospective case studies will use information from the Bakken Shale in North Dakota, the Barnett Shale in Texas, two different locations of the Marcellus Shale in Pennsylvania, and the Raton Basin in Colorado. *Id.* at 60-61. The prospective case studies will take place at the Haynesville Shale and the Marcellus Shale. *Id.* at 62. Computer-modeling scenario evaluations and laboratory exams will be used to collect data as well. *Id.* at ix. These laboratory exams will analyze hydraulic fracturing fluid and shale rock interactions, the treatability of wastewater, and the toxicological characteristics of high-priority constituents involved in hydraulic fracturing. *Id.*

THE 2004 STUDY

The Safe Drinking Water Act (SDWA) was enacted to protect the quality of water actually or potentially intended for human drinking use. Safe Drinking Water Act 42 U.S.C. § 300f-300j (2011). Pursuant to the SDWA, in 2004, EPA conducted a study on the potential for contamination of underground sources of drinking water from hydraulic fracturing related to coalbed gas sources. ENVTL. PROT. AGENCY, EPA 816-R-04-003, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES JUNE 2004 OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS, at ES-1 (June 2004),

available at http://www.epa.gov/ogwdw/uic/pdfs/cbmstudy_attach_uic_exec_summ.pdf. The study concluded that the injection of hydraulic fracturing fluids into coalbed sources posed little or no threat to the underground supply of drinking water. *Id.* at ES-16. Congress subsequently passed the Energy Policy Act of 2005, largely exempting hydraulic fracturing from the SDWA. *Regulation of Hydraulic Fracturing Under the Safe Drinking Water Act*, ENVTL. PROT. AGENCY, http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydroreg.cfm (last updated Dec. 7, 2011).

Under the SDWA, the Underground Injection Control (UIC) program applies where there is subsurface injection of fluid. *Id.* However, the Energy Policy Act's amendment to the SDWA created a clear exception to the definition of "underground injection." *Id.* The term no longer applies to "the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities." *Id.* With the single exception for diesel fuel, the Energy Policy Act all but exempts fracking from regulation under the SDWA. *Id.*

EPA's current study may provide information supporting a change to this exemption and the creation of new regulations for hydraulic fracturing under the SDWA.

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