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SARA's State Procedural Reform: Reading *CTS v. Waldburger* through Canons of Statutory Interpretation

By Alfred R. (Fred) Light

This article takes seriously Justice Antonin Scalia's and Professor Bryan A. Garner's 2012 treatise, *Reading Law*, by analyzing how the Supreme Court applied (or failed to apply) the treatise's canons of statutory interpretation in a recent decision, *CTS Corp. v. Waldburger*, in which the Court evaluated a preemptive provision of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund").[1] This article further examines CERCLA using two canons on which the Supreme Court did not rely in *Waldburger*: the Presumption Against Retroactivity and the Constitutional-Doubt Canon. These alternative canons also point toward a narrow, but distinct, interpretation: that CERCLA preempts statutes of limitation that affect only a remedy, not a right. Even this alternative interpretation, however, fails to eliminate constitutional questions regarding 42 U.S.C. § 9658 under principles of federalism, which remain to be addressed.

In June 2014, the United States Supreme Court decided *CTS Corporation v. Waldburger*,[2] which turned on the scope of a provision added to CERCLA in the

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1 CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (analyzing 42 U.S.C. § 9658).

2 134 S. Ct. at 2178. This article expands upon themes discussed in my earlier short articles, Alfred R. Light, *Superfund Section 301(e) Report as 'Legislative History': Implications for Supreme Court Deliberations in* CTS Corp. v. Waldburger, 29 Toxics L. Rep. (BNA) 414 (2014) [hereinafter *Superfund Section 301(e) Report as 'Legislative History'*] and Fred Light, *A Superfund Lawyer's History*, 32 Envt'l Forum 44 (Mar./Apr. 2015). These themes are likewise found in my past articles, which are also cross-referenced throughout. Alfred R. Light, *Clean Up of a Legislative Disaster: Avoiding the Constitution Under the Original CERCLA*, 37 Environs Envtl. L. & Pol'y J. 197 (2014) [hereinafter *Legislative Disaster*]; Alfred R. Light, *CERCLA's Cost Recovery Statute of Limitations: Closing the Books or Waiting for Godot?*, 16 Southeastern Envtl. L.J. 245 (2008) [hereinafter *Waiting for Godot?*]; Alfred R. Light, *Federal Statutes of Limitation for State Law Claims: A "Reverse-*Erie*" Theory*

Superfund Amendments and Reauthorization Act of 1986 (SARA).[3] The question before the Court was whether 42 U.S.C. § 9658 should be interpreted to preempt state statutes of repose in addition to state statutes of limitations.[4] As with past U.S. Supreme Court decisions interpreting provisions of CERCLA, the *Waldburger* Court focused on the text of the provision and largely ignored supposed "legislative history" as an aid to statutory construction.[5] The Supreme Court's textualist analysis relied on the canons of statutory interpretation set forth in Justice Antonin Scalia's and Professor Bryan A. Garner's treatise, *Reading Law: The Interpretation of Legal Texts*.[6] These canons included several semantic and contextual canons: the Ordinary-Meaning Canon, the Fixed-Meaning Canon, the Whole-Text Canon, and the Harmonious Reading Canon.[7] Importantly, the Court plainly rejected a principle that *Reading Law* calls a "falsity": the notion that remedial statutes should be liberally construed.[8] The Court has divided over the potential applicability of a government-structuring canon: the Presumption Against Federal Preemption.[9] Four members of the Court refused to apply the canon, instead

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for Constitutional Limits? 18 TOXICS L. REP. (BNA) 601 (2003) [hereinafter *Reverse-*Erie]; Alfred R. Light, *Conscripting State Law to Protect Volunteers: The Odd Formulation of Federalism in "Opt-Out" Preemption*, 10 SETON HALL J. SPORT L. 9 (2000) [hereinafter *"Opt-Out" Preemption*]; Alfred R. Light, *He Who Pays the Piper Should Call the Tune: Dual Sovereignty in U.S. Environmental Law*, 4 ENVTL. LAW 779 (1998) [hereinafter *Pay the Piper*]; Alfred R. Light, *Taking Olin Seriously: Can CERCLA's Constitutional Infirmities Be Remedied?*, 11 TOXICS L. REP. (BNA) 94 (1996); Alfred R. Light, *New Federalism, Old Due Process, and Retroactive Revival: Constitutional Problems with CERCLA's Amendment of State Law*, 40 U. KAN. L. REV. 365 (1992) [hereinafter *Retroactive Revival*]; Alfred R. Light, *Federal Preemption, Federal Conscription Under the New Superfund Act*, 38 MERCER L. REV. 643 (1987) [hereinafter *Federal Preemption, Federal Conscription*]; Alfred R. Light, *Federalism,* FERC v. Mississippi*, and Product Liability Reform*, 13 PUBLIUS J. FEDERALISM 85 (1983). *See also* S. COMM. ON ENVTL AND PUB. WORKS, 97TH CONG., 2D SESS. INJURIES AND DAMAGES FROM HAZARDOUS WASTES — ANALYSIS AND IMPROVEMENT OF LEGAL REMEDIES: A REPORT TO CONGRESS IN COMPLIANCE WITH SECTION 301(E) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (P.L. 96-510) BY THE "SUPERFUND SECTION 301(E) STUDY GROUP," Part 2, at 477-507 (paginated 1-31 (Comm. Print 1982), Part 2, at 477–507 (paginated 1–31) [hereinafter *Section 301(e) Report*] *available at* http://catalog.hathitrust.org/Record/002759562, *archived at* http://perma.cc/H83V-LX3P (including Memorandum from Alfred R. Light to George C. Freeman, Jr., Esq., Superfund 301(e) Study — Response to Env't and Pub. Works Inquiry to Superfund Study Grp. (May 14, 1982)).

3 Superfund Amendments and Reauthorization Act of 1986, PUB. L. NO. 99-499, 100 STAT. 1613 (1986) (codified as amended in 42 U.S.C. §§ 9601-9675).

4 *Waldburger*, 134 S. Ct. at 2178.

5 *See infra* notes 86-108 and accompanying text. *See also* Alfred R. Light, *The Importance of "Being Taken": To Clarify and Confirm the Litigative Reconstruction of CERCLA's Text*, 18 B.C. ENVTL. AFF. L. REV. 1, 46–48 (1990) (discussing early Supreme Court decisions interpreting CERCLA).

6 ANTONIN SCALIA & BRYAN A. GARNER, READING LAW: THE INTERPRETATION OF LEGAL TEXTS (2012) [hereinafter SCALIA & GARNER].

7 *See infra* note 86–110 and accompanying text.

8 *See infra* notes 151–189 and accompanying text.

9 *See infra* notes 110–150 and accompanying text.

following a narrower definition of the canon found in *Reading Law*.[10] The Court concluded that CERCLA's preemptive provision did not work to repeal state law statutes of repose.[11]

Section 9658 supposedly arose out of a recommendation by a study commission created in the 1980 version of CERCLA.[12] However, this study commission, the Superfund Section 301(e) Study Group ("Study Group") did not recommend federal preemption of state tort law.[13] Its concerns over the retroactive application of federal statutes and constitutionality prevented the Study Group from recommending that a federal "discovery rule" be applied to state tort law.[14] Interestingly, the very reasons the Study Group refused to recommend federal preemption are embodied in two textualist principles applicable to government prescriptions set forth in *Reading Law* on which the Supreme Court in *Waldburger* did not rely: the Presumption Against Retroactivity and the Constitutional-Doubt Canon.[15] As demonstrated below, these canons suggest a narrow construction of 42 U.S.C. § 9658; ideally, § 9658 should be construed to affect statutes of limitations that affect only a remedy, not a right, and should not be construed to affect substantive limitations on liability within state law, such as statutes of repose.[16] Because the Court narrowly construed the statute not to reach statutes of repose based on the statute's text, it did not resort to the Presumption Against Retroactivity or the Constitutional-Doubt Canon to resolve the case.[17] This leaves the scope of 42 U.S.C. § 9658's preemption of state statutes of limitations and associated constitutional questions about § 9658 for another day.[18]

I. The Original CERCLA and Section 301(e): An Insider's Account

One of the compromises that made passage of CERCLA possible was the deletion of a federal toxic tort cause of action from a pending bill.[19] As the Supreme Court noted in *Waldburger*, CERCLA provided a federal cause of action only to recover the costs of cleanup from culpable entities; it did not create a federal cause of action to remedy a

10 CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2189 (2014).
11 *Id.* at 2180.
12 42 U.S.C. § 9651(e) (1986).
13 *See infra* notes 51–62 and accompanying text.
14 *See infra* notes 67–72 and accompanying text.
15 *See infra* notes 192–213 and accompanying text.
16 *See infra* notes 190–213 and accompanying text.
17 *See infra* notes 88–109 and accompanying text.
18 *See infra* notes 216–240 and accompanying text.
19 126 Cong. Rec. 30,932 (1980) (remarks of Sen. Randolph: "We have made many concessions from the original bill reported last summer . . . . We have deleted the Federal cause of action for medical expenses or property or income loss."); *Legislative Disaster*, *supra* note 2, at 198–99 (showing how objections to broad retroactive liability doomed a Senate CERCLA bill during the lame duck session and resulted in the fragile "compromise" that was ultimately enacted). Outgoing President Carter was also personally involved in the negotiations, which led to the compromise bill. *See generally* Jimmy Carter, White House Diary 488, 490 (2010).

party's personal injury or property damage.[20] CERCLA instead required that an expert report be developed that would assess related common law and statutory remedies as well as the barriers that statutes of limitations could pose to CERCLA recovery.[21]

The scope of the study arising from this compromise, described in CERCLA section 301(e), was very broad: "to determine the adequacy of existing common law and statutory remedies in providing legal redress for harm to man and the environment caused by the release of hazardous substances into the environment . . . ."[22] Most pertinent to *Waldburger*, the statutory mandate included an evaluation of "barriers to recovery posed by existing statutes of limitations."[23] As to its recommendations, Congress expressly required that the Study Group consider whether any recommended revisions should be in the form of federal statutes or a model code recommended for adoption by the states.[24]

This compromise also included a complex structure for the Study Group to consist of three lawyers each from four different legal organizations: the American Bar Association (ABA), the American Law Institute (ALI), the Association of Trial Lawyers of America, and the National Association of Attorneys General.[25] One of the ALI representatives, Professor Frank Grad at Columbia University, was elected as the Study Group's reporter and convinced the group at its first meeting that his law students could do background research that could serve as the basis for the Study Group's deliberations.[26] Columbia was reimbursed from the Superfund.[27] The Department of Justice (DOJ) arranged these Study Group meetings, several of which I attended, once every month or two, but the DOJ made clear at the outset that its role was administrative and that it would have no involvement in the substantive deliberations of the Study Group.[28]

When the time came to set up the Study Group, the ABA knew that one of its three members should be George Clemon Freeman, Jr., who had advised Senator Domenici about the structure of the Study Group.[29] His staff for that Study Group participation

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20 CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2180 (2014).

21 *Id*.

22 42 U.S.C. § 9651(e)(1).

23 42 U.S.C. § 9651(e)(3)(F). *See* CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2180 (2014).

24 42 U.S.C. § 9651(e)(4)(B).

25 42 U.S.C. § 9651(e)(2) (1986).

26 *Section 301(e) Report*, *supra* note 2, Part 2, at Reporter's Introduction to Appendices. The Reporter was also authorized to engage the Legislative Drafting Research Fund of Columbia University to provide background research services. Professor Grad is the Director of the Legislative Drafting Research Fund.

27 42 U.S.C. § 9651(e)(5) (authorizing $300,000 for "administrative expenses" and the reporter).

28 *Section 301(e) Report*, *supra* note 2, Part 1, at 20 ("J. Vance Hughes, Esq. and W. Lawrence Wallace, Esq., Chief and Assistant Chief, respectively, of that Division's Policy, Legislation, and Special Litigation Section, acted as the Justice Department's liaison with the Study Group and were most effective in supplying useful background materials from time to time . . . . Ms. Marty Kaplan of the Department of Justice's Policy Legislation and Special Litigation Section acted as secretary and kept the Study Group's minutes."). The Study Group met ten times from June 1981 through June 1982. *Id.* at 19.

29 *Superfund Section 301(e) Report as "Legislative History,"* *supra* note 2, at 2 ("This 'compromise' was the brainchild of several U.S. senators — led by Pete Domenici of New Mex-

consisted of one lawyer (I was chosen because all of the other associates had to bill hours — even back in the 1980s) and one paralegal (a former secretary who has since become an attorney).[30] In 1982, I was a first-year associate at Hunton and Williams, a prestigious law firm in Richmond, Virginia and Justice Powell's former firm.[31] It was a unique position; I even had a special title: the Freeman Fellow. George Clemon Freeman, Jr. was the partner for whom I worked.[32] With a Ph.D. in Political Science as well as a new J.D., I had agreed to work for one of this firm's most senior lawyers on his not-for-profit and pro bono activities. For example, we prepared the testimony of the ABA on pending Federal Criminal Code legislation, as my boss was the lead on this issue for the ABA's Business Law Section.[33] I attended a number of events in the area of regulatory reform, including a luncheon with a D.C. Circuit judge nicknamed Nino.[34] These activities had no clients. I remember billing exactly four hours total during my first two years at the firm. Being a little older than the typical first-year associate, with some gray hair on my temples, the people I dealt with during those days probably assumed I was a junior partner. Today, my boss is retired, and I cannot imagine that someone like the Freeman Fellow could exist in the current context.

Freeman was the senior attorney on the firm's Energy and Environmental Team and was at the crest of his career when I joined the firm.[35] As a Ph.D., one my fields of study was energy policy (I was a National Science Foundation Energy-Related Postdoctoral Fellow), and while a law student, I had written a law review article on an insurance provision of an environmental statute that had somehow been enacted during the lame

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ico."). *See generally Legislative Disaster, supra* note 2, at 198 (discussing the lame duck session with an emphasis on the limitation of retroactive liability and the private cause of action for damages).

30 The paralegal was Karen Donegan, now Karen Donegan Salter. *See* https://sites.google.com/site/karenldoneganslterconsultant/services (last visited Jan. 28, 2015), *archived at* http://perma.cc/5FML-36AW.

31 *See* William H. Rehnquist, *A Tribute to Lewis F. Powell, Jr.*, 56 WASH. & LEE L. REV. 3, 4 (1999).

32 *See* HUNTON & WILLIAMS, *George Clemon Freeman, Jr.*, http://www.hunton.com/george_freeman/ (last visited Dec. 2, 2014), *archived at* http://perma.cc/TKQ2-95U2.

33 *E.g.*, AD HOC COMM. ON THE FED. CRIMINAL CODE, *A Status Report on the Proposed Federal Criminal Code*, 36 BUS. LAW. 1085 (1981); AD HOC COMM. ON THE FED. CRIMINAL CODE, *Report on Government Appeal of Sentences*, 35 BUS. LAW. 617 (1980).

34 *E.g.* Memorandum from William Warfield Ross to Members of the Council of the Section of Admin. Law, Activities of the Ass'n's Ad Hoc Coordinating Grp. on Regulatory Reform: the Culver-Laxalt "Regulatory Flexibility & Admin. Reform" Bill, S.2147, & the Bumpers Amendment (Jan. 14, 1980) *available at* http://heinonline.org/HOL/LandingPage?handle=hein.journals/abasala17&div=7&id=&page=, *archived at* http://perma.cc/TN7H-3Y2D. *See generally* Thomas O. McGarity, *Regulatory Reform in the Reagan Era*, 45 MD. L. REV. 253, 153–73 (1986).

35 The Hunton & Williams Energy and Environmental Team continues to be important, with the utility groups George Freeman organized still representing that industry collectively. *See* Carolina Bolado, *Environmental Group of the Year: Hunton & Williams*, LAW 360 (Jan. 3, 2014), *available at* http://www.law360.com/articles/498502/environmental-group-of-the-year-hunton-williams, *archived at* http://perma.cc/GEN2-2QVV (Hunton and Williams receives Environmental Group of the Year for 2014 from Law 360).

duck session between Jimmy Carter's departure and Ronald Reagan's arrival in D.C.[36] So, I was one of the first Superfund lawyers.[37] Perhaps my most time-consuming activity was as the lawyer assisting Freeman in his role as a member of the Study Group.[38]

As Weyman Lundquist, one of the other ABA representatives on the Study Group subsequently testified under oath in a congressional hearing, "It is clear from the composition of the Study Group that Congress did not intend a group that would reach an easy consensus."[39] He elaborated on this, noting that some of the committee members, especially academicians, evidenced a vested self-interest in the same views they had expressed over the course of several years.[40] Freeman's prepared statement to a congressional subcommittee stated that the Study Group's debates on certain issues became so lively that it seemed the Section 301(e) Report would never be completed.[41] The testimony omits an episode in which the Attorney General of North Carolina, Rufus Edmisten, chairing a session of the Study Group, suggested that two members of the Study Group who had engaged in a heated interchange should take it outside for resolution, presumably wild-west style.[42] From my insider's view of the Study Group, it is easy to understand what Justice Scalia and Professor Garner mean by their characterization of the "false notion that the purpose of interpretation is to discover intent."[43] The Study Group was comprised of several individuals who may have had differing views of the issues.[44] Given this diversity of perspective and opinion, outside the language of the Study Group's Section 301(e) Report, attempting to determine a single "legislative intent" encourages a "search for the nonexistent."[45]

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36 Alfred R. Light, *The Long Tail of Liability: Hazardous Waste Disposal Insurance and the Superfund Act's Post-Closure Liability Trust Fund*, 2 VA. J. NAT. RES. L. 179 (1982).

37 *See generally* Lawrence Hurley, *Lawyers Still Cleaning Up Over Superfund Sites*, N.Y. TIMES, Jan. 3, 2011, http://www.nytimes.com/gwire/2011/01/03/03greenwire-lawyers-still-cleaning-up-over-superfund-sites-92748.html?pagewanted=all, *archived at* http://perma.cc/L2GB-XW93.

38 In a number of ways, Freeman's role was among the more prominent and transparent on the commission, as is plainly apparent from an examination of the Comments to the Appendices in Part 2 of the Section 301(e) Report, which mainly consists of correspondence and memoranda to the commission from Freeman, some of which I prepared. *Section 301(e) Report*, *supra*, note 2, Part 2, at 406.

39 *Hazardous Waste Contamination of Water Resources (Compensation of Victims Exposed to Hazardous Wastes), Hearings Before the Subcomm. on Investigations & Oversight of the Comm. on Pub. Works & Transp.*, 98th Cong., 792, 795 (1983) [hereinafter *Public Works Hearing*] *available at* http://babel.hathitrust.org/cgi/pt?id=mdp.39015039054591;view=1up;seq=3, *archived at* http://perma.cc/EK9V-6DNY.

40 *Id.* at 795–96.

41 *Id.* at 817.

42 *Cf.* BRANTLEY GILBERT, *Take It Outside*, on Highway to Heaven (Average Joe's Entertainment 2010), *available at* https://www.youtube.com/watch?v=MMZSmtV-T0w, *archived at* http://perma.cc/9G9T-KETJ (singing about old-fashioned brawls between outlaws).

43 SCALIA & GARNER, *supra* note 6, at 391–96.

44 *See id.* at 391.

45 *Id.* at 394.

II. The Superfund Section 301(e) Report

The Study Group did finally issue a report ("Section 301(e) Report").[46] Part 1 contained the consensus report and separate views of various Group members who dissented from key recommendations made in the Section 301(e) Report.[47] Part 2 contained many background reports prepared by the Columbia law students as well as comments to the appendices, describing the disagreements that remained after negotiations among staff of the various members failed to result in resolution.[48] Interestingly, the Section 301(e) Report unanimously recommended against creating a federal statutory judicial tort or nuisance remedy.[49] Its recommendations for federal action were limited to suggesting a federal program administered by the states to provide no-fault compensation for personal injury resulting from hazardous waste.[50]

The Study Group was especially concerned about federal preemption of state tort law. In part, this focus manifested due to an inquiry to the Study Group from Senators Randolph and Stafford, who specifically asked the Study Group to comment on recent Supreme Court decisions that had found no implied private right of action under federal law (i.e. no federal common law) in light of comprehensive federal regulatory statutes such as the Clean Water Act.[51] The Study Group expressly rejected these Senators' call for the Study Group to endorse the judicial manufacture of federal common law rights of action through construction of CERCLA's "savings clause."[52] The Study Group essentially endorsed what Scalia and Garner call the Presumption Against Implied Right of Action: a private cause of action does not arise merely because a statute prohibits a certain act.[53] Such a right arises only if the text of the statute expressly provides it or clearly implies it.[54]

One of the other reasons the Study Group did not recommend a preemptive federal provision was based on its concerns about the constitutional infirmities of dictating state tort law through federal legislation.[55] Scalia and Garner call this the Constitutional-

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46 *Section 301(e) Report*, *supra* note 2.

47 *Id.* Part 1.

48 *Id.* Part 2, at 406.

49 *Id.* Part 1, at 290–91, 307.

50 *See* Zazzali & Grad, *Hazardous Wastes: New Rights and Remedies?*, 13 Seton Hall L. Rev. 446, 464 (1983).

51 Letter from Senator Jennings Randolph and Senator Robert T. Stafford to James R. Zazzali (Apr. 29, 1982), in *Section 301(e) Report*, *supra* note 2, Part 2, at 413 (referring to City of Milwaukee v. Illinois, 451 U.S. 304 (1981) and Middlesex Cnty. Sewerage Auth. v. Nat'l Sea Clammers Ass'n, 453 U.S. 1 (1981)). In 1983, Senator Stafford proposed to substitute the language "diminish" for "affect or modify" in CERCLA's savings clause, 42 U.S.C. §9652(d). *See* S. 917, 98th Cong., 1st Sess. § 5(a)(3) (1983). However, his proposal failed to become part of the reauthorization bill. As to Stafford's apparent intent regarding the amendment, *see* Robert T. Stafford, *The Supreme Court, Federal Common Law, and Congressional Efforts to Protect Health and the Environment*, 14 Envtl. L. Rep. 10103 (1984).

52 *See Section 301(e) Report*, *supra* note 2, Part 1, at 85–90, 323, 342–343.

53 Scalia & Garner, *supra* note 6, at 313.

54 *Id.*

55 Shortly after the enactment of SARA, I also discussed these infirmities in a paper presented to the American Political Science Association at its 1986 annual meeting in Washington,

Doubt Canon: a statute should be interpreted in such a way as to avoid casting doubt on its constitutionality.[56] Criticizing a provision in pending legislation, Freeman testified before Congress, stating that:

> [The bill's preemption] shall constitute the law of such State . . . . This provision is premised on the assumption that Congress can constitutionally rewrite state law where it conflicts with federal policies rather than to write a federal law which would then displace state law through traditional preemption . . . . I should add that the Superfund Study Group considered this approach but rejected it on policy as well as legal grounds.[57]

It should be noted that this statement was made in the early 1980s before the Supreme Court overruled *National League of Cities v. Usery*,[58] but then revived principles of federalism as a constraint on congressional power in *New York v. United States*,[59] *United States v. Lopez*,[60] and *Printz v. United States*.[61] Beginning in the 1990s, the Supreme Court clarified through these decisions that Congress cannot command states to enact or repeal legislation.[62]

Among the Study Group's recommendations *to the states*, however, was that states should adopt a discovery rule providing that a plaintiff's cause of action would not accrue until the plaintiff discovered or reasonably should have discovered the injury and its cause.[63] As the Supreme Court noted in *Waldburger*, the Study Group's recommendation expressly stated that it intended to recommend the repeal of statutes of repose, which, in many states, have the effect of statutes of limitations by barring the plaintiff's claim before the plaintiff is aware the claim even exists.[64] The background documents describing current law in Part 2 of the Section 301(e) Report reveal that its authors understood that a state could have a discovery rule regarding its statute of limitations and still raise fairness issues from the plaintiffs' perspective stemming from its separate statute of repose.[65] For example, the Section 301(e) Report characterized the state of North Carolina as having a discovery rule, but as also having a statute of repose.[66]

It is important to understand the context in which the Study Group made its "discovery rule" recommendation. The Study Group had extensively discussed the issue of retroactivity, including the Presumption Against Retroactivity: statutes presumptively do

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D.C., which was subsequently published as a law review article. *Federal Preemption, Federal Conscription*, *supra* note 2, at 643, 655–659.

56 SCALIA & GARNER, *supra* note 6, at 247.

57 *Public Works Hearing*, *supra* note 39, at 871–72 (emphasis omitted).

58 426 U.S. 833 (1976), *overruled by* Garcia v. San Antonio Metro. Transit Auth., 469 U.S. 528 (1985).

59 New York v. United States, 505 U.S. 144 (1992).

60 United States v. Lopez, 514 U.S. 549 (1995).

61 Printz v. United States, 521 U.S. 898 (1997).

62 *New York*, 505 U.S. at 160. *See Lopez*, 514 U.S. at 558–59.

63 *Public Works Hearing*, *supra* note 39, at 802; *Section 301(e) Report*, *supra* note 2, Part 1, at 256.

64 *Section 301(e) Report*, *supra* note 2, Part. 1, at 256; CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2181 (2014).

65 *See Section 301(e) Report*, *supra* note 2, Part 2, at 14–78.

66 *Id.* at 22–23.

not apply retroactively.[67] The principal innovation of the Study Group was to create an administrative compensation regime in which persons exposed to hazardous wastes would be able to claim compensation for injuries and damages presumed to result from such exposure.[68] The federal administrative fund paying said compensation would have a right of subrogation against tortfeasors, but only for injuries or damages "arising out of exposure to hazardous substances or wastes disposed of, transported or spilled *after* the adoption of this proposal . . . ."[69] Thus, the Study Group recommended that the discovery rule should apply to all claims and that these claims should not be time-barred due to the passage of time between exposure and discovery of the injury upon which the claim is based, regardless of whether the responsible party knew or should have known that the wastes were hazardous.[70] The Study Group recommended by majority vote that this fund pay all proven claims to compensate for "injuries and illness arising out of exposure to hazardous substances disposed of, transported, or spilled *prior* to the adoption of this proposal . . . ."[71] In his subsequent testimony before Congress, Freeman emphasized this feature of the Section 301(e) Report, stating:

> If Congress decides to enact new legislation creating a federal administrative remedy or a federal cause of action for persons who have been injured or whose property has been damaged by hazardous wastes, it should scrupulously avoid imposing liability retroactively . . . . [O]ne of the most important decisions in our Superfund Study deliberations was our unanimous recommendation *against* any form of retroactivity in federal legislation.[72]

III. Legislative History of 42 U.S.C. § 9658

After the Study Group issued its Section 301(e) Report in 1982, Congress adopted amendments to the Superfund statute in 1986.[73] Congress largely ignored the Section 301(e) Report's recommendations but did adopt a peculiar provision addressing the discovery rule in statutes of limitations.[74] In a provision styled "State Procedural Reform," SARA established a "federally required commencement date" delaying the date on which the state tort law statute of limitations would begin to run in environmental cases.[75] The Respondents in *Waldburger* stated that this provision was in response to the

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67 Scalia & Garner, *supra* note 6, at 261.

68 *Section 301(e) Report*, *supra* note 2, Part 1, at 246.

69 *Id.*

70 *Id.*

71 *Id.* at 245.

72 *Public Works Hearing*, *supra* note 39, at 848–49.

73 *SARA Overview*, U.S. Envtl. Prot. Agency, http://www.epa.gov/superfund/policy/sara.htm (last visited Dec. 5, 2014), *archived at* http://perma.cc/9LZX-BKES.

74 42 U.S.C. § 9658(a) (1986).

75 (a) State statutes of limitations for hazardous substance cases.

(1) Exception to state statutes. In the case of any action brought under State law for personal injury, or property damages, which are caused or contributed to by exposure to any hazardous substance, or pollutant or contaminant, released into the environment from a

Section 301(e) Report.[76] Indeed, the House Conference Report for SARA noted that the Section 301(e) Report, compiled by a distinguished panel of lawyers, realized that certain state statutes can "deprive plaintiffs of their day in court."[77] The study noted that this problem stems not from the number of years it runs, but rather *when* the statute of limitations begins to run.[78] Thus, the question squarely before the Supreme Court in *Waldburger* was whether the provision preempts not only statutes of limitations but also preempts statutes of repose, which in turn prohibit tort litigation after a given number of years have passed since the defendant last acted or owned the contaminated property at issue.

In 1984, nine of the twelve members of the Study Group apparently startled some members of the Senate Environment and Public Works Committee when they sent a letter criticizing two Committee witnesses whose testimony had seriously "misperceived" the Study Group's recommendations.[79] The witnesses had cited the report as advocating a new federal cause of action, failing to note that the Study Group had deliberately rejected recommending such an amendment.[80] The 1985 House debate over CERCLA added a new dimension to misuse of the Section 301(e) Report: the opponents, rather than the proponents, of a federal cause of action amendment caused confusion.[81] Congressman Glickman attempted to blunt Congressman Frank's arguments in favor of the federal cause of action by reference to the provision that became 42 U.S.C. § 9658, stating:

> The compromise version of Superfund contains an important provision which really addresses the major problem addressed by the Federal cause of action — the fact that currently residents of some States have no right to sue for damages arising from hazardous substances because the State statute of limitations applicable to their claim has already passed before they even know they have been injured.

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facility, if the applicable limitations period for such action (as specified in the State statute of limitations or under common law) provides a commencement date which is earlier than the federally required commencement date, such period shall commence at the federally required commencement date in lieu of the date specified in such State statute.

(2) State law generally applicable. Except as provided in paragraph (1), the statute of limitations established under State law shall apply in all actions brought under State law for personal injury, or property damages, which are caused or contributed to by exposure to any hazardous substance, or pollutant or contaminant, released into the environment from a facility. *Id.*

76 Brief for Respondents at 9, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339), 2014 WL 1260425.

77 H.R. Conf. Rep. 99-962, at 261 (1986), *reprinted in* 1986 U.S.C.C.A.N. 3276, 3354.

78 *Id.*

79 *Amending & Extending the Comprehensive Environmental Response, Compensation, & Liability Act of 1980 (Superfund): Hearings Before the S. Comm. on Env't & Pub. Works*, 98th Cong. 938–40 (1984), *available at* http://babel.hathitrust.org/cgi/pt?id=pst.000015993007;view=1up;seq=3, *archived at* http://perma.cc/T8Z8-KPBH.

80 *Id.* at 939.

81 *See* 131 Cong. Rec. H11,547-01 (1985). The House defeated this amendment with a vote of 261–162.

> This provision, called Section 203 State Procedural Reform adds a new section 309 to Superfund. This section which is based on the section 301(e) study mandated by Superfund, provides that State statutes of limitations will not commence until the injured person knew or reasonably should have known that their personal injury or property damages were caused by exposure to a hazardous substance.
>
> Thus, under this provision, all persons, regardless of which State they live in, will be able to sue for damages when they know they have been damaged. This is of particular importance because of the long latency period for many injuries resulting from exposure to hazardous substances, and because both the fact that a person was exposed and the fact that he was harmed by such exposure are often known only at a date much later than their exposure.[82]

Mistakenly hoisting the section 301(e) flag, Congressmen Dingell, Lent, Snyder, and Breaux agreed to "vigorously support" this "State Procedural Reform" amendment at the Conference.[83] Congressman Frank, promoting his amendment to add a federal cause of action for damages on the floor of the House, criticized his colleagues for ordering the states to do what Congress would not do directly and for refusing to offer federal courts as a forum.[84] Such contradictory and confused floor debate demonstrates the unreliable nature of such materials as aids to statutory construction.[85]

IV. The Supreme Court's Textual Analysis

From a textual point of view, what divided the circuits' interpretation of 42 U.S.C. § 9658 before *Waldburger* was that § 9658, unlike the recommendation in the Superfund Section 301(e) Study, makes no reference to statutes of repose. The first question in *Waldburger* thus was whether the plain meaning of "the period specified" in a "statute of limitations" (which could include a period specified in "the State statute of limitations or under common law") would include the period set by a state statute of repose; such an interpretation would consequently entail that 42 U.S.C. § 9658 preempts state statutes of repose.[86] Stated more simply, the first question was whether the term "statute of limitations" in 42 U.S.C. § 9658 encompasses both statutes of limitations and statutes of repose.

At oral argument, several justices suggested that the term "statute of limitations" might cover both.[87] Scalia exclaimed, "I used to consider them when I was in law school and even as late as 1986 . . . I would have considered that a statute of limitations. Now,

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82 *Id.* (statement of Rep. Glickman).

83 *Id.* (statements of Reps. Dingell, Lent, Snyder, and Breaux). *See* Light, *Federal Preemption, Federal Conscription*, *supra* note 2, at 657.

84 *See* 131 Cong. Rec. H11,547-01 (1985) (statement of Rep. Frank). Congressman Frank might have suggested the potential invalidity of Section 9658 by characterizing it as "dicta to the States." *Id.*

85 Scalia and Garner, *supra* note 6, at 369–90.

86 CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2179 (2014).

87 Transcript of Oral Argument at 8–16, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339).

you think Congress is smarter. They – they know the law better."[88] Justice Kagan evoked laughter with the comment, "that's a very legally sophisticated Congress you're asking us to imagine."[89] Scalia evoked further laughter with a comment about exchanges on the floor of Congress, "And everybody was listening to that: The chamber was full . . . ."[90] Justice Kennedy also got a laugh later in the argument, stating, "[T]he study commission did recognize the distinction between limitations and repose. I agree with Justice Scalia. I didn't have Justice Ginsburg as a law professor, but I — this was new for me."[91] Based on all the laughter at the oral argument, *Waldburger* was a funny case. As Justice Scalia put it, after listening to textual argument after textual argument, "Anyway, [this] is angels on the head of a pin, isn't it?"[92] This statement was met with more laughter.[93] The simple, superficial way to resolve the case would have been to declare that the federal statute does not preempt statutes of repose because the statute expresses no reference to statutes of repose.

Frankly, the terminology is not in itself significant.[94] Justice Kennedy notes in *Waldburger* that the petitioner did not provide a single example in which Congress has chosen to use the term "statute of repose."[95] After a lengthy description of the history of the two terms, the petitioner concluded that, because the distinction was well-enough established already, the Study's Group's 1982 Section 301(e) Report realized that statutes of repose and statutes of limitations are distinctly different, even if the general usage of the two legal terms has not always been clearly demarcated.[96] Congress could have written 42 U.S.C. § 9658 in such a way that the statute preempted both "statutes of limitations" traditionally understood and "statutes of repose" under the statutory rubric of "statute of limitations."[97] But it did not clearly do so. Justice Kennedy concluded,

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88 *Id.* at 13–14.
89 *Id.* at 15.
90 *Id.* at 16.
91 *Id.* at 29.
92 *Id.* at 38.
93 *Id.*
94 As a result, the Amicus Brief of Environmental Law Professors as *Amici Curiae* in Support of Respondents, even if correct, was not relevant to the resolution of the case. In any event, it is quite curious to me that "environmental law professors" limited their analysis of whether statutes of limitations include statutes of repose to statutes outside the environmental area. *See* Brief of Environmental Law Professors as *Amici Curiae* in Support of Respondents at 1–22, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339). They ignore CERCLA's language and legislative history as well as the Section 301(e) Report. It is especially curious because the "environmental law professors" express their amicus interest in the case by noting the importance of the issues and stating, "Because of that importance, *amici* believe this Court should make its decision based on complete and accurate information not only about CERCLA itself, but also about the legal background against which CERCLA was enacted." *Id.* at 1. The *amici* brief cites absolutely no legislative history or cases interpreting CERCLA. *See id.* at 1–22.
95 *Waldburger*, 134 S. Ct. at 2185.
96 *Id.* at 2186.
97 Justice Ginsburg, joined by Justice Breyer in dissent, thinks that the language of Section 9658 does do this, finding the "federally-required commencement date" to substitute the date of plaintiff's discovery of his injury and its cause for "the last act or omission of the

> The Report clearly urged the repeal of statutes of repose as well as statutes of limitations. But in so doing the Report did what the statute does not: It referred to statutes of repose as a distinct category. And when Congress did not make the same distinction, it is proper to conclude that Congress did not exercise the full scope of its pre-emption power.[98] In light of the Section 301(e) Report, the opinion applies a version of the Negative-Implication Canon: implying one thing implies excluding others (*expressio unius est exclusio alterius*).[99]

The Court did not stop after finding that 42 U.S.C. § 9658's use of the term "statute of limitations" was not dispositive.[100] To bolster its conclusion that CERCLA's preemption does not include statutes of repose, the Court examined "other features of the statutory text."[101] In essence, this conclusion turns to what Scalia and Garner call the Whole Text Canon: a statute's text must be construed together as a whole.[102] This canon requires the interpreter to consider the statute's entire text both in the context of its structure as well as "the physical and logical relation" of all of its parts.[103] The Court found significant the use of the singular, implying that the provision did not envision "the pre-emption of two different time periods with two different purposes" (the time period for a statute of limitations and the time period for a statute of repose).[104] The Court also found the statutory language to presuppose the existence of a "civil action" whose statute of limitations Congress might extend.[105] This could not apply, according to the majority, to a statute of repose that "can prohibit a cause of action from coming into existence" and even "preclude an alleged tortfeasor's liability . . . before an actionable harm even occurs."[106] This reasoning may be informed by the Harmonious-Reading Canon: a text's provisions should be interpreted in such "a way that renders them compatible, not contradictory."[107]

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defendant giving rise to the claim." *Id.* at 2189 (Ginsburg, J., dissenting). Justice Ginsburg's dissent simply ignores the contextual cues, discussed in the text, upon which the majority in part based its opposite conclusion. She based her broad preemption conclusion primarily on the Section 301(e) Report's recommendation to repeal statutes of repose and the policy argument that statutes of repose "give[ ] contaminators an incentive to conceal the hazards they have created." *Id.* at 2191. This, of course, ignores the contrary incentive created by the private cause of action for cleanup costs, including retroactive liability, previously acknowledged by the Supreme Court. United States v. Atlantic Research Corp., 127 S. Ct. 2331 (2007).

98 *Waldburger*, 134 S. Ct. at 2186. The Study Group probably considered it necessary to address statutes of repose separately because of the stabilizing canon, the Presumption Against Implied Repeal: "Repeals by implication are . . . very much disfavored." SCALIA & GARNER, *supra* note 6, at 327. A reader of the Group's statute of limitations recommendation probably would not infer that it was intended to effect a repeal of a statute of repose.

99 SCALIA & GARNER, *supra* note 6, at 107–11.

100 *Waldburger*, 134 S. Ct. at 2186.

101 *Id.*

102 SCALIA & GARNER, *supra* note 6, at 167–69.

103 *Id.*

104 *Waldburger*, 134 S. Ct. at 2187.

105 *See id.*

106 *Id.*

107 SCALIA & GARNER, *supra* note 6, at 180–182.

The Court also found significant Congress's inclusion of an equitable tolling provision for "minor and incompetent plaintiff[s]."[108] The Court explained:

> Equitable tolling is applicable to statutes of limitations because their main thrust is to encourage the plaintiff to 'pursue his rights diligently,' . . . [a matter that does not apply to statutes of repose beyond which] consequence, the inclusion of a tolling rule in § 9658 suggests that the statute's reach is limited to statutes of limitations, which traditionally have been subject to tolling. It would be odd for Congress, if it did seek to pre-empt statutes of repose, to pre-empt not just the commencement date of statutes of repose but also state law prohibiting tolling of statutes of repose — all without an express indication that § 9658 was intended to reach the latter.[109]

The Court's "equitable tolling" argument, however, is not very satisfying. Assuming Congress intended to repeal statutes of repose, there would be nothing odd in a mandate that the limitations period be further extended until a minor reaches majority or until an incompetent becomes competent. In fact, both the singular/plural and equitable tolling features seem quite conclusory — they can fit into a statute equally well whether or not the statute covers a statute of repose.

V. THE PRESUMPTION AGAINST PREEMPTION

Three members of the Court found additional support in "well-established 'presumptions about the nature of pre-emption.'"[110] Justices Kennedy, Sotomayor, and Kagen relied on the presumption that, when a preemption clause can be plausibly interpreted more than one way, courts should generally "accept the reading that disfavors preemption."[111] State courts prior to *Waldburger* identified the Presumption Against Federal Preemption: "the historic police powers of the States [are] not to be superseded by [federal legislation] unless that was the clear and manifest purpose of Congress."[112] Four of the Court's conservatives, Justice Scalia, joined by Chief Justice Roberts, Alito, and Thomas, disagreed in *Waldburger*, remaining convinced that "[t]he proper rule of construction for express pre-emption provisions is . . . the one that is customary for statutory provisions in general: [t]heir language should be given its ordinary meaning."[113] This schism is part of the Court's continuing debate over which principles the court should use in determining the scope of federal preemption of state law in such diverse fields as cigarette labeling, pesticide regulation, the Employee Retirement Income Security Act (ERISA), and Medicaid reimbursement.[114] Often, it is the defendant in these cases advocating federal preemption rather than the plaintiff, as in *Waldburger*.

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108 42 U.S.C. § 9658(b)(4)(B) (1986); *Waldburger*, 134 S. Ct. at 2187.

109 *Waldburger*, 134 S. Ct. at 2188.

110 *Id.*

111 *Id.*

112 *See* Lee v. CSX Transp., Inc., 958 So. 2d 578, 581 (Fla. Dist. Ct. App. 2007).

113 *Waldburger*, 134 S. Ct. at 2189 (Scalia, J., dissenting).

114 Cippoline v. Liggett Grp., Inc., 505 U.S. 504 (1992) (cigarette labeling); Bates v. Dow Agrosciences LLC, 544 U.S. 431 (2005) (pesticide regulation); New York Conference of

In a Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) decision regarding pesticide regulation, for example, the Court permitted a suit by Texas peanut farmers against pesticide manufacturers over crop loss by narrowly construing FIFRA's labeling requirements to prohibit only state requirements that were "in addition to or different from" FIFRA's requirements, not those consistent with FIFRA's standards.[115] The Court stated that "[t]he long history of tort litigation against manufacturers of poisonous substances adds force to the basic presumption against preemption. If Congress had intended to deprive injured parties of a long available form of compensation, it surely would have expressed that intent more clearly."[116] ERISA is the poster child for an express preemption morass, in which "[e]mployers and others have argued that many state laws — from family leave to workers compensation to health care finance and malpractice claims — are preempted by ERISA because they 'relate to' employee benefit plans."[117]

Justice Scalia has gone on record in *Reading Law* to state that "the preemption canon ought not to be applied to the text of an explicit preemption provision."[118] He reasons:

> The presumption is based on an assumption of what Congress, in our federal system, would or should normally desire. But when Congress has explicitly set forth its desire, there is no justification for not taking Congress at its word — i.e., giving its words their ordinary, fair meaning. So, for example, we disagree with the decision of the Supreme Court in *Cipollone* to give the preemption provision of the Federal Cigarette Labeling and Advertising Act a "narrow" meaning rather than simply the meaning that its words fairly convey.[119]

The Presumption Against Federal Preemption is a canon more often invoked in the CERCLA context by state courts rather than federal courts. Professor Robin Kundis Craig recently opined:

> States' continued resistance to CERCLA's [Federally required commencement date (FRCD)] suggests that the FRCD creates, at the very least, a perception of federal overreaching into and commandeering of state law . . . . The imposition of the FRCD on state tort law, without preempting state tort law in its entirety, would seem to fit neatly within the *Printz* Court's list of actions that are inconsistent with constitutional federalism.[120]

Blue Cross & Blue Shield Plans v. Travelers Ins. Co., 514 U.S. 645 (1995) (ERISA); Wos v. E.M.A. ex rel. Johnson, 133 S. Ct. 1391 (2013) (Medicaid).

115 *Bates*, 544 U.S. 431, 431 (2005).

116 *Id.* at 432–33.

117 ERWIN CHEMERINSKY, CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES, §5.2.2, at 411 (4th ed. 2011).

118 SCALIA & GARNER, *supra* note 6, at 293.

119 *Id.*

120 Robin Kundis Craig, *Federalism Challenges to CERCLA: An Overview*, 41 SW. L. REV. 617, 638–41 (2012); Brief of DRI — The Voice of the Defense Bar as *Amicus Curiae* in Support of Petitioner at 14–15, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339).

What these courts were referencing is an application of the Constitutional Doubt canon, which requires avoiding a statutory construction that raises doubts about the provision's constitutionality.[121]

This argument favoring a narrow construction through application of the Constitutional Doubt canon is not very strong, however. Professor Craig is correct that 42 U.S.C. § 9658 raises the policy concerns of *Printz*, but it does so in the context that the *Printz* case distinguishes, namely, state judicial proceedings.[122] Section 9658 implicates all of the policies underlying the invalidation of federal conscription of state sheriffs to administer a gun registration law in *Printz*, including political accountability, state protections of individual liberty, and cost internalization. Section 9658 blurs the lines of political accountability by establishing the same scheme for judicial review of a federal statutory provision that would exist if the state legislature had enacted the provision.[123] The only apparent federal court review of such cases is through a writ of certiorari to the U.S. Supreme Court for review of state supreme court decisions.[124] Section 9658 appears to thwart protections of individual liberty by preempting state protections, often contained in state constitutions, against the retroactive review of claims barred by a statute of limitations.[125] Section 9658 also shifts the costs of administering the federal standard to state courts.[126] In addition, this provision may interfere with state supreme courts' control over interpretations of state tort law. If broadly construed, 42U.S.C. § 9658 forces states to adopt policies that arguably violate state constitutional protections without the federal government bearing any of the costs of administering the law.[127] Nonetheless, there are technical limitations of the *Printz* doctrine as it currently stands. Section 9658 is fairly crude — it commands the states to use the federal standard in adjudicating state law claims, but, unlike *Printz,* does not command the state executive to do anything; furthermore, its effect is limited to judicial (adjudicative) functions, not executive functions.[128] In *Waldburger*, the Respondents principally relied on this technical limitation of the *Printz* doctrine; quoting the Second Circuit, Respondent's reasoned that "[t]he [federally required commencement date], which requires no action by a state's legislative or executive officials, but only the application of federal law by the courts to recognize the Federal Commencement Date of a state-law claim, does not violate the Tenth Amendment."[129]

In its briefs, CTS invoked the policies behind *Printz* and *New York v. United States*, arguing that the Constitution does not grant Congress the power to modify existing state law; such power would allow Congress to act through state law, impermissibly blurring

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121 *See infra* notes 190–211 and accompanying text.

122 Printz v. United States, 521 U.S. 898, 905–10 (1997). This feature of Section 9658 is discussed in *Pay the Piper*, *supra* note 2, at 815–17.

123 42 U.S.C. § 9658 (a)(2) (1986).

124 16B CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 4007 (3d ed. 1998).

125 *See infra* notes 197–211 and accompanying text.

126 42 U.S.C. § 9658(a)(2).

127 *See Retroactive Revival*, *supra* note 2, at 410.

128 Printz v. United States, 521 U.S. 898, 928–29 (1997).

129 Brief for Respondents, *supra* note 76, at 39 (quoting Freier v. Westinghouse, 303 F.3d 176, 205 (2002)).

accountability between federal and state lawmakers.[130] CTS argued that state legislation could theoretically avoid a federal order preempting state statutes of repose by eliminating the corresponding state law causes of action.[131] In this way, it distinguished *Testa v. Katt*,[132] "because CERCLA does not create a private federal cause of action for the kinds of claims subject to § 9658" in that 42 U.S.C. § 9658 "cannot implicate Congress's separate authority to legislate federal-law claims, or proper procedures for the resolution of those claims."[133] Justice Sotomayor, at oral argument in *Waldburger*, posed a hypothetical:

> [A]ssume a State said, nah, we're tired of environmental claims. You can't have them. We're not going to have one at all. Was Congress preempting that decision? . . . Why isn't a statute of repose simply a decision that you just can't have a claim at all if it's older than 20 years old?[134]

This line of questioning gets at the *Testa* exception to state prerogatives: if the state has jurisdiction over the type of claim Congress preempted, the state cannot refuse to apply the preemptive federal law because of the Constitution's Supremacy Clause.[135]

After the Supreme Court revived principles of constitutional federalism in *United States v. Lopez*,[136] Congress enacted some preemptive causes of action, through which Congress sought to change some, but not all, elements in state law causes of action without totally preempting the area. For example, in the Volunteer Protection Act of 1997 (VPA), Congress dictated changes of state law personal injury actions against volunteers.[137] The VPA even contains a strange provision allowing states to "opt out" of the federal standards by legislative action.[138] These features of the VPA were intended to avoid constitutional challenges under the Supreme Court's new federalism.[139] Because 42 U.S.C. § 9658 was enacted before *Lopez* was decided, it does not contain such an "opt out" provision.[140] In *Waldburger*, CTS argued that the distinction between ordering a state to enact legislation and preempting state law was not significant because, if interpreted to preempt substantive state law, 42 U.S.C. § 9658 would "force States to *either*

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130 Reply Brief at 16, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (No. 13-339); *See also* Brief for the Petitioner at 37–41, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (No. 13-339). "[I]f § 9658 were read to preempt statutes of repose, it would actually dictate the substantive content of state tort law, and so would force the States to do federal work. Tort liability would have to be found — as a matter of *state* law — even where the State had decreed that no liability should exist." *Id.* at 41.

131 Brief for the Petitioner, *supra* note 130, at 38.

132 330 U.S. 386 (1947).

133 Brief for the Petitioner, *supra* note 130, at 40.

134 Transcript of Oral Argument, *supra* note 87, at 40–41.

135 *See* U.S. CONST. art. VI, cl. 2 ("[T]he Laws of the United States . . . which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.").

136 514 U.S. 549 (1995).

137 *See* 42 U.S.C. § 14502 (2014).

138 *See* § 14502(b); *"Opt-Out" Preemption*, *supra* note 2, at 29–35.

139 *See* H.R. Rep. No. 105-101, pt. 1, at 18–19 (1997).

140 *See* 42 U.S.C. § 9658.

extend substantive tort liability to a greater extent than the State itself desired, *or* enact state legislation eliminating the relevant category of substantive tort liability altogether."[141] This would offend the Supreme Court's prohibition on "coerced choice" established in *New York v. United States*.[142]

CTS distinguished the usual preemption situation, arguing "the constitutional difficulties potentially connected to § 9658 do not arise when Congress uses its preemption authority to *negate* state substantive law."[143] In response, Waldburger simply quoted the DOJ's brief in the Second Circuit case, which asserted, "preemption in fact routinely has the effect of expanding [State] remedies."[144] Interestingly, neither party made reference to the General Aviation Revitalization Act of 1994 (GARA), in which Congress created a preemptive eighteen-year statute of repose for product liability suits with respect to noncommercial small aircraft.[145] Presumably, Waldburger found it inconvenient to cite a federal statute expressly favoring a statute of repose, and CTS did not wish to distinguish that statute wherein Congress clearly preempted state law by establishing a federal statute of repose in the context of state law causes of action.

Is there a constitutionally significant difference between extinguishing a state tort claim by imposing a federal statute of repose and extending a state tort claim by delaying the date beyond which an action may not be brought? In its amicus brief in *Waldburger*, the United States makes reference to choice of law rules, quoting *Sun Oil Co. v. Wortman* for the proposition that "the Constitution does not bar application of the forum State's statute of limitations to claims that, in their substance, are and must be governed by the law of a different state."[146] Indeed, the Restatement (Second) of Conflict of Laws section 142 states, "the forum will apply its own statute of limitations barring the claim" but may not apply the forum state's statute that permits the claim where maintenance of the claim "would serve no substantial interest of the forum" and "the claim would be barred under the statute of limitations of a state having a more significant relationship to the parties and the occurrence."[147] Perhaps these principles suggest that a federal statute of repose barring state claims does stand on a somewhat different footing from a federal statute repealing a state statute of repose to revive or expand state tort claims. Forcing a

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141 Brief for the Petitioner, *supra* note 130, at 39.

142 *Id.* at 38–39 (Petitioner explained, "In *New York v. United States*, the Federal Government forced states to choose between unconstitutional options: either take title to certain radioactive waste, or enact the federally prescribed regulatory scheme. . . . Because each of those options entailed unconstitutional commandeering, the choice between them was likewise unconstitutional.").

143 *Id.* at 40 (citing New York v. United States, 505 U.S. 144, 168 (1992)).

144 Brief for Respondents, *supra* note 76, at 39.

145 49 U.S.C. §§ 40101–40120 (2012); *but see*, Brief of Environmental Law Professors as *Amici Curiae* in Support of Respondents, *supra* note 94, at 19 (citing GARA to support the proposition that Congress used the term "applicable limitations period" in GARA in the context of a provision clearly establishing a "statute of repose."). However, it is difficult to see how this provision in GARA could be the "legal background against which CERCLA was enacted" as GARA was enacted in 1994, long after Section 9658. *Id.* at 1.

146 Brief for the United States as *Amicus Curiae* Supporting Petitioner at 28, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339) (quoting Sun Oil Co. v. Wortman, 486 U.S. 717, 722 (1988)).

147 RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 142 (amended 1988).

state to entertain a claim seems similar to forcing an individual to buy insurance, which is a constitutionally suspect mandate under the federal government's commerce power.[148] Assuming, however, that Congress does have a "substantial interest" in extending a statute of limitations,[149] *Wortman* seems to indicate that it does not violate constitutional due process to apply a longer federal statute of limitations to a state law tort action so long as the supplanted state statute of limitations only addresses the remedy and does not affect the underlying right.[150]

VI. CERCLA's Remedial Purpose (A False Canon)

Because of the skimpy and confused "legislative history," the lower courts prior to *Waldburger* primarily resorted to two other general precepts of statutory interpretation in trying to decide whether 42 U.S.C. § 9658 covered statutes of repose: (1) the Constitutional-Doubt canon in the context of federal preemption discussed above; and (2) CERCLA's remedial purpose.[151] The United States argued in its amicus brief in the Supreme Court that CERCLA's remedial purpose does not support a broad preemption of state tort law.[152] Scalia and Garner refer to this principle as "the false notion that remedial statutes should be liberally construed."[153] For them, it is a false notion because it is difficult to determine whether or not a statute is remedial, and it is impossible to identify

148 Nat'l Fed'n of Indep. Bus. v. Sebelius, 132 S. Ct. 2566, 2585–91 (2012).

149 This substantial evidence was the enhancement of the jurisdiction of the federal courts under Article III by extending limitations in state court for the time a claim was pending in federal court prior to its dismissal. *See* Jinks v. Richland Cnty., S.C., 538 U.S. 456, 461–62 (2003) (citing Stewart v. Kahn, 78 U.S. 493 (1870), which upheld under the War Power a congressional extension of limitations in federal court for the period in which federal courts were not accessible because of the Civil War).

150 *Wortman*, 486 U.S. at 724–29 (1988).

151 *See* Waldburger v. CTS Corp., 723 F.3d 434, 443–44 (4th Cir. 2013), *rev'd*, 134 S. Ct. 2175 (2014).

152 Brief for the United States as Amicus Curiae Supporting Petitioner, *supra* note 146, at 32 ("[I]t does not follow that helping private plaintiffs to collect tort damages years after the contamination has ended — and after the point at which the state legislature determined as a substantive matter that liability under state law should cease — fits into that same federal remedial focus of the Act. *Cf.* 131 Cong. Rec. 35,646 (1985) (statement of Rep. Kindness) (opposing creation of federal cause of action under CERCLA for tort damages related to hazardous substances because such a cause of action 'ha[d] to do with adjustment of private rights and liabilities and remedies' and was thus 'at odds' with purpose of CERCLA 'to clean up hazardous waste sites in order to protect the public interest'); 131 Cong. Rec. 35,639 (statement of Rep. Glickman) (explaining that CERCLA's 'real purpose . . . is the cleanup of hazardous waste sites' and that a new federal tort remedy would improperly turn CERCLA 'into a private compensation program'); 131 Cong[.] Rec. 35,640 (statement of Rep. Fish) ('The purpose of the Superfund law is to provide a Federal response to the urgent need to clean up existing hazardous waste sites. . . . This House has consistently rejected expanding the Superfund statute to deal with legal rights aimed at compensation for damages.'")) (alteration in original).

153 Scalia & Garner, *supra* note 6, at 364.

what constitutes a "liberal construction."[154] The Fourth Circuit, however, referenced this canon many times in its *Waldburger* opinion, speaking of CERCLA's "broad interpretation" and "liberal construction" as a remedial statute.[155] CERCLA was said to be the "most remedial of all federal environmental statutes," designed to clean up "expeditiously abandoned hazardous waste sites and respond to hazardous spills and releases of toxic wastes into the environment."[156] As Adam Bain explained in a 2014 law review article:

> The [Fourth Circuit] specifically identified two remedial purposes of CERCLA: "to (1) 'establish a comprehensive response and financing mechanism to abate and control the vast problems associated with abandoned and inactive hazardous waste disposal sites' and (2) 'shift the costs of cleanup to the parties responsible for the contamination.'" Nowhere in its decision does the court tie preemption of state statutes of repose to either of these purposes; instead, the court articulated a broad congressional purpose for [s]ection 9658, namely, "removing barriers to relief from toxic wreckage," and justified its interpretation on that basis. The court also failed to consider explicitly whether [s]ection 9658 reflected a "legislatively crafted compromise;" in such circumstances, it would be inappropriate to use the remedial purpose canon to justify a broad construction of [s]ection 9658 to preempt state statutes of repose.[157]

Waldburger relied heavily on a Second Circuit opinion interpreting 42 U.S.C. § 9658 as well as the Government's brief as an intervenor in the Second Circuit case, in which the Government supported the application of § 9658.[158] Strangely, Waldburger supported the broad application of 42 U.S.C. § 9658 on the grounds that the Superfund Section 301(e) Study was directed broadly to evaluate "legal redress for harm to man and the environment."[159] Waldburger seemed unaware that Superfund section 301(e) was directed to the study of remedies "for personal injury, or property damages" *because* Congress had self-consciously *deleted* the federal remedy for property injury and property damages from the 1980 legislation, which eventually became CERCLA.[160] The Section 301(e) Study was partly commissioned to study legal remedies because, during the 1980 lame duck compromise on CERCLA, Congress had deliberately deleted the remedy for personal injury or property damage from the Senate bill.[161] Waldburger also seemed unaware of the irony in the position favoring a broad preemptive effect of 42 U.S.C. § 9658 on the grounds that CERCLA is a "comprehensive federal program."[162] As noted above, the Study Group, at the request of Senators Randolph and Stafford, carefully evaluated the implications of Supreme Court decisions in the early 1980s, which had concluded

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154 *Id.* at 364–65.

155 723 F.3d at 443–44.

156 *Id.* at 443 (quoting Blake A. Watson, *Liberal Construction of CERCLA Under the Remedial Purpose Canon: Have the Lower Courts Taken a Good Thing Too Far?*, 20 HARV. ENVTL. L. REV. 199, 286 (1996)).

157 Adam Bain, *Determining the Preemptive Effect of Federal Law on State Statutes of Repose*, 43 U. BALT. L. REV. 119, 178–79 (2014) (citations omitted).

158 Brief for Respondents, *supra* note 76, at 42–43.

159 *Id.* at 41.

160 *See supra* note 19–20 and accompanying text.

161 *See supra* notes 25–22 and accompanying text.

162 Brief for Respondents, *supra* note 76, at 37.

that the comprehensive nature of federal environmental regulation under the Clean Water Act meant that no federal common law right of action continued to exist in light of that comprehensive regulation.[163] Subsequent Supreme Court decisions clarified that the comprehensive nature of federal regulation under that statute did not eliminate state common law causes of action, though it might influence choice of law rules regarding state damage actions.[164]

CERCLA's very broad savings clause, in relevant part, reads "Nothing in this chapter shall affect or modify in any way the obligations or liabilities of any person under other Federal or State law, including common law, with respect to releases of hazardous substances or other pollutants or contaminants."[165] This provision was part of the 1980 Act and has remained unchanged.[166] In 1983, Senator Stafford proposed to substitute the language "diminish" for "affect or modify" in the provision, as part of his bill intended to aid toxic tort plaintiffs.[167] However, his bill failed.[168] This contrasts with other provisions of SARA making conforming changes to the savings clause where SARA preempts state law.[169] As I argued in a 1992 law review article, the savings clause can be read to preserve "those state statutes of limitations affecting 'obligations' or 'liabilities,' but not those merely affecting remedies, which are preempted" by 42 U.S.C. § 9658.[170] This would explain why Congress made no conforming change to the savings clause when it added 42 U.S.C. § 9658 in 1986.

Of course, government lawyers may be excused if, in this context, they exemplify (or even caricature) Rufus Miles' famous maxim, "where you stand depends on where you sit."[171] In *Waldburger*, the United States explained its interest in supporting CTS as a result of the Government's posture as a defendant under the Federal Tort Claims Act (FTCA), "[t]o the extent that CERCLA is held to preempt statutes like North Carolina's, those statutes would therefore be unavailable to the United States in negligence actions under the FTCA that involve alleged exposure to hazardous substances."[172] The irony is that CERCLA's "remedial purpose" canon arose partly out of the government's desire as a CERCLA plaintiff in other cases to avoid having to address constitutional limitations on retroactive legislation. A statute is not considered retroactive unless it "attaches *new* legal consequences to events completed before its enactment."[173] A statute is not retroactive if it simply provides a new *remedy* for acts already illegal.[174] As Judge Hand pointed out in the district court opinion in *United States v. Olin*,[175] the Government argued in the 1980s that imposing liability on a CERCLA defendant's pre-

163 *See supra* notes 51–54 and accompanying text.
164 *See* Int'l Paper Co. v. Ouellette, 479 U.S. 481, 498–99 (1987).
165 42 U.S.C. § 9652(d) (1980).
166 *See id.*
167 *See supra* note 51.
168 *See supra* notes 165–167.
169 *See Retroactive Revival*, *supra* note 2, at 405 n.283.
170 *Id.* at 407.
171 Rufus Miles, *The Origin and Meaning of Miles' Law*, 38 PUB. ADMIN. REV. 399, 399–402 (1978).
172 Brief for the United States as Amicus Curiae Supporting Petitioner, *supra* note 146, at 2.
173 Landgraf v. USI Film Prods., 511 U.S. 244, 269–70 (1994).
174 *See id.*
175 927 F. Supp. 1502, 1512–16 (S.D. Ala. 1996), *rev'd*, 107 F.2d 1506 (11th Cir. 1997).

enactment conduct was not "retroactive."[176] This was because, as the DOJ representatives testified before Congress, "CERCLA did not create 'retroactive' liability in the sense of creating new liability where none previously existed."[177] If this were really so, then CERCLA cleanup liability could be construed "as providing a new federal procedural remedy against generators or transporters whose preenactment conduct made them legally responsible (liable) under then existent state law."[178] The constitutional due process constraints on retroactive legislation would not apply. Construed narrowly, courts would have "no need to reach the constitutional validity of retroactive application of CERCLA under the due process clause."[179]

Having fought so hard for its establishment of new strict liability as well as joint and several liability under the statute, however, one can forgive the government for its duplicity in failing to follow through with such a "remedial" theory regarding CERCLA cleanup liability in CERCLA litigation. Its successes in defending cleanup liability against constitutional challenges under the due process clause rendered such duplicity largely moot.[180] The Government's sensitivities in this regard, however, may help explain the absence of any discussion of the anti-retroactivity features of the Section 301(e) Report in its amicus brief in *Waldburger*. The Government's unwillingness to address the retroactivity issue generally, however, weakened its argument that CERCLA's "remedial purpose" did not support a broad preemptive effect in 42 U.S.C. § 9658. Actions for natural resources damages under CERCLA section 107 are prospective only in light of Congress's express prohibition on the imposition of liability for damages where the release of a hazardous substance or the resulting damages "have occurred wholly before [enactment of CERCLA]."[181] Several courts have relied upon the negative implication of the exemption contained in section 107(f) to conclude that Congress clearly intended CERCLA to be applied retroactively for cleanup claims.[182] That Congress refused to provide for retroactive damages actions clearly supports the Government's argument in *Waldburger* that CERCLA's "remedial purpose" does not imply broad expansion of state tort law damages liability. The Government could have made that argument in *Waldburger*, but did not.

Less defensible is the Government's contrasting interpretation of SARA's amendment to CERCLA, which added a *cost recovery* statute of limitations. As a plaintiff in CERCLA actions, the United States has invoked the broad remedial purpose canon in

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176 *See* United States v. S.C. Recycling & Disposal, Inc., 653 F. Supp. 984, 996 (D.S.C. 1984), *aff'd in part and vacated in part*, United States v. Monsanto Co., 858 F.2d 160 (4th Cir. 1988).

177 *Superfund Reauthorization (Part 3): Hearings Before the Subcomm. on Commerce, Trade, & Hazardous Materials of the Comm. on Commerce, U.S. H. of Reps.*, 104th Cong. 187, 190 (1995) (statement of Lois J. Schiffer, Assistant Att'y Gen.), *available at* https://ia600306.us.archive.org/17/items/superfundreautho03unit/superfundreautho03unit_bw.pdf.

178 George C. Freeman, Jr., *A Public Policy Essay: Superfund Retroactivity Revisited*, 50 BUS. LAW. 663, 665 (1995).

179 *Olin*, 927 F. Supp. at 1520.

180 *E.g.*, U.S. v. Olin, 107 F.3d 1506, 1514–15 (11th Cir. 1997); United States v. Ne. Pharm. & Chem. Co., 810 F.2d 726, 732–37 (8th Cir. 1986).

181 42 U.S.C. § 9607(f)(1) (2002).

182 *E.g.*, Allied-Signal, Inc. v. Amcast Int'l Corp., 177 F. Supp. 2d 713, 729–30 (S.D. Ohio 2001).

favor of prospective-only application of CERCLA's cost recovery statute of limitations.[183] The new cost recovery statute of limitations did not apply, in the Government's view, to cost recovery claims made prior to its 1986 enactment in SARA.[184] In that context, the invocation "amounts to little more than claiming that the Government needs the money so the statute should be interpreted to accomplish that end."[185] As I noted in a law review article in 2008, "Starting in the late 1990's . . . circuit courts began to put an end to this 'policy' approach [in adopting a plaintiff-oriented construction of the cost recovery statute of limitations,] which amounted to the notion that the Government should not have its claims barred simply because it is the Government."[186] Like the adoption of a cost recovery statute of limitations, "Section 9658 reflected a 'legislatively crafted compromise' [in 1986 in which] it would be inappropriate to use the remedial purpose canon to justify a broad construction of [s]ection 9658 to preempt state statutes of repose."[187] In neither situation does CERCLA's broad remedial purpose imply that plaintiffs should always win.

In the end, the Supreme Court in *Waldburger* similarly dispatched the plaintiffs' "remedial purpose" argument in the preemption context. Justice Kennedy noted:

> [T]he level of generality at which the statute's purpose is framed affects the judgment whether a specific reading will further or hinder that purpose. CERCLA, it must be remembered, does not provide a complete remedial framework. The statute does not provide a general cause of action for all harm caused by toxic contaminants.[188]

Quoting *Wyeth*, Justice Kennedy, stated:

> The case for federal pre-emption is particularly weak where Congress has indicated its awareness of the operation of state law in a field of federal interest, and has nonetheless decided to stand by both concepts and to tolerate whatever tension there [is] between them. . . . Respondents have not shown that in light of Congress' decision to leave those many areas of state law untouched, statutes of repose pose an unacceptable obstacle to the attainment of CERCLA's purposes.[189]

VII. Constitutional Doubt and Retroactivity

The possibility that 42 U.S.C. § 9658 could retroactively revise a barred claim — by extending a statute of limitations where the defendant's culpable act pre-dated SARA — raises additional difficulties.[190] As a member of the Section 301(e) Group, George Freeman testified in 1983:

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183 *See Waiting for Godot?*, *supra* note 2, at 281–83.
184 *Id.*
185 *Id.* at 281.
186 *Id.* at 283.
187 Bain, *supra* note 157, at 178–79 (citations omitted).
188 CTS Corp. v. Waldburger, 134 S. Ct. 2175, 2188 (2014).
189 *Id.* at 2188 (quoting Wyeth v. Levine, 555 U.S. 555, 574–75 (2009)).
190 *See generally Retroactive Revival*, *supra* note 2, at 365–410.

> Retroactive application of a more stringent liability standard can render an objectionable legal standard unconscionable. In addition, retroactive application of a vicarious, strict liability raises serious constitutional due process questions analogous to the explicit prohibition of *ex post facto* laws in the criminal area. Indeed, the concepts of fairness and substantial justice which underlie these constitutional concepts also serve as the philosophical underpinning for the general rule of construction that a statute is to be given only prospective application.[191]

The purpose of a statute of repose is to "demarcate the bounds of *substantive* tort liability under state law."[192] However, there is no evidence that Congress intended to preempt state law to override state constitutional prohibitions on retroactive legislation.[193] Section 9658, styled "State Procedural Reform," may be read to preempt only statutes of limitations that are procedural, that is, statutes of limitations in which the state seeks only to extinguish a remedy, not the right.[194] Statutes of repose, which states intend to be *substantive* limitations on liability under state law, should not be construed as preempted.[195] While statutes of limitations merely render claims unenforceable, conditions precedent establish the "time period in which suit must be brought in order for the cause of action to be recognized."[196]

Many state constitutions categorically and expressly forbid retroactive legislation.[197] The United States Supreme Court has stated that a presumption against retroactive application comes into play where retroactive application "would infringe upon or deprive a person of a right that had matured or become unconditional."[198] The "venerable rule of statutory interpretation [is] that statutes affecting substantive rights and liabilities are presumed to have only prospective effect."[199] The passing of a limitations or repose period can create a vested right in the defendant that cannot be removed by subsequent legislative action expanding the limitations or repose period.[200] Thus, legislative attempts to revive barred claims often are invalid under state constitutional provisions

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191 *Public Works Hearing*, *supra* note 39, at 843–45.

192 Brief for the Petitioner, *supra* note 130, at 19.

193 *Retroactive Revival*, *supra* note 2, at 405–10.

194 *See* Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, §203, 100 Stat. 1613, 1695 (codified as amended at 42 U.S.C. § 9658 (1986)).

195 *Cf.* Brief for the United States as Amicus Curiae Supporting Petitioner, *supra* note 146, at 27 (contrasting North Carolina's characterization of statutes of limitation as procedural with statutes of repose, which act as a substantive condition precedent).

196 Boudreau v. Baughman, 368 S.E.2d 849, 857 (N.C. 1988).

197 *E.g.*, COLO. CONST. art. II, §11; MONT. CONST. art. XIII, §1, cl.3; OHIO CONST. art. II, § 28; N.H. CONST., pt. 1, art. 23 ("Retrospective laws are highly injurious, oppressive, and unjust. No such laws, therefore, should be made, either for the decision of civil causes, or the punishment of offenses.").

198 Bennett v. New Jersey, 470 U.S. 632, 639 (1985) (quoting Bradley v. School Bd., 416 U.S. 696, 720 (1974)).

199 *Id.* at 639.

200 *See e.g.*, Gomon v. Northland Family Physicians, Ltd., 645 N.W.2d 413, 419 (Minn. 2002) ("[W]e do recognize that constitutional or other constraints may limit the legislature's power to enact retroactive legislation in certain circumstances."); Quarry v. Doe I, 272 P.3d 977, 992 (C.A. 2012) (stating that unless there is exception to the general rule against retroactive enlargement of limitations period, lapsed claims cannot be revived).

prohibiting retroactive legislation. In the absence of these provisions, state supreme courts often have found the revival of barred claims to violate state constitutional due process.[201]

What about the U.S. Constitution? In *Campbell v. Holt*, the United States Supreme Court held that state legislative revival of a previously barred claim does not always violate the Due Process Clause of the Fourteenth Amendment.[202] In *Chase Securities Corp. v. Donaldson*, the Court followed *Campbell* in affirming the Minnesota Supreme Court's decision permitting its state legislature to review a barred claim.[203] In *Chase,* the Court distinguished two earlier decisions, *William Danzer & Co. v. Gulf & S.I.R. Co.*[204] and *Davis v. Mills*,[205] on the grounds that the state court in *Chase* had "construed the relationship between its limitation acts and the state law creating the asserted liability" in such a way as to make those cases inapplicable.[206] In *Danzer*, the statute establishing a liability provided "a period to its existence."[207] A retroactive extension thus amounts "to a taking of property without due process of law."[208] In *Davis*, the limitations period was prescribed by a separate statute than the statute creating the liability; but the Court reached the same result as in *Danzer* because the statute stating the limitations period was specifically directed to a newly-created liability so "as to warrant saying that it qualified the right."[209] In contrast, the state court in *Chase* concluded that the challenged statute did not confer a new right or a new liability and that the "appellant had acquired no vested right to immunity from a remedy for its wrong."[210] Refusing to disturb those state court interpretations of the state statute at issue, the Court permitted revival.[211] The Court reaffirmed this analytical approach in regard to the Fourteenth Amendment and congressional legislation in 1976.[212] As I concluded in my 1992 law review article, "the federal Constitution poses no due process bar to revival where statutes of limitations are held to apply to the remedy only."[213] Thus, both the Constitutional Doubt canon and the Presumption Against Retroactivity canon counseled a narrow interpretation of 42 U.S.C. § 9658 not to apply to statutes of repose, which are substantive. The provision also should not apply to some bars, which are called "statutes of limitations."

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201 *See, e.g.*, Wiley v. Roof, 641 So.2d 66, 69 (Fla. 1994).
202 115 U.S. 620, 628 (1885).
203 325 U.S. 304, 311–12 (1945).
204 268 U.S. 633 (1925).
205 194 U.S. 451 (1904).
206 325 U.S. at 312 n.8.
207 *Id.*
208 *Id*
209 *Id.* (quoting *Davis*, 194 U.S. at 454).
210 *Id.*
211 *See Retroactive Revival*, *supra* note 2, at 395.
212 Int'l Union of Elec., Radio & Mach. Workers, AFL-CIO, Local 790 v. Robbins & Myers, Inc., 429 U.S. 229, 243–44 (1976).
213 *See Retroactive Revival*, *supra* note 2, at 395.

VIII. A REMAINING CONSTITUTIONAL DOUBT

The *Waldburge*r Court found that CERCLA did not preempt statutes of repose based on the statute's text alone.[214] This ruling did not resort to the Constitutional Doubt canon argued in the briefs, much less the Presumption Against Retroactivity not mentioned in the briefs.[215] At oral argument, Justice Kagan actually hit on this distinction, saying, "[T]o understand this distinction and then to say, oh, yes, look, the statute of repose is really an interference with substantive liability in a way that the statute of limitations is not and that might raise constitutional avoidance issues . . . that's pretty sophisticated stuff."[216] Despite such clues in the oral argument that it might do so, the Court did not resort to the distinction between statutes of limitations that are procedural (affecting a remedy) and those that are substantive (affecting a liability).[217] The statute's failure to clearly address statutes of repose in light of the Section 301(e) Report's treatment of that type of limitation as a separate category was sufficient to determine lack of coverage.

Though the Court recognized the history of section 301(e), in which Congress had failed to provide for a federal cause of action, and the fact that the Study Group had not recommended federal preemption, the Court had no occasion to assess the form of preemption in 42 U.S.C. § 9658. To reach the constitutional questions, the Court must have a case in which it determines that federal preemption does pertain: where the statute clearly seeks to institute the "state procedural reform" of state tort law to which the provision is directed.[218]

In my 1992 analysis, five years after the enactment of 42 U.S.C. § 9658, I noted that no court, save one, had applied the statute to the case before it.[219] Many cases found the statute inapplicable based on narrow constructions of the statute.[220] Others found consideration of the statute unnecessary because of the courts' determination that state law would reach the same result.[221] Professor Craig's 2012 analysis of subsequent cases shows that advocates for narrow construction of 42 U.S.C. § 9658 sometimes failed to raise the constitutional questions on appeal after *Printz*.[222] For example, the Alabama Supreme Court, when determining that the section did not apply in the workplace exposure case before it, stated in dicta that "the rebirth of federalism in *United States v. Lopez* may call into question the constitutionality of [section] 9658."[223] In *Waldburger*, though CTS clearly presented a constitutional challenge to 42 U.S.C. § 9658 in its briefs, Waldburger

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214 *See supra* notes 85–110 and accompanying text.
215 *See supra* notes 85–110 and accompanying text.
216 Transcript of Oral Argument, *supra* note 87, at 15.
217 *Retroactive Revival, supra* note 2, at 406–07.
218 *See supra* note 194 and accompanying text.
219 *Retroactive Revival, supra* note 2, at 366.
220 *Id.* at 373–75.
221 *Id.* at 366.
222 Craig, *supra* note 120, at 635 (citing a Second Circuit opinion finding the issue was not raised and therefore waived on appeal, but noting "that the section appears to purport to change state law, and is therefore of questionable constitutionality.").
223 Becton v. Rhone-Poulenc, Inc., 706 So.2d 1134, 1142 (Ala. 1997) (citation omitted).

sought "to evade the avoidance [of unconstitutionality] canon by alleging forfeiture."[224] In fact, although CTS's petition for writ of certiorari evoked the "clear statement" rule of interpretation of *Gregory v. Ashcroft*,[225] it did not make clear reference to *New York v. United States*[226] or *Printz*.[227] The constitutional challenge must await a case in which 42 U.S.C. § 9658 more clearly applies, i.e. a purported preemption of a state statute of limitations (rather than a statute of repose), which state courts consider procedural rather than substantive.

There are several unusual aspects of this type of federal preemption of state procedural law of note. In *Jinks v. Richland County, South Carolina*, the Supreme Court suggested *arguendo* that federalism considerations might constrain Congressional attempts to control state judicial procedures, acknowledging that there might be a "category of 'procedure' immune from congressional regulation."[228] In other words, the Supreme Court suggested that Congress may only preempt state substantive law — where it has a constitutional basis to do so, e.g. under the Commerce Power — and might not be able to dictate state judicial procedure because of principles of federalism. CTS quoted Professor Tribe's testimony before a congressional committee, "[f]or Congress directly to regulate the procedures used by state courts in adjudicating state-law tort claims . . . would raise serious questions under the Tenth Amendment and principles of federalism."[229] The *Jinks* Court quoted a law review article indicating that "'potential constitutional questions' arise when Congress 'attempts to prescribe directly the state court procedures to be followed in products liability cases.'"[230] Upholding the constitutional power of Congress under Article III to extend a state statute of limitations for the time period a case had been pending in federal court before dismissal, the Court did not hold "that Congress has unlimited power to regulate practice and procedure in state courts."[231] The suggestion in *Jinks* instead is that principles of federalism may make state procedure *less* subject to federal preemption than substantive state law.[232] Professor Bellia, whose article the Supreme Court cites in *Jinks*, argues, "Congress has no authority to regulate state court procedures in state law cases because 'procedural law' derives exclusively from state authority."[233] He also follows the lead of Professor Parmet to attack congressional preemption of state procedures on normative grounds in the context of a state right of action as "stealth preemption."[234]

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224 Reply Brief, *supra* note 130, at 17. *See also* Brief for Respondents, *supra* note 76, at 39 ("This argument, which was neither raised nor decided below, has been waived.").

225 501 U.S. 452 (1991).

226 505 U.S. 144 (1992).

227 Printz v. United States, 521 U.S. 898 (1997). *See also* Petition for Writ of Certiorari at 19–20, CTS Corp. v. Waldburger, 134 S. Ct. 2175 (2014) (No. 13-339).

228 538 U.S. 456, 464–65 (2004).

229 Brief for the Petitioner, *supra* note 130, at 40.

230 *Jinks*, at 465 (quoting Congressional Authority to Require State Courts to Use Certain Procedures in Product Liability Cases, 13 OP. OFF. LEGAL COUNSEL 372, 373–74 (1989)).

231 *Jinks*, 538 U.S. at 465.

232 *See generally* Anthony J. Bellia Jr., *Federal Regulation of State Court Procedures*, 110 YALE L.J. 947, 947–1001 (2001).

233 *Id.* at 972.

234 *Id.* at 997.

Even with respect to the preemption of state procedures, 42 U.S.C. § 9658 offends principles of federalism and should be held unconstitutional. However, there is an important distinction to be made here. On one side, federal courts may properly "use of state law and policy to 'fill in the details' of a federal statute as a matter of federal common law when applying" a federal statute in discrete contexts.[235] On the other side, there are "congressional commands to state courts and state legislatures to create principles of state law to complete a federal statute that Congress was unable or unwilling to complete itself."[236] "Congress may command a federal agency or the federal courts to develop federal regulations to flesh out federal statutory policies," but commanding "the states (and in particular to state courts) to do so offends the 'double security' intended by federalism and separation of powers doctrines."[237] It is the grafting of federal policy,

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235 *"Opt-out" Preemption*, *supra* note 2, at 63. *E.g.*, United States v. Bestfoods, 524 U.S. 51, 63 n.9 (1998) (discussing controversy over whether to borrow state law or craft uniform federal common law on corporate veil concepts under CERCLA); United States v. Parcel of Land, Bldgs., Appurtenances & Improvements, Known as 92 Buena Vista Ave., Rumson, N.J., 507 U.S. 111, 141–43 (1993) (determining that it was premature to say whether state law or federal common law governs issues in the case); United States v. Kimbell Foods, Inc., 440 U.S. 715, 718 (1979) (choosing state law as a matter of federal common law on establishing the priority of a federal lien with respect to private liens).

236 *"Opt-out" Preemption*, *supra* note 2, at 63. Whether the Supreme Court shares my view about this distinction is unclear. In *Jinks*, the Court endorsed a provision of federal law extending state statutes of limitations in state court to reflect the period of time the claim had been pending in federal court prior to the federal court's dismissal of the claim for lack of jurisdiction. 538 U.S. at 464–65. *See* 28 U.S.C. §1367(d). Strangely, Scalia suggests arguendo that preemption is valid because that provision preempts substantive law rather than providing federal procedures for state courts to use. *Jinks*, 538 U.S. at 465. The Respondents in CTS relied on this distinction to argue, "even where state-law limitations periods are treated as substantive law, they are subject to preemption by federal law." Brief for Respondent, *supra* note 76, at 22. *Jinks* may imply that "the Court would have no federalism objection to a congressional dictation of the content of some (but not all) product liability law while declining to burden the federal courts with adjudications under the Act." *Reverse*-Erie, *supra* note 2, at 604. *Jinks*, however, turns the law on its head in an "upside down" federalism in which Congress can preempt substantive but not procedural state law. *Cf.* Felder v. Casey, 487 U.S. 131, 161 (1988) (O'Connor, J., dissenting). This "reverse-Erie" theory seems problematic. *Reverse*-Erie, *supra* note 2, at 604. As noted in the text, I think the type of partial preemption attempted in Section 9658 offends the federalism policies behind the etiquette of federalism line of cases, regardless of whether that preemption is characterized as "procedural" or "substantive." *Id.*

237 *See "Opt-Out" Preemption*, *supra* note 2, at 63–64. In *Waldburger*, however, the matter is not presented squarely since it was a diversity case being decided in the first instance by a federal court. Had the plaintiff chosen to sue in state court, the defendant probably would have been able to remove because the state's statute of repose appears to have been part of the plaintiff's claim rather than an affirmative defense. *Cf.* Louisville & N.R. Co. v. Mottley, 211 U.S. 149, 150–54 (1908) (holding that there was no removal where federal question jurisdiction was only part of an affirmative defense). The best procedural context in which to present the constitutional question would be one where there is no federal jurisdiction to resolve the question of Section 9658's effect because of the unavailability of either diversity or federal question jurisdiction. It would be in that procedural context that

whether that is viewed as procedural or substantive, into state law that is offensive.[238] If Congress wishes to preempt state law, it must create the federal cause of action that supplants state law.[239] If it does not or cannot do so, it should leave the details of state tort law, such as the measure of damages, the rights of contribution, and the relevant statute of limitations, to the sovereign responsible for administering the right of action.[240]

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Congress's preemption would be most likely to confuse the lines of political accountability — requiring state courts to adjudicate claims that the federal courts lacked jurisdiction to resolve in the first instance.

238 A congressional statute making a "small surgical change" in a state's tort law, e.g. a stealthy preemption establishing a "federally-required commencement date," leaves considerable room for state legislative mischief. For example, a state might, as Justice Sotomayor suggested in the *Waldburger* oral argument, simply eliminate environmental claims altogether. Transcript of Oral Argument, *supra* note 87, at 40–41. Or under the terms of Section 9658, a state legislature might adopt an extremely short limitations period (say three months), as Justice Scalia suggested. *Id.* at 49. *See* 42 U.S.C. §9658(a)(2). Or perhaps the legislature could achieve the same ends through evidentiary rules (no evidence admissible where a transaction occurred more than ten years prior to suit) or remedies (only nominal damages for claims arising out of actions more than ten years prior to suit) or subject matter jurisdiction (no claim unless EPA has completed removal or remedial action at the site — *cf.* 42 U.S.C. §9613(h)(4)) or personal jurisdiction (no cause of action over persons not transacting business or causing tortious injury in the state within ten years of suit) or substantive tort law (no nuisance actions arising out of acts prior to 1986) or even state constitutional law (no revival of claims barred under state constitutional due process clause). In short, it is much easier for Congress to bar state law claims than to mandate that claims "arising under State law" be heard. In this sense, while federal negation of state substantive law is the inevitable implication of the Supremacy Clause, "because CERCLA does not create a private federal cause of action for the kinds of claims subject to § 9658, [the] Court's interpretation of § 9658 cannot implicate Congress's separate authority to legislate federal-law claims, or proper procedures for the resolution of those claims." Brief for the Petitioner, *supra* note 130, at 40 (citing New York v. United States, 505 U.S. 144, 178 (1992); Testa v. Katt, 330 U.S. 386 (1947)).

239 *See supra* notes 19–20 and accompanying text.

240 Professor Bellia neatly lays out this argument in the article to which *Jinks* cites, "As a matter of prudence, there are good reasons why each jurisdiction should control the procedures by which the rights of action arising under its laws are enforced. Codes of civil procedure hang together as a whole. Nullifying one rule of procedure has consequences, unintended and unpredictable, on the operation of other rules. Moreover, codes of civil procedure are designed to facilitate enforcement of a particular body of substantive law. Rights of action are created against a background of procedural rules. Indeed, certain procedural rules can be so intertwined with a right of action that they form part of the substance of the right itself. If Congress nullifies a procedural rule that happens in one state to be part of the substance of a right of action, a new right of action results that no governing authority intended. When one jurisdiction dictates procedural rules for another (or for fifty others), inadvertent laws may result that . . . are inconsistent with the normative values of federalism." Bellia, *supra* note 232, at 993.

Fracking Dry: Issues in Obtaining Water for Hydraulic Fracturing Operations in Texas

By Trey Nesloney

I. Introduction

The use of water for hydraulic fracturing ("fracking") is a controversial topic in Texas. The recent drought has greatly strained Texas's water supplies, and some communities have negative views regarding allocation of the water to ventures related to oil and gas production.[1] Legal issues can arise not only in identifying an accessible source of

1 *See* Suzanne Goldenberg, *A Texan Tragedy: Ample Oil, No Water*, The Guardian, Aug. 11, 2013, http://www.theguardian.com/environment/2013/aug/11/texas-tragedy-ample-oil-no-water, *archived at* http://perma.cc/L3UL-96BR.

supply, but also in producing the water and making it available for hydraulic fracturing operations.

Aside from intensive water use, the fracking process itself has drawn criticisms in a number of areas. People have raised concerns about a number of impacts, including air pollution, increased incidence of earthquakes, and water quality issues (namely, toxic wastewater and water contamination) associated with the process. Whether these are legitimate concerns is not the subject of this discussion. Rather, this article focuses exclusively on the issues associated with supplying water for fracking operations, from identifying an acceptable and available water source for the operations to obtaining the required authorizations to produce and transport the water from that source to the fracking site. Part II is an overview of the hydraulic fracturing process, the use of water in that process, and the amount of water used for this purpose throughout Texas. Part III briefly discusses the major shale plays in the state and the sources of water currently used within each play. Part IV examines issues associated with groundwater use in Texas, from the ownership of groundwater to groundwater conservation district regulation, permitting, and the controversial oil and gas exemption. Part V examines the use of brackish water in fracking operations. Part VI focuses on the ownership, regulation, and use of surface water. Part VII touches on the increasing use of reuse of water and its potential to address water supply concerns in the future. Part VIII discusses some specific issues associated with transporting or storing water and the legal or regulatory hurdles that can arise within those situations.

II. OVERVIEW OF WATER USE FOR HYDRAULIC FRACTURING IN TEXAS

Hydraulic fracturing is the process of stimulating a well by injecting highly pressurized hydraulic fracturing fluids into a target geologic formation to extract oil or natural gas at higher rates than traditional oil and gas operations.[2] The pressurized fluids create fissures or fractures in the rock that allow oil or natural gas to escape from rock pores and flow out of a well.[3] Most of the fluids used in this process consist of water and sand, but flow of the water through the formation is improved by adding a mixture of chemicals.[4] Water accounts for about 90% of the fracturing fluid mixture, sand accounts for about 9.5%, and other chemicals account for the remaining 0.5% of the mixture.[5]

A. WATER USE IN THE PROCESS

The amount of water needed to hydraulically fracture from a single well varies significantly depending on a number of factors, but of primary consideration are the specific

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2 *Hydraulic Fracturing*, R.R. COMM'N OF TEX., http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-hydraulic-fracturing/ (last visited Feb. 8, 2015), *archived at* http://perma.cc/846F-567H.

3 *What Is Fracking?*, ENERGYFROMSHALE, http://www.energyfromshale.org/articles/what-fracking (last visited Feb. 8, 2015), *archived at* http://perma.cc/VX6P-73XA.

4 *How Hydraulic Fracturing Works*, ENERGYFROMSHALE, http://www.energyfromshale.org/articles/how-hydraulic-fracturing-works (last visited Feb. 8, 2015), *archived at* http://perma.cc/5BHY-Q3WG.

5 *Id.*

characteristics of the geologic formation being fractured and whether the operation will use a vertical or horizontal well.[6] In the Barnett Shale in the northern part of Texas,[7] hydraulic fracturing operations that use a vertical well can use 1.2 million gallons of water, while using a horizontal well can require up to 3.5 million gallons of water.[8] In the Eagle Ford Shale in the southern part of Texas,[9] the average reported use of water for hydraulic fracturing is approximately 11 acre-feet (3.6 million gallons) of water per well.[10] For comparison, this volume of water used per well is equivalent to five and a half Olympic-size swimming pools.[11]

B. Statewide Usage

To enable informed statewide water planning, the Texas Water Development Board (TWDB) recently funded a study by the Bureau of Economic Geology at The University of Texas at Austin (the "Nicot 2012 Study") that estimated that water use for hydraulic fracturing operations in Texas in 2011 totaled 81,500 acre-feet.[12] Furthermore, the study predicted that water use for hydraulic fracturing in Texas will "plateau" at 125,000 acre-feet per year around 2020-2030 and then slowly taper down to below 50,000 acre-feet around 2060 and beyond.[13]

To a layperson, these statistics make it seem as if a substantial amount of water is produced and used for fracking operations. However, a comparatively small fraction of water is used for hydraulic fracturing purposes relative to other beneficial uses of water. In fact, the use data and demand projections from the TWDB in the 2012 State Water Plan indicate that "municipal," "manufacturing," and "irrigation" uses accounted for 26.9%, 9.6%, and 60.0%, respectively, of water use in Texas in 2010.[14] By contrast, "mining" (of which hydraulic fracturing is only a subset) accounted for only 1.6% of all Texas water use in 2010.[15] The Nicot 2012 Study determined that hydraulic fracturing water use actually represented even less – only 0.5% of the water use in Texas in 2010.[16] The percentage of fracking water use should become even smaller in the future as tech-

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6 *Hydraulic Fracturing*, *supra* note 2.

7 *See infra* Part III.B.

8 *Hydraulic Fracturing*, *supra* note 2.

9 *See infra* Part III.A.

10 *Hydraulic Fracturing*, *supra* note 2.

11 *Water Requirements of Shale Production*, NaturalGas.org (Sept. 25, 2013), http://natural-gas.org/shale/waterrequirements, *archived at* http://perma.cc/W3MM-DZBK.

12 Jean-Phillippe Nicot, Robert C. Reedy, Ruth A. Costley, & Yun Huang, Bureau of Econ. Geology, Jackson Sch. of Geosciences, The Univ. of Tex. at Austin, Oil & Gas Water Use in Texas: Update to the 2011 Mining Water Use Report 54 (2012) [hereinafter *Nicot 2012 Study*], *available at* http://www.twdb.texas.gov/publications/reports/contracted_reports/doc/0904830939_2012Update_MiningWaterUse.pdf, *archived at* http://perma.cc/CHM8-8AC2.

13 *Id.* at 65, 81 fig. 48.

14 Tex. Water Dev. Bd., Water for Texas 2012 State Water Development Plan 137 tbl.3.3 (2012) [hereinafter State Water Plan 2012], *available at* http://www.twdb.state.tx.us/publications/state_water_plan/2012/2012_SWP.pdf, *archived at* http://perma.cc/NZG3-R87P.

15 *Id.*

16 *Nicot 2012 Study*, *supra* note 12, at ii.

nological advances yield fracking additives that may tolerate more saline water, which in turn improves reuse techniques and enables the use of more brackish water.[17] Water demand for livestock, manufacturing, municipal and steam-electric uses are projected to increase every decade for the next fifty years, while demand for mining purposes is expected to decline overall by 2060 when compared to 2010 water usage.[18] A professor at The University of Texas has noted that Texans use roughly eighteen times more water when watering their lawns than is used in hydraulic fracturing operations.[19] When put in this context, fracking water use may not be the water supply problem it appears, at least from a statewide perspective.

C. Localized Effects

Despite these statewide numbers, the localized effects of hydraulic fracturing water use cannot be ignored. A 2014 report stated that, in Texas, "more than half of the wells examined (52[%]) were in high or extremely high water stress regions."[20] "Extremely high water stress," as defined by the report, means that "over 80[%] of available surface and groundwater is already allocated for municipal, industrial[,] and agricultural uses," while high stress means 40% to 80% of available water is likewise already allocated.[21] Demand for fracking water in areas that are already experiencing water stress has led to drastic depletions in available water supply. In Dimmit, Zavala, and La Salle counties, located within the Eagle Ford Shale play, aquifer levels have declined an estimated 100-300 feet over the past several decades.[22] Increasing shale energy development in these areas only adds to the depletion challenges.

These problems are compounded by the recent drought that the state is experiencing. The 2011 drought ranks among the most intense one-year droughts on record.[23] In fact, in September of 2011, "99% of the state was experiencing severe, extreme, or exceptional drought conditions."[24] By the end of 2014, 44.68% of the state was still experiencing moderate, severe, extreme, or exceptional drought conditions.[25] Even if Texas's climate returns to pre-drought conditions, the state's population is increasing at a rapid

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17 *Id.* at 65.

18 STATE WATER PLAN 2012, *supra* note 14, at 137 tbl. 3.3.

19 Rusty Todd, *Why the Grass Should Not Always Be Greener*, WALL ST. J., June 28, 2013, http://www.wsj.com/news/articles/SB10001424127887324637504578568533026520790?mg=reno64-wsj&url=http%203A%202F%202Fonline.wsj.com%202Farticle%202FSB10001424127887324637504578568533026520790.html, *archived at* http://perma.cc/CT8V-8JMM.

20 MONIKA FREYMAN, HYDRAULIC FRACTURING & WATER STRESS: WATER DEMAND BY THE NUMBERS–SHAREHOLDER, LENDER & OPERATOR GUIDE TO WATER SOURCING at 6 (Feb. 2014) [hereinafter *Ceres 2014 Report*], *available at* http://www.ceres.org/resources/reports/hydraulic-fracturing-water-stress-water-demand-by-the-numbers, *archived at* http://perma.cc/B3YA-EJD3.

21 *Id.* at 6, 6 fig. ES1.

22 *Id.* at 9.

23 STATE WATER PLAN 2012, *supra* note 14, at 151.

24 *Id.* at 9.

25 U.S DROUGHT MONITOR, TABULAR DATA ARCHIVE (Feb. 8, 2015), *available at* http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?TX, *archived at* http://perma.cc/TC43-BA28.

rate that is estimated to strain available water supplies.[26] Texas was the fastest-growing state between 2000 and 2010 with its total population increasing from 20.8 million residents to 25.1 million.[27] The TWDB projects that the state will grow approximately 82%, from 25.1 million residents in 2010 to 46.3 million residents by the year 2060.[28] These factors ensure that the state's available water supplies will be squeezed in many of the shale development areas, regardless of allocation for specific use, both now and in the future.

III. Texas's Oil and Gas Production Regions and Associated Water Sources

When examining the water supply issues associated with hydraulic fracturing operations, available sources of supply used in each oil and gas production area must first be analyzed. Operators are developing each shale play using different sources of water supply depending on availability, transport challenges, and regulatory hurdles specific to those sources. Texas has several major shale plays located in different parts of the state, all with specific water resource issues.

A. Eagle Ford Shale

The Eagle Ford Shale play is located in the southern part of Texas and extends from the Texas-Mexico border in Webb and Maverick counties northeasterly through Leon and Walker counties east of Temple and Waco and north of Houston.[29] On average, the shale formation is 50 miles wide, stretches across southwest Texas for 400 miles, and maintains an average thickness of 250 feet.[30] The more active part of the play is located in McMullen, Maverick, Dimmit, La Salle, Karnes, Live Oak, and Atascosa counties.[31] Texas Eagle Ford Shale oil production is currently estimated to be 960,118 barrels per day.[32] Consequently, the play's total water use has been estimated by one study to be as much as 19.2 billion gallons per year (58,923 acre-feet, or an average of 4.4 million gallons per well), the highest in the country.[33] Over the next ten years, the Nicot 2012

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26 State Water Plan 2012, *supra* note 14, at 129.

27 *Id.*

28 *Id.* at 129, 130 fig. 3.1.

29 *Eagle Ford Shale Geological Area*, Tex. Comm'n on Envtl. Quality, https://www.tceq.texas.gov/airquality/eagleford/eagle-ford-main (last visited Feb. 8, 2015), *archived at* http://perma.cc/D7QT-N8XP.

30 *Eagle Ford Shale Information*, R.R. Comm'n of Tex., http://www.rrc.state.tx.us/oil-gas/major-oil-gas-formations/eagle-ford-shale/ (last visited Feb. 8, 2015), *archived at* http://perma.cc/NR2G-HG94.

31 *Eagle Ford Shale*, Unconventional Oil & Gas Report, http://www.ogj.com/unconventional-resources/eagle-ford-shale.html (last visited Feb. 8, 2015), *archived at* http://perma.cc/V6VT-LKJS.

32 R.R. Comm'n of Tex., Tex. Eagle Ford Shale Oil Product. 2008 through Nov. 2014 (Jan. 2015), *available at* http://www.rrc.state.tx.us/media/7078/eaglefordproduction_oil_perday.pdf, *archived at* http://perma.cc/7H6Z-CWXA.

33 *Ceres 2014 Report*, *supra* note 20, at 9.

Study has projected that water use per year in the Eagle Ford Shale will increase slowly, ultimately peaking at 35,000 acre-feet per year.[34] But other experts estimate that water use could be much higher, peaking as high as 40,000 to 45,000 acre-feet annually.[35]

Operators in the Eagle Ford Shale primarily rely on groundwater to maintain their operations: of new water being used, about 90% comes from groundwater, with an average of 20% of that water being brackish.[36] In fact, the Eagle Ford Shale play overlies several brackish aquifers – the Gulf Coast aquifers, the Wilcox aquifers, and a section of the Carrizo aquifer.[37]

B. Barnett Shale

The Barnett Shale play is located in the northern part of the state, underlying the Dallas-Fort Worth metroplex area west and south, including all or parts of eighteen counties.[38] It covers roughly 5,000 square miles and may be the largest onshore natural gas field in the United States.[39] The total amount of water used in the Barnett Shale play averages consistently around 25,000 acre-feet per year.[40] About 80% of all the water used in the Barnett Shale play is fresh surface water.[41] However, future water use projections are estimated to steadily decrease from that figure over the next fifty years.[42] And, promisingly, some operations are also using brackish water and wastewater in their fracking operations.[43]

C. Haynesville Shale

The Haynesville Shale play is located in East Texas and extends into Louisiana.[44] The annual water use in the portion of the formation located in Texas is around 5,000 acre-feet per year.[45] Future water use projections show that hydraulic fracturing water use should peak around the year 2030 (declining steadily afterwards) but will not reach higher than 12,000 acre-feet per year.[46] It is estimated that 70% of the new water used in

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34 *Nicot 2012 Study*, *supra* note 12, at 67.

35 Forrest Wilder, *News Analysis: Fracking Water Use Underestimated in Eagle Ford Shale*, TEX. OBSERVER, Dec. 27, 2013, http://www.texasobserver.org/new-analysis-fracking-water-use-underestimated-eagle-ford-shale/, *archived at* http://perma.cc/TPE6-V3XP.

36 *Nicot 2012 Study*, *supra* note 12, at 54.

37 *Id.*

38 *Barnett Shale Geological Area*, TEX. COMM'N ON ENVTL. QUALITY, https://www.tceq.texas.gov/airquality/barnettshale (last visited Feb. 8, 2015), *archived at* http://perma.cc/F5LA-ZLJN.

39 *Id.*; *Barnett Shale Information*, R.R. COMM'N OF TEX., http://www.rrc.state.tx.us/oil-gas/major-oil-gas-formations/barnett-shale-information (last visited Feb. 8, 2015), *archived at* http://perma.cc/3CGE-6A2J.

40 *Nicot 2012 Study*, *supra* note 12, at 11.

41 *Id.* at 54.

42 *Id.* at 83 fig. 52.

43 *Id.* at 54.

44 *Haynesville/Bossier Shale Information*, R.R. COMM'N OF TEX., http://www.rrc.state.tx.us/oil-gas/major-oil-gas-formations/haynesvillebossier-shale/ (last visited Feb. 8, 2015), *archived at* http://perma.cc/4DBG-QYVV.

45 *Nicot 2012 Study*, *supra* note 12, at 12-13.

46 *Id.* at 67, 86 fig. 55.

hydraulic fracturing operations in this area is groundwater.[47] Use of brackish water or reuse of wastewater is rare in this region because water is generally plentiful in East Texas.[48]

D. Permian Basin

The Permian Basin region is an oil and gas producing area covering approximately 86,000 square miles and encompassing 52 counties in New Mexico and West Texas that also contains several different prolific shale plays, including the Cline and Wolfcamp. The total amount of water used for vertical wells in the Wolfberry[49] play in this region was 8,000 acre-feet in 2011.[50] Simultaneously, slick water[51] horizontal wells in the Wolfcamp play in Permian Basin used 1,500 acre-feet of water.[52] Nearly all of the water used for hydraulic fracturing operations in this region is groundwater, although significantly, almost 30% of the groundwater used is brackish.[53] Recycling or reuse rarely occurs, although some companies throughout the basin use produced water from other oil and gas operations having relatively low salinity.[54] Total fracking water use in the region is projected to increase to 40,000 acre-feet per year at some point between 2020 and 2040, although future freshwater consumption is expected to be maintained at 10,000 to 15,000 acre-feet annually.[55] This dichotomy is due in large part to the tremendous amount of brackish water available in and around the play that companies may readily use in their hydraulic fracturing operations.[56] The Permian Basin region is experiencing localized water stresses due to the region's climatic characteristics, water demand, and supply; in fact, more than 70 percent of the wells in the Permian Basin are located in extreme water stress areas.[57]

Generally, surface water use is heavier in the Barnett Shale play, while groundwater is used more frequently in the Eagle Ford Shale play, the East Texas Basin, and the Permian Basin.[58] This is because the surface water is almost fully appropriated in most areas of the state, and reservoir levels in many hydraulic fracturing areas are currently

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47 *Id.* at 54.
48 *Id.*
49 The Wolfberry is a compound name created by merging the Wolfcamp Shale layer with the Spraberry Formation. *See* M. Baldiali, "*Super Shale" Fields Just Discovered in Texas*, The Growth Stock Wire, Oct. 9, 2013, http://www.growthstockwire.com/3552/-super-shale-fields-just-discovered-in-texas, *archived at* http://perma.cc/VT4P-86QQ.
50 *Nicot 2012 Study*, *supra* note 12, at 13.
51 "Slick water" is a term used in hydraulic fracturing operations where friction-reducing chemicals are added to water to lower viscosity in order to increase fluid flow, allowing a higher-pressure shale fracture. *See Slick Water Solutions*, GoFrac, http://gofrac.com/services/slick-water.html (last visited March 26, 2015), *archived at* http://perma.cc/7QWQ-DABD.
52 *Id.*
53 *Id.* at 54.
54 *Id.*
55 *Id.* at 68.
56 *Id.*
57 *Ceres 2014 Report*, *supra* note 20, at 9.
58 *Nicot 2012 Study*, *supra* note 12, at 56.

below 50% capacity.[59] Although it may be more readily available in many areas, there are some legal issues with groundwater that can affect its use.

IV. USE OF GROUNDWATER

In several of the oil and gas production regions discussed above, groundwater is the predominant source of water for fracking operations. Even if groundwater is abundant in a certain area, proper use of groundwater often requires an understanding of state law, local regulations, and the prevailing interpretation of those laws and regulations. As discussed below, Texas groundwater law is still developing.

In Texas, a landowner owns the groundwater in place beneath his or her land.[60] The limitations on a landowner's ability to produce the groundwater vary greatly depending on where the property is located. As such, to produce water for hydraulic fracturing operations, operators must first determine whether the property is located within the jurisdiction of a groundwater conservation district, which governs the production and use of groundwater in the area over which it has authority.

A. WHITE AREAS AND THE RULE OF CAPTURE

If a landowner's property is not located in an area governed by a groundwater conservation district, it is in a so-called "white area" of the state, and common law is the only limitation on production from groundwater wells located on the property.[61] In 1904, the Texas Supreme Court applied the common law "rule of capture" to groundwater production.[62] The rule of capture provides that "absent malice or willful waste, landowners have the right to take all the water they can capture under their land and do with it what they please, and they will not be liable to neighbors even if in doing so they deprive the neighbors of the water's use."[63]

B. GROUNDWATER CONSERVATION DISTRICTS

If the property is located within an area governed by a groundwater conservation district, then the landowner's ability to produce his or her groundwater is subject to the applicable rules of that district.[64] A groundwater conservation district (GCD or "district") is a local regulatory agency created "to provide for the conservation, preservation,

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59 Ryan Murphy & Kate Galbraith, *Data App: Track Texas Reservoir Levels*, THE TEX. TRIBUNE, *available at* http://www.texastribune.org/library/data/texas-reservoir-levels/ (last updated Jan. 28, 2015), *archived at* http://perma.cc/4VWC-VKKT.

60 Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 832 (Tex. 2012) (holding that "groundwater rights are property rights subject to constitutional protection . . . ."); TEX. WATER CODE ANN. § 36.002 (West 2011).

61 ROBERT E. MACE ET AL., TEX. WATER DEV. BD., A STREETCAR NAMED DESIRED FUTURE CONDITIONS: THE NEW GROUNDWATER AVAILABILITY FOR TEXAS 5 (2006), *available at* http://www.ccgcd.org/Reports/A%20Street%20Car%20Named%20Desired%20Future%20Conditions.pdf, *archived at* http://perma.cc/CUH6-ZH4G.

62 Hous. & T.C. Ry. Co. v. East, 81 S.W. 279, 280-81 (Tex. 1904)

63 *Id.*; Sipriano v. Great Spring Waters of Am., Inc., 1 S.W.3d 75, 76 (Tex. 1999).

64 *See* TEX. WATER CODE ANN. § 36.002(d).

protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by withdrawal of water from those groundwater reservoirs or their subdivisions . . . ."[65] Currently, Texas has ninety-eight established GCDs, each with their own rules and regulations; a total of 177 counties are at least partially within a GCD.[66] To reconcile GCD regulation with groundwater ownership in place, the Texas Legislature has recognized that, although a landowner owns the groundwater below the surface of the landowner's land as real property,[67] GCDs "are the state's preferred method of groundwater management through rules developed, adopted, and promulgated by a district in accordance with" Chapter 36 of the Texas Water Code.[68]

In Texas, a GCD can be created by special act of the legislature, upon petition to the Texas Commission on Environmental Quality (TCEQ) by landowners, or by the TCEQ through the priority groundwater management area process.[69] Most GCDs have been created through the legislature.[70] A GCD can exercise no authority that the legislature has not clearly granted it by virtue of its enabling legislation.[71] Assuming that a district has been granted all the powers provided by the general law, Chapter 36 of the Texas Water Code affords the district broad authority to regulate the groundwater resources within its jurisdiction through planning, rulemaking, and permitting.

Although a district's rules are adopted "in accordance with" Chapter 36, a common mistake regarding GCDs is to assuming that Chapter 36 encompasses all of the details as to the powers, duties, funding, administration, and authority of each specific district.[72] The true scope of a GCD's power and structure can be determined only by examining both the general laws, found primarily in Chapter 36 of the Texas Water Code, and the

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65 *Id.* § 36.0015.

66 *Groundwater Conservation District Facts*, TEX. WATER DEV. BD., http://www.twdb.texas.gov/groundwater/conservation_districts/facts.asp (last visited Feb. 8, 2015), *archived at* http://perma.cc/HB3V-83JU.

67 *See* TEX. WATER CODE ANN. § 36.002(a) ("The legislature recognizes that a landowner owns the groundwater below the surface of the landowner's land as real property."). The Texas Supreme Court has also explicitly recognized that the landowner owns the groundwater in place. Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 823 (Tex. 2012) ("[W]e held long ago that oil and gas are owned in place, and we find no reason to treat groundwater differently.").

68 TEX. WATER CODE ANN. § 36.0015.

69 TEX. WATER CODE ANN. § 36.011; TEX. COMM'N ON ENVTL. QUALITY, SUMMARY DESCRIPTION OF GCDS (Apr. 2014), *available at* https://www.tceq.texas.gov/assets/public/permitting/watersupply/groundwater/maps/gcd_text.pdf, *archived at* http://perma.cc/FDX9-5L79.

70 *Id.*

71 S. Plains Lamesa R.R., Ltd. v. High Plains Underground Water Conservation Dist. No. 1, 52 S.W.3d 770, 779–80 (Tex. App.—Amarillo 2001, no pet.).

72 *See* TEX WATER CODE ANN. §§ 36.001-36.419.

special laws or TCEQ orders that created the GCD,[73] because the special legislation and orders authorizing the GCD can modify or eliminate the powers listed in Chapter 36.[74]

C. Desired Future Conditions and Joint Planning

GCDs are required to conduct joint planning with other districts within the same groundwater management areas.[75] A groundwater management area is "an area designated and delineated by the Texas Water Development Board under Chapter 35 as an area suitable for management of groundwater resources."[76] GCDs within the same groundwater management area are required to "consider groundwater availability models and other data or information for the management area and shall propose for adoption desired future conditions for the relevant aquifers within the management area."[77] A desired future condition (DFC) is a "quantitative description . . . of the desired condition of the groundwater resources in a management area at one or more specified future times."[78] A DFC "must provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence in the management area."[79] For example, some desired future conditions may provide that:

> (1) water levels do not decline more than 100 feet in 50 years, (2) water quality is not degraded below 1,000 milligrams per liter of total dissolved solids for 50 years, (3) spring flow is not allowed to fall below 10 cubic feet per second in times during the drought of record for perpetuity, and (4) 50 percent of water storage will be available in 50 years.[80]

Once districts adopt DFCs and submit them to the TWDB, the TWDB then provides the districts with estimates of modeled available groundwater, or the amount of water that may be produced on an average annual basis to achieve a particular DFC established by the district,[81] based on the DFCs adopted by the districts.[82] In short, a district meets with other districts within the same area, decides how they want the groundwater resources in their area to look in the future based on a number of factors,[83]

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73 *See* SUMMARY DESCRIPTION OF GCDS, *supra* note 69 (describing the different ways GCD's may be created and the powers granted to them).

74 *See, e.g.*, Act of June 17, 2005, 79th Leg., R.S., ch. 661, § 1 (creating the Victoria County Groundwater Conservation District but prohibiting it from using the power of eminent domain).

75 TEX. WATER CODE ANN. § 36.108.

76 *Id.* § 36.001(13).

77 *Id.* § 36.108(d).

78 *Id.* § 36.001(30).

79 *Id.* § 36.108(d-2).

80 ROBERT E. MACE ET AL., *supra* note 61, at 3.

81 TEX. WATER CODE ANN. § 36.001(25).

82 *Id.* § 36.1084(b).

83 "Before voting on the desired future conditions, the GCDs must consider: (1) aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another; (2) the water supply needs and water management strategies included in the state water plan; (3) hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the

and the TWDB then provides availability estimates based on the districts' decisions. From this planning standpoint, districts indirectly control the TWDB's estimates of the groundwater available for production within their jurisdiction. The DFCs that districts adopt also directly affect the water available for permitting. The Water Code states that "[a] district, to the extent possible, shall issue permits up to the point that the total volume of exempt and permitted groundwater production will achieve an applicable desired future condition . . . ."[84]

D. GCD Rulemaking

A GCD has the authority to make and enforce fair and impartial rules "to provide for conserving, preserving, protecting, and recharging . . . groundwater or . . . a groundwater reservoir or its subdivisions to control subsidence, prevent degradation of water quality, or prevent waste of groundwater, and to carry out the powers and duties as provided by [Chapter 36 of the Texas Water Code]."[85] Importantly, because GCDs have the power to make rules to prevent "waste" of groundwater, the broad definition of "waste"[86] gives a GCD extensive authority under its rulemaking power. Districts also have the power to adopt rules regulating the spacing of wells and the production of groundwater.[87] A GCD may also require that permit holders keep records and report

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executive administrator, and the average annual recharge, inflows, and discharge; (4) other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water; (5) the impact on subsidence; (6) socioeconomic impacts reasonably expected to occur; (7) the impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater as recognized under Section 36.002 [of the Texas Water Code]; (8) the feasibility of achieving the desired future condition; and (9) any other information relevant to the specific desired future conditions." *Id.* § 36.108(d)(1)-(9).

84 *Id.* § 36.1132(a).

85 *Id.* § 36.101(a).

86 The Texas Water Code defines "waste" as any one of the following: "(A) withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for agricultural, gardening, domestic, or stick raising purposes; (B) the flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose; (C) escape of groundwater . . . to any other reservoir or geologic strata that does not contain groundwater; (D) pollution or harmful alteration of groundwater . . . by saltwater or by any other deleterious matter admitted from another stratum or rom the surface of the ground; (E) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or only any land other than that of the owner of the well unless such discharge is authorized by permit, rule, r order issued by the [TCEQ] under [Texas Water Code] Chapter 26; (F) groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge; or (G) for water produced from an artesian well, "waste" as the meaning assigned by [Texas Water Code] Section 11.205." *Id.* § 36.001(8). Waste may also be created by "[d]rilling or operating a well or wells without a required permit or producing groundwater in violation of a district rule adopted under [Texas Water Code] Section 36.116(a)(2) . . . ." *Id.* § 36.119(a).

87 *Id.* § 36.116.

activities to the GCD, such as "drilling, equipping, and completing of water wells and of the production and use of groundwater."[88]

E. GCD Permitting and Exemptions

GCDs have broad authority under the Texas Water Code to determine how and when a permit will be required for certain activities using groundwater within the district.[89] Particularly, a district is required to determine which activities by landowners will be regulated by the district and which will require a permit or permit amendment.[90] However, except for groundwater wells that are statutorily exempt, a GCD is required by statute to permit and develop a permit program for "drilling, equipping, operating, or completing . . . wells or for substantially altering the size of wells or well pumps."[91] No one may drill, alter, or operate a non-exempt well without first obtaining a permit from the GCD.[92]

Certain types of wells are exempt from GCD permitting requirements.[93] For example, a GCD must provide an exemption from the requirement to obtain a permit for the drilling or operating of a well that is to be used solely for domestic or livestock needs.[94] A district must likewise exempt from permitting requirements for drilling or production a water well authorized under a permit issued by the Railroad Commission of Texas for surface coal mining and reclamation operations.[95] Most important for this discussion, a district must also provide an exemption from the district requirement to obtain a permit for:

> drilling a water well used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas provided that the person holding the permit is responsible for drilling and operating the water well and the water well is located on the same lease or field associated with the drilling rig.[96]

One might think that this latter provision would exempt groundwater wells that produce water for hydraulic fracturing operations from a GCD's permitting requirements. Nevertheless, some Texas GCDs have interpreted this exemption very narrowly, construing it as inapplicable to water wells used for fracking operations.[97] One argument for

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88 *Id.* § 36.111(a).
89 *See id.* § 36.114(a).
90 *Id.*
91 *Id.* § 36.113(a).
92 *Id.* § 36.115.
93 *Id.* § 36.117.
94 *Id.* § 36.117(b)(1).
95 *Id.* § 36.117(b)(3).
96 *Id.* § 36.117(b)(2).
97 *See* Mary K. Sahs, Frac Water-Regulation of Quantity and Quality, and Reporting by Texas Groundwater Conservation Districts, Presentation at the 13th Annual Changing Face of Water Rights Course and Water Rights 101, Texas Bar CLE (Feb. 23, 2012) 29-34, *available at* http://www.sahslaw.com/wp-content/uploads/2013/11/Copy-of-Frac-Water.pdf, *archived at* http://perma.cc/RB68-LMBW. *See also* Carl R. Galant & Russell S. Johnson, Exempt Uses of Groundwater and Surface Water, 33 State Bar of Texas Oil, Gas, and Energy Resources Law Section Report 3, 5-8 (2009), *available at* http://www.mcginnislaw.com/images/

a narrow reading of this exemption relies on the statute, which states that "drilling" a water well to supply water for oil and gas operations is exempt from permitting.[98] Contrast this with the domestic and livestock exemption, which exempts "drilling or operating" a well used for domestic and livestock use from GCD permitting.[99] Some have argued that, while *drilling* a water well to supply water for hydraulic fracturing operations is exempt from permitting, the language difference between this statue and the exemption for the domestic and livestock wells allows GCDs to require a permit to produce or operate wells that supply fracking water.[100]

However, Texas Water Code section 36.117 as a whole does not support this distinction.[101] Section 36.117(d)(2) of the Texas Water Code states that "[a] district may cancel a previously granted exemption, and may require an operating permit for or restrict production from a well," if "the groundwater withdrawals that were exempted under [s]ubsection (b)(2) are no longer used solely to supply water for a rig that is actively engaged in drilling or exploration operations for an oil or gas well permitted by the Railroad Commission of Texas . . . ."[102] By stating that water well is no longer exempt from the requirement to obtain an operating permit or restrictions in production if it used for another use, the statute implies that a well that is used solely to supply water for hydraulic fracturing operations is exempt from GCD production restrictions and operating permit requirements.

Two other aspects of the statutory language narrow the exemption. The statute qualifies the exemption in that the water well must be used "solely" to supply water for oil and gas operations.[103] Also, the water well must be located "on the same lease or field associated with the drilling rig."[104] If the water well is used for other uses besides water supply for oil and gas operations or if it is not located in the same lease or field as the hydraulic fracturing operation, the well is not entitled to the statutory exemption.[105] If an operator is required to obtain a permit from a district, it is important to note that "[a] district may not deny an application for a permit to drill and produce water for hydrocarbon production activities if the application meets all applicable rules as promulgated by the district."[106]

Additionally, some GCDs have questioned whether water wells used to supply water for hydraulic fracturing operations even fall within the section 36.117(b)(2) exemption. The statute exempts water wells that supply water for a rig that is actively engaged in "drilling or exploration operations" for an oil or gas well.[107] GCDs and commentators have questioned whether hydraulic fracturing operations are "drilling or exploration op-

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uploads/news/09-03-01_GalantJohnson_exempt_uses_of_groundwater.pdf, *archived at* http://perma.cc/3JCA-H9GA.

98 TEX. WATER CODE ANN. § 36.117(b)(2).

99 *Id.* § 36.117(b)(1).

100 *See* Sahs, *supra* note 97, at 29-34; Galant & Johnson, *supra* note 97, at 5-8.

101 *See generally* TEX. WATER CODE ANN. § 36.117.

102 *Id.* § 36.117(d)(2).

103 *Id.*

104 *Id.* § 36.117(b)(2).

105 *Id.*

106 *Id.* § 36.117(g).

107 *Id.* § 36.117(b)(2).

erations." The Railroad Commission of Texas has stated publicly that it "interprets 'exploration operations' to include well completion and workover, including hydraulic fracturing operations."[108] Still, some districts argue that fracking is oil and gas production, not "drilling or exploration," and therefore require permits despite the exemption.[109] Some GCDs also contend that the legislative history of section 36.117(b)(2) indicates that the exemption language was not intended to encompass hydraulic fracturing operations.[110] Due to these arguments, different GCDs may have very different requirements for wells that supply water for fracking operations, even within the same shale play. For example, in Karnes County in the Eagle Ford Shale play, oil and gas drillers must get a permit, they have production limitations, and they must report how much water they use;[111] conversely, in Dimmit County, also in the Eagle Ford Shale play, operators can pump as much water as they want and no permit is required.[112]

The Texas Legislature may attempt to clarify the extent to which GCDs can regulate water wells that supply water to hydraulic fracturing operations in the future. During the 83rd Legislative Session, several bills were introduced that were directed at GCD regulation of wells that supply water for hydraulic fracturing operations.[113] Senate Bill 873[114] would have deleted the section 36.117(b)(2) exemption, and explicitly granted GCDs the permitting authority for the "drilling or operation of a water well used to supply water for the drilling, exploration, or production of oil or gas."[115] Specifically, it would have allowed applicants to apply for the permit, but while the application was pending, the water well could be drilled, equipped, operated, completed and used under the terms of an interim authorization until the district made a final determination on the application so that operations would not be delayed by the GCD permitting process.[116] Conversely, House Bill 3317 would have kept the exemption in place by clarifying the language to include "completions."[117] Although this would have ended the debate as to

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108 *Water Use in Association with Oil and Gas Activities*, R.R. COMM'N OF TEX., http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-water-use-in-association-with-oil-and-gas-activities/ (last visited Feb. 1, 2015), *archived at* http://perma.cc/GF87-98F8.

109 *See* Kate Galbraith, *Fracking Groundwater Rules Reflect Legal Ambiguities*, THE TEX. TRIBUNE, Mar. 13, 2013, http://www.texastribune.org/2013/03/13/fracking-groundwater-rules-reflect-legal-ambiguiti/, *archived at* http://perma.cc/YS9P-MFWK.

110 Stacey A. Steinbach, TEX. ALLIANCE OF GROUNDWATER DISTS., LEGISLATIVE WRAP-UP, 83RD LEGISLATIVE SESSION (2013), *available at* http://www.texasgroundwater.org/pdfs/130730TAGDLegSumWeb.pdf, http://perma.cc/TKE6-UH6K.

111 *Rules of the Evergreen Underground Water Conservation District* (Jan. 23, 2009), *available at* http://www.evergreenuwcd.org/files/Evergreen%20rules%20Adopted%201-23-09.pdf, *archived at* http://perma.cc/AV2J-TZKY.

112 *Wintergarden Groundwater Conservation District: Official District Rules and Regulations* (March 29, 2007), *available at* http://wgcd.net/sites/wgcd.net/files/file/4/wgcdrules.pdf, *archived at* http://perma.cc/MRY3-KCPA (Rule 9.1(c) exempts from permitting "a well used to supply water solely for a drilling rig that is actively engaged in drilling or exploration operations as authorized by the Railroad Commission of Texas"); *see also* Kate Galbraith, *supra* note 109.

113 Tex. S.B. 873, 83rd Leg., R.S. (2013); Tex. H.B. 3317, 83rd Leg. R.S. (2013).

114 Tex. S.B. 873, 83rd Leg., R.S. (2013).

115 *Id.*

116 *Id.*

117 Tex. H.B. 3317, 83rd Leg. R.S. (2013).

whether fracking operations fall within the section 37.117(b)(2) exemption, the bill would have made hydraulic fracturing water supply wells subject to a district's production fees, registration, recordkeeping, and production proration rules.[118] Both of these bills ultimately failed to pass, but they are examples of possible resolutions the Texas Legislature could propose and adopt in the future.[119] In the 84th Legislative Session, legislation has already been filed that would clarify the oil and gas exemption to explicitly include water used for hydraulic fracturing operations. House Bill 2132 would amend the section 36.117(b)(2) exemption so that it applies to "drilling or operating a well and producing groundwater for beneficial use from a well. . .used to supply water for operations related to oil and gas exploration, development, or production, including hydraulic fracturing. . ."[120] However, House Bill 2132 would also make wells used to supply water for hydraulic fracturing operations subject to a district's production fees, registration, recordkeeping, and "production requirements with uniform application to all wells in the district, provided that the allowable production must equal or exceed the highest production amount allowed for any well in the district regardless of the water's use or whether the well is exempt under district rules."[121]

No matter how GCDs interpret the section 36.117(b)(2) exemption, there are requirements with which every hydraulic fracturing water supply well must comply. Every water well must be registered with the district[122] and equipped and maintained to conform to the district's rules requiring installation of casing, pipe, and fittings.[123] Driller's logs and applicable geophysical logs associated with the well must also be filed with the district.[124] The well owner or operator must "report groundwater withdrawals using reasonable and appropriate reporting methods and frequency."[125] Finally, the well owner is also subject to production and transport fees if any water is transported out of the district.[126]

The uncertainty surrounding the statutory language in Chapter 36 of the Texas Water Code and the GCDs' interpretation of that language render the scope of regulation of groundwater for hydraulic fracturing operations unclear at this time. Operators should review the local groundwater conservation district rules and obtain the relevant GCD's interpretation of the Chapter 36 exemption before deciding to use groundwater as a source of water supply.[127]

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118 *Id.*
119 *See* Tex. S.B. 873, 83rd Leg., R.S. (2013); Tex. H.B. 3317, 83rd Leg. R.S. (2013).
120 Tex. H.B. 2132, 84th Leg. R.S. (2015).
121 *Id.*
122 TEX. WATER CODE ANN. § 36.117(h)(1).
123 *Id.* § 36.117(h)(2).
124 *Id.* § 36.117(i).
125 *Id.* § 36.111(b).
126 *Id.* § 36.117(k).
127 *See* Galant & Johnson, *supra* note 97, at 16.

V. USE OF BRACKISH GROUNDWATER AND SURFACE WATER

Negative public views related to using freshwater for fracking operations, a lack of freshwater supply due (in part) to drought and population growth in certain areas, and the cost of freshwater acquisition have led some operators to use brackish water for their hydraulic fracturing operations. Brackish water is water containing between 1,000 and 10,000 milligram per liter of total dissolved solids.[128] In the fracking process, water quality is very important because impurities can reduce the efficiency of the additives used.[129] Barium, strontium, iron, and phosphates (not chlorides) appear to be the major limitations to using non-potable water for hydraulic fracturing operations.[130] Depending on the concentrations of these elements, brackish water can be used cost-effectively in some areas depending on the additives used in the fracking solution and the geologic characteristics of the shale play.

Brackish groundwater is present in most of the aquifers, both major and minor, in Texas.[131] However, depending on the aquifer, brackish groundwater may be more difficult to obtain because it is sometimes confined in the deeper, less productive areas of an aquifer that are more difficult to reach.[132] The estimated total volume of brackish groundwater in Texas aquifers is over 2.5 billion acre-feet.[133] Operators in several shale plays in Texas already use an increasingly high amount of brackish water.[134] To illustrate, in the Permian Basin play, thirty percent or more of the water used for hydraulic fracturing operations is brackish.[135] In the Permian Basin, many fracking operations are in the southern portion of the Ogallala Aquifer, which is often brackish.[136] Likewise, several of the aquifers that are used as a water source for hydraulic fracturing operations in the Eagle Ford Shale play are brackish, including the Gulf Coast, Wilcox, and Carrizo aquifers.[137]

Use of brackish groundwater is expected to be a focal point during the 84th Legislative Session. The Interim Charges for the House Committee on Natural Resources included a charge to "examine methods to facilitate further development of brackish groundwater resources and to improve the consistency and certainty of permitting by groundwater districts without undercutting reasonable regional and local regulation of

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128 LBG-GUYTON ASSOCS., BRACKISH GROUNDWATER MANUAL FOR TEXAS REGIONAL WATER PLANNING GROUPS 1 (Feb. 2003) [hereinafter GUYTON REPORT], *available at*, https://www.twdb.texas.gov/publications/reports/contracted_reports/doc/2001483395.pdf, *archived at* http://perma.cc/97HQ-P3XE.

129 *Hydraulic Fracturing Water Usage*, FRACFOCUS, http://fracfocus.org/water-protection/hydraulic-fracturing-usage (last visited Feb. 8, 2015), *archived at* http://perma.cc/6222-E55K.

130 William E. Godsey, GEO LOGIC ENVTL. SERV.S, LLC, *Fresh, Brackish or Saline Water for Hydraulic Fracs: What are the Options?*, *available at* http://www2.epa.gov/sites/production/files/documents/02_Godsey_-_Source_Options_508.pdf (last visited Feb. 8, 2015), *archived at* http://perma.cc/7Z55-6Z6M.

131 GUYTON REPORT, *supra* note 128, at viii.

132 *Id.*

133 *Id.*

134 *Nicot 2012 Study*, *supra* note 12, at 54-55.

135 *Id.*

136 *Id.*

137 *Id.*

groundwater."[138] Specifically, legislation has already been filed that: adds consideration of brackish groundwater to the regional planning processes and adds provisions to Chapter 36 establishing rules for groundwater permits in brackish groundwater production zones;[139] requires the TWDB to coordinate with groundwater conservation districts to identify brackish groundwater sources, allows a landowner to petition for a brackish groundwater production zone to be designated, and allows districts to designate groundwater production zones and issue permits from those zones;[140] and addresses how brackish groundwater production zones are handled with respect to the DFC process and creates a new subchapter in Chapter 36 that specifically addresses issues with brackish groundwater production zones, including the definition of, procedure for designation of, and permitting in those zones.[141] This proposed legislation could affect use of brackish water to supply water for hydraulic fracturing operations, especially in areas in which brackish groundwater is the best or only available option.

Like brackish groundwater, brackish surface water can also be a viable option in areas in which a freshwater supply is lacking or already dedicated to other beneficial uses. Brackish surface water is located in many areas in Texas, but is most prevalent in the Upper Brazos, Texas panhandle, and coastal regions of the state.[142] The source of the salinity affecting surface water in each of these regions varies: waters in the Upper Brazos and panhandle are affected by ancient salt deposits, whereas surface water near the Gulf of Mexico is affected because the flat terrain near the Gulf allows salty bay and estuary water to move inland from the river.[143]

Brackish surface water can be used in fracking operations, if it is available. However, surface water (brackish or otherwise) is fully appropriated in most basins in the state of Texas. One must obtain a permit from the state to utilize surface water from a state watercourse, as detailed in the next section.

VI. Surface Water Use

"Texas law categorizes surface water into . . . two general types: diffuse surface water and water in a watercourse. Diffuse surface water belongs to the owner of the land on which it gathers, so long as it remains on that land and prior to its passage into a natural

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138 Joe Straus, Speaker, Tex. House of Representatives, Interim Committee Charges, Tex. House of Representatives, 83rd Legislature 32 (Jan. 2014), *available at* http://www.house.state.tx.us/_media/pdf/interim-charges-83rd.pdf, *archived at* http://perma.cc/M2RJ-336D.

139 Tex. H.B. 30, 84th Leg. R.S. (2015).

140 Tex. H.B. 835, 84th Leg. R.S. (2015).

141 Tex. H.B. 836, 84th Leg. R.S. (2015).

142 *See* S. Comm. on Natural Res., Interim Report to the 81st Legislature, Salinity of Surface Waters and Groundwaters in Texas 2, Appx. B (Feb. 2009), *available at* http://www.senate.state.tx.us/75r/senate/commit/c580/c580.FINALsalinityreport80.pdf, *archived at* http://perma.cc/Q2HV-DJH5.

143 *Id.* at 2-3.

watercourse."[144] Unlike groundwater and diffused surface water (which are privately owned, as detailed above), water in or that enters a "watercourse" is owned by the state.[145] A watercourse "must have bed, banks, a current of water, and a permanent source of water supply . . . ."[146] A permanent source of supply does not necessarily mean there has to be flow all the time, it only means "that there must be sufficient water carried by the stream at such intervals as may make it practicable to irrigate from or use the stream."[147] Although a stream may be "intermittent as to flow" and experience long dry periods, it may still be defined as a watercourse.[148] Moreover, the character of water can change; absent a "bed and banks" permit, private groundwater or diffused surface water that is allowed to drain into a watercourse loses its character as groundwater or diffuse water and becomes surface water, thus it becomes state water.[149]

A. STATE OWNERSHIP AND THE PRIOR APPROPRIATION DOCTRINE

In Texas, a landowner owns the water beneath his or her land and the diffused surface water on the land, but once the water enters a watercourse, it is "surface water" owned by the state.[150] Surface water rights may be obtained from the TCEQ, which allows one to impound, divert, or use the state's surface water.[151] A Texas surface water right is a vested right, evidencing the water right holder's right to impound, divert, or use state water; however, permit holders do not acquire the right of non-use of appropriated waters.[152] It does not provide any rights to the corpus of the water in the watercourse.[153]

Texas surface water law, as with most western states, is governed by the doctrine of prior appropriation.[154] The prior appropriation doctrine generally provides that older (senior) water rights take priority over newer (junior) water rights.[155] This "first in time, first in right" doctrine applies to the allocation of water between appropriators during times of low flow or shortage.[156]

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144 Domel v. City of Georgetown, 6 S.W.3d 349, 353 (Tex. App.—Austin 1999, pet. denied) (citing Turner v. Big Lake Oil Co., 96 S.W.2d 221, 228 (Tex. 1936)).

145 *See* TEX. WATER CODE ANN. § 11.021(a) ("The water of the 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 is the property of the state.").

146 Hoefs v. Short, 273 S.W. 785, 787 (Tex. 1925).

147 *Id.*

148 *Id.* at 786.

149 *See* Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 822 (Tex. 2012); *but see* TEX. WATER CODE ANN. § 11.042(b)-(c) (allowing effluent derived from groundwater or groundwater to retain its character and be transported in a watercourse if a bed and banks permit is first obtained from the state).

150 TEX. GROUNDWATER PROT. COMM., *Water in Texas – Who Owns It?*, (June 2012), http://tgpc.state.tx.us/POE/FAQs/WaterOwnership_FAQ.pdf, *archived at* http://perma.cc/9DMJ-JYU6.

151 *Edwards Aquifer Auth.*, 369 S.W.3d at 842.

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

153 *Id.*

154 TEX. WATER CODE ANN. § 11.027.

155 *Id.* ("As between appropriators, the first in time is the first in right").

156 City of Marshall v. City of Uncertain, 206 S.W.3d 97, 102 (Tex. 2006).

This aspect of Texas surface water law, coupled with the general lack of availability of surface water in most areas of the state, make obtaining a new perpetual or permanent surface water right[157] for hydraulic fracturing purposes unlikely in most circumstances. The TCEQ has stated that, "[g]enerally, very little water remains available in Texas for appropriation to new users. In some river basins, the water rights already in place amount to more water than the river typically carries, even in a wet year."[158] Even if there was available water in the area to supply water for the fracking operations, a newly granted water right would be the most junior right in the basin, and therefore would be the first water right curtailed during a drought or other time of shortage. These issues probably make other short-term appropriations of surface water more attractive than a perpetual water right for hydraulic fracturing water supply.

Some short-term surface water permitting options that are available are seasonal permits,[159] temporary permits,[160] and term permits.[161] Seasonal permits are limited to a specified portion of the calendar year, usually during times of lower diversions and higher flows.[162] Temporary permits are for a maximum time of three years, cannot be renewed for another term after expiration, and are granted normally for short-term projects.[163] Many temporary permits for surface water are requested and issued for road construction projects to suppress dust, compact soils, and regrow lost vegetation.[164] A term permit may be a viable option for some hydraulic fracturing operations, based on the availability and the length of the permit term. A term permit allows a permittee to use water that has already been appropriated to another, but is not being used by that appropriator for the term specified, which can be a maximum of ten years.[165] A term permit is also renewable after the initial term has expired.[166] Due to their relatively flexible nature, term permits are primarily issued to industries, mines, and agricultural enterprises.[167]

Less common surface water permitting options also may be available, depending on location. Chapter 11 provides exemptions to permitting for certain dams and reservoirs used solely for domestic and livestock activities[168] or for fish and wildlife purposes.[169]

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157 *See* TEX. WATER CODE ANN. § 11.121.

158 TEX. COMM'N ON ENVTL. QUALITY, RIGHTS TO SURFACE WATER IN TEXAS GI-228 16 (revised Mar. 2009), *available at* http://www.tceq.state.tx.us/files/gi-228.pdf_4467322.pdf, *archived at* http://perma.cc/44FP-UWEY.

159 TEX. WATER CODE ANN. § 11.137.

160 *Id.* § 11.138.

161 *Id.* § 11.1381.

162 *Id.* § 11.137.

163 *Id.* § 11.138.

164 *How Rights to Surface Water are Prioritized*, TEX. COMM'N ON ENVTL QUALITY, https://www.tceq.texas.gov/response/drought/waterrights.html/#4 (last visited Feb. 1, 2015), *archived at* http://perma.cc/G376-W242.

165 *Id.*; *see* TEX. WATER CODE ANN. §§ 11.1381(a), 11.1381(d).

166 Ronald A. Kaiser, *Tex. Water Mktg. in the Next Millennium: A Conceptual and Legal Analysis*, 27 TEX. TECH L. REV. 181, 245 (1996); *see generally* TEX. WATER CODE ANN. §§ 11.1381(a) (indicating that a term permit may be issued so long as the senior water right has not been perfected without indication that renewal is precluded).

167 *How Rights to Surface Water are Prioritized*, *supra* note 164.

168 TEX. WATER CODE ANN. § 11.142(a).

169 *Id.* § 11.142(b).

The owner of a dam or reservoir exempted under these provisions may file for a permit to use water for nonexempt purposes from the exempt dam or reservoir under Texas Water Code section 11.143.[170] Under this provision, an owner can obtain a regular permit, a seasonal permit, or a term permit to use surface water for a nonexempt use (such as hydraulic fracturing) from an exempt reservoir.[171] However, like a perpetual right obtained under Texas Water Code section 11.121, a section 11.143 water right may be difficult to obtain because there must be unappropriated water left in the source of supply.[172]

B. Alternatives to Permitting

If a short-term or perpetual surface water permit from the TCEQ is not a viable option, surface water can still be obtained by other means. Some operators can use surface water if they qualify for a statutory exemption, amend existing surface water rights, or purchase surface water from a water supplier.[173]

Chapter 11 actually contains an exemption for a person who is "drilling and producing petroleum," but this exemption is very limited.[174] A person may take for petroleum drilling and production purposes "state water from the Gulf of Mexico and adjacent bays and arms of the Gulf of Mexico in an amount not to exceed one acre-foot during each 24-hour period."[175]

Aside from obtaining their own water rights or qualifying for an exemption, operators can also purchase or lease existing surface water rights.[176] However, these water rights may need to be amended to authorize the new use[177] and location of use to effectively allow fracking.[178] Importantly, such amendment should be relatively simple to obtain if it "will not cause adverse impact on other water right holders or the environment on the stream of greater magnitude" than the water right did before the amendment when fully exercised according to its terms and conditions.[179]

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170 *Id.* § 11.143(a).

171 *Id.*

172 *See id.* § 11.143(i).

173 *Id.* §§ 11.142(c), 11.022, 11.122.

174 *Id.* § 11.142(c)

175 *Id.* Keep in mind that this is only a permit exemption. One could take more water (greater than one acre-foot per 24-hour period) from these areas, but it would require a permit from the state.

176 *Id.* § 11.022.

177 Water used for hydraulic fracturing is considered to fall within the category of "mining" use under Texas law. *See id.* § 11.023(a)(3) (stating state water may be appropriated, stored, or diverted for the purposes of "mining and recovery of minerals"); *see also* 30 TEX. ADMIN. CODE § 297.1(30) (defining "Mining use" as "The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field repressuring").

178 *See* TEX. WATER CODE ANN. § 11.122(a).

179 *Id.* § 11.122(b); *but see* City of Marshall v. City of Uncertain, 206 S.W.3d 97 (Tex. 2006). *City of Marshall* involved an application to amend an existing water right to add industrial use as an authorized purpose of use. The Texas Supreme Court stated that "a proposed amendment that contemplates no additional consumptive water use or increase in the period of diversion, and that lacks potential to harm other existing water rights, is presumptively not subject to notice and hearing." *Id.* at 110. However, the Court also recognized

Another option for operators to obtain surface water for fracking water is to pursue a water supply contract with a regional water supplier.[180] As previously stated, many of the reservoirs in Texas located near high density fracking areas are below 50% capacity at this time,[181] which may make executing contracts difficult.

The ability to use surface water can vary greatly depending on the unique set of circumstances in each fracking area. The lack of availability alone often renders utilization of groundwater or diffused surface water a better option than surface water. As discussed below, water reuse has also become more prevalent in recent years and could lessen the future strain on freshwater.

VII. Reuse

As hydraulic fracturing technologies develop and public pressure, cost, and availability concerns associated with freshwater use increase, operators should increase their use of alternative water supply options. Reusing, or recycling, water is one option already being implemented in some shale plays and is anticipated to increase over the next fifty years.[182] Water reuse can come from filtering or removing minerals, oil, salt, and other impurities from water originating from previous hydraulic fracturing operations (flowback water) or recycling water from conventional wells or wastewater obtained from other industries or municipalities.[183] Utilization of recycled or reuse water for hydraulic fracturing water supply in 2011 was estimated to be 2% in the Permian Basin (Midland Basin), 20% in the Anadarko Basin, 5% in the Barnett Shale play, and 5% in East Texas.[184] Additionally, the TCEQ lists approximately thirty municipal and industrial facilities located in the Barnett Shale and Eagle Ford Shale plays that provide wastewater to the industry.[185]

The Texas Railroad Commission rules prohibit disposal of hydraulic fracturing flow back fluids or produced formation fluids in any way that is not explicitly authorized by Railroad Commission rule or permit.[186] The Railroad Commission rules state that "[n]o permit is required if treated fluid is recycled for use as makeup water for a hydraulic fracturing fluid treatment(s), or as another type of oilfield fluid to be used in the wellbore of an oil, gas, geothermal, or service well."[187] While most of the flow back and produced formation fluids are disposed of through injection wells, recycling and reuse of these

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that the TCEQ may determine, "based on the particular facts of the application," that affected persons are entitled to notice and a hearing, and in this case the TCEQ should assess other limited public-interest criteria. *Id.*

180 *See* Tex. Water Code Ann. § 11.036.

181 Murphy & Galbraith, *supra* note 59.

182 *Nicot 2012 Study*, *supra* note 12, at 54, 59.

183 *See Ceres 2014 Report*, *supra* note 20, at 39.

184 *Nicot 2012 Study*, *supra* note 12, at 56 tbl. 7.

185 *Id.* at 58 fig. 44.

186 *Hydraulic Fracturing*, *supra* note 2.

187 16 Tex. Admin. Code § 3.8(d)(7)(B)(i) (2014) (R.R. Comm'n of Tex., Water Protection).

fluids is increasing, likely due in part to recent legislation.[188] In 2013, the Texas Legislature passed House Bill 2767 to further encourage recycling and reuse of water previously used in fracking operations.[189] Texas law now limits an operator's liability by transferring ownership of the fluids to those that take possession of them.[190] It also limits a recycler's tort liability once the treated water is transferred to one that intends to use it in oil and gas production related activities.[191]

VIII. WATER STORAGE AND TRANSPORT

Even once an operator has identified an available water source and obtained all necessary permits or authorizations from the applicable regulatory authority to produce the water from that source, water supply issues may still plague a hydraulic fracturing project. The water often must be stored or transported for it to be used during the fracking process. This can create another unique set of problems, some of which have not been fully addressed by Texas law.

A. SHORT TERM WATER STORAGE ISSUES

Many operators produce groundwater from the land at or near the hydraulic fracturing wells sites. There are instances in which these groundwater wells have low production rates, so operators will pump the groundwater into a nearby impoundment over a period of days, pumping enough groundwater to complete an individual fracking job, and then subsequently divert the water out of the impoundment at a higher rate to the fracking well site to utilize in the operations. Some operators construct above-ground containment systems or excavate pits to hold the water. However, others use existing reservoirs on the property. If the reservoir is located on a watercourse, an operator must obtain special authorization from the TCEQ to temporarily store the water in the reservoir.[192]

For example, assume that an operator has several hydraulic fracturing well sites on a property that also contains a groundwater well capable of producing a significant amount of groundwater, but at a lower rate. The local groundwater conservation district rules do not require a drilling or production permit for a groundwater well that produces water for hydraulic fracturing operations, under its interpretation of Texas Water Code section 36.117(b)(2), as long as the groundwater produced is used solely for those operations on the property. The property also has on it several livestock reservoirs (*i.e.* stock tanks), which are located on a creek that runs through the property. The operator intends to keep costs low by using the stock tanks already present and producing groundwater from the well, discharging it into the stock tanks, and then diverting the water at a higher rate from the groundwater-filled reservoirs.

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188 *See* Act of May 28, 2013, 83rd Leg., R.S., ch. 209, 2013 Tex. Sess. Law Serv. (West) (codified at TEX. NAT. RES. CODE ANN. §§ 122.001-004).

189 *See id.*

190 *See* TEX. NAT. RES. CODE ANN. § 122.002.

191 *See id.* § 122.003.

192 *See* TEX. WATER CODE ANN. § 11.023.

In this scenario, the operator may need to obtain additional authorization from the TCEQ.[193] If the creek on which the reservoirs are located is classified as a "watercourse" under Texas law, the groundwater would lose its character and become state water once it is discharged into the watercourse unless the discharger first obtains a permit from the TCEQ.[194] Therefore, the operator can retain possession of the groundwater by applying for a permit to utilize the bed and banks of the watercourse under Texas Water Code section 11.042.[195] A bed and banks permit allows a person to discharge and then subsequently divert "only the amount of water put into a watercourse or stream, less carriage losses . . . ."[196] The operator must submit all necessary information to the TCEQ to obtain the bed and banks permit, including water quality data to ensure the groundwater will not degrade the surface water already in the watercourse, information on the points of discharge and diversion, loss calculations (with estimates of evaporation losses for the water while it is in the reservoirs), and most likely an accounting plan to ensure that only privately-owned groundwater, and not state water,[197] is diverted.

Even after the operator obtains this bed and banks permit from the TCEQ, regulatory issues associated with supplying water to his or her hydraulic fracturing wells in this situation may still arise. Based on experience, TCEQ currently assumes that the groundwater discharged into the reservoir can be displaced or lost if there is an upstream rain that completely fills and refills the reservoir.[198] For example, assume that the exempt livestock reservoir has a capacity of twenty acre-feet. It contains two acre-feet of surface water when the operator begins discharging the privately-owned groundwater into the reservoir. During operations, after the operator has discharged fifteen acre-feet of groundwater into the reservoir (for a total of seventeen acre-feet of water), a large rain event occurs upstream. As a practical matter, if the rain event is large enough to fill the reservoir (an additional three acre-feet) and completely refills the reservoir (another twenty acre-feet), the permittee must assume that the groundwater in the reservoir has been entirely displaced. The permittee then must start over and re-pump the amount of groundwater sufficient for the hydraulic fracturing job into the reservoir to continue operations.

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193 *See id.*

194 *Id.* § 11.023(d); *see also* Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 822 (Tex. 2012) (citing TEX. WATER CODE ANN. § 11.042(b)) (explicitly recognizing that "[g]roundwater can be transported through a natural watercourse without becoming state water. The [Texas Water] Code specifically allows the Water Commission to authorize a person to discharge privately owned groundwater into a natural watercourse and withdraw it downstream.")

195 TEX. WATER CODE ANN. § 11.042.

196 *Id.* § 11.042(c).

197 As previously mentioned, the Water Code does contain a provision that allows a person to appropriate state water from a previously exempt domestic and livestock reservoir. *See id.* § 11.143. However, as long as the operator accounts for losses and only diverts the groundwater (and no state water) from the reservoir, an 11.042 bed and banks authorization should be all that is required under Texas law.

198 *See* Letter from Kozlowski, C., Tex. Comm'n Envtl. Quality, to Sauder Land Holdings I, Ltd., Sauder Land Holdings II, Ltd., and Sauder Management Company, Application Nos. 12742, 12744, 12746, and 12751 for Water Use Permits (May 6, 2014) (on file with author).

Why the TCEQ adheres to this current practice is unclear. TCEQ does not have a stated rule nor does any applicable statute require the TCEQ to make this "displacement" assumption. The TCEQ could simply assume that the groundwater stayed in the reservoir, occupying storage during the rain event, and only surface water exited the reservoir during the rain event for the benefit of downstream water right holders. Moreover, this unwritten TCEQ practice could inadvertently put the operator at odds with the local GCD in the future. By agreeing to a permit condition that, in some cases, would require the bed and banks permittee to assume that large amounts of groundwater are produced and not beneficially used (displaced), a GCD could argue that the TCEQ's current practice is a "waste" of groundwater. Texas law entitles a landowner to produce its privately-owned groundwater for beneficial use, but it must do so "without causing waste."[199] According to Chapter 36 of the Texas Water Code, "waste" of groundwater is defined as "the flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose."[200] The TCEQ's practice therefore requires the operator to assume that its groundwater has been "displaced" during large rainfall events, meaning that a large quantity of groundwater would have been produced but not *beneficially* produced. This puts the operator in an untenable position wherein complying with the TCEQ practice subjects the operator to possible penalties[201] from the local GCD for wasting water.

Possible remedies to this issue may be adopted in the future. The Texas legislature might resolve the question in favor of the groundwater producer. The statutory definition of "waste" in Texas Water Code section 36.001(8) could be modified to allow water to be produced but not beneficially used if mandated by a condition in a TCEQ permit. The TCEQ could also change its current practice and instead assume that the groundwater can remain in the reservoir throughout a rain event, regardless of the size of the event, so long as the permittee provides a detailed accounting of the groundwater that is pumped into and out of the reservoir that demonstrates no more groundwater was diverted than was placed in the reservoir, after accounting for evaporation and seepage.

B. Transporting Water in Watercourses

A bed and banks authorization from the TCEQ can also be used to transport water over longer distances for hydraulic fracturing operations.[202] Applicants usually understand that applicable losses (evaporation, seepage, etc.) associated with transporting water in a watercourse over a significant distance will occur. However, other issues must be considered, depending on the basin, which could affect the viability of moving water in this fashion.

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199 TEX. WATER CODE ANN. § 36.002; *see supra* note 86 for discussion of the definition of "waste" in the Texas Water Code.

200 TEX. WATER CODE ANN. § 36.001(8)(B).

201 GCDs are statutorily mandated to adopt rules to "prevent waste of groundwater." *Id.* § 36.101(a) (West 2011). A GCD "may enforce [Chapter 36 of the Texas Water Code] and its rules against any person by injunction, mandatory injunction, or other appropriate remedy in a court of competent jurisdiction," and "may set reasonable civil penalties against any person for breach of any rule of the district not to exceed $10,000 per day per violation." *Id.* §§ 36.102(a), (b).

202 *Id.* § 11.042.

For example, a bed and banks water transport in the Rio Grande Basin has specific legal requirements that could affect the amount of water that may be transported.[203] A bed and banks transport of water in the Rio Grande basin requires compliance with a different statute[204] and TCEQ rules[205] to obtain a Rio Grande Water-in-Transit Permit from the TCEQ. A permit in the Rio Grande Basin contains slightly different requirements than a regular bed and banks permit under Texas Water Code section 11.042, such as a Rio Grande Water-In-Transit Permit application that requires an applicant to include loss calculations that are "consistent with procedures used by the [International Boundary and Water Commission]," [206] "a hydrological determination regarding any interaction between the groundwater source and state waters," [207] and paying specific filing, recording, and notice fees.[208]

One must also consider any treaties or interstate compacts that could affect allocation of water. Again using the Rio Grande Basin as an example, the ownership of water that enters the Rio Grande River varies based on its origin.[209] Water is allotted to the United States and Mexico based on the provisions of a 1944 treaty to which both countries agreed.[210] Under most situations, if an applicant attempts to transport water in the Rio Grande River, half of this water will be lost once it enters the main stem of the river because Mexico owns 50% of the flow in the Rio Grande under the treaty.[211] Often, this allocation to Mexico is too substantial of a loss to sustain to make a transport viable. However, if the water is discharged into certain tributaries, the United States retains 100% of the water.[212] Therefore, operators must be cautious of any applicable cross-boundary agreements or treaties that could impact the classification of water it intends to use in its hydraulic fracturing operations.

IX. Conclusion

Providing water for a hydraulic fracturing operation is a complicated process. Many times operators face public opposition to using water for this purpose, particularly as freshwater supplies in some areas of Texas are stressed due to drought, population increase, and overproduction. Obtaining a water supply entails identifying a viable water

203 *Id.* § 11.3271.
204 *See id.* §§ 11.3271(h), (i).
205 *See* 30 Tex. Admin. Code 303 §§ 303.74-303.90 (2015) (Tex. Comm'n on Envtl. Quality, Rio Grande Bed and Banks Permits for Water-In-Transit); *id.* §§ 303.91-303.92 (2015) (Tex. Comm'n on Envtl. Quality, Administration of Rio Grande Bed and Banks Permits for Water-In-Transit).
206 *Id.* § 303.75(c).
207 *Id.* § 303.75(b)(5).
208 *Id.* § 303.85.
209 *See* Treaty Between the United States of America and Mexico Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., art. 4, Feb. 3, 1944, 59 Stat. 1219, T.S. No. 994.
210 *Id.* at art. 4.
211 *Id.* at art. 4A(b).
212 *Id.* at art. 4B(a).

source based on the characteristics of the area and the shale play, understanding the legal framework for each type of water supply source, and obtaining the necessary permits or authorizations to produce the water for the fracking operations. Utilization of brackish water, water reuse and recycling should be considered and could alleviate future water stress in hydraulic fracturing areas.

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Wind Energy Development and Protection of Wildlife: Creating a Balance Between Two Competing Interests

By Cassie Tigue

I. Introduction

Energy is vital to how we function on a daily basis.[1] Whether we are conscious of it or not, energy enables us to perform household chores, travel to and from places, and cool or heat a building.[2] The majority of our actions depend on energy, and we are consuming more of it than ever before.[3] This increased use raises the concern that consumption may eventually outgrow supply. It is therefore imperative that we consider alternative sources of energy to meet future demand. However, there are many trade-offs when it comes to the selection of alternative energy sources.[4] Energy policies present a "triple threat" of roadblocks to maneuver: economic concerns, energy security, and environmental protection.[5] A brief discussion will be given to economics and energy security, but the primary focus of this note will be the impact of wind farm development on

1 Pub. Agenda, A Citizens' Solutions Guide: Energy 2 (June 2012), *available at* http://www.publicagenda.org/files/PublicAgenda_CitizensSolutionsGuide_Energy.pdf, *archived at* http://perma.cc/GZR2-AE8D.

2 *Id.*

3 *Id.* at 4.

4 *Id.* at 2 (note also the chart between pages 4 and 5 discussing the trade-offs of our main energy sources).

5 *Id.* at 2-3.

wildlife. First, this note discusses the need to consider both the potential impacts on wildlife as well as the need to increase energy development. The note continues with a discussion of the applicable federal environmental statutes and relevant case law that may impact wind farm development. This note concludes with possible solutions to address the environmental impact of wind farm development.

II. THE PROBLEM: CREATING A BALANCE BETWEEN WIND ENERGY DEVELOPMENT AND THE PROTECTION OF WILDLIFE

The interest in pursuing renewable energy sources is growing, but the simultaneous desire to protect wildlife and habitats inevitably affected by wind energy development is likewise persent. Addressing both desires is critical in enabling competing interests to work together and find common ground. On one side is a growing need for the development of alternative energy sources. Although the price of oil has been declining, the vitality of our economy continues to be a primary consideration.[6] Consequently, making wise energy decisions to maintain lower energy costs is essential.[7] Although there is a positive trend in energy production currently, demand still continues to remain higher than production, and the disparity between the two is expected to expand.[8] In addition, a large portion of our current energy supply "come[s] from . . . problematic nations," creating anxiety about possible supply interruptions and susceptibility to "hostile regimes."[9]

Economics and energy security are only two pieces associated with the "triple threat" that troubles energy policy.[10] On the other side are the environmental implications of pursuing alternative energy sources. The environmental gains realized from wind farms are numerous, "especially the fact that they produce no $CO[_2]$ or pollutants"; however, although not immediately apparent, wind farms also come with a host of negative effects.[11] Environmental impacts take the form of both direct and indirect consequences.[12] The site of an older wind project in Altamont Pass in northern California demonstrates one such direct impact.[13] Many birds have met a premature death resulting from a wind farm located in this area.[14] Advocates on both sides strongly disagree about the true number of birds the turbines kill annually, with those in favor of the wind farm arguing a significantly lower number compared to the number proposed by environmental advocates.[15] Relatedly, bats are directly impacted because they "are apparently attracted to turbines and [their] lungs are crushed by the vacuum created near [them]" when they fly

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6 *Id.* at 2.
7 *Id.*
8 *Id.*
9 *Id.*
10 *Id.* at 2-3.
11 Ernest E. Smith, Steven K. DeWolf, Roderick E. Wetsel, & Becky H. Diffen, Texas Wind Law Ch. 10 Scope. (LexisNexis Matthew Bender 2014).
12 *Id.*
13 *Id.*
14 *Id.*
15 *Id.*

too close to the turbines.[16] By contrast, the primary indirect impact to wildlife in general is widespread habitat interruption.[17] Wind farms require thousands of acres for development, operation, and necessary infrastructure such as roadways to reach the site.[18] Consequently, the selection of a potential wind farm site often involves a "relatively pristine [area], such as the open plains stretching from the Texas Panhandle to North Dakota."[19] When a bird or other animal is forced to move elsewhere and leave behind the extensive, undisturbed area to which they are accustomed, the result is often a significant decrease in number of these birds or animals locally.[20]

III. Applicable Federal Environmental Statutes and Regulatory Guidelines

The direct and indirect environmental impacts posed by wind farms often trigger one or more federal environmental statutes.[21] For example, the proposed or actual location of a wind farm may require compliance with one or more federal requirements.[22] The statutes generally seek to preserve endangered species and their surroundings and provide safeguards for migratory birds.[23] An environmental group or a federal agency has the ability to invoke the applicable statutes and the accompanying regulations.[24]

The federal environmental statutes most relevant to wind energy development are the Migratory Bird Treaty Act (MBTA),[25] the Endangered Species Act (ESA),[26] the Bald and Golden Eagle Protection Act (BGEPA),[27] and the National Environmental Policy Act (NEPA).[28] These statutes have similarities in the scope of their respective coverage, but are triggered differently.

A. Migratory Bird Treaty Act

The MBTA was developed in response to a treaty between the United States and Canada in which both countries sought to "protect [migratory] birds from excessive

16 *Id.*
17 *Id.*
18 *Id.*
19 *Id.*
20 *Id.*
21 *Id.*
22 *Id.*; *see, e.g.*, 16. U.S.C. § 1539(a)(1) (2012) (if the proposed site is home to an endangered species, a permit may be required before commencing lawful operations); 16 U.S.C. § 704(a) (if the site poses a threat to migratory bird species, permission may be needed from the Secreatry of the Interior to proceed with operations).
23 16 U.S.C. §§ 703(a), 1531(b); Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at Ch. 10 Scope.
24 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at Ch. 10 Scope; *see, e.g.*, 16 U.S.C. § 1540 (authorizing both governmental bodies as well as private citizens to bring enforcement actions under the ESA).
25 16 U.S.C. §§ 703-712.
26 *Id.* §§ 1531-1544.
27 *Id.* §§ 668-668d.
28 42 U.S.C. §§ 4321-4370h.

hunting pressures," and in response to conventions held between the United States and other nations seeking protection and conservation of migratory birds.[29] Section 703 of the MBTA states that it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess . . . any migratory bird."[30] A plain reading of section 703 indicates that the alleged deaths of thousands of birds due to wind farms is a clear violation of the MBTA, thus allowing prosecution against the wind farms;[31] however, a MBTA violation does not appear to occur unless the prohibited act is committed "knowingly."[32] Correspondingly, section 707 discusses the penalties for violating the MBTA, drawing a distinction between misdemeanor and felony convictions, with knowledge being a prerequisite to felony conviction.[33]

Despite the existence of a possible cause of action against a wind farm, options are limited as to who can bring it. The U.S. Fish and Wildlife Service (FWS) can bring an action against a wind farm, and the U.S. Department of Justice can then prosecute the case.[34] However, the MBTA does not contain a provision authorizing private citizens or organizations to bring a cause of action, and attempts by private individuals to invoke the MBTA have been unsuccessful.[35] For instance, the Flint Hills Tallgrass Prairie Heritage Foundation brought a class action against Scottish Power alleging that the construction of the company's wind farm in the Flint Hills area violated the MBTA.[36] However, the Tenth Circuit held that the MBTA did not allow for a private cause of action and, even if it did, the cause of action would be limited and inapplicable to the case at hand.[37]

In November 2013, a criminal action was brought against Duke Energy Renewables, Inc. ("Duke Energy") in *United States v. Duke Energy Renewables, Inc.*, and the company pled guilty to a violation of the MBTA "in connection with the deaths of protected birds, including golden eagles, at two of the company's wind projects in Wyoming."[38] The company's violations came to the surface after the discovery of "14 golden eagles and 149 other protected birds, including hawks, blackbirds, larks, wrens and sparrows" at two of the company's wind projects.[39] Despite previous alerts of a possible MBTA viola-

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29 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.02 (footnote omitted); *see also* 16 U.S.C. § 703(a).

30 16 U.S.C. § 703(a).

31 *Id.*

32 *See id.* § 707(b).

33 *Id.* § 707(a)-(b).

34 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.02.

35 *Id.*; *see generally* 16 U.S.C. §§ 703-712.

36 Flint Hills Tallgrass Prairie Heritage Found. v. Scottish Power, PLC, No. 05-1025-JTM, 2005 WL 427503, at *1 (D. Kan. 2005), *aff'd*, 147 Fed. Appx. 785 (10th Cir. 2005).

37 *Id.* 2005 WL 427503 at *3-*4.

38 Press Release, U.S. Dep't of Justice, Util. Co. Sentenced in Wyo. for Killing Birds at Wind Projects (Nov. 22, 2013), *available at* http://www.justice.gov/opa/pr/2013/november/13-enrd-1253.html, *archived at* http://perma.cc/5VZD-RQ49 (discussing Plea Agreement, United States v. Duke Energy Renewables, Inc., No. CR-13-CR-268-R (D. Wyo. Nov. 7, 2013), *available at* http://www.energyenvironmentallaw.com/files/2013/12/USA-v.-Duke-Energy-Renewables-Inc.-Plea-Agreement.pdf, *archived at* http://perma.cc/HD8F-6FDN).

39 *Id.*

tion from the FWS, Duke Energy failed to take prudent steps to construct the wind farms in such a way that would avert the threat of bird deaths caused by crashing into the turbine blades; however, since the onset of the FWS investigation, Duke Energy has established mechanisms to minimize additional bird deaths at its wind farms.[40] Still, the company was ordered to pay fines and restitution to the tune of $1 million and complete community service.[41] Additionally, the company was placed on probation for five years, part of which required the implementation of "an environmental compliance plan aimed at preventing bird deaths at the company's four commercial wind projects" located in Wyoming.[42] Notably, it is reported that the company will pay approximately $600,000 per year to implement the plan.[43] Lastly, the order requires Duke Energy to apply for Eagle Take Permits in the future, which will provide the basis for the mitigation and minimization of further eagle deaths at their projects, if approved.[44]

Duke Energy Renewables, Inc. marks the first criminal enforcement of the MBTA for unpermitted migratory bird takings at wind farms and has helped bring this important environmental issue to the forefront.[45] William Woody, Assistant Director for Law Enforcement of the FWS, gave the following statements regarding the case:

> The [FWS] works cooperatively with companies that make all reasonable efforts to avoid killing migratory birds during design, construction[,] and operation of industrial facilities. But we will continue to investigate and refer for prosecution cases in which companies – in any sector, *including the wind industry* – fail to comply with the laws that protect the public's wildlife resources.[46]

This statement confirms the general impression raised by the federal environmental statutes that, when a company intentionally fails to comply with the statutes, prosecution may be pursued.

The combination of both the MBTA and the BGEPA (involving the future application for Eagle Take Permits) in this case raised a wave of concern among developers.[47] Generally, the perception has been that, if a developer is engaged in an otherwise lawful activity and wildlife is "taken," liability will not be imposed based on the applicable federal statutes.[48] However, the combined use of the MBTA and the BGEPA in *Duke Energy* created uncertainty as to how these statutes would be interpreted going forward—especially the MBTA.[49] This decision created the possibility that the MBTA could be construed as holding a developer strictly liable regardless of whether the developer was engaged in an otherwise lawful activity.[50]

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40 *Id.*
41 *Id.*
42 *Id.*
43 *Id.*
44 *Id.*
45 *Id.*
46 *Id.* (emphasis added).
47 Interview with Sergio Trevino, Dev. & Logistics Team, Pioneer Green Energy, in Austin, Tex. (Mar. 13, 2014).
48 *Id.*
49 *Id.*
50 *Id.*

The lack of an incidental permit provision in the MBTA creates another problem for developers: what action should be taken when it is likely and/or certain there will be migratory birds "taken" at the proposed site without a mechanism available to mitigate injury or death? For this concern, *Duke Energy* will have a significant impact on wind project development going forward. That impact may come in the form of more stringent upfront work (i.e. more detailed environmental studies), or it may deter some unwary developers from going forward with a proposed project at all. Thus, as much emphasis should be placed on the minimization and mitigation of avian deaths as is placed on the selection and development of the wind farm site.

Despite the successful criminal prosecution in *Duke Energy*, there are several roadblocks surrounding the MBTA that make additional enforcement strides difficult to achieve. First, by interpreting the MBTA to require an in intentional action to trigger enforcement, it will likely be difficult to hold a wind farm liable for violation of the MBTA for mere negligence or accident. Additionally, the MBTA can be especially problematic for wind farms for reasons distinct from the ESA and the BGEPA because the MBTA does not contain any compliance provisions.[51] Also unlike the ESA and the BGEPA, the MBTA does not have any language describing development of an approved mitigation plan that allows some protection against bird deaths, "although such permits can be required if the migratory bird or birds killed are either listed endangered species or bald or golden eagles."[52]

Lastly, court interpretations of the sort of conduct required to constitute a violation of the MBTA are themselves considerable roadblocks. To illustrate, *United States v. Brigham Oil & Gas, L.P.* demonstrates the importance of how courts interpret such conduct in evaluating violations under the MBTA.[53] Brigham Oil moved to dismiss an indictment charging it with "taking" migratory birds in violation of the MBTA after deceased birds were found near one of their reserve pits.[54] North Dakota law dictates what constitutes a "reserve pit" and "sets forth the requirements for how and when a reserve pit is to be cleaned up or 'reclaimed.'"[55] The relevant North Dakota law provides:

> A "reserve pit" is "an excavated area used to contain drill cuttings accumulated during oil and gas drilling operations and mud-laden oil and gas drilling fluids . . . during the drilling of an oil and gas well." Reserve pits must be reclaimed within a reasonable time, not to exceed one year, after completion of a well. A reserve pit is not required to be fenced, screened, or netted "unless such pit is not reclaimed in excess of ninety days after completion of the operation."[56]

Upon inspection of the reserve pit, the inspector noted that the pit was not netted or flagged and that two dead mallards were discovered.[57] The inspector fairly believed

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51 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.02; *see generally* 16 U.S.C. §§ 703-712.

52 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.02.

53 *See* United States. v. Brigham Oil & Gas, L.P., 840 F. Supp. 2d 1202, 1208-11 (D. N.D. 2012).

54 *Id.* at 1203.

55 *Id.* at 1204.

56 *Id.* at 1204-05 (citing N.D. CENT. CODE ANN. § 38-08-02 (West 2013)).

57 *Id.* at 1205.

the deaths were a result of exposure to the contents contained in the reserve pit.[58] This "taking" of the mallards was the basis of a suspected violation of the MBTA, leading the court to examine the language of the statute. Based on its ordinary meaning, the court interpreted the word "take" to refer to "conduct directed at birds, such as hunting and poaching, and *not acts or omissions having merely the incidental or unintended effect of causing bird deaths*."[59] Further, the court noted that the "ordinary meaning of the word 'take,' when applied to wildlife, denotes intentionally reducing the wildlife to possession."[60] This definition affirms that the conduct must be intentional, "*not incidental or accidental . . . through lawful commercial activity*."[61]

Based on the case law cited in *Brigham Oil*, it appears that courts are mostly unwilling to extend the MBTA to lawful commercial activities that are not directed at birds and are unrelated to hunting or poaching.[62] The reserve pits used by the defendants in *Brigham Oil* were not aimed at birds or their habitat; instead, "[t]he reserve pits ha[d] little effect on bird habitat, except to attract occasional birds which mistake the pits for a pond or lake."[63] Therefore, the court held "that the use of reserve pits in commercial oil development is *legal*, commercially-useful activity that *stands outside the reach of the . . . [MBTA]*."[64] The relevant issue in this case and cases going forward is the reach of the MBTA, in particular, "whether to 'take' or 'kill' . . . refers to and prohibits any activity that may proximately cause a bird death or whether it only covers conduct directed against wildlife."[65] If the MBTA is extended to include any activity that proximately results in the death of migratory birds, many activities performed every day would become unlawful (i.e. driving a car, owning a cat, or owning a home with windows),[66] an extension that would likely be struck down as overreaching. Although this case addresses the oil and gas industry, it is likely that the decision will have similar implications for the wind industry. *Intentional* conduct directed towards birds or other wildlife will likely be necessary to maintain a violation under the MBTA.

As cited in *Brigham Oil*, other jurisdictions have refused to grant injunctive relief on the basis of an alleged violation of the MBTA. The Eighth and Ninth Circuits interpreted the "take" prohibition in the MBTA to apply to "hunters and poachers" as opposed to those engaged in otherwise lawful commercial activity.[67]

However, there are a few courts that have extended the MBTA to include unintentional, indirect commercial activity. The Tenth Circuit found Apollo Energies ("Apollo") liable for violating the MBTA when dead migratory birds were found lodged in part of their oil drilling equipment.[68] The Tenth Circuit concluded that the lower

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58 *Id.*
59 *Id.* at 1208 (emphasis added).
60 *Id.*
61 *Id.* at 1209 (emphasis added).
62 *See id.* at 1209-11.
63 *Id.* at 1211.
64 *Id.* (emphasis added).
65 *Id.* at 1212.
66 *Id.*
67 *Id.* at 1209 (citing Seattle Audubon Soc'y v. Evans, 952 F.2d 297, 303 (9th Cir. 1991) and Newton Cnty. Wildlife Ass'n v. U.S. Forest Serv., 113 F.3d 110, 115 (8th Cir. 1997)).
68 United States v. Apollo Energies, Inc., 611 F.3d 679, 682 (10th Cir. 2010).

court correctly treated the violations as strict liability offenses, which does not require a knowing or intentionl violation of the law.[69] The Tenth Circuit noted that strict liability crimes have two important due process limitations relevant in *Apollo*: (1) due process requires "fair notice of what conduct is criminal," and (2) "criminalizing acts which the defendant [did] not cause is unconstitutional."[70] The court rejected Apollo's argument that the MBTA is unconstitutionally vague and stated the Act "criminalizes a range of conduct that will lead to the death or captivity of protected migratory birds," including taking, capturing, and killing.[71] Recognizing the difficulty of showing adequate notice and causation, the court said that, to be found guilty, the defendant must have proximately caused the MBTA violation.[72] The Tenth Circuit adopted the lower court's assessment of proximate cause, that is, that liability under the MBTA would attach when the injury "might be reasonably anticipated or foreseen as a natural consequence of the wrongful act."[73] Ultimately, the court affirmed the lower court's decision and held that the defendant had notice of the problem associated with the drilling equipment and that they proximately caused the death of the migratory birds.[74]

The *Apollo Energies* holding coupled with *Duke Energy* and *Brigham Oil* create uncertainty regarding how violations will be interpreted under the MBTA and other federal environmental statutes. Classifying violations under the MBTA as strict liability offenses could have tremendous implications for wind energy development, and it is not clear where the line would be drawn. Arguably, any behavior or action that results in the death or injury of a migratory bird could potentially lead to liability under the MBTA, including driving a car or owning a home with windows. Again, this seems extraordinarily overreaching and problematic for renewable energy developers.

B. ENDANGERED SPECIES ACT

The ESA was promulgated as a means for the conservation and protection of endangered and threatened species.[75] Section 1532 includes definitions pertinent to the application of the ESA.[76] Section 1538 disallows "any person subject to the jurisdiction of the United States to" take any endangered species of fish or wildlife.[77] The term "person means an individual, corporation, partnership, trust, association, or any other private entity."[78] Therefore, "person" reaches any company "proposing to build and operate wind

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69 *Id.* at 684-86.
70 *Id.* at 687.
71 *Id.* at 688-89.
72 *Id.* at 689.
73 *Id.* at 690.
74 *Id.* at 691.
75 16 U.S.C. § 1531(b).
76 *Id.* §§ 1532(6), 1532(8) (for example, "endangered species means any species which is in danger of extinction throughout all or a significant portion of its range . . ." and "fish or wildlife means any member of the animal kingdom, including . . . any mammal, fish, bird (including any migratory, nonmigratory, or endangered bird for which protection is also afforded by treaty or other international agreement) . . . and includes any part . . . or the dead body or parts thereof.").
77 *Id.* § 1538(a).
78 *Id.* § 1532(13).

facilities on privately owned land."[79] The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[80] Section 1540 sets out the penalties for violations of the ESA and enforcement thereof in providing that "any person who knowingly violates . . . any provision of this chapter, or any provision of any permit . . . or any regulation issued" may incur a civil penalty ranging from no more than $25,000 for each violation, depending on the person's designation (i.e. an importer or exporter may be assessed the highest penalty).[81] The act includes penalties for criminal violations, including imprisonment and even higher fines.[82] Notably, to trigger the ESA, the prohibited conduct must be intentional.[83] Contrary to the MBTA, the ESA explicitly enables enforcement actions by private citizens.[84] For example, in *Animal Welfare Institute v. Beech Ridge Energy* (which will be explored further near the end of this section), a private citizen successfully brought a cause of action.[85]

Additionally, unlike the MBTA, the ESA provides wind farm developers with alternative means of continuing development in the event that the FWS determines that a proposed wind farm will further jeopardize a particular species.[86] One of these alternative means is an incidental take permit.[87] An incidental taking has occurred "if such taking is incidental to, and not the purpose of, carrying out . . . an otherwise lawful activity."[88] A permit will not be issued unless the applicant submits a conservation plan that specifies:

i. the impact which will likely result from such taking;
ii. what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
iii. what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
iv. such as measures that the Secretary may require as being necessary or appropriate for purposes of the plan.[89]

If the Secretary finds that the permit application and the conservation plan meet the requirements, including that the "taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild," the Secretary shall issue the permit containing the necessary terms and conditions.[90] The permit must be revoked at any time if the Secretary finds the terms and conditions of the permit are not being fol-

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79 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.03.
80 16 U.S.C. § 1532(19).
81 *Id.* § 1540(a).
82 *Id.* § 1540(b).
83 *See id.* § 1540(a)-(b) (note the word "knowingly").
84 16 U.S.C. § 1540(g).
85 Animal Welfare Inst. v. Beech Ridge Energy LLC, 675 F. Supp. 2d 540, 542 (D. Md. 2009); Smith, DeWolf, Wetsel, Diffen, *supra* note 11, at § 10.03.
86 Smith, DeWolf, Wetsel, Diffen, *supra* note 11, at § 10.03.
87 16 U.S.C. § 1539(a)(1)(B).
88 *Id.*
89 *Id.* § 1539(2)(A)(i)-(iv).
90 *Id.* § 1539(2)(B).

lowed.[91] Other alternatives to permits are analyzed more thoroughly later in Section V of this note.

To reiterate, the environmental impacts posed by wind farm development are both direct or indirect.[92] Though it may not be probable that wind turbines "will *directly* kill endangered birds or bats, the wind turbines and . . . [other] infrastructure may result in a 'take' because of significant habitat modification of the species."[93] Habitat alteration includes habitat fragmentation and elimination of a habitat.[94] In the definition of "take," the FWS has codified harm to mean "an act which actually kills or injures wildlife . . . [including] significant habitat modification or degradation . . . by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."[95] The FWS definition was sustained in *Babbitt v. Sweet Home Chapter, Communities for Great Oregon* "as consistent with the language and purpose of the act and the FWS's conclusion that habitat degradation and destruction are among the major causes of species decline."[96] This analysis of the ESA will remain powerful for prospective projects located within an endangered or threatened species' habitat.[97] For example, commercial development within western portions of Travis County near Austin, Texas was generally halted when, in the mid-1990s, the Golden-cheeked Warbler and Black-capped Vireo were listed as endangered species and critical habitat was designated.[98] While these birds are not directly affected by wind energy projects, what happened with their listing is a reminder of what wind farm developers could easily face.

Wind law practitioners and scholars predict that, if the Lesser Prairie Chicken, "an increasingly rare type of grouse, is designated as endangered, the impact on proposed wind farms in the Texas Panhandle and possibly Kansas may be the same."[99] Notably, the Lesser Prairie Chicken has been detected in the Texas Panhandle and other locations where a large number of wind farms currently exist or are recommended.[100] The potential environmental impact on the grouse is indirect because it is a grassland bird that generally does not fly within the range of the turbine blades.[101] However, the birds "apparently perceive any tall structure, . . . [including] wind turbines and transmission poles, as potential perches" for predators.[102] Although the grouse are unaware that their predators cannot perch atop the structures, the fear induces the birds to abandon the particular location or stop mating.[103]

In 2009, a non-profit organization brought an action seeking declaratory and injunctive relief against Beech Ridge Energy alleging that the construction and operation of its

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91 *Id.* § 1539(2)(C).
92 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.01.
93 *Id.* § 10.03 (emphasis added).
94 *Id.*
95 50 C.F.R. § 17.3 (2012).
96 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.03 (citing Babbitt v. Sweet Home Chapter of Cmtys. for a Great Or., 115 U.S. 687, 708 (1995)).
97 *Id.* at § 10.03.
98 *Id.*
99 *Id.*
100 *Id.*
101 *Id.*
102 *Id.*
103 *Id.*

wind project would "take" endangered Indiana bats in violation of the ESA.[104] The case was "about bats, wind turbines, and two federal policies, one favoring protection of endangered species and the other encouraging development of renewable energy resources."[105] In the late 1960s, the FWS designated the Indiana bat at risk for extinction under an earlier version of the ESA, and the bat currently remains listed as endangered.[106] The Indiana bat is a "migratory bat whose behavior varies depending on the season"; in the fall, the bats migrate to caves, emerge in the spring, and female bats give birth during the summer.[107] The recovery plan for the Indiana bat put forth by the FWS was updated in 2007 and designed to ultimately remove the bat from the endangered species list.[108] Research revealed, undisputed by the parties, "that wind . . . facilities cause bat [deaths] and injuries through both turbine collisions and barotrauma," and that "damage [is] caused to enclosed air-containing cavities as a result of a rapid change in external pressure, usually from high to low."[109]

Additionally, development of wind projects might "kill, injure, or disrupt bat behavior" when trees are removed and possible nesting areas are demolished.[110] In 2005, BHE Environmental, Inc. (BHE) was hired as the environmental advisor to the Beech Ridge Energy project.[111] BHE suggested a preconstruction bat presence survey, and the FWS agreed this "was a reasonable level of effort," but noted that the survey would only show the presence of bats during the summer time.[112] During a survey conducted by BHE, various species were captured, many escaping before identification, but BHE did not catch any Indiana bats.[113] Beech Ridge Energy applied for the necessary certificate to go forward with construction at the project site.[114] While it appeared that the FWS was satisfied with the results from the surveys conducted during the summer months, the impact on the migrating bats was a continuing concern that needed to be addressed given the close proximity of the project to a large number of caves.[115] Therefore, after some prompting and an indication that the FWS was unwilling to accept a project that had potentially high impacts on migratory bats without a commitment to mitigate, BHE conducted a cave survey.[116] Again, no Indiana bats were identified in the caves surveyed by BHE; however, the concerns remained.[117] BHE conducted additional surveys and recommended studies to conducted during the summer, once again finding a low risk of harm to Indiana bats.[118] Despite seemingly favorable results, the final assessment contained the following cautionary statement:

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104 Animal Welfare Inst. v. Beech Ridge Energy LLC, 675 F. Supp. 2d 540, 542 (D. Md. 2009).
105 *Id.*
106 *Id.* at 545.
107 *Id.* at 547.
108 *Id.*
109 *Id.*
110 *Id.* at 548.
111 *Id.* at 549.
112 *Id.*
113 *Id.* at 550.
114 *Id.*
115 *Id.* at 551.
116 *Id.*
117 *Id.*
118 *Id.* at 553.

> [The] likelihood of an Indiana bat maternity colony in the project area is very low. However, considering the proximity of the project area to known and potential hibernacula, there is perhaps potential for presence of male Indiana bats roosting and or foraging within the project area during the summer, and migrating/staging/swarming individuals utilizing the project area during spring and fall.[119]

In response to this final assessment, the "FWS again recommended that BHE conduct a minimum of three years of pre-construction surveys and studies . . . and conduct mist-net surveys during *fall and spring migration*" and advised the developers to put a plan in place to minimize the danger of harm to the endangered species.[120] Ultimately, an order granting the necessary certificate was issued stating the evidence offered did not support a conclusion that Indiana bats lived nearby.[121] The order had several conditions and, despite the conclusion that Beech Ridge Energy had satisfied the preconstruction conditions set forth, the FWS continued to express concern regarding the potential impact on migratory bats.[122] The project moved forward, and the non-profit organization brought an action seeking injunctive relief against Beech Ridge Energy to prevent any future harm to the endangered bats.[123]

Because the action related to future harm as opposed to a past or current actual injury or harm, the court had to decide the appropriate standard for establishing a taking under the ESA. The case law is not uniform on that issue, with most courts requiring a showing of actual harm and others requiring a plaintiff to show a "reasonable certainty of imminent harm."[124] This court adopted the standard put forth by the Ninth Circuit, and held that, in an action brought under the ESA:

> a plaintiff must establish, by a preponderance of the evidence, that the challenged activity is reasonably certain to imminently harm, kill, or wound the listed species. To require absolute certainty. . .would frustrate the purpose of the ESA to protect endangered species before they are injured and would effectively raise the evidentiary standard above a preponderance of the evidence.[125]

Beech Ridge Energy focused on the area within five miles of the project and, because of the seemngly favorable results from the studies and surveys conducted, it seemed as though Beech Ridge Energy believed it was unlikely Indiana bats would be impacted, let alone that they were present in large numbers. However, this belief was rejected by the court, which stated the five-mile distance was irrelevant with regard to the presence of Indiana bats during migration as the bats were known to travel hundreds of miles during migration.[126] The surveys performed were inadequate considering they were performed during the summer and not during months when migratory Indiana bats might be present. Although Beech Ridge Energy put forth various arguments, including that "Indiana

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119 *Id.*
120 *Id.* at 554 (emphasis added).
121 *Id.*
122 *Id.* at 556-57.
123 *Id.* at 542.
124 *Id.* at 563.
125 *Id.* at 563-64.
126 *Id.* at 568.

bats do not fly at the height of the turbine blades," the court granted injunctive relief because it found the Beech Ridge Project would result in a take of Indiana bats.[127] The court did not prohibit Beech Ridge Energy from completing the turbines already under construction, but prohibited additional turbine construction from continuing without an incidental take permit, even though the court conceded that it could not require Beech Ridge Energy to apply for or obtain the permit.[128] Further, the court did not prohibit Beech Ridge Energy from operating the wind turbines it already had under construction once completed, but limited operation from November to March, when the bats are hibernating.[129]

This case perfectly illustrates the competing interests between the desire to increase development of renewable energy and the desire to protect endangered species. Notably, the court did not necessarily believe the policies at issue in *Beech Ridge* clashed with one another and instead stated:

> [T]he tragedy of this case is that Defendants disregarded not only repeated advice from the FWS but also failed to take advantage of a specific mechanism, the ITP process, established by federal law to allow their project to proceed in harmony with the goal of avoidance of harm to endangered species. [Further], [the] development of wind energy can and should be encouraged, but wind turbines must be good neighbors.[130]

The court in *Beech Ridge* supported the growth and development of renewable energy resources as long as the developers did their due diligence in using the available mechanisms to minimize or mitigate injury or death to endangered species. When the two competing interests work together, both interests can be served.

The FWS completed an environmental impact statement (EIS) in September 2013 "for the Beech Ridge Energy Project, which [was] seeking an incidental take permit to harm or kill up to 67 bats over the next 25 years."[131] A conservation plan was included detailing the actions Beech Ridge must take to avoid, minimize, and mitigate the harm or death of the endangered bat species.[132] Operation of the already-completed turbines remained restricted to "times of the day and year when bats do not normally fly."[133] Further operating restrictions will also be implemented, such as lowering the turbine speed when bat activity increases.[134] The FWS concluded that "these measures will reduce bat mortality with relatively small losses in power generation" largely because of studies performed at other projects.[135] Moreover, the project's developer "has agreed to undertake two off-site mitigation projects, both of which must be implemented within two years of the issuance of the take permit."[136]

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127 *Id.* at 576, 580.
128 *Id.* at 580-81.
129 *Id.* at 581.
130 *Id.* at 581, 583.
131 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.03.
132 *Id.*
133 *Id.*
134 *Id.*
135 *Id.*
136 *Id.*

C. The Bald and Golden Eagle Protection Act

Birds of prey are more likely to perish due to wind turbines because they generally fly at the level at which the turbine blades are rotating.[137] Because of this, the BGEPA has powerful ramifications for wind farm developers.[138] The BGEPA prohibits "whoever, within the United States or any place subject to the jurisdiction thereof, without being permitted to do so . . . [from] knowingly, or with wanton disregard for the consequences of his act take [or] possess . . . any bald eagle . . . or any golden eagle, alive or dead."[139] "Whoever" in the BGEPA includes associations, corporations, and partnerships, including any company pursuing development of a wind farm.[140] "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."[141] "Disturb" is further defined as:

> To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.[142]

The BGEPA provides fines for violations ranging from $5,000 to $10,000, depending on different factors, such as whether the violator is a repeat offender (i.e. second or subsequent violations present a higher fine), and imprisonment (ranging from up to one or two years), or both.[143] An eagle take permit is analogous to the incidental take permit available under the ESA. The "permit authorizes take of bald eagles and golden eagles where the take is . . . associated with but not the purpose of the activity."[144] The BGEPA sets forth several permit conditions including "[compliance] with all avoidance, minimization, or other mitigation measures . . . to compensate for the detrimental effects, including indirect effects, of the permitted activity on the regional eagle population."[145] The standard permit term is five years, less than the time frame over which most wind farms operate.[146] The FWS is contemplating enlargement of the standard permit term from five years to thirty years, but the American Bird Conservatory has opposed such a measure.[147]

There are no reported cases involving wind farms and the BGEPA, though many cases are on the cusp of litigation.[148] The Army Corps of Engineers (the "Corps") approved "a wind farm on federal land that would consist of [fifty] wind turbines on mountain tops and almost [sixty] miles of transmission lines."[149] Subsequently, several property

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137 *Id.* at § 10.04.
138 *Id.*
139 16 U.S.C. § 668(a).
140 *Id.* § 668c.
141 *Id.*
142 50 C.F.R. § 22.3.
143 16 U.S.C. § 668.
144 50 C.F.R. § 22.26(a).
145 *Id.* § 22.26(c)(1).
146 *Id.* § 22.26(h); *see also* Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.04.
147 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.04
148 *Id.*
149 *Id.* (internal citations omitted).

owners and environmental organizations filed suit against the the Corps, claiming the potential impacts on bald eagles was not sufficiently explored and the Corps neglected to request a biological assessment from the FWS.[150] The property owners and environmental organizations opined that habitat fragmentation would already be well underway by the time operations commenced.[151]

Even though it is correctly asserted that "bald and golden eagles are not common avian species, their special protection" paves way to additional hurdles around which wind developers must maneuver.[152] The exceptional regard for the symbolic bald eagle is not without merit; moreover, when eagles are injured or killed, individuals and organizations mobilize, prompting a stringent enforcement of the BGEPA.[153]

D. The National Environmental Policy Act

NEPA was signed into law in January 1970 "[establishing] national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies."[154] NEPA can be triggered when a proposed wind farm site is on federal land or when "action by a federal agency is involved," such as "applications for 'incidental take' permits under the ESA [or] the BGEPA."[155] The NEPA process includes an assessment of the environmental impacts of a particular federal action as well as its alternatives, with three stages of inquiry: "categorical exclusion determination; preparation of an environmental assessment/finding of no significant impact; . . . and preparation of an [EIS]."[156] Assuming the action is not categorically excluded from the application of NEPA, an environmental assessment is performed to determine whether the action would significantly impact the environment.[157] If the assessment reveals any possible significant environmental impact, an EIS must be prepared by the relevant agency and a draft EIS is subject to notice and public comments.[158] While this is not an exhaustive list, an EIS should consist of the following: "discussions of the purpose of and need for that action, alternatives, the affected environment, [and] the environmental consequences of the proposed action."[159] At the conclusion of the comment period, the federal agency can tender a Final Environmental Impact Statement (FEIS) and ultimately a Record of Decision (ROD).[160] While the federal agency can authorize the proposed action notwithstanding it having an adverse environmental impact, this rarely happens.[161]

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150 *Id.*
151 *Id.*
152 *Id.*
153 *Id.*
154 *National Environmental Policy Act (NEPA)*, U.S. Envtl. Prot. Agency, http://www.epa.gov/compliance/basics/nepa.html (last updated Feb. 10, 2014), *archived at* http://perma.cc/3W9T-JDVW.
155 42 U.S.C. §§ 4321-4335; Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.01.
156 *National Environmental Policy Act (NEPA)*, *supra* note 154.
157 *Id.*
158 *Id.*
159 *Id.*
160 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.01.
161 *Id.*

As previously discussed, grouse and other grassland birds need expansive, uninterrupted space. Wind farm development is accompanied by infrastructure that has a potentially adverse impact on the grassland birds.[162] In response to the infrastructure, the grassland birds "attempt to move to other locations and in many instances suffer a sharp reduction in population."[163] An environmental group fruitlessly sought relief to prevent the U.S. Bureau of Land Management (BLM) from continuing "with its authorization for site clearing and construction for a wind farm within three miles of an area utilized for greater sage grouse leks."[164] Grouse and other grassland birds apparently perceive the enormous structures within the wind farm as resting places for predators, causing them to move out of the area or stop mating.[165] Both of these scenarios are likely to prompt preparation of an EIS and may lead to cessation or abandonment of the project, depending on the findings from the applicable federal agency. The Oregon Natural Desert Association alleged a NEPA violation when the BLM "issued a FEIS and ROD approving the grant of a right of way for a transmission line for a wind farm project."[166] The court rejected the environmental group's arguments and found that the "BLM had adequately considered the project's impact on fragmentation of the habitat of the sage grouse; that the agency's FEIS contained adequate information about the project's impact on sage grouse and golden eagles, and that its action did not violate its own policies regarding eagles and sage grouse."[167]

E. U.S. Fish and Wildlife Guidelines for Wind Energy Development

The FWS has created "voluntary guidelines provid[ing] a structured, scientific process for addressing wildlife conservation concerns at all stages of land-based wind energy development."[168] These guidelines aid developers in identifying the species, particularly endangered and threatened species, that are potentially affected by proposed projects, including migratory birds, bats, bald and golden eagles, and prairie and sage grouse.[169] Federal law may prevent wind farm development in some locations, while development in other locations may be determined to be unsuitable because high wildlife value has been associated with the given location upon evaluation of impacted wildlife using these guidelines.[170] The guidelines provide a tiered, multi-phased approach to engage this scientific process, including:

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162 *Id.*
163 *Id.*
164 *Id.* (citing W. Watershed Project v. Bureau of Land Mgmt., 2011 U.S. Dist. LEXIS 50056 (D. Nev. Apr. 28, 2011), *aff'd*, 443 Fed. Appx. 278 (9th Cir. 2011)).
165 *Id.*
166 *Id.* (citing Or. Natural Desert Ass'n v. Jewell, No. 3:12-cv-00596-MO, 2013 WL 5101338 (D. Or. 2013)).
167 *Id.*
168 U.S. FISH & WILDLIFE SERV., LAND-BASED WIND ENERGY GUIDELINES vi (2012), *available at* http://www.fws.gov/windenergy/docs/weg_final.pdf, *archived at* http://perma.cc/425S-4AHH.
169 *Id.*
170 *Id.*

> Tier 1 – Preliminary site evaluation (landscape-scale screening of possible project sites);
> Tier 2 – Site characterization (broad characterization of one or more potential project sites);
> Tier 3 – Field studies to document site wildlife and habitat and predict project impacts;
> Tier 4 – Post-construction studies to estimate impacts; [and]
> Tier 5 – Other post-construction studies and research.[171]

During the first, second, and third tiers, "developers are working to identify, avoid[,] and minimize risks to species of concern," and during the fourth and fifth tiers, "developers are assessing whether actions taken in earlier tiers to avoid and minimize impacts are successfully achieving the goals and, when necessary, taking additional steps to compensate for impacts."[172] The benefit of this approach is that it provides for constant evaluation and reevaluation of the decisionmaking throughout the lifetime of the project, thus allowing the developer to make informed decsions on whether to continue, slow, or forego altogether the proposed project based on this evolving information.[173] However, the approach does not mandate that each tier be carried out for each project.[174]

Open communication between the developer and the FWS, especially early on, is one of the most important aspects of development because it enables the developer to avoid attempting to develop in restricted areas or areas in which the wildlife impacts are certain to be imminent and difficult to overcome.[175] While following the FWS guidelines is discretionary, the guidelines do not remove compliance obligations with statutes like the ESA and MBTA. "[H]owever, if a violation occurs [FWS] will [evaluate] . . . efforts to communicate with [FWS] and adhere[nce] to the guidelines."[176] The FWS guidelines, therefore, work in conjunction with the federal environmental statutes because the results obtained from any wildlife and habitat evaluations act as a guide in assisting developers with compliance with the applicable laws and regulations.

Even though the FWS guidelines are voluntary and do not have any legal force, they are generally construed as such.[177] As illustrated by the *Beech Ridge* case, courts often rely on the guidelines when evaluating whether a developer has done its due diligence in complying with various requirements.[178] This reliance likely results from the fact that the guidelines are the only mechanism that courts have to inform their evaluations of due diligence.[179] While not every developer actively engages the FWS in the development process, compliance with the guidelines may help minimize exposure to liability.

In tandem with the guidelines, it is worth emphasizing how important financing a wind farm project is. Without approved financing, the project will not go forward.[180]

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171 *Id.*
172 *Id.*
173 *Id.*
174 *Id.*
175 *Id.* at vii.
176 *Id.*
177 Interview with Sergio Trevino, *supra* note 47.
178 Animal Welfare Inst. v. Beech Ridge Energy LLC, 675 F. Supp. 2d 540, 571 (D. Md. 2009).
179 Interview with Sergio Trevino, *supra* note 47.
180 *Id.*

Part of the financial review and approval process involves an analysis of whether the FWS guidelines were followed and what conflicts, if any, may have arisen between the FWS and the wind farm developer.[181] While it is possible to maneuver around conflict with the FWS (i.e. if FWS is being unreasonable with regard to disapproval or denial of a proposed project), this is generally an uphill battle, especially when financial approval is at stake.[182]

IV. THE CURRENT REGULATORY STRUCTURE CREATES TENSION BETWEEN WIND ENERGY DEVELOPMENT AND WILDLIFE PROTECTION

The need for alternative forms of renewable energy creates tension between wind energy advocates and those zealously in favor of protecting the environment. The lack of uniformity between jurisdictions and localities regarding compliance and enforcement of the relevant statutes and guidelines adds fuel to the fire. Case law readily demonstrates the disparity between jurisdictions in enforcing statutes like the MBTA and the ESA. *Brigham Oil* holds that *unintentional*, accidental behavior related to commercial activity will not rise to criminal liability though migratory birds may be injured or killed.[183] On the other hand, *Duke Energy* makes it abundantly clear that *intentional* behavior leading to bird injury or death will not be tolerated.[184] While the reasoning of both cases is logical, neither result gives a clear answer as to how strictly the statutes will be interpreted. Further, the MBTA has been extended to include unintentional behavior, thus classifying violations as strict liability offenses.[185] In addition to case law inconsistency, vast differences between localities in promulgation and enforcement of guidelines likewise exist.

As previously stated, the FWS guidelines are voluntary even though many construe them as a requirement.[186] Some states have created their own set of guidelines in addition to the FWS guidelines. For example, the California Environmental Quality Act (CEQA) was designed to provide guidance "during issuance of permits and approval of projects."[187] The purpose of CEQA is to:

> Disclose to the public the significant environmental effect of a proposed discretionary project . . . ; prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring; disclose to the public the agency decision-making process utilized to approve discretionary projects . . . ; enhance public participation in the

181 *Id.*
182 *Id.*
183 United States. v. Brigham Oil & Gas, L.P., 840 F. Supp. 2d 1202, 1213 (D. N.D. 2012).
184 Plea Agreement, United States v. Duke Energy Renewables, Inc., No. CR-13-CR-268-R (D. Wyo. Nov. 7, 2013).
185 United States v. Apollo Energies, Inc., 611 F.3d 679, 683-84 (10th Cir. 2010).
186 *See supra* Part III.E.
187 *A Summary of the California Environmental Quality Act* (CEQA), CAL. DEPT. OF FISH &WILDLIFE,? https://www.dfg.ca.gov/habcon/ceqa/ceqapolicy.html (last visited Mar. 18, 2014), *archived at* http://perma.cc/E7K8-XQHZ.

> environmental review process . . . ; and improve interagency coordination through early consultations, . . . and other measures.[188]

A failure to comply with CEQA in providing a complete disclosure of information during the process may leave the project developer open to potential litigation.[189] Like the FWS, compliance with CEQA does not relieve a developer of compliance with any of the applicable federal statutes.[190] Nor does compliance with the federal statutes negate compliance with CEQA. Thus, CEQA works in conjunction with the federal statutes. Additionally, the California Energy Commission, in coordination with the California Department of Fish and Game, developed voluntary guidelines "to help reduce impacts to birds and bats from new development or repowering of wind energy projects."[191] Similar to the FWS guidelines, the California guidelines range from "recommendations [for] preliminary screening of proposed . . . sites . . . [to] develop[ment] [of] avoidance and minimization measures."[192]

Although not every state has created voluntary guidelines that parallel the FWS guidelines, many cities or localities have established their own guidelines.[193] The range of variation in the guidelines can place a significant burden on wind farm developers. The developer must verify that it has complied with *every* guideline when developing projects in each jurisdiction. At some point, this process becomes very costly and time-consuming. One way to minimize this burden would be to create a national set of standards. The national standards could either remain voluntary or provide a clear and unambiguous path for compliance and enforcement if mandated.

To increase the availability of renewable energy sources, wind energy development undoubtedly will have an impact on the environment. The impact on the environment creates an unintended consequence that needs to be adequately addressed. Current mitigation and minimization efforts help balance the need for wind farm development with environmental protection, the two competing interests at stake. Other possibilities could also be explored and provided, as discussed below.

V. Possible Solutions to Address the Tension

There are three different ways to address the problems created by the current regulatory scheme: permitting provisions within the federal statutes, avian or other wildlife protection plans, and purchase of land for wildlife conservation.

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188 *Id.*

189 *Id.*

190 *Id.*

191 Cal. Energy Comm'n, California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development abstract (Oct. 2007), *available at* http://www.energy.ca.gov/2007publications/CEC-700-2007-008/CEC-700-2007-008-CMF.PDF, *archived at* http://perma.cc/H446-57MK.

192 *Id.*

193 Interview with Steven DeWolf, Professor, The Univ. of Tex. Sch. of Law, in Austin, Tex. (Mar. 21, 2014).

The ESA and the BGEPA have provisions for application and approval of incidental take permits.[194] These provisions are seemingly a mechanism for ensuring compliance with the statutes, while recognizing that the developer cannot prevent every adverse impact on wildlife. To reiterate, a developer can apply for an incidental take permit under the ESA when the taking is not the purpose of carrying out an otherwise lawful activity.[195] Similarly, an eagle take permit "authorizes [taking] of bald eagles and golden eagles where the [taking] is . . . associated with but not the purpose of the activity."[196] Creation of a streamlined permitting process that incorporates a permitting provision under the MBTA is ideal; the current process, however, has multiple layers and steps to follow. A streamlined permitting process, on the other hand, would be more transparent and simplified. Additionally, a succinct permitting process would alleviate ambiguities in the interpretation of what activity rises to a "take" and would provide steps for developers to follow if permitting is necessary.

An avian protection plan is another option.[197] These plans consist of "an initial risk assessment, design, and operation of the wind farm turbines to avoid or minimize impacts with the migratory birds, and post-construction monitoring that may lead to changes in the timing of operation."[198] As an example, Iberdrola Renewables has completed extensive on-site environmental studies, strategically placed turbines, and used a technologically-advanced Merlin avian radar system at its Peñascal wind farm in Texas.[199] The Merlin avian radar system detects "major bird migration activity, and when high numbers of birds are present near the turbines under low visibility conditions, turbines [are] shut down until those conditions pass."[200] The measures Iberdrola has taken have lessened the impact on wildlife and the environment.[201] Similar to an avian protection plan are the Eagle Conservation Plan Guidelines (ECPG). In response to the special status given to eagles in the United States, the FWS promulgated guidelines to assist developers in the creation and implementation of an eagle conservation plan.[202] The ECGP are meant to supplement the FWS Wind Energy Guidelines through a similar framework, including five different tiers beginning with preliminary site evaluation and concluding with post construction surveys.[203] The ECPG provides another avenue for wind farm developers to take when attempting to boost the supply of renewable energy while simultaneously protecting wildlife.

Beyond permitting and other voluntary guidelines, wind developers could agree to purchase land near the proposed wind farm site and dedicate that land to wildlife conser-

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194 16 U.S.C. §§ 1539(a)(1)(B), 1539(a)(2)(A); 50 C.F.R. §§ 22.26.

195 16 U.S.C. § 1539(a)(1)(B).

196 50 C.F.R. § 22.26(a).

197 Smith, DeWolf, Wetsel, & Diffen, *supra* note 11, at § 10.02.

198 *Id.*

199 *Avian and Bat Protection*, IBERDROLA RENEWABLES, http://iberdrolarenewables.us/b2c-avian.html (last visited Jan. 5, 2015), *archived at* http://perma.cc/3DBP-MVU8.

200 *Id.*

201 *Id.*

202 U.S. FISH & WILDLIFE SERV., DIV. OF MIGRATORY BIRD MGMT., EAGLE CONSERVATION PLAN GUIDANCE: MODULE 1 - LAND-BASED WIND ENERGY ii (2013), *available at* http://www.fws.gov/migratorybirds/Eagle_Conservation_Plan_Guidance-Module%201.pdf, *archived at* http://perma.cc/VL4N-U4KD.

203 *Id.*

vation. Effectively, this land would remain undeveloped. Wind farm developers would work with the appropriate authorities to establish the conservation area and take the necessary steps to ensure the land remains free of human interference. If it is not feasible to purchase land specifically for conservation efforts, then the wind farm developer could agree to contribute a set amount of money to an appropriate agency or organization whose objective is wildlife conservation. As an example, Duke Energy Renewables was "required to contribute $340,000 to a conservation fund for the purchase of land, or conservation easements on land, in Wyoming containing high-use golden eagle habitat, which will be preserved and managed for the benefit of that species."[204] That is a perfect example of how a company could contribute the necessary funds for land purchase in the event the company did not purchase the land themselves.

VI. Conclusion

While it is true the cost of implementing any of the possible solutions may be high, each will allow further development of wind energy while (hopefully) mitigating or avoiding environmental impacts. One interest should not shut out the other. There should not be a winner and a loser between wind energy development and protection of wildlife. Instead, it can be a "win-win" situation; that is, continued renewable energy growth and necessary protection of vulnerable wildlife.

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204 Press Release, U.S. Dep't of Justice, *supra* note 38.

Come Hell or No Water: The Need to Reform the Farm Bill's Water Conservation Subsidies

By Danielle Wolfson

I. Introduction

Approximately 1.2 billion people, or almost 20% of the world's population, live in areas suffering from physical water scarcity.[1] This problem is exacerbated by the fact that water use has grown at more than twice the rate of the population increase in the last century.[2] While there is enough freshwater on the planet to support 7 billion people, in many instances, water is unevenly distributed, wasted, polluted, and unsustainably managed.[3] As a result, an increasing number of regions globally are running short of water.[4]

Unfortunately, the United States is no exception to the growing number of countries facing water scarcity issues.[5] In fact, many major metropolitan and agricultural areas in the United States are at high risk for water crises.[6] Part of the problem is that, since

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1 *Water for Life Decade*, *Water Scarcity*, United Nations Dep't of Econ. & Soc. Affairs, http://www.un.org/waterforlifedecade/scarcity.shtml (last updated Nov. 24, 2014), *archived at* http://perma.cc/9NRS-RRUV.

2 *Id.*

3 *Id.*

4 *Id.*

5 *See id.*

6 Daniel Shi et al., Columbia Water Ctr., America's Water Risk: Water Stress and Climate Variability 7-8 (Feb. 2013), *available at* http://water.columbia.edu/files/

1950, the population of the United States has increased by 99% with a corresponding 127% increase in total water withdrawals.[7] During the same period, agricultural water use has increased 43%[8] despite advances in irrigation technology.[9] Much of this combined increase in water use is consumptive (such as that from both domestic and agricultural use),[10] which increases the effects of depletion because such water cannot immediately be put to another use.[11] Agricultural and domestic uses of water are not the only causes of depletion of groundwater resources. Other consumptive uses include non-agricultural irrigation, industrial, thermoelectric, livestock, aquaculture, mining, and public supply.[12] While these consumptive uses do not draw entirely on groundwater,[13] increased consumption of all of these uses has contributed greatly to aquifer depletion in many parts of the country and in most parts of the world.[14] As withdrawals from aquifers increase beyond the rate of recharge, farmers will be left without groundwater and forced to subsist on alternative water supplies for irrigation. In turn, this shift in reliance on water sources may lead to devastating consequences for agriculture. In many areas, groundwater is the only available supply; surface water resources either do not exist or

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2013/09/GB_CWC_whitepaper_climate-water-stress_final.pdf, *archived at* http://perma.cc/ND9W-YCBK; Grace Wyler, *All Around the US, Risks of a Water Crisis are Much Bigger Than People Realize*, BUSINESS INSIDER (May 22, 2013, 3:58 PM), http://www.businessinsider.com/us-drought-water-scarcity-2013-5, *archived at* http://perma.cc/HDZ5-AW8H (discussing the implications of the Columbia studies); *Will Your City Run Dry?*, GrowingBlue (May 15, 2013), http://growingblue.com/case-studies/will-your-city-run-dry/, *archived at* http://perma.cc/LQL8-5WUG.

7 *Will Your City Run Dry?*, GROWINGBLUE (May 15, 2013), *available at* http://growingblue.com/wp-content/uploads/2013/05/GRAPHIC_WaterRisk-Columbia+VeoliaWater.pdf, *archived at* http://perma.cc/5A2B-2GT5.

8 *Id.*

9 GLENN D. SCHAIBLE & MARCEL P. AILLERY, U.S. DEP'T OF AGRIC., WATER CONSERVATION IN IRRIGATED AGRICULTURE 30 (Sept. 2012), *available at* http://www.ers.usda.gov/media/884158/eib99.pdf, *archived at* http://perma.cc/4MPP-5LQY.

10 JOAN F. KENNY ET AL., U.S. GEOLOGICAL SURVEY, ESTIMATED USE OF WATER IN THE UNITED STATES IN 2005 47 (2009), *available at* http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf, *archived at* http://perma.cc/CWK9-JXNF (consumptive water use is the "part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment.").

11 *See id.* at 2, 38 (discussing the differences between consumptive and non-consumptive use and its effect on water depletion).

12 *Groundwater Use in the United States*, U.S. GEOLOGICAL SURVEY, http://ga.water.usgs.gov/edu/wugw.html (last updated Mar. 17, 2014, 11:04 AM), *archived at* http://perma.cc/S4G9-J6RM.

13 *See, e.g.*, *Irrigation Water Use*, U.S. GEOLOGICAL SURVEY, http://ga.water.usgs.gov/edu/wuir.html (last updated Mar. 17, 2014, 11:04 AM), *archived at* http://perma.cc/XDX2-Y4LX (discussing how irrigation draws on both groundwater and surface water resources).

14 *See* LEONARD F. KONIKOW, U.S. GEOLOGICAL SURVEY, GROUNDWATER DEPLETION IN THE UNITED STATES (1900-2008) 1 (2013), *available at* http://pubs.usgs.gov/sir/2013/5079/SIR2013-5079.pdf, *archived at* http://perma.cc/6BDW-TAMD (discussing groundwater depletion in the United States); Sophia Li, *Stressed Aquifers Around the Globe*, N.Y. TIMES (Aug. 13, 2012, 4:36 PM), http://green.blogs.nytimes.com/2012/08/13/stressed-aquifers-around-the-globe/?_r=0, *archived at* http://perma.cc/5F29-D2GG; Wyler, *supra* note 6.

are already fully appropriated, thereby leaving farmers without a means to increase agricultural supplies and, in some cases, without access to sufficient water supplies necessary to maintain current levels of irrigation.[15]

Farmers in the western United States are especially likely to be affected by aquifer depletion because they rely on aquifers to supply approximately half of their irrigation needs.[16] Moreover, aquifer depletion has also contributed to the creation of sinkholes. Normal groundwater levels ordinarily help keep the surface soil in place, but when levels are lowered due to aquifer depletion, the underground structure may fail, causing sinkholes.[17] Regrettably, these are just a few of the problems associated with water scarcity in the United States; the list goes on.[18] These problems are likely to be further exacerbated as water demands from other non-farm uses increase and climate changes affect global water distribution.[19]

One important component of eliminating water scarcity in the United States is minimizing the amount of water used for agricultural purposes because agriculture is the largest, primarily consumptive use of freshwater in the United States.[20] Indeed, agriculture alone accounts for about 80% of consumptive water use,[21] and in many western states that number increases to over 90%.[22] Through the Farm Bill, Congress provided over $1.4 billion from 2004 to 2010 alone to agricultural producers to increase the effi-

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15 *See, e.g.*, CHARLES E. GILLILAND, BUYING RURAL LAND IN TEXAS 85-87 (1st ed. 2012) (noting that in many areas, the Texas Commission on Environmental Quality has fully appropriated surface water, effectively rendering many permits only "paper rights" during times of water scarcity); Michael Wines, *Wells Dry, Fertile Plains Turn to Dust*, N.Y. TIMES (May 19, 2013), http://www.nytimes.com/2013/05/20/us/high-plains-aquifer-dwindles-hurting-farmers.html, *archived at* http://perma.cc/5HZZ-PTC9 (discussing the problems with increasing farmer dependence on groundwater supplied by aquifers, including that as aquifers are "tapped out," farmers will often be left without sufficient water resources for crop irrigation).

16 SCHAIBLE & AILLERY, *supra* note 9, at iii.

17 *Sinkholes*, U.S. GEOLOGICAL SURVEY, http://water.usgs.gov/edu/sinkholes.html (last modified July 17, 2014), *archived at* http://perma.cc/3UTA-8A7D.

18 For example, water toxicity is another problem associated with water scarcity because increasing evaporation rates due to rising temperatures can lead to higher concentrations of toxics and other pollutants in dwindling water supplies, thereby further reducing the available supply of adequate quality water. *See* R.S. Ayers & D.W. Westcot, *Water Quality for Agriculture*, 29 REV. 1, § 4.2 (1989), *available at* http://www.fao.org/docrep/003/t0234e/T0234E00.htm#TOC, *archived at* http://perma.cc/QB2E-T7YL (noting that blending of water supplies may help increase the quantity of adequate quality water available when otherwise there would be an insufficient supply due to toxicity).

19 SCHAIBLE & AILLERY, *supra* note 9, at iv, 1.

20 *See* Kenny et al., *supra* note 10, at 2, 4, 38 (noting that while thermoelectric power is technically the largest use of freshwater at 41%, it is primarily non-consumptive, meaning that the water is largely returned to the water bodies from which it was taken unlike the 37% of freshwater consumed by irrigation, which is primarily consumptive and does not return to the environment from which it was taken).

21 *Irrigation & Water Use*, U.S. DEP'T OF AGRIC., http://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use.aspx#.UogLZGQ9CWF (last updated June 7, 2013), *archived at* http://perma.cc/Y69T-SHV2.

22 *Id.*

ciency of irrigation through the Environmental Quality Incentives Program (EQIP).[23] Additionally, all government agency subsidies for irrigation in the western states alone total $4.4 billion per year.[24] Nonetheless, despite the fact that these subsidies should theoretically incentivize farmers to adopt technologically advanced irrigation systems, over 50% of irrigated acres in agriculture still use less efficient pressure-sprinkler systems rather than dropped-nozzle or drip-irrigation systems.[25] Furthermore, even when farmers take advantage of these subsidies for more efficient irrigation systems, they may fail to reduce their overall water use.[26]

Because agricultural water use has such an important impact on overall water scarcity in the United States, unless there is meaningful change to agricultural water conservation policies, water scarcity will only increase, leading to disastrous results not only for agricultural productivity, but also for societal stability and public health.[27] It is water scarcity that necessitates new attention to the role played by conventional subsidies in affecting agricultural water use. Accordingly, this note explores the role of existing water conservation subsidies for both domestic and foreign agriculture to identify solutions to render Farm Bill water conservation subsidies more effective in promoting actual water conservation. Part II analyzes recent studies demonstrating that water conservation subsidies can actually increase overall water use. Next, Part III assesses the causes for this phenomenon and how likely each of these causes may be in contributing to increased water use in spite of subsidies for more efficient technology, which presumably should decrease water use. Then, Part IV discusses two other models for water conservation in agriculture. The first model was developed by the European Union and has been implemented in the Netherlands and Belgium.[28] The second model has been employed in

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23 SCHAIBLE & AILLERY, *supra* note 9, at iv. EQIP was initially authorized in the 1996 Farm Bill and has been reauthorized every five years along with the Farm Bill. Federal Agriculture Improvement and Reform Act of 1996, Pub. L. No. 104-127, 110 Stat. 888-1197 (1996); Farm Security and Rural Investment Act of 2002, Pub. L. No. 107-171, 116 Stat. 134-540; Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-246, 122 Stat. 923 (2008); *see also* Ron Nixon, *Farm Subsidies Leading to More Water Use*, N.Y. TIMES (June 6, 2013), http://www.nytimes.com/2013/06/07/us/irrigation-subsidies-leading-to-more-water-use.html?_r=0, *archived at* http://perma.cc/XJ6F-GES2 (noting that the Farm Bill is reauthorized every five years).

24 NORMAN MYERS & JENNIFER KENT, PERVERSE SUBSIDIES: HOW TAX DOLLARS CAN UNDERCUT THE ENVIRONMENT AND THE ECONOMY 136 (Island Press 2001) (1997).

25 SCHAIBLE & AILLERY, *supra* note 9, at 30.

26 Nixon, *supra* note 23.

27 William S. Eubanks II, *A Rotten System: Subsidizing Environmental Degradation and Poor Public Health with Our Nation's Tax Dollars*, 28 STAN. ENVTL. L.J. 213, 252-53 (2009) ("Quick steps must be taken to alter our agricultural policies and practices or the growing numbers of disputes over water scarcity will become commonplace and could lead to severe societal instability and deleterious health consequences.").

28 This project was successful enough to be renewed in a second phase. Janice Jiggens & Niels Röling, *Key Informant Studies II: 2nd Generation Water Conservation Project in North Brabant and Limburg*, *in* SLIM CASE STUDY MONOGRAPHS 2A & 2B 61 (May 2004), *available at* https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxzbGltc29jaWFsbGVhcm5pbmdmb3Jpd218Z3g6NmEwY2RiZDBmMzAwMjcwYw, *archived at* http://perma.cc/6XR4-AYL7. In addition, the European Union is continuing research on water

Israel. Finally, in Part V, I use these alternative models as guides for crafting a solution that will ensure that domestic water conservation subsidies reduce overall water use for agricultural purposes throughout the United States.

II. Water Conservation Subsidies Often *Increase* Water Use

Despite the fact that the EQIP seeks to increase the efficiency of irrigation techniques, thereby reducing the overall amount of water consumed by agriculture, recent studies show that these water conservation incentive programs may actually *increase* overall water use.[29]

A recent study of the Upper Rio Grande Basin published by the National Academy of Sciences found that "water conservation subsidies are unlikely to reduce water use under conditions that occur in many river basins" and that such subsidies "can actually increase water depletions."[30] The study examined the water savings, or lack thereof, associated with the adoption of drip irrigation systems financed through subsidy programs.[31] The study found that, as the capital cost of such systems paid by the public agency (as opposed to the farmer) increased, so too would crop yields and acreage. The result, therefore, was overall water depletion despite the fact that the installation of the more efficient irrigation system was supposed to increase water conservation.[32] The study concluded that, even when the amount of water applied to irrigated lands fell, overall water depletions at the basin level increased as a result of water conservation subsidies.[33] The study determined that the less efficient irrigation systems actually resulted in more

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conservation in Europe and has even begun accepting proposals for water conservation pilot programs to prevent the desertification of Europe. *Water Scarcity & Droughts in the European Union*, European Comm'n, http://ec.europa.eu/environment/water/quantity/water_efficiency.htm (last updated Aug. 7, 2013), *archived at* http://perma.cc/J86L-BH8Z.

29 Frank A. Ward & Manuel Pulido-Velazquez, *Water Conservation in Irrigation Can Increase Water Use*, 105 Proc. of the Nat'l Acad. of Sci. 18,215, 18,215 (2008) *available at* http://www.pnas.org/content/105/47/18215, *archived at* http://perma.cc/VLA9-7MDU; Lisa Pfeiffer & Cynthia Lin, Does Efficient Irrigation Technology Lead to Reduced Groundwater Extraction?: Empirical Evidence 1-3 (Oct. 16, 2013), *available at* http://www.des.ucdavis.edu/faculty/Lin/PfeifferLin_irrigationtechnology.pdf, *archived at* http://perma.cc/6MF9-882S. While this note will focus on subsidies for water conservation in the United States, the failure of water conservation subsidies is an international problem. *See, e.g.*, Lorraine Nicol et al., *Toward Sustainable Irrigation: Would Subsidizing Improved Technologies Result in Water Conservation in Alberta, Canada?*, *in* Incentives and Instruments for Sustainable Irrigation 173, 173-175, 186 (H. Bjornlund ed., 2010) (finding that saved water is often used to intensify irrigation rather than reduce it); Thomas Dworak et al., EU Water Saving Potential (Part 1—Report) 47 (July 19, 2007), *available at* http://www.ecologic.eu/download/projekte/900-949/917/917_water_saving_1.pdf, *archived at* http://perma.cc/4GVH-4S97 (noting that subsidies for drip agriculture have, in Valencia, led to new crop patterns and increased total water consumption).

30 Ward & Pulido-Velazquez, *supra* note 29, at 18,215.

31 *Id.* at 18,216.

32 *Id.* at 18,218.

33 *Id.* at 18,219.

water returning to freshwater supplies available for other uses.[34] In contrast, when farmers switched to more efficient drip irrigation, a decreased use of applied water resulted in increased water depletion because drip irrigation loses more water (both in absolute terms and proportionally) to evapotranspiration and redistributes the water in ways that are non-beneficial to replenishing fresh surface and groundwater sources.[35] Importantly, the study also predicted that these results were likely to be further exacerbated because farmers lacked economic incentives to reduce water usage in such a way that correspondingly reduces depletion of the water source.[36] Instead, with the subsidy paying the capital costs of the drip irrigation technology, farmers are more likely to expend resources to increase both crop yields and farmed acreage, thereby further increasing water use and thus water depletion.[37]

While the study's conclusions are somewhat controversial,[38] it generated two important findings. First, more efficient irrigation systems may, under particular circumstances where post-application water from irrigation is ordinarily non-consumptive, significantly alter water distributions so as to deplete groundwater.[39] Second, subsidies encourage farmers to use more water to produce higher yields and irrigate more acreage, which minimizes overall water savings and further exacerbates changed water distributions.[40]

Similarly, the University of California Davis's October 2013 study of the Ogallala Aquifer, also known as the High Plains Aquifer, likewise concluded that water conservation subsidies did not result in overall water conservation.[41] The study examined the increase in irrigation efficiency by comparing the overall amount of water used before and after these technological advances were implemented through subsidies from 1996 to 2005.[42] The subsidies covered in the study, including those from EQIP and the state of Kansas, paid up to 75% of the cost of both new and upgraded irrigation technology, including installation costs.[43] The study focused on the widespread conversion from conventional, high-pressure central pivot irrigation systems to the more efficient dropped-nozzle central pivot irrigation systems, which are 95% to 98% efficient.[44] The results showed that, on average, total groundwater extraction increased despite more efficient technology.[45] Indeed, the rebound effect, which is the ratio of the difference between

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34 *Id.*
35 *Id.* at 18,218-19.
36 *Id.* at 18,219.
37 *Id.*
38 Ben Block, *"Efficient" Irrigation Tool May Deplete More Water*, WORLDWATCH INST., http://www.worldwatch.org/node/5942 (last updated Sept. 28, 2014), *archived at* http://perma.cc/RR8L-8467 (quoting a Kansas State University irrigation specialist who criticized the study because runoff water from irrigation that had previously replenished groundwater sources was not as valuable as the pristine freshwater that was saved by decreasing overall water use).
39 Ward & Pulido-Velazquez, *supra* note 29, at 18,218-19.
40 *Id.* at 18,218-19.
41 PFEIFFER & LIN, *supra* note 29, at 3.
42 *Id.* at 3-4.
43 *Id.* at 4.
44 *Id.* at 4, 8.
45 *Id.* at 16.

the projected and actual benefit as it relates to the projected benefit,[46] was over 100%.[47] Because fields were left fallow or unirrigated less often, larger percentages of fields were irrigated, and more water was applied per acre (2.5% increase).[48] Put simply, increased efficiency in irrigation ultimately resulted in no water savings; rather, when irrigation became more efficient, more water was used for irrigation purposes.[49]

III. Legal, Economic, Geographic, and Political Factors Cause Water Depletion to Continue even after the Implementation of More Efficient Irrigation Systems

Notably, there are two categories of causes for water depletion or lack of water conservation in agriculture in the United States. The first category involves the failure to install more efficient irrigation systems.[50] The second, and perhaps more important, category involves the interaction of several factors that cause farmers to increase overall water use once these more efficient irrigation systems are installed despite needing less water to produce the same amount of crops; these factors include legal, economic, geographic, and political considerations.[51]

Under the surface water regulatory regimes of many states, especially those in the west, the foundational doctrine of prior appropriation requires continuous "beneficial use" to maintain a right to a certain amount of water.[52] Consequently, when a farmer

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46 Frank Gottron, Cong. Research Serv., RS20981, Energy Efficiency and the Rebound Effect: Does Increasing Efficiency Decrease Demand 2 (July 30, 2001), *available at* http://digital.library.unt.edu/ark:/67531/metacrs1680/m1/1/high_res_d/RS20981_2001Jul30.pdf, *archived at* http://perma.cc/L3T2-QDVB. The rebound effect may be thought of as "take back" in that as efficiency is increased, the cost for a given unit (here, water) goes down thereby increasing demand for a particular unit, resulting in an increased rate of consumption. For example, if the projected savings of a water conservation project were $2 million and the actual savings were only $1.7 million, then the rebound effect would be ($2 million - $1.7 million)/$2 million = 15%. *See id.*

47 Pfeiffer & Lin, *supra* note 29, at 20.

48 *Id.* at 20-21.

49 *Id.*

50 Farmers have cited a wide variety of reasons for not investing in irrigation system improvements, including: (1) risk of reduced yield; (2) lack of financial ability (even if improvements reduce costs); (3) costs greater than benefits of installing more efficient system; (4) uncertainty about future water availability; and (5) will not be farming in the future. *Western Irrigated Agriculture*, Econ. Research Serv., U.S. Dep't of Agric., http://www.ers.usda.gov/data-products/western-irrigated-agriculture.aspx#37002 (last updated June 7, 2013), *archived at* http://perma.cc/7BPA-QUGC (specifically, notice Tables 15-1 through 15-9) (this data is based on the 1998 and 2008 Farm and Ranch Irrigation Surveys and summarizes certain characteristics of irrigated farms in the seventeen western states).

51 *See, e.g.*, Pfeiffer & Lin, *supra* note 29, at 20-21.

52 Energy & Envtl. Research Ctr., N. Great Plains Water Consortium, *Water Appropriation Systems, available at*, http://www.undeerc.org/Water/Decision-Support/Water-Law/pdf/Water-Appr-Systems.pdf (last visited Sept. 28, 2014), *archived at* http://perma.cc/9AES-P56Z.

does not use all of his water right, the state regulatory agency may deem the farmer to have abandoned or forfeited his right due to the continuing beneficial use requirement.[53] In some states, a determination that the right has been abandoned requires a showing that the owner intended to relinquish the right; non-use alone is insufficient to prove abandonment.[54] However, in many other states, abandonment of a water right may be shown by merely proving non-use of the right for a statutorily-specified period of time.[55] These "use it or lose it" appropriation schemes create a substantial obstacle to agricultural water conservation: farmers are often disincentivized from either returning excess surface water to instream flows or from engaging in short-term voluntary trades because many states do not consider instream release or short-term water transfers "beneficial uses."[56] Such schemes can have devastating effects on the potential for water conservation in agriculture and may impede efforts to encourage more efficient irrigation systems.[57]

Arguably, economic advantage is the most influential factor that causes farmers to increase water use. It encourages farmers to first take subsidies to improve irrigation efficiency but then increase water usage to maximize revenue. For example, the University of California Davis's study of the Ogallala Aquifer found that farmers who installed more efficient irrigation systems through subsidy programs engaged in two primary behaviors that increased overall water usage.[58] First, farmers brought more land into irrigated production, leaving less land fallow or not irrigated.[59] Indeed, after switching to more efficient dropped nozzles, farmers were about one-third less likely to leave land fallow because the economic risk of planting irrigated crops was lower.[60] Second, farmers applied more water per acre to irrigated fields.[61] One reason farmers applied more water is because, with more efficient irrigation systems, farmers needed less water to produce the same amount of crops.[62] Farmers used water savings from the more efficient irrigation systems to precisely match the crop's water requirements thus increasing crop yield, which also increased overall water consumption.[63] Another reason is that farmers planted more water-intensive crops or varieties than they otherwise would have.[64] In particular, farmers were more likely to plant alfalfa, corn, and soybeans after the adop-

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53 *Id.*
54 *Id.*
55 *Id.*
56 Frank A. Ward & J. Phillip King, *Reducing Institutional Barriers to Water Conservation*, 1 WATER POL'Y 411, 411, 414, 416 (1998).
57 MARK T. ANDERSON & LLOYD H. WOOSLEY, JR., WATER AVAILABILITY FOR THE WESTERN UNITED STATES—KEY SCIENTIFIC CHALLENGES 1 (2005), *available at* http://pubs.usgs.gov/circ/2005/circ1261/pdf/C1261.pdf, *archived at* http://perma.cc/4MZU-EC47.
58 *See* PFEIFFER & LIN, *supra* note 29, at 16-17 (reasoning that while there was also a 1% increase in the percentage of a field that was irrigated, this finding, unlike the other behavioral findings, was "economically insignificant").
59 PFEIFFER & LIN, *supra* note 29, at 16-17.
60 *Id.* at 17.
61 *Id.*
62 *Id.*
63 *Id.* at 17.
64 *Id.*

tion of more efficient irrigation.[65] This result is not surprising because the increased market value of water-intensive crops often outweighed the additional incurred water costs, thereby allowing farmers to increase overall profits.[66]

Geographic factors also contribute to water depletion post-subsidies. As the study of the Rio Grande Basin demonstrates, using more efficient irrigation systems may actually redistribute water in a region so as to deplete groundwater supplies.[67] While some would argue this redistribution is beneficial because the saved freshwater is more valuable than replenishing groundwater with run-off irrigation water contaminated with pesticides,[68] researchers who conducted the study concluded that the conserved freshwater was not worth the cost of depleting groundwater sources.[69] Even though the study's conclusion is somewhat controversial, at the very least it demonstrates the inappropriateness of simply using a one-size-fits-all model because the geographic redistribution of water resources can have, at least in some basins such as the Rio Grande, detrimental effects on aquifer levels.[70] Rather, the distributional characteristics of each region need to be taken into account through a basin-wide examination of current water distributions before those water distributions should be altered as a result of more efficient irrigation systems.[71]

The final significant factor is political: the lack of public and stakeholder involvement in the Farm Bill's conservation programs.[72] Although the Farm Bill is approved every five years and the public has the opportunity to voice opinions on conservation programs, there has historically been very little opposition to the Farm Bill because of the "illusion that other environmental programs are sufficient to protect the environment."[73] This apathy is problematic because farmers receive subsidies to increase irrigation efficiency without likewise being required to agree to reduce overall water use.[74] So long as the overall impact of irrigation subsidies remains economically profitable for farmers, it is likely that they will agree to use less water in exchange for the subsidy.

The lack of stakeholder involvement on behalf of small farmers also enables the largest farms, backed by powerful lobbies, to receive most of the subsidies.[75] As is usually the case with agricultural subsidies,[76] rather than being means-tested, most of the Farm

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65 *Id.*

66 François Molle & Jeremy Berkoff, *Water Pricing in Irrigation: Mapping the Debate in Light of Experience*, *in* IRRIGATION WATER PRICING: THE GAP BETWEEN THEORY AND PRACTICE 21, 52 (Comprehensive Assessment of Water Mgmt. in Agric. Ser. No. 4, François Molle & Jeremy Berkoff eds., 2007).

67 Ward & Pulido-Velazquez, *supra* note 29, at 18,218-19.

68 Block, *supra* note 38.

69 *See* Ward & Pulido-Velazquez, *supra* note 29, at 18,219.

70 *See id.*

71 *Id.*

72 Eubanks, *supra* note 27, at 247-49 (discussing both the lack of involvement of the public and the lack of involvement of small farmers in the Farm Bill's reauthorization process).

73 *Id.* at 248.

74 *See* Nixon, *supra* note 23 (discussing how the Farm Bill subsidizes farmers to increase the efficiency of irrigation but fails to prohibit using the subsidies' water savings to expand irrigation or grow more water-intensive crops).

75 Eubanks, *supra* note 27, at 247.

76 *The United States Summary Information*, ENVTL. WORKING GRP. FARM SUBSIDIES, http://farm.ewg.org/region.php?fips=00000 (last visited Oct. 29, 2014), *archived at* http://perma.cc/

Bill's conservation programs target the largest farmers because their "sheer size" gives those farms the greatest per-farm potential to reduce water use.[77] Indeed, in the western states alone the largest and wealthiest farms received the largest share of water conservation subsidies from the Farm Bill. On average, 38.9% of the largest farms received financial assistance for irrigation or drainage improvements from EQIP.[78] In comparison, only 28.1% of small farms and 17.7% of medium-size farms received such subsidies.[79] Furthermore, from 1995 to 2012, the top 10% of recipients received over half of the payments from EQIP whereas the bottom 80% received less than one-third of the payments.[80] Because widespread water conservation is needed to prevent water depletion, small- and mid-size farms also need access to these water conservation subsidies to increase irrigation efficiency, perhaps even more than the largest farms that could afford to pay for irrigation efficiency improvements on their own. In fact, a proposed amendment to the Farm Bill in 2014 incorporated such a solution by increasing access to federal funds for small and mid-size farms by lowering the total payment cap[81] to $30,000 per year, thereby increasing the availability of federal assistance.[82] Unfortunately, the amendment was not incorporated into the recent Farm Bill reauthorization, the Agriculture Act of 2014.[83]

In sum, the lack of stakeholder and public involvement in the reauthorization of the Farm Bill has caused EQIP subsidies to remain ineffective in water conservation and also has resulted in insufficient involvement of smaller-sized farmers. Without the involve-

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YG83-5DXF (finding that 62% of farms in the U.S. did not collect subsidy payments, while 10% of farms collected 75% of all subsidies); *Subtotal, Farming Subsidies in United States, 1995-2012*, ENVTL. WORKING GRP. FARM SUBSIDIES, http://farm.ewg.org/top_recips.php?fips=00000&progcode=totalfarm&regionname=theUnitedStates (last visited Oct. 29, 2014), *archived at* http://perma.cc/MK23-8AXP (showing that the top twenty subsidy collectors are all mega-farms with each receiving over $16 million from 1995 to 2012).

77 *See* Eubanks, *supra* note 27, at 247-48 (addressing the Farm Bill's conservation efforts to prevent environmental degradation with a focus on pollution). However, water depletion is one component of environmental degradation, and the same reasoning applies to water conservation efforts.

78 U.S. Dep't of Agric., *supra* note 27, at tbl.16-1 (finding that the largest allocation of subsidies goes to the largest and wealthiest farmers, an issue of basic distributional fairness ignored by the current system). The government should be ensuring that commercial agriculture does not end up concentrated in relatively few hands; yet under the current system, this is exactly what is promoted. However, a full discussion of the distributive justice implications under the current Farm Bill is beyond the scope of this note.

79 U.S. Dep't of Agric., *supra* note 50, at tbl.16-1.

80 *Env. Quality Incentive Program Payments in the United States Totaled $4.2 Billion from 1995-2012*, ENVTL. WORKING GRP. FARM SUBSIDIES, http://farm.ewg.org/progdetail.php?fips=00000&progcode=totaleqip&page=conc&regionname=theUnitedStates (last accessed Sept.28, 2014), *archived at* http://perma.cc/KX67-JZKK.

81 U.S. DEP'T OF AGRIC., FARM BILL FORUM COMMENT SUMMARY & BACKGROUND: PAYMENT LIMITS, *available at* http://www.usda.gov/documents/PAYMENT_LIMITS.doc, *archived at* http://perma.cc/N89N-QUL6 (defining payment cap as a specified limit on the amount of federal subsidies that each farm receives).

82 H.R. 1890, 113th Cong. (1st Sess. 2013), *available at* http://beta.congress.gov/113/bills/hr1890/BILLS-113hr1890ih.pdf, *archived at* http://perma.cc/DH2S-742Y.

83 Agricultural Act of 2014, Pub. L. No. 113-79, 128 Stat. 649 (2014).

ment of both small farmers and the public at large, subsidies to increase irrigation efficiency will continue to ineffectively promote water conservation because the current subsidies do not require actual water savings and are not, in practice, available to enough farmers to create a widely-used best practice model of conservation covering as much crop acreage as possible.

IV. International Models Successfully Provide Water Savings through More Efficient Irrigation Systems

International models for water conservation provide useful insights for alternative methods to effectively use subsidies to promote water conservation in agriculture. This note examines two unique and successful models in very different geographic climates: (1) the region of Belgium and the Netherlands known as the Central Benelux region; and (2) Israel.

A. Belgium and Netherlands's Cross-boundary Water Conservation Program

The European Union (EU), the governments of Belgium and the Netherlands, as well as water boards, private companies, and farmers' and market-gardeners' organizations joined together to fund a water conservation and management program in the cross-boundary Central Benelux region that covers approximately 346,000 acres.[84] The program was prompted by a concern about falling groundwater tables in the region and increasing demands for quality water.[85] Consequently, the program provided for the installation of over 2,000 weirs, which is a barrier placed across a river to alter its flow characteristics to measure groundwater levels and soil moisture content.[86] Essentially, weirs act as dams to collect and retain water during the wet season to provide sufficient water supplies for the dry season and to raise the groundwater levels.[87]

The weirs were installed at a 100% subsidy for farmers as a "gesture that paved the way for the recreation of trust,"[88] which had been undermined by agricultural policies

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84 *See* Global Water P'ship, Benelux: Water Conservation and Farmer Participation Case # 29, *available at* http://www.gwp.org/Global/ToolBox/Case%20Studies/Europe/Benelux.%20Farmer%20participation%20in%20water%20conservation%20(%2329).pdf, *archived at* http://perma.cc/PST7-J8ZN 2 (140,000 hectares is approximately 345,948 acres).

85 *Id.* at 1.

86 *Id.* at 1, 4.

87 *Id.* at 3 (discussing the purpose of the weirs); P.J.T. van Bakel, Controlled Drainage in the Netherlands Revisited? (2003) §§ 2, 3.7, *available at* http://edepot.wur.nl/202696, *archived at* http://perma.cc/6SBW-NSW7 (explaining that the weirs irrigate farmland by manipulating the surface water level, thereby preventing flooding when groundwater levels are high by raising the weir and allowing water conservation when groundwater levels are low by lowering the weir); Global Water P'ship, *supra* note 84, at 3 (explaining how the ditch weirs operate and specific measures on how to regulate them for agricultural purposes).

88 Janice Jiggens, *Key Informant Studies I: Interreg Project Water Management in the Central Benelux Area (1st Generation Project)*, *in* Slim Case Study Monographs 2A & 2B 37 (May 2004), *available at* https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVs

that made farmers feel as though "increasingly stringent regulation" lessened their independence to make critical on-farm decisions.[89] Farmers were heavily involved in the process not only as part of educational outreach efforts but also as key players in the design, implementation, and operation of the on-farm weir systems.[90] After implementation of the weirs, a large majority of farmers reported that they saved money because they used less water and had better control over mid-season drought and winter waterlogging through the weir-enabled control of groundwater levels.[91] Farmers also reported that on-farm water management improved conditions for both agriculture and horticulture.[92] The hydrological effects of the study were also successful, especially with regard to groundwater replenishment; the effect of groundwater conservation in total was 2,675 acre-feet[93] (1.4 acre-feet/weir).[94] There was also a reduction in the overall water shortage in agriculture of 729 acre-feet total (0.38 acre-feet/weir).[95]

Despite these successes, the study also had its flaws. The program's most significant shortfall was that few farmers used the metering systems installed with the weirs to formally monitor or measure the effect of the weirs on water levels, although "relatively large numbers of farmers" claimed to be visually observing water levels.[96] Farmers cited several reasons for their failure to use the formal metering systems, including:

> (1) The fact that 'monitoring of use' is required under the Interreg programme [sic] of any item that receives a subsidy (thus, it was seen as of interest only to meet bureaucratic requirements),
>
> (2) Metering was not coupled to support to help farmers interpret or use the data in their own enterprise or neighbourhood [sic],
>
> (3) There was too little support to help farmers learn how to take measurements, or when,
>
> (4) The weirs were not always conveniently placed for the taking of measurements. . . .[97]

Ultimately, however, this flaw is minimal given the positive results with regard to overall water conservation and groundwater replenishment as well as the tremendous success of the program from the farmers' perspective in allowing them to manage ground-

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dGRvbWFpbnxzbGltc29jaWFsbGVhcm5pbmdmb3Jpd218Z3g6NmEwY2RiZDBmMzAwMjcwYw, *archived at* http://perma.cc/6XR4-AYL7.

89 *Id.* at 27. Indeed, farmers felt as though they had been "cast as the 'villains' of public nature conservation narratives" and that government agricultural agencies were not adequately "defend[ing] their interests or respect[ing] their sovereignty as the owners of their enterprises." *Id.*

90 GLOBAL WATER P'SHIP, *supra* note 84, at 1, 4.

91 Jiggens, *supra* note 88, at 44; GLOBAL WATER P'SHIP, *supra* note 84, at 4.

92 GLOBAL WATER P'SHIP, *supra* note 84, at 4; *see also* EUROPEAN UNION, REGIONAL POLICY, CONSERVING WATER RESOURCES, ec.europa.eu/regional_policy/projects/stories/pdf.cfm?sto=479&lan=7&country=NL, *archived at* http://perma.cc/F8TH-Q6M6.

93 An acre-foot is equal to 325,851 gallons.

94 VAN BAKEL, *supra* note 87, at § 3.7.

95 *Id.* (these measurements have been converted from the metric system).

96 Jiggens, *supra* note 88, at 45.

97 *Id.* at 45.

water levels.[98] Nevertheless, it is possible—if not probable—that the results would have been even better if farmers had used the metering systems, rather than relying on visual observations, to take measurements in managing the weir systems.[99]

B. Water Conservation Success in Israel

Unlike the temperate climate of Belgium and the Netherlands,[100] wherein there is seasonal variation of too much rain followed by a dry period of too little rain,[101] approximately half of the land in Israel is semi-arid, making it an unlikely candidate for agricultural production because it constantly suffers from too little rain.[102] Nevertheless, Israeli agriculture has been notably productive; Israeli farmers currently produce more than nine times the amount of food they did in 1964 while having only increased water consumption by 3%.[103] This is, in part, due to the fact that the Israeli government has been active in promoting water conservation in agriculture through subsidies, giving special priority to implementing more efficient irrigation systems that are proven to save water.[104] In particular, drip irrigation has been a critical component in the increase in water efficiency and was prompted by a desire for higher yields, subsidies, sandy soils,[105] and the reuse of water savings to expand irrigation and cultivation.[106] The new generation of this technology is ultra-small, subsurface drip-irrigation, which uses a computerized control system to apply the exact amount of water needed below the soil surface to the roots of the plant, thereby resulting in even higher levels of water use efficiency by

98 *See supra* notes 87-89 and accompanying text.

99 *See* Jiggens, *supra* note 88, at 45 (discussing how farmers' failure to use the systems demonstrates an incomplete learning cycle and hampers collection of data regarding weir success). Ultimately, calculating data was not impossible—but so doing was certainly impeded by the general reluctance to use meters.

100 *Belgium*, WeatherOnline, http://www.weatheronline.co.uk/reports/climate/Belgium.htm, *archived at* http://perma.cc/AGE9-ZCMX (noting the temperate climate); *The Netherlands*, WeatherOnline, http://www.weatheronline.co.uk/reports/climate/The-Netherlands.htm, *archived at* http://perma.cc/4VN-SW7J (same).

101 Jiggens, *supra* note 88, at 28, 44.

102 *See Israel in Brief*, Isr. Ministry of Foreign Affairs, http://mfa.gov.il/MFA/AboutIsrael/Pages/ISRAEL%20IN%20BRIEF.aspx (describing the climate of Israel).

103 Int'l Bus. Machs., Water: A Global Innovation Outlook Report 48-49 (2009), *available at* http://re.indiaenvironmentportal.org.in/files/ibm_gio_water_report.pdf, *archived at* http://perma.cc/M9FY-ZVAC.

104 Marinos Markou & George Stavri, Agric. Research Inst., National Agricultural Policy Report Israel - Final 33 (Oct. 2005), *available at* http://medfrol.maich.gr/documentation/view/reports/wp1-napr/NAPR_ISRAEL.pdf, *archived at* http://perma.cc/XD5Y-S4RL (citing the 2004 budget, which directed the approximate equivalent of $18.75 million USD to subsidizing investment).

105 Because sandy soils have low water-holding capacity, using drip-irrigation can be more efficient than traditional irrigation. *See* Michael D. Dukes & Johannes M. Scholberg, *Soil Moisture Controlled Subsurface Drip Irrigation on Sandy Soils*, 21 Applied Eng'g in Agric. 89, 89, 100 (2005), *available at* http://abe.ufl.edu/mdukes/pdf/drip/Dukes_Scholberg_sweetcornSDI_AppEngAg.pdf, *archived at* http://perma.cc/4WR9-VMW3.

106 Molle & Berkoff, *supra* note 66, at 57 (listing the causes for the spread of drip irrigation in Israel); *see* Markou & Stavri, *supra* note 104, at 18, 23, 25 for an enumeration of the benefits of drip irrigation.

reducing runoff and evaporation.[107] Farmers do not bear these costs alone; Israel's Ministry of Agriculture provides grants for drip-irrigation practices that conserve water and decrease evapotranspiration.[108] Moreover, the Ministry funds research and development in water savings, including agricultural irrigation efficiency technology and marginal water use, offers financial assistance for investments in water conservation projects, and provides free education on new technology to farmers.[109] Importantly, research and development projects have been "an enormous driving force in increasing use-efficiency" and have involved the active input and evaluation of farmers at all stages.[110]

Although other countries have found that switching to more efficient irrigation systems increases water use, this has not been the case in Israel for several reasons.[111,112] First, there are both rationing controls and price-driven factors that affect water use in Israel.[113] Water usage is capped, meaning that each farmer is provided with a restricted amount of freshwater each year.[114] If farmers go above their allotted use, they may have their water supply reduced or entirely cut off.[115] Additionally, there is no private ownership of water resources, so farmers have a strong incentive to minimize their water costs.[116] Combined with increasing costs of block-rate pricing for water, which charges farmers more depending upon the volume of water they consume, these capping and price-driven regulatory factors have caused farmers to become dramatically more effi-

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107 Nat'l Rep. of the Comm'n on Sustainable Dev., *Agriculture* 7-8, CSD-16/17 (2008-2009), *available at* http://www.un.org/esa/agenda21/natlinfo/countr/israel/agriculture.pdf, *archived at* http://perma.cc/22GZ-EZJK; ARIEL REJWAN, WATER USE EFFICIENCY AND ECONOMIC APPROACH 19 (July 2011), *available at* http://planbleu.org/sites/default/files/publications/national_report_water_il.pdf, *archived at* http://perma.cc/R49K-VAUW.

108 *Agriculture*, *supra* note 107, at 7.

109 THE ISR. EXP. & INT'L COOPERATION INST., MINISTRY OF AGRIC. & RURAL DEV., ISRAEL'S AGRICULTURE 11, *available at* http://www.moag.gov.il/agri/files/Israel's_Agriculture_Booklet.pdf, *archived at* http://perma.cc/JB6Z-36GH; REJWAN, *supra* note 107, at 19.

110 REJWAN, *supra* note 107, at 19.

111 *See Agriculture*, *supra* note 107, at 6 (finding that "although Israel's agricultural production expanded sixteen-fold in the last [sixty] years, water usage did not increase."); INT'L BUS. MACHS., *supra* note 103 (noting only a small increase over several decades, despite great leaps in agricultural productivity).

112 This is not an exclusive list of contributing factors; other factors, such as the introduction of crop strains requiring less water, also exist. *See* REJWAN, *supra* note 107, at 18-19 (discussing drought-resistant crop strains and the development of crop strains requiring minimal water supplies). However, it is beyond the scope of this note to address every water management tool used by the Israeli government. I have instead chosen to focus on some of the most influential factors.

113 *See* Yoav Kislev, *Water in Agriculture*, *in* WATER POLICY IN ISRAEL 61-62 (Nir Becker ed., 2013) (including charts of how agricultural block water pricing works in Israel through tariffs and levies); *Agriculture*, *supra* note 107, at 6 (reviewing the effect of increasing prices and rising demand has had on increasing water efficiency); REJWAN, *supra* note 107, at 6, 18 (discussing the lack of private ownership of water in Israel and water caps).

114 REJWAN, *supra* note 107, at 18.

115 David Katz, *Policies for Water Demand Management in Israel*, *in* WATER POLICY IN ISRAEL 153 (Nir Becker ed., 2013).

116 *See* REJWAN, *supra* note 107, at 6 (discussing the lack of private ownership of water in Israel).

cient.[117] In fact, many farmers do not use their entire quota, suggesting that the block-pricing structure is the limiting factor for their consumption.[118]

Second, the Israeli government has made it a priority to limit freshwater use in agriculture by promoting the use of treated domestic wastewater ("reclaimed water") and brackish water through economic incentives.[119] For example, farmers can exchange a portion of their allotted amount of freshwater for reclaimed or brackish water, but an extra 20% of reclaimed or brackish water will be provided for free.[120] This incentive encourages farmers to use less than their allotted amount of freshwater.[121] In addition, the government will pay 60% of pipe installation costs that are necessary to convey the reclaimed or brackish water to the farmer's plot.[122] The government also promotes water conservation by providing financial support for both the growth of non-irrigated crops in desert areas,[123] such as sorghum[124] and wheat,[125] and crops grown using the lowest quality of reclaimed wastewater, such as cotton.[126]

Third, since the establishment of the new regulatory Water Authority in 2007, key demand management tools have been employed to prioritize water sources that are outpaced by demand.[127] One of the most important new tools implemented by the Water Authority is an extraction levy on water producers, which reflects water scarcity and costs of water production and distribution.[128] The levy serves to encourage farmers to switch from freshwater to reclaimed water or the National Water Carrier, "thereby utilizing the nation's water resources more efficiently, creating tools to manage overall water production using economic incentives, creating tools for regional management of water quantity and water scarcity, encouraging the development of new water sources and agricultural preservation[,] and the preservation of nature and landscape."[129]

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117 *See Agriculture*, *supra* note 107, at 6 (reviewing the effect of increasing prices and rising demand has had on increasing water efficiency); Kislev, *supra* note 119, at 61-62 (providing charts of how agricultural block water pricing works in Israel through tariffs and levies).

118 Katz, *supra* note 115, at 153.

119 Nat'l Rep. of the Comm'n on Sustainable Dev., *Drought and Arid Land Water Management* 4, 8, 11, CSD 16/17 (2008-2009), *available at* http://www.un.org/esa/agenda21/natlinfo/countr/israel/drought.pdf, *archived at* http://perma.cc/PX4D-2WRN (remarking that Israel is a "world leader" in wastewater treatment and reuse, having developed special technology for this purpose and used economic incentives to promote wastewater use in agriculture).

120 REJWAN, *supra* note 107, at 18.

121 *Id*.

122 *Id*.

123 *Agriculture*, *supra* note 107, at 7.

124 *See* S. Sarig et al., *Response of Non-irrigated Sorghum Bicolor to Azospirillum Inoculation*, 20 EXPERIMENTAL AGRIC. 59, 59 (1984) (noting that sorghum bi-color is a non-irrigated crop grown in the Negev desert region of Israel).

125 REJWAN, *supra* note 107, at 19 (stating that the Israeli government provides grants for "rain-supplied wheat farming in the southern (particularly dry) part of the country.").

126 *Agriculture*, *supra* note 107, at 7.

127 *Drought and Arid Land Water Management*, *supra* note 119, at 2-3.

128 *Id*. at 3-4.

129 *Id*. at 4 (switching to the National Water Carrier also helps promote efficiency because it allows for nationwide management of natural resources and promotes the use of recycled water).

These three strategies—regulatory controls, economic incentives, and demand management tools— operate in conjunction to ensure that Israel's water management system reduces freshwater use in agriculture, thus reducing overall water scarcity. Because of these controls, farmers in Israel have a profit maximization that encourages water conservation unlike other regions.[130] Thus, unlike in the United States where increased irrigation efficiency has often resulted in further freshwater consumption by agriculture,[131] Israel has had great success in reducing freshwater use in agriculture. A 2011 study shows that approximately 84% of Israel's domestic wastewater is reclaimed for irrigation in the agricultural sector,[132] which supplies 38% of agricultural water consumption.[133] Further, 14% of agricultural water supplies come from brackish water.[134,135] Moreover, from 2000 to 2009 alone, agricultural use of freshwater dropped by over 30%, allowing Israel to get "more crop per drop" of freshwater.[136]

Nevertheless, Israel's successes in water conservation were not without missteps. Overpumping and water pollution have been serious concerns for the region.[137] However, Israel has taken important steps to address these problems. For example, the government has funded a grant program to rehabilitate contaminated wells.[138] Eleven out of forty-two proposals were selected and are currently in operation to restore the wells.[139] Similarly, through advanced solutions, Israel was able to artificially recharge many groundwater sources that had been depleted.[140] Additionally, the government is working to establish baseline indices for aquifer health beyond which pumping must be reduced or stopped altogether.[141] Thus, while Israel's advanced water management caused some significant problems, it also used advanced solutions to remedy those issues.[142] Indeed, Israel's water conservation policies have been widely successful, especially given its climatic conditions, and the country is viewed as a "leader in water management strategies."[143]

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130 *Cf.* Nixon, *supra* note 23.

131 *Id.*

132 REJWAN, *supra* note 107, at 15.

133 *Id.* at 9.

134 *Id.*

135 In comparison, the United States reclaims only about 1% of its water. William Booth, *Israel Knows Water Technology, and it Wants to Cash In*, WASH. POST (Oct. 25, 2013), http://www.washingtonpost.com/world/middle_east/israel-knows-water-technology-and-it-wants-to-cash-in/2013/10/25/7bb1dd36-3cc5-11e3-b0e7-716179a2c2c7_story.html, *archived at* http://perma.cc/NA2T-BS4B.

136 *See* Doron Lavee & Tomer Ash, *Wastewater Supply Management*, *in* WATER POLICY IN ISRAEL 83, 93 (Nir Becker ed., 2013) (providing and discussing a chart of agricultural freshwater use in Israel).

137 *Drought and Arid Land Water Management*, *supra* note 119, at 1, 5, 10.

138 *Id.* at 10.

139 *Id.*

140 Alex Furman & Hilda Abbo, *Groundwater Management in Israel*, *in* WATER POLICY IN ISRAEL 125, 132-135 (Nir Becker ed., 2013).

141 *See* REJWAN, *supra* note 107, at 8.

142 *See id.*

143 Jay Famiglietti, *Political Currents of Water Management: Challenges in Israel, Palestine, and Jordan*, NAT'L GEOGRAPHIC (May 13, 2013), http://newswatch.nationalgeographic.com/

V. Moving Forward: What can the United States do to Ensure that Agricultural Subsidies for Water Conservation are Effective?

By addressing current legal, economic, political, and geographic factors as well as implementing different aspects of successful international models, the United States can provide agricultural subsidies that produce real water savings in agricultural freshwater use.

Legal barriers to water conservation, particularly laws in western states incorporating a "use it or lose it" requirement for beneficial use of water rights, need to be modified to permit liberal transfers of water back to the stream.[144] States should adopt legislation that removes this legal barrier by defining both short-term water trading and return of water used for instream flows as beneficial uses of water. Doing so will result not only in water conservation, but also in an increase in total economic benefit derived from limited water resources because water that would otherwise be wasted could instead be used for some economically useful purpose, whether that be trading for another use or simply restoring stream flows.[145] These proposed changes are not without precedent. Several states already allow for return to instream flows to constitute a beneficial use, at least under some circumstances.[146] Similarly, California allows water users to sell unused water rights so long as the water would have been actually available for that owner to fulfill his right, either by use or storage for later use.[147]

In addition to removing the legal barriers to conservation, the United States must implement subsidies for irrigation efficiency and water conservation in ways that do not alter farmers' profit incentives that ultimately increase farmers' water use. One way to offset the heavy draw of profit-maximizing practices at the expense of water conservation, as described earlier, would be to make subsidies conditional on either using the same amount of water or, preferably, requiring that farmers use less water. This could be achieved by enforcing caps similar to those adopted in Israel.[148] Rather than using regu-

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2013/05/13/political-currents-of-water-management-challenges-in-israel-palestine-and-jordan/, *archived at* http://perma.cc/X3SV-GZN7; *see also* Booth, *supra* note 135 (noting that Israel is viewed in an "admiring way" in the "water world."); Int'l Bus. Machs., *supra* note 103, at 48 (praising Israel for "perfecting the art of producing more with less.").

144 Ward & King, *supra* note 56, at 411, 418.

145 *Id.* at 411, 413, 416. Indeed, healthy riparian ecosystems are "indispensable parts of the state's economy." Jesse A. Boyd, *Hip Deep: A Survey of State Instream Flow Law from the Rocky Mountains to the Pacific Ocean*, 43 Nat. Resources J. 1151, 1153 (2003).

146 *Hip Deep: A Survey of State Instream Flow Law from the Rocky Mountains to the Pacific Ocean*, *supra* note 145, at 1152. While these instream flow programs are a first step, many current programs have serious shortcomings relating to water conservation because they either limit the circumstances under which instream flow constitutes a beneficial use or make the transfer process difficult. *Id.* at 1152-53, 1209, 1216.

147 Ellen Hanak & Elizabeth Stryjewski, Pub. Pol'y Inst. of Cal., California's Water Market, by the Numbers: Update 2012 9-10 (Nov. 2012), *available at* http://www.ppic.org/content/pubs/report/R_1112EHR.pdf, *archived at* http://perma.cc/XD5D-Z58A. While the California banking system has some successes, it also has issues that require significant improvements. *Id.* at 2-3.

148 Rejwan, *supra* note 107, at 18 (noting that farmers' water use is capped by quotas).

latory measures for enforcement of the caps as is the practice in Israel,[149] these caps should be part of a voluntary agreement between farmers and the government as a condition upon receiving subsidy payments.[150]

To ensure compliance with water use caps, metering needs to be required and monitored by the government agency responsible for implementing the subsidies.[151] Indeed, the importance of metering has been clearly recognized in Israel;[152] in contrast, the lack of metering was considered one of the biggest flaws in the Belgium–Netherlands study because, without adequate metering, water conservation progress is extremely difficult to monitor.[153] Moreover, the United States could benefit from a modified implementation of Israel's agricultural block water-pricing scheme, which increases the price per unit as the volume of water consumed increases.[154] When farmers in the United States go over the capped amount of water use they agreed to in exchange for the subsidy, a penalty should apply to all water used above that threshold as a block-rate increase so that the penalty rate increases volumetrically as the severity of the violation increases.[155] This water penalty could then be used to fund future research and development programs to improve water conservation through increases in irrigation efficiency or other means. Additionally, the block-rate pricing scheme should incorporate seasonal rate increases to reflect the varying delivery costs during different seasons to promote conservation in times of water scarcity.[156]

The federal government should also require minimum standards of irrigation efficiency and water conservation for all government contracts for agricultural production. While this may initially seem insignificant compared to other measures, the American

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149 *See id.* (noting that farmers' water use is capped by mandatory quotas enforced by the Water Authority and that there is no private ownership of water in Israel).

150 *See supra* note 73 and accompanying text (supporting the interpretation that a voluntary arrangement would avoid implication of the Taking Clauses).

151 Enforcement mechanisms are critical to the success of this proposal. Otherwise, the proposal is unlikely to make any real change as has happened with, for example, the Animal Welfare Act, which is "rarely, if ever" enforced at all. *Farmed Animals and the Law*, ANIMAL LEGAL DEF. FUND, http://aldf.org/resources/advocating-for-animals/farmed-animals-and-the-law/ (last visited Jan. 10, 2015), *archived at* http://perma.cc/EH5A-YSGL.

152 REJWAN, *supra* note 107, at 6 (commenting that, in Israel, "virtually all water consumption is metered").

153 *Supra* note 100 and accompanying text.

154 *Drought and Arid Land Water Management*, *supra* note 119, at 3; While block water pricing would be complicated to implement due to the fact that much of water law in the United States, including permit systems, varies by state, it is nevertheless a change that is both long overdue and critically important to water conservation in agriculture. *See generally* Boyd, *supra* note 145 (discussing the numerous differences in water law among various western states).

155 While Israel does not use a formal penalty, the block pricing does dramatically increase once a user goes beyond his allotment. Katz, *supra* note 115, at 153.

156 PAC. INST., WATER RATES: CONSERVATION AND REVENUE STABILITY 1 (2013), *available at* http://www.pacinst.org/wp-content/uploads/2013/01/water-rates-conservation_and_revenue_stability.pdf, *archived at* http://perma.cc/VUA4-YMXY.

Food Aid budget is over $1 billion per year.[157] Moreover, as Food Aid comes from the Farm Bill, requiring responsible water use by farmers who receive federal government contracts would be an important component of a comprehensive water conservation overhaul of the bill. Given that farmers are already financially motivated to take advantage of government contracts funded by the Farm Bill,[158] it is important to ensure that these benefits go only to farmers who act as responsible stewards of our nation's water resources.

Political causes for the lack of water conservation must also be remedied. Fortunately, awareness is growing regarding how water conservation agricultural subsidies actually increase overall water use.[159] Awareness is the first step in getting the public to mobilize and demand changes to these subsidy programs. In addition, to increase public involvement in the Farm Bill approval process, small-farm stakeholders need to be more involved in public hearings, policy choices, and implementation of the Farm Bill and the water conservation projects it funds. Small-farm stakeholders need to participate in these programs rather than most subsidies being awarded to the biggest and most lucrative farms.[160] For instance, funding should be capped at a specified amount per farm, thereby increasing access to federal funds for small and mid-size farmers.[161] Additionally, initial changes should be made using pilot programs, preferably with small- and mid-size farms rather than the largest farms, to eliminate the complexities of decision-making in corporate farming.[162] These programs should involve close collaboration between researchers and farmers and include farmer education. As the joint program between Belgium and the Netherlands demonstrates, stakeholder participation is a critical component in the success of water conservation projects.[163]

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157 FACT SHEET, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, http://www.usaid.gov/sites/default/files/documents/1869/FoodAidReform_BehindtheNumbers.pdf, *archived at* http://perma.cc/6WJN-6PLV.

158 Dan Charles, *Philippines Disaster Rekindles Fight Over Food Aid Rules*, NAT'L PUB. RADIO (Nov. 15 2013), ?http://www.npr.org/blogs/thesalt/2013/11/15/245181812/philippines-disaster-rekindles-fight-over-food-aid- reform?ft=1&f=139941248, *archived at* http://perma.cc/D44A-37CH (observing that farmers strongly opposed a proposed increase in cash aid by President Obama because it would limit their financial stake in receiving government contracts for food production).

159 *See* Nixon, *supra* note 23.

160 *Supra* notes 78, 80 and accompanying text.

161 *See* H.R. 1890, 113th Cong. § 1507 (1st Sess. 2013), *available at* ?http://beta.congress.gov/113/bills/hr1890/BILLS-113hr1890ih.pdf, *archived at* http://perma.cc/NCP3-EHX2 (proposing that funding from the Farm Bill be capped at $30,000 per year, a change that would increase small and mid-size farmers' access to funding).

162 For example, corporate farmers may be less concerned with long-term conservation, sustainability, and impacts on local communities than farmers on medium- and small-sized farmers who, unlike corporate farmers, are tied to the community in which they farm. *See, e.g.*, John Eligon, *2,500 Pigs Join Debate over Farms vs. Scenery*, N.Y. TIMES (Dec. 27, 2013), http://www.nytimes.com/2013/12/28/us/2500-pigs-join-debate-over-farms-vs-scenery.html?pagewanted=all, *archived at* http://perma.cc/X2P9-D5XY (discussing a recent report led by Harvard scientists regarding the phenomenon of nitrogen toxicity across the nation, which is expected to worsen as corporate farming continues to increase).

163 *See* GLOBAL WATER P'SHIP, *supra* note 84, at 5.

Finally, the study of the Upper Rio Grande Basin illustrates that the complexity of geography in the implementation of such programs necessitates taking into consideration region-specific factors: one size does *not* fit all.[164] Accordingly, the use of pilot programs may allow researchers to test a wide variety of agricultural subsidies to improve irrigation efficiency not only in different climates, but also in different water systems, thereby providing a greater understanding of how decreased water application may redistribute water supplies within a given basin.[165] For example, while the Israeli model of drip agriculture may be well-suited to pilot programs in areas such as California,[166] the weir system used in Belgium and the Netherlands would be more appropriate in rainier regions such as the Pacific Northwest and in perennially wet zones of the East Coast. Furthermore, a collaborative website that allows farmers, researchers, and government officials to post data and findings and to interact through chat features in real time would help facilitate knowledge of how these varying climatic and water system complexities function and as part of a broader hydrogeologic network. This website need not be part of any official government program; even a platform built and maintained by a non-profit organization could be a great opportunity for both domestic and international cooperation. Indeed, international cooperation in water law has been increasing in recent years.[167] In fact, a more informal website could be a grassroots, collaborative network, allowing users to work directly with others at home and abroad to find real-world solutions to their problems.

VI. CONCLUSION

While current practices in the United States for water conservation subsidies in agriculture are at best ineffective and at worst detrimental to water conservation, the

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164 *See* Ward & Pulido-Velazquez, *supra* note 29, at 18,219 (concluding that a decrease in water use from the implementation of more efficient irrigation technologies does not necessarily result in groundwater savings).

165 *See id.* (discussing how reduction in agricultural use of water may redistribute water in ways that do not replenish traditional water sources, such as aquifers).

166 Indeed, the great potential of California adopting Israeli water conservation techniques in agriculture and more broadly has already been established. *See* Jay Famiglietti, *Parallel Worlds: Water Management in California and Israel*, NAT'L GEOGRAPHIC (Feb. 27, 2013), http://voices.nationalgeographic.com/2013/02/27/parallel-worlds-water-management-in-israel-and-california/, *archived at* http://perma.cc/LGX2-GPWE (discussing the promise of a new Israel–California "knowledge transfer model" in water conservation technology).

167 *Water Cooperation*, UNITED NATIONS, http://www.un.org/waterforlifedecade/water_cooperation.shtml (last visited Nov. 13, 2014), *archived at* http://perma.cc/2PAB-VRCG. For examples of international cooperation in water conservation, *see* GLOBAL WATER P'SHIP, *supra* note 84, at 2 (describing the multi-national Central Benelux water conservation program); Booth, *supra* note 84 (discussing the possibility of an Israel–Texas partnership); *Israel-India Cooperation in Agriculture*, ISR. DIPLOMATIC NETWORK, CONSULATE GEN. OF ISR. IN MUMBAI, http://embassies.gov.il/mumbai/Departments/Pages/agricultural-affairs.aspx (last visited Nov. 13, 2014), *archived at* http://perma.cc/N7Y6-22B7 (explaining how the Israeli agricultural sector has worked to bring more water conservation technology to Indian agriculture).

causes for this phenomenon can be remedied. Solutions can be found by focusing on the legal, economic, political, and geographic causes for the failure of these subsidy programs. The United States should look to alternative international models for guidance. Of course, the most important solution is fundamentally changing the programs within the Farm Bill itself. Until irrigation efficiency subsidies are conditioned on water savings, current research shows that such subsidies are unlikely to promote water conservation and may, in fact, only increase water use.[168] By conditioning subsidies on decreased (or at least no increase in) water use, these subsidies can achieve their intended purposes. Moreover, taxes or fines on those who go above their allotted water cap will help promote water savings and can be used to fund water conservation research and development in the agricultural sector. Implementing small-scale pilot programs will also allow researchers to get data necessary to test the effectiveness of new technologies in different water systems and climate regions. Such programs can increase access for small- and mid-size farmers and foster domestic and international collaboration.

With recent drought trends, climate change, and depletion of groundwater levels across the nation,[169] the time is ripe for much-needed changes to the Farm Bill. Moreover, the government and the private agricultural sector should collaborate on water conservation, not only because of its large national importance as a sustainability issue, but also because saving water has beneficial economic outcomes, which is in everyone's interest—even big agribusiness.

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168 *See* Pfeiffer & Lin, *supra* note 29, at 19, 21.

169 *See* Tess Russo et al., Assessment of Trends in Groundwater Levels Across the United States (Mar. 2014), *available at* http://water.columbia.edu/files/2014/03/USGW_WhitePaper_FINAL.pdf, *archived at* http://perma.cc/B8Z9-4ZYE.

DEVELOPMENTS

AIR QUALITY

THE GROWING BACKLASH TO FLARING IN THE EAGLE FORD SHALE

FLARING BACKLASH

The Texas Railroad Commission (RRC or "Commission") is charged with the conservation and prevention of waste of the state's natural resources, particularly oil and gas resources.[1] However, the RRC has recently received criticism from environmental groups and residents living near flare stacks for allowing producers and operators of oil and gas wells to flare natural gas.[2] Additionally, reports have surfaced suggesting that a substantial amount of unauthorized flaring occurs over the Eagle Ford Shale and throughout Texas that demonstrates a disconnect between the promulgation of flaring rules and the actual enforcement of those rules. Finally, another primary issue with flaring natural gas is that it releases greenhouse gas emissions into the atmosphere and may also constitute prohibited waste under the Texas Natural Resources Code.

FLARING IN THE EAGLE FORD SHALE

Oil and gas producers flare gas when the cost of moving it to market is higher than the revenue earned by selling it.[3] Some places lack the infrastructure to collect and transport the gas, and because of the low price of natural gas, there is also often little financial incentive to build that infrastructure.[4] Consequently, producers use flares to burn off natural gas, which releases it into the atmosphere.[5]

Emissions from flares and other oil and gas facilities are subject to the Texas Commission on Environmental Quality (TCEQ) jurisdiction, including permitting jurisdiction that may take the form of a Permit by Rule, a Standard Permit, or an individually issued New Source Review permit.[6] The agency also responds to nuisance complaints regarding air emissions. However, environmentalists argue that, even if operators comply with their permits, flaring can produce air pollution with negative local impacts due to

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1 *See* TEX. NAT. RES. CODE. ANN. §§ 85.041-85.042 (West 2013).

2 *See* Emily Schmall, *Residents: Restrict Emissions at Oil Refineries*, ASSOCIATED PRESS (Aug. 5, 2014, 4:46 PM), http://bigstory.ap.org/article/epa-hosts-texas-hearing-oil-refinery-rules, *archived at* http://perma.cc/4DNZ-4F68.

3 Ryan Holeywell, *State Oil Regulator Warns Operators about Gas Flares* (Feb. 5, 2014), http://fuelfix.com/blog/2014/02/05/state-oil-regulator-warns-of-gas-flares/, *archived at* http://perma.cc/CJ8J-X7UW.

4 *Id.*

5 John Tedesco & Jennifer Hiller, *Up in Flames (pt. 1)*, SAN ANTONIO EXPRESS NEWS (Aug. 22, 2014, 4:23 PM), http://www.expressnews.com/business/eagleford/item/Up-in-Flames-Day-1-Flares-in-Eagle-Ford-Shale-32626.php, *archived at* http://perma.cc/3WZJ-Y4NF.

6 30 TEX. ADMIN. CODE ANN. chs. 106, 116 (West 2015).

volatile organic compounds (VOCs) such as benzene.[7] They also argue that the carbon dioxide emitted contributes to climate change.[8] In fact, the 29.6 billion cubic feet of natural gas reportedly flared in 2013 mostly by oil wells in the Eagle Ford Shale has been compared to the amount of carbon dioxide emissions from approximately 350,000 cars and light trucks over the course of a year.[9]

STATEWIDE RULE 32

The RRC promulgated "Statewide Rule 32" to allow operators to flare gas while drilling a well. The rule permits flaring for up to ten days after a well's "initial completion, recompletion in another field, or workover operations in the same field, including but not limited to perforating, stimulating, deepening, cleanout, well maintenance or repair operations."[10] RRC staff issue flare permits for forty-five days at a time, for a maximum limit of 180 days.[11] Producers may also vent or flare gas when a well must be unloaded or cleaned due to atmospheric pressure, but such venting or flaring is limited to twenty-four continuous hours or a total of seventy-two hours in one calendar month.[12] Operators may obtain exceptions from the RRC for the release of gas when they present information demonstrating the necessity of the release.[13] The RRC allows reporting exemptions for gas "not readily measured in the operation of oil wells," including "gas released at a wellsite during drilling operations and prior to the completion date of the well."[14]

To keep track of operators flaring natural gas, the RRC requires operators to report to the Commission the volumes of gas flared on their monthly Production Report (PR) form.[15] This PR form must include actual, metered volumes of both gas well gas and casinghead gas reported by operators at the lease level.[16] In 2013 alone, over 3,000 flaring permits were issued.[17]

Since 2009, flaring and venting of natural gas in Texas has surged by 400 percent to 33 billion cubic feet in 2012, and nearly two-thirds of the gas flared in 2012 came from the Eagle Ford Shale region.[18] Gas flared in the Eagle Ford Shale reportedly resulted in the release of more than 15,000 tons of VOCs and other contaminants into the atmos-

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7 DUSTY HORWITT, EARTHWORKS, UP IN FLAMES: U.S. SHALE OIL BOOM COMES AT EXPENSE OF WASTE NATURAL GAS, INCREASED CO_2 11 (Aug. 2014), *available at* http://www.earthworksaction.org/files/publications/Up-In-Flames_FINAL.pdf, *archived at* http://perma.cc/9HPT-2Z7K.

8 *Id.*

9 *Id.* at 14.

10 16 TEX. ADMIN. CODE § 3.32(f) (West 2015).

11 *Id.* § 3.32(h).

12 *Id.* § 3.32(f)(1)(B).

13 *Id.* § 3.322(f)(2).

14 *Id.* § 3.32 (d)(1)(F).

15 *Flaring Regulation*, TEX. R.R. COMM'N, http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-flaring-regulation/ (last visited Jan. 15, 2015), *archived at* http://perma.cc/H4TX-EB8R.

16 *Id.*

17 *Id.*

18 Tedesco & Hiller, *supra* note 5.

phere in 2012, which is more than was emitted by the six oil refineries in Corpus Christi.[19]

Oil and gas wells in Texas's Eagle Ford Shale reportedly flared 34 billion cubic feet of gas in 2013, which amounts to 54% of the total gas flared from all oil and natural gas wells in the state even though wells in the Eagle Ford comprise only 3.2% of all the state's oil and gas wells.[20] The amount of gas flared from those oil wells was 7.2% of the total gas produced from the wells.[21]

The San Antonio Express News asked the RRC for records showing the twenty leases in the Eagle Ford with the most gas flared and vented in 2012 and also for the permits allowing those companies to flare that gas.[22] Through the newspaper's request for information, the RRC discovered that seven of the twenty leases lacked the necessary flaring permits.[23] That same year, Texas Railroad Commissioner David Porter announced that he planned to begin an initiative to modernize Commission flaring rules to "reduce flaring and venting associated with oil and gas production."[24] He noted at the time that "activity is outstripping capacity and awaiting pipeline infrastructure."[25]

In February 2014, Texas Railroad Commissioner Christi Craddick stated that the agency would be sending letters to operators to remind them of the state's natural gas flaring rules and warning that the State will enforce them.[26] Despite this reminder, it has been argued that there is insufficient oversight of flaring by the RRC in Texas and that operators are taking advantage of the deficiency, continuing to flare gas illegally instead of investing in pipeline infrastructure based on economic incentives.[27]

Flaring Constitutes "Waste"

The Texas legislature also limits natural gas flaring through a prohibition on "waste" of oil and natural gas resources in the Texas Natural Resources Code.[28] Within that section, one definition of "waste" is "permitting a gas well to burn wastefully."[29]

The total volume of flared gas in the Eagle Ford Shale from 2009 to 2012 was almost 39 billion cubic feet, "enough to meet the annual heating and cooking needs for all

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19 *Id.*
20 Horwitt, *supra* note 7, at 5.
21 *Id.* at 5.
22 Tedesco & Hiller, *supra* note 5.
23 *Id.*
24 *Commissioner David Porter Launches Initiative to Modernize Commission Flaring Rules*, Tex. R.R. Comm'n, http://www.rrc.state.tx.us/about-us/commissioners/porter/news/052312/ (last visited Jan. 15, 2015), *archived at* http://perma.cc/6YYX-HPMU.
25 *Id.*
26 Holeywell, *supra* note 3.
27 Tedescbo & Hiller, *supra* note 5.
28 Tex. Nat. Res. Code § 86.001 (V.T.C.A. 1977) ("In recognition of past, present, and imminent evils occurring in the production and use of gas as a result of waste in this production and use of gas in the absence of correlative opportunities of owners of gas in a common reservoir to produce and use gas, the provisions of this chapter are enacted for the protection of public and private interests against these evils by prohibiting waste and compelling ratable production.").
29 *Id.* § 86.012.

335,700 residential customers who relied on gas last year in CPS Energy's service area, which includes San Antonio."[30]

Specific instances have been raised to demonstrate that operators may be bending the rules to their advantage when gas prices are not high enough to return a profit. For example, the RRC approved a request from one company to flare casinghead gas last summer while it waited for the completion of a nearby processing plant and pipeline.[31] Although the gas infrastructure was eventually finished in January 2014, records obtained by the San Antonio Express News show that the company flared all of the gas from the wells on the lease before the completion of the well, a total of 245 million cubic feet.[32]

It seems likely that critics will continue to press the RRC to either incentivize producers to invest in building natural gas pipelines or begin to strictly enforce its flaring regulations, arguing that operators at oil and gas wells do not currently take the RRC rules seriously and are wasting gas while harming the environment. It may also be that the controversy will result in additional complaints to the TCEQ and responsive investigations by that agency. Whether and how quickly these developments may reduce the level of flaring in the Eagle Ford, however, remains to be seen.

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AIR QUALITY

NEW GREENHOUSE GAS RULES

On November 10, 2014, the U.S. Environmental Protection Agency (EPA) published its approval of Texas' State Implementation Plan (SIP) submitted by the Texas Commission on Environmental Quality (TCEQ).[1]

On October 1, 2014, TCEQ announced a revised set of "new rules" on the emission of greenhouse gases ("Revised GHG Rules").[2] The Revised GHG Rules come against

30 Tedesco & Hiller, *supra* note 5.

31 *Id.*

32 *Id.*

1 Approval and Promulgation of Air Quality Implementation Plans; Texas; Prevention of Significant Deterioration; Greenhouse Gas Tailoring Rule Revisions, 79 Fed. Reg. 66,626 (codified at 40 C.F.R. Part 52) (Nov. 10, 2014).

2 Letter from Richard A. Hyde, P.E., Exec. Dir., Tex. Comm'n on Envtl. Quality, to Sam Coleman, Deputy Reg'l Adm'r, U.S. Envtl. Prot. Agency, Region 6 (Oct. 1, 2014), at 1, *available at* http://insideepa.com/sites/insideepa.com/files/documents/oct2014/epa2014_1801b.pdf, *archived at* http://perma.cc/MG2Y-DVUD.

the backdrop of the recent decision in *Utility Air Regulatory Group v. Environmental Protection Agency* ("*UARG v. EPA*"), in which the U.S. Supreme Court held that the federal Clean Air Act (CAA) neither compels nor permits the EPA to adopt an interpretation of the CAA requiring an emission source to obtain a Prevention of Significant Deterioration (PSD) or Title V permit solely on the basis of its potential greenhouse gas (GHG) emissions.[3]

The prior version of the greenhouse gas rules ("Original GHG Rules") were adopted by TCEQ in March of 2014.[4] As required by federal law at the time, the Original GHG Rules applied to "non-anyway" sources or "Step 2" sources, which are sources that would be major sources under the EPA's PSD permitting program only because of their emissions of greenhouse gases.[5] Therefore, the Original GHG Rules intended to implement a framework that would grant TCEQ authority to approve GHG emsissions to the extent allowed under federal law.[6]

Non-anyway sources are no longer subject to PSD permitting.[7] Given that the primary purpose of TCEQ's Original GHG Rules was to grant TCEQ the explicit authority to grant PSD GHG permits for Texas sources, the Supreme Court's decision in *UARG v. EPA* renders a large portion of those rules unnecessary.[8] Hence, TCEQ announced the Revised GHG Rules.[9]

Texas's 1992 SIP was Retroactively Disapproved by the EPA in 2011

In *Massachusetts v. Environmental Protection Agency*, the U.S. Supreme Court held that GHGs fall within the definition of "air pollutant" in the CAA.[10] The Court further held that the EPA is empowered by Title II of the CAA to regulate GHGs from new motor vehicles if it determines that such emissions "contribute to . . . air pollution which may reasonably be anticipated to endanger public health or welfare."[11] Subsequently, in 2009, the EPA determined that GHG emissions from new motor vehicles endanger human health and welfare.[12] In 2010, the EPA announced that stationary sources would also be subject to the PSD program and Title V on the basis of their potential to emit GHGs.[13] In light of the administrative burden created by the new GHG regulations on

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3 Util. Air Regulatory Grp. v. Envtl. Prot. Agency, 134 S.Ct. 2427 (2014); *see also* Letter from Richard A. Hyde, *supra* note 2, at 2.

4 Approval and Promulgation of Air Quality Implementation Plans; Texas; Prevention of Significant Deterioration; Greenhouse Gas Tailoring Rule Revisions, 79 Fed. Reg. 66,626, at 66,627.

5 *Id.*

6 *Id.* at 66,268.

7 *Util. Air Regulatory Grp.*, 134 S.Ct. at 2449.

8 Letter from Richard A. Hyde, *supra* note 2 at 1.

9 *Id.*

10 Massachusetts v. Envtl. Prot. Agency, 549 U.S. 497 (2007).

11 *Id.* at 532–33 (quoting 42 U.S.C.A. § 7521(a)(1)).

12 *Util. Air Regulatory Grp.*, 134 S.Ct. at 2436-37.

13 *Id.* at 2437.

relevant industries and state authorities, the EPA announced its Tailoring Rule, which would "tailor" the PSD program and Title V to GHGs in three steps.[14]

The new GHG regulations created practical difficulties for EPA in applying its Tailoring Rule in states that already had EPA-approved SIPs before the decision in *Massachusetts v. Environmental Protection* Agency; Texas was one such state.[15] Texas's SIP was approved by the EPA in 1972 when GHGs were not being regulated under the CAA.[16] In 1992, the EPA approved Texas's PSD SIP, thus Texas was granted full authority to implement its PSD program.[17] In August 2010, in response to the regulatory changes triggered by the *Massachusetts v. Environmental Protection Agency* decision, Texas advised the EPA that it could not retroactively reinterpret its SIP to cover GHGs.[18] However, in September 2010, EPA signed a Federal Implementation Plan (FIP) giving the EPA the authority to issue PSD permits for sources of GHG emissions in states that did not or could not agree to reinterpret their respective SIPs to impose the Tailoring Rule.[19] The EPA also retroactively disapproved Texas's 1992 PSD SIP with respect to GHG emissions.[20] This resulted in a dual system of permitting authority in Texas—the EPA for GHGs and the state of Texas for all other pollutants.[21]

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14 *Id.*; *see also* Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514 (to be codified at 40 C.F.R. pts. 51, 52, 70 and 71) (June 3. 2010).

15 38 Tex. Reg. 7887 (2013) (to be codified as an amendment to 30 TEX. ADMIN. CODE §§ 106.2, 106.4 (West 2015)); *see also* Approval and Promulgation of Implementation Plans, 37 Fed. Reg. 10,842 (codified at 40 C.F.R. pt. 52) (May 31, 1972) and Approval and Promulgation of Implementation Plan State of Texas Prevention of Significant Deterioration, 57 Fed. Reg. 28,093 (codified at 40 C.F.R. Part 52) (June 24. 1992).

16 *Id.*

17 *Id.*

18 *Id.*; *see also* Letter from Bryan W. Shaw, Ph.D., Chairman, Tex. Comm'n on Envtl. Quality, to Alfredo Armendariz, Ph.D., Reg'l Adm'r, U.S. Envtl. Prot. Agency, Region 6 (Aug. 9, 2010), at 1, *available at* https://www.tceq.texas.gov/assets/public/permitting/air/Announcements/toepa_08_09_10.pdf, *archived at* http://perma.cc/S6KT-4Y64.

19 38 Tex. Reg. 7887 (2013) (to be codified as an amendment to 30 TEX. ADMIN. CODE §§ 106.2, 106.4 (West 2015)); *see also* Action To Ensure Authority To Issue Permits Under the Prevention of Significant Deterioration Program to Sources of Greenhouse Gas Emissions: Finding of Substantial Inadequacy and SIP Call, 75 Fed. Reg. 53,892 (to be codified at 40 C.F.R. Part 52) (Sept. 2, 2010).

20 38 Tex. Reg. 7887 (2013) (to be codified as an amendment to 30 TEX. ADMIN. CODE §§ 106.2, 106.4 (West 2015)); *see also* Determinations Concerning Need for Error Correction, Partial Approval and Partial Disapproval, and Federal Implementation Plan Regarding Texas Prevention of Significant Deterioration Program, 75 Fed. Reg. 82,430 (codified at 40 C.F.R. Part 52) (Dec. 30, 2010).

21 38 Tex. Reg. 7887 (2013) (to be codified as an amendment to 30 TEX. ADMIN. CODE §§ 106.2, 106.4 (West 2015)); *see also* Determinations Concerning Need for Error Correction, Partial Approval and Partial Disapproval, and Federal Implementation Plan Regarding Texas Prevention of Significant Deterioration Program, 75 Fed. Reg. 82,430 (codified at 40 C.F.R. Part 52) (Dec. 30, 2010).

In June 2013, House Bill 788 Authorized TCEQ Permitting of GHG Emissions

The proposal and adoption of the Revised GHG Rules by TCEQ were the result of the passage of House Bill 788 ("H.B. 788") during the 2011 state legislative session, which became effective on June 14, 2013.[22] This legislation gave the TCEQ the authority to develop rules to permit major sources of GHG emissions to the extent required by federal law.[23] In contrast, at the time the legislation was passed, Texas was subject to a FIP, which required major sources of GHG emissions to obtain a GHG permit from the EPA.[24]

Several chapters in the Texas Administrative Code relating to air permitting and public notice needed to be amended to implement H.B. 788.[25] Furthermore, before the TCEQ could take over the permitting program, the EPA had to approve the new GHG emission rules as part of the Texas SIP.[26] Accordingly, the Original GHG Rules were submitted to the EPA in December 2013 for approval.[27]

EPA's Preliminary Response to UARG: PSD or Title V Permits for "Non-Anyway" Sources are No Longer Required by the EPA

The EPA issued a memorandum to the regional administrators of all ten regions providing its preliminary guidance on how the Supreme Court's decision in *UARG v. EPA* affects PSD and Title V permitting requirements.[28] In short, "in order to act consistent with the understanding of the Supreme Court's decision," the EPA will no longer require PSD or Title V permits for "non-anyway" sources or "Step 2" sources:

> EPA will no longer apply or enforce federal regulatory provisions or the EPA-approved PSD . . . [SIP] provisions that require a stationary source to obtain a PSD permit if [GHGs] are the only pollutant (i) that the source emits or has the potential to emit above the major source thresholds, or (ii) for which there is a significant emissions increase and a significant net emissions increase

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22 Tex. H.B. 788, Act of June 14, 2013, 83rd Leg., R.S., ch. 272, § 4, 2013 Tex. Gen. Laws 1021 (codified at Tex. Health & Safety Code Ann. § 382.05102 (West 2013)).

23 Tex. Health & Safety Code Ann. § 382.05102 (West 2013).

24 38 Tex. Reg. 7883; *see also* Partial Approval and Partial Disapproval, and Federal Implementation Plan; Texas; Prevention of Significant Deterioration Program, 76 Fed. Reg. 25,178 (May 3, 2011).

25 38 Tex. Reg. 7883.

26 *Id.*

27 Letter from Zak Covar, Exec. Dir., Tex. Comm'n on Envtl. Quality, to Sam Coleman, Deputy Reg'l Adm'r, U.S. Envtl. Prot. Agency, Region VI (Dec. 2, 2013), at 1, *available at* https://www.tceq.texas.gov/assets/public/permitting/air/Announcements/toepa-12-2-13.pdf, *archived at* http://perma.cc/QT2C-M9MY.

28 Further judicial action at the D.C. Circuit is also required to effectuate the final decision. Memorandum from Janet G. McCabe, Office of Air and Radiation, U.S. Envtl. Prot. Agency & Cynthia Giles, Office of Enforcement and Compliance Assurance, U.S. Envtl. Prot. Agency, to Reg'l Adm'rs, Regions 1-10, U.S. Envtl. Prot. Agency, Next Steps and Preliminary Views on the Application of Clean Air Act Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in Utility Air Regulatory Group v. Environmental Protection Agency (Jul. 24, 2014), *available at* http://www.epa.gov/nsr/documents/20140724memo.pdf, *archived at* http://perma.cc/6R48-KVWP.

> from a modification . . . Nor does the EPA intend to continue applying regulations that would require that states include in their SIP a requirement that such sources obtain PSD permits.[29]

In addition, the EPA will "no longer apply or enforce federal regulatory provisions or provisions of EPA-approved [T]itle V programs that require a stationary source to obtain a [T]itle V permit solely because the source emits or has the potential to emit greenhouse gases above the major source thresholds."[30]

TCEQ's Response to *UARG*: Revision to Original GHG Rules

In light of the *UARG v. EPA* opinion, the TCEQ requested that the EPA approve the Revised GHG Rules.[31] The revised rules are intended to narrow the GHG permit program that was originally submitted in 2013 for EPA approval.[32]

The revision of the Original GHG Rules is focused on rules that are not appropriate or necessary for the SIP in light of *UARG v. EPA*.[33] Those rules refer to certain provisions in Chapters 106, 116 and 122 of the Texas Administrative Code that apply to "non-anyway" sources.[34]

TCEQ Granted Full Authority

It was only recently—November 10, 2014—that the EPA approved the Texas' SIP and the rescission of Texas' GHG PSD FIP.[35] The EPA's approval effectively brings an end to the dual authority permitting system and grants TCEQ with "full authority to implement the greenhouse gas permitting program in Texas."[36]

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29 *Id.* at 2.

30 *Id.*

31 Letter from Richard A. Hyde, *supra* note 2, at 2.

32 *Id.* at 1.

33 *Id.*

34 *Id.* For a detailed comparison of the Original and the Revised GHG Rules, *see* Enclosure to Letter from Richard A. Hyde, P.E., Executive Director, Tex. Comm'n on Envtl. Quality, to Sam Coleman, Deputy Regional Administrator, U.S. Envtl. Prot. Agency, Region 6, TCEQ – GHG Rules Submitted for SIP Approval 59 (Oct. 1, 2014) [on file with Tex. Envtl. L. J]; *see also* 30 TEX. ADMIN. CODE ANN. §§ 106.4(a)(1), 106.4(a)(3), 106.4(a)(4), 116.12(19)-(20), 116.111(a)(2)(I), 116.160(a)-(b), 116.164(a)(3)-(5), 116.164(b), 116.610(b), 116.611(b), 116.611(c)(3), 122.122(e)(3) (2014) (Tex. Comm'n on Envtl. Quality) for the Original GHG Rules; *see also* Approval and Promulgation of Air Quality Implementation Plans; Texas; Prevention of Significant Deterioration; Greenhouse Gas Tailoring Rule Revisions, 79 Fed. Reg. 66,626, at 66,628 for the Revised GHG Rules.

35 Approval and Promulgation of Air Quality Implementation Plans; Texas; Prevention of Significant Deterioration; Greenhouse Gas Tailoring Rule Revisions, 79 Fed. Reg. 66,626.

36 *Id.* at 66,628.

WATER UTILITIES

THE TCEQ ADOPTS WATER SHORTAGE REPORTING AND MINIMUM WATER AVAILABILITY REQUIREMENTS

BACKGROUND AND SUMMARY OF THE ADOPTED RULES

Given the current drought and ongoing concerns about water availability, especially during times of emergencies, in September 2014, the Texas Commission on Environmental Quality (TCEQ or "Commission") adopted new rules relating to water shortage reporting and minimum water availability requirements. The promulgation of these rules follows legislative mandates recognizing the importance of maintaining sufficient water supply: House Bill ("H.B.") 252, requiring public utilities to determine the number of days that water is available and report to TCEQ when the available supply dips below 180 days;[1] H.B. 1814 § 2[2], H.B. 1973[3], and Senate Bill ("S.B.") 1086, § 1 and § 2, requiring certain municipalities and utilities to provide sufficient water pressure and capacity for fire suppression purposes.[4]

WATER SHORTAGE REPORTING REQUIREMENTS

The adopted water shortage reporting requirements command retail public utilities and the entities that provide the utility's wholesale water service to provide the Commission details on water availability.[5] These entities, as an initial matter, must determine the number of days of water supply available for use.[6] Then, if and when their available water supply is less than 180 days, the entities must report such conditions to the Commission using the commission's online "PWS Drought Contingency Plan Reporting Form."[7] Until this rule was adopted, retail public utilities and their wholesale water ser-

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1 Tex. H.B. 252, Act of June 14, 2013, 83rd Leg., R.S., ch. 234, § 1, 2013 Tex. Sess. Law Serv. 971 (codified at TEX. WATER CODE § 13.148 (West 2013)); *see also* 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46, 291.200 (West 2015).

2 Tex. H.B. 1814, Act of June 17, 2011, 82nd Leg., R.S. ch. 290, § 9, 2011 Tex. Sess. Law Serv. 904 (codified at TEX. HEALTH & SAFETY CODE § 341.0358(g) (West 2013)); *see also* 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015).

3 Tex. H.B. 1973, Act of June 14, 2013, 83rd Leg., R.S., ch. 332, 2013 Tex. Sess. Law Serv. 1108, 1108 (codified at TEX. HEALTH & SAFETY CODE § 341.0359 (West 2013)); *see also* 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015).

4 Tex. S.B. 1086, Act of June 14, 2013, 83rd Leg., R.S., ch. 606, § 3, 2013 Tex. Sess. Law Serv. 1618, 1618 (codified at TEX. HEALTH & SAFETY CODE § 341.0358 (West 2013)); *see also* 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015).

5 30 TEX. ADMIN. CODE §§ 290.41(b)(1), 291.200(a) (West 2015).

6 *Id.*

7 *Id.* For the PWS Drought Contingency Plan Reporting Form, *see PWS Drought Contingency Plan Reporting Form*, TEX. COMM'N ON ENVTL. QUALITY, http://www.tceq.texas.gov/drinkingwater/homeland_security/security_pws/pws-drought-contingency-plan-reporting-form/ (last visited Jan. 16, 2015), *archived at* http://perma.cc/Z45Z-VHHF.

vice providers were self-reporting on a voluntary basis, but the adopted rule requires reporting.[8]

If reporting cannot be accomplished using the online drought reporting form, the new regulations allow utilities to utilize alternative reporting options.[9] Utilities reporting a water shortage may use the drought hotline for assistance in meeting the reporting requirements.[10] However, utilities should confirm the water shortage reporting utilizing either the online drought reporting form, regular or electronic mail, or fax.[11]

FIRE FLOW AND PRESSURE STANDARDS

The newly-adopted rules related to fire flow and pressure implement the following bills: 1) H.B. 1973, which relates to the provision of water by a public utility or water supply or sewer service corporation for use in fire suppression; 2) S.B. 1086, § 1 and § 2, which relates to expanding the public safety standards to certain municipalities; and 3) H.B. 1814, § 2, which relates to the provision of water and certain equipment by water supply or sewer service corporations for use in fire suppression and the liability of those corporations.[12]

In general, the adopted amendments to section 290.45 and section 291.46 expand the requirements to provide sufficient water flow and pressure for the purposes of emergency fire suppression and the installation of fire hydrants to additional specific areas of the State.[13] Specifically, the adopted amendment to section 290.46(x) expands the applicability of the public safety standards to: a municipality with a population of more than 36,000 and less than 41,000 located in two counties, one of which is a county with a population of more than 1.8 million (Burleson, Coppell and Lancaster); a municipality, including any industrial district within the municipality or its extraterritorial jurisdiction ("ETJ"), with a population of more than 7,000 and less than 30,000 located in a county with a population of more than 155,000 and less than 180,000 (Buda and Kyle); and a municipality, including any industrial district within the municipality or its ETJ, with a population of more than 11,000 and less than 18,000 located in a county with a population of more than 125,000 and less than 230,000 (Cibolo, Crowley, and Glenn Heights).[14]

The adopted amendment to subsection 290.46(y) provides the option for a governing body of a municipality to adopt standards set by the Commission requiring a utility, within their jurisdictional boundary, to maintain a minimum sufficient water flow and pressure to fire hydrants in residential areas.[15]

The adopted amendment to subsections 290.45(a)(1) and (2) clarifies that the alternative capacity requirements currently listed in the rules do not include the capacity requirements found in subsections 290.46(x) and (y), and the Commission will require

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8 *See* 30 TEX. ADMIN. CODE §§ 290.41(b)(1), 291.200(a) (West 2015).

9 *Id.* §§ 290.41(b)(2), 291.200(b).

10 The Small Business and Environmental Assistance's drought hotline (1-800-447-2827) is available from 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m., Monday through Friday.

11 30 TEX. ADMIN. CODE §§ 290.41(b)(2), 291.200(b) (West 2015).

12 *See id.* §§ 290.41, 290.45, 290.46.

13 *See id.* §§ 290.41, 290.45, 290.46.

14 *See id.* § 290.46(x).

15 *See id.* § 290.46(y).

additional capacity if it is demonstrated that a system is unable to meet the capacity requirements in subsections 290.46(x) and (y).[16]

The adopted amendments to subsections 290.45(e)(2) and (f)(7) clarify that wholesalers of water that have retail connections and purchased water systems must meet the alternative capacity requirements found in subsections 290.46(x) and (y).[17]

The adopted amendment to subsection 290.45(g) clarifies that systems must meet the fire flow requirements when requesting an alternative capacity requirement and must demonstrate that they can comply with the requirements found in subsections 290.46(x) and (y) in addition to the domestic maximum daily demand as required by subsection 290.45(g).[18]

Effect of the Adopted Rules: Public Benefits and Costs

Public Benefits

The section 290.41 and section 291.200 amendments provide some public benefit by increasing awareness of the amount of water supply available to citizens of the state.[19] The Commission and water utilities will have information to implement water supply planning and policy decisions to address future water supply needs throughout the state.[20]

The section 290.45 and section 290.46 amendments potentially provide for increased public safety protection by increasing the capacity to provide sufficient water supply and fire hydrants to meet the fire flow demands.[21]

Costs

The amendments to section 290.41 and section 291.200 may result in additional costs for some public utilities and water providers that do not have the technology or capability to estimate the remaining days of available water supply.[22] Water utility customers served by these water systems may see their water rates increase to fund additional equipment, contract services, or staff to determine the available water supply remaining.[23]

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16 *See id.* § 290.46(x)-(y). The amended subsections 290.46(x) and (y) state a minimum standard of 250 gallons per minute for a minimum period of two hours while maintaining a minimum pressure of 20 psi.

17 *See id.* §§ 290.45(e)(2) and (f)(7); *see also id.* § 290.46(x)-(y) (West 2015).

18 *See id.* § 290.45(g); *see also id.* § 290.46(x)-(y).

19 39 Tex. Reg. 1835, 1838 (2014), adopted 39 Tex. Reg. 7145 (2014) (codified as an amendment to 30 Tex. Admin. Code §§ 290.41, 290.45, 290.46 (West 2015)); 39 Tex. Reg. 1857, 1858 (2014), adopted 39 Tex. Reg. 7168 (2014) (codified as an amendment to 30 Tex. Admin. Code § 291.200 (West 2015)).

20 39 Tex. Reg. 1835, 1838 (2014), adopted 39 Tex. Reg. 7145 (2014) (codified as an amendment to 30 Tex. Admin. Code §§ 290.41, 290.45, 290.46 (West 2015)); 39 Tex. Reg. 1857, 1858 (2014), adopted 39 Tex. Reg. 7168 (2014) (codified as an amendment to 30 Tex. Admin. Code § 291.200 (West 2015)).

21 39 Tex. Reg. 1835, 1838 (2014), adopted 39 Tex. Reg. 7145 (2014) (codified as an amendment to 30 Tex. Admin. Code §§ 290.41, 290.45, 290.46 (West 2015)).

22 39 Tex. Reg. 1857, 1858 (2014), adopted 39 Tex. Reg. 7168 (2014) (codified as an amendment to 30 Tex. Admin. Code § 291.200 (West 2015)).

23 39 Tex. Reg. 1857, 1858 (2014).

The amendments to section 290.45 and section 290.46 may likewise result in additional costs for some investor-owned utilities and water supply corporations by requiring them to increase their flow capacity to meet the minimum fire flow requirements.[24] The increase in flow capacity may need additional construction for water production, pressure or water storage and the submission of construction plans to the agency for bonding authority.[25] Water utility customers may see their water rates increase to fund the construction of additional production, pressure and/or storage facilities.[26]

PUBLIC HEARING AND SIGNIFICANT CHANGES FROM PROPOSAL

The comment period began on March 14, 2014 and closed on April 14, 2014 for the proposed rules.[27] A public hearing was held on April 8, 2014, in Austin, Texas.[28] While no comments were received on the water shortage reporting requirements, the TCEQ did receive oral and written comments on the fire flow standards.[29] The commenters were generally supportive of the fire flow rules; however, they suggested changes on the implementation of a uniform fire flow standard by the Commission.[30]

TCEQ enacted major changes after consideration of submitted comments. Commenters expressed concern that small utilities and rural water systems may not be able to meet the fire flow standards set by the municipalities.[31] Other commenters requested that the TCEQ develop a uniform statewide fire flow standard matching the intent of H.B. 1973.[32] One commenter requested that the TCEQ establish a review process whereby an affected utility may petition the TCEQ to review a fire flow standard adopted by a municipality.[33] In response to these comments, the Commission revised subsection 290.46(y)(4), adding language to clarify the three factors that a municipality

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24 *Id.*
25 *Id.*
26 *Id.*
27 39 Tex. Reg. 1835 (2014), adopted 39 Tex. Reg. 7145, 7148 (2014) (codified at 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015)); 39 Tex. Reg. 1857 (2014), adopted 39 Tex. Reg. 7168, 7169 (2014) (codified as an amendment to 30 TEX. ADMIN. CODE § 291.200 (West 2015)).
28 39 Tex. Reg. 1835 (2014), adopted 39 Tex. Reg. 7145, 7148 (2014) (codified at 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015)); 39 Tex. Reg. 1857 (2014), adopted 39 Tex. Reg. 7168, 7169 (2014) (codified as an amendment to 30 TEX. ADMIN. CODE § 291.200 (West 2015)).
29 39 Tex. Reg. 1835 (2014), adopted 39 Tex. Reg. 7145, 7148 (2014) (codified at 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015)); 39 Tex. Reg. 1857 (2014), adopted 39 Tex. Reg. 7168, 7169 (2014) (codified as an amendment to 30 TEX. ADMIN. CODE § 291.200 (West 2015)).
30 39 Tex. Reg. 1835 (2014), adopted 39 Tex. Reg. 7145, 7148 (2014) (codified as amendments to 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015)).
31 39 Tex. Reg. 1835 (2014), adopted 39 Tex. Reg. 7145, 7150 (2014) (codified as amendments to 30 TEX. ADMIN. CODE §§ 290.41, 290.45, 290.46 (West 2015)).
32 *Id.*
33 *Id.*

must consider when establishing a minimum sufficient fire flow standard that exceeds the standards set in subsection 290.46(y)(3).[34]

Commenters also requested subsection 290.46(y)(5) be modified by replacing the phrase "as determined by the standard adopted by the executive director" to clarify that the executive director is not going to adopt another standard separate and apart from the standard set forth in the rule.[35] In response to this comment, the Commission revised subsection 290.46(y)(5) by removing the phrase "by the standard adopted."[36]

Finally, commenters expressed concern that the rule language is not clear about what standard municipalities without their own systems are adopting.[37] In response to this comment, the Commission revised subsection 290.46(y)(6) by replacing the word "ordinance" with the phrase "paragraph (3) of this subsection" to more accurately reflect the language used in the Texas Health and Safety Code subsection 341.0359(c)(5).[38]

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WATER RIGHTS

LANDOWNER RIGHTS TO A CONTESTED CASE IN GROUNDWATER PERMIT HEARINGS: *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*

Until recently, the groundwater jurisprudence in Texas remained largely stagnate since the *East* decision in 1904.[1] With technological advances in pumping, geological mapping, desalination, and an overall better understanding of the nature of groundwater,

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34 *Id.* The TCEQ added "the density of connections, service demands, other relevant factors" to section 290.46(y)(4) as the factors a municipality must consider if it adopts a fire flow standard exceeding the minimum standards set in section 290.46(y)(3) which requires a minimum sufficient water flow of at least 250 gallons per minute for at least two hours and a minimum sufficient water pressure of at least 20 psi.

35 *Id.*

36 *Id.*

37 *Id.*

38 *Id.*; TEX. HEALTH & SAFETY CODE ANN. § 341.0359(c)(5) (West 2013) (prohibiting a municipality that does not own a utility from requiring a utility within the municipality or its extraterritorial jurisdiction to provide a higher flow and pressure than required by commission standards).

1 Hous. & T.C. Ry. Co. v. East, 81 S.W. 279 (Tex. 1904); *see* Sipriano v. Great Spring Waters of Am., Inc., 1 S.W.3d 75 (Tex. 1999).

novel issues have arisen. Consequently, judges and legislators alike have been confronted with legal questions that are only now more than theoretical musings found in law journals. Until groundwater doctrine is firmly establsihed, landowners, lawyers, regulators, and judges will have to wrestle with their interpretations of recent court rulings.

In 2012, the Supreme Court of Texas held that landowners have an ownership right to the water "in place" beneath their land.[2] In reaching that decision, the court recognized that, up until that time, the law was unsettled concerning "whether groundwater can be owned in place."[3] While this recognition of landowners' interest in groundwater may ultimately have a significant impact on the law, it appears that some may have overestimated its practical effect. Recently, the Lost Pines Groundwater Conservation District ("Lost Pines") contracted with the State Office of Administrative Hearings (SOAH) to help determine whether to grant a permit application filed by End Op, LP to extract water from the Carrizo-Wilcox Aquifer ("Aquifer") for the purpose of providing water to Travis and Williamson Counties.[4] This Development discusses ongoing litigation involving that case, which raised the issue of whether neighboring landowners were entitled to participate in the contested case hearing.

End Op filed an application with Lost Pines seeking to withdraw 56,000 acre-feet per year of water and published notice for an administrative hearing consistent with both Lost Pines' and the Open Meetings Act.[5] Subsequently, a number of individuals and entities protested and requested a contested case hearing on the application.[6] In May of 2013, after Lost Pines held a public hearing on the application, End Op requested Lost Pines grant a contested case hearing to be conducted by a SOAH administrative law judge (ALJ).[7] In June, Lost Pines granted the request for a contested case hearing, referring a number of issues, including a question of standing for a number of the protestants.[8]

End Op challenged specific landowners' requests for party status.[9] End Op put forth a number of arguments opposing standing for several landowners and Environmental Stewardship (ES).[10] After rejecting End Op's argument that the protestants' requests for

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2 Edwards Aquifer Auth. v. Day, 369 S.W.3d 814, 817 (Tex. 2012), reh'g denied (June 8, 2012).

3 *Id.* For a detailed discussion of the implications of the Day case, *see* Amy Hardberger, *World's Worst Game of Telephone: Attempting to Understand the Conversation between Texas's Legislature and Courts on Groundwater*, 43 TEX. ENVTL L.J. 257 (2013).

4 State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Order No. 3, 10-12 (Sept. 25, 2013); *see also* State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Proposal for Decision (April 10, 2014).

5 State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Proposal for Decision, at 3.

6 *Id.*

7 *Id.*

8 *Id.*

9 *Id.*

10 State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Order No. 3, at 6-10.

third-party status were procedurally deficient,[11] End Op's additional arguments challenged ES and landowners who did not have wells on their property.[12]

End Op's argument relied on three claims: "(1) groundwater ownership alone is insufficient to establish standing, (2) non-use of groundwater is a relevant factor when analyzing standing, and (3) an injury in fact that is traceable and redressable, not system-wide effects, is the standard."[13] Meanwhile, the landowners claimed that, by virtue of section 36.002 of the Water Code,[14] they own the water beneath their properties as a real property interest.[15] Furthermore, while the landowners agree that the injury in fact must be more than merely speculative, they contend that a showing of potential impact was sufficient to establish status as an affected person.[16] The landowners further relied on the holding in *Day* to support their proposition that standing is not affected by use, non-use, or intended use of the groundwater.[17] In response, End Op sought to distinguish *Day* from the case at hand by arguing that *Day* spoke to "whether non-use as the basis for denial of a permit application constituted a constitutional taking" rather than the requirements "to obtain third-party status in a contested case hearing on an applicant's permit."[18]

The ALJ found the seminal case concerning standing in contested case hearings, *City of Waco v. Texas Commission on Environmental Quality*,[19] to be persuasive. In *Waco*, the Court held that to establish status as an affected person and thus standing, one must demonstrate:

> (1) "an 'injury in fact' from the issuance of the permit as proposed—an invasion of a 'legally protected interest' that is (a) 'concrete and particularized' and (b) 'actual or imminent, not conjectural or hypothetical';
>
> (2) the injury must be 'fairly traceable' to the issuance of the permit as proposed, as opposed to the independent action of third parties or other alternative causes unrelated to the permit; and
>
> (3) it must be likely, and not merely speculative, that the injury will be redressed by a favorable decision on its complaints regarding the proposed permit (i.e., refusing to grant the permit or imposing additional conditions)."[20]

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11 *Id.* at 2-3.
12 *Id.* at 10.
13 *Id.* at 6.
14 *Id.*; *see also* TEX. WATER CODE ANN. § 36.002 (West 2011).
15 State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Order No. 3, at 5.
16 *Id.*
17 *Id.* at 6.
18 *Id.*
19 City of Waco v. Tex. Comm'n on Envtl. Quality, 346 S.W.3d 781 (Tex. App.—Austin 2011, pet. denied), *rev'd*, 413 S.W.3d 409 (Tex. 2013) (reversed on other grounds).
20 *Id.* at 802-03 (citing Brown v. Todd, 53 S.W.3d 297, 305 (Tex.2001) (quoting Raines v. Byrd, 521 U.S. 811, 818–19, 117 S.Ct. 2312, 138 L.Ed.2d 849 (1997), Lujan v. Defenders of *803 Wildlife, 504 U.S. 555, 560–61, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992)); STOP, 306 S.W.3d at 926–27; Save Our Springs Alliance, Inc. v. City of Dripping Springs, 304 S.W.3d 871, 878 (Tex.App.-Austin 2010, pet. Denied)).

The ALJ again echoed *Waco* by stating the issue to be "whether the particular plaintiff has a sufficient personal stake in the controversy to assure the presence of an actual controversy that the judicial declaration sought would resolve."[21] The ALJ ruled that, to obtain standing as an affected person, "the landowners must show a concrete, particularized injury-in-fact that must be more than speculative, and there must be some evidence that would tend to show that the legally protected interests will be affected."[22] The ALJ's analysis states that the landowners

> cannot demonstrate a particularized injury that is not common to the general public because owning land and the groundwater under the land is not sufficient to show a particularized injury, especially since the landowners are not using and have not shown that they intend to use groundwater that will be drawn from the [aquifer].[23]

The landowners appealed this decision to the district court; however, because the proceedings in End Op's permit requests are ongoing, they asked the court to abate consideration of the appeal pending completion of the Lost Pines proceedings.[24] End Op intervened in the case as a defendant, requesting a declaratory judgment regarding the Plaintiffs' standing and attorneys' fees.[25]

This case raises the question of whether a vested interest in private property and the potential impact to that interest is a "particularized injury." The recent order denying standing to landowners may muddy the waters as to the importance of the landowners' rights in groundwater.

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21 State Office of Admin. Hearings, *Applications of End Op. L.P. for Well Registration, Operating Permits and Transfer Permits*, Docket No. 952-13-5210, Order No. 3, at 10 (quoting *City of Waco*, 346 S.W.3d at 805).

22 *Id.* (citing *City of Waco*, 346 S.W.3d at 805).

23 *Id.* at 11.

24 Andrew Meyer, Bette Brown, Darwyn Hanna and Environmental Stewardship v. Lost Pines Groundwater Conservation Dist., No. 29696, in the 21st Dist. Ct. of Bastrop County (filed Nov. 7, 2014).

25 Andrew Meyer, Bette Brown, Darwyn Hanna, and Environmental Stewardsidp's v. Lost Pines Groundwater Conservation Dist. and End Op, No. 29696, in the 21st Dist. Ct. of Bastrop County (filed Jan. 7, 2015).

WASHINGTON UPDATE

DEVELOPING CLIMATE CHANGE RESILIENCY THROUGH GREEN INFRASTRUCTURE

INTRODUCTION

Current efforts to address climate change involve reducing or mitigating greenhouse gas emissions.[1] Despite these efforts, however, studies show that historic emissions have already set the climate change trajectory for the next thirty to forty years "due to the long shelf-life of carbon dioxide in the atmosphere."[2] Therefore, regulatory agencies globally should prepare now for the impacts of climate change that will affect people's daily lives and the way small firms and large corporations run their businesses.[3] One possible solution that the Environmental Protection Agency (EPA) is actively promoting is the development of climate change resiliency through green infrastructure.[4]

Conceptually, green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments.[5] Examples of green infrastructure practices may include green roofs, hard and soft permeable surfaces, green alleys and streets, urban forestry, green open spaces such as parks and wetlands, and adaptation of buildings to better withstand floods and storm surges.[6]

Green infrastructure provides multiple benefits to communities by developing climate change resiliency.[7] It manages flooding, assists communities in preparing for drought, reduces urban heat islands, lowers building energy demands, and allows for the use of less energy in managing water.[8] At the local scale, green infrastructure can mean creating stormwater management systems that mimic nature by soaking up and storing

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1 S.E. Gill et al., *Adapting Cities for Climate Change: The Role of the Green Infrastructure*, 33 BUILT ENV'T 1, 115 (Nov. 2007), *available at* http://www.coolrooftoolkit.org/wp-content/uploads/2012/04/Gill_Adapting_Cities.pdf, *archived at* http://perma.cc/NDL9-5Z3W.

2 *Id.*

3 Richard R. Capozza, *Climate Change Issues Affect Corporate Risks and Opportunities*, *in* THE LEGAL IMPACT OF CLIMATE CHANGE LEADING LAWYERS ON PREPARING FOR NEW ENVIRONMENTAL LEGISLATION, ASSESSING GREEN PROGRAMS FOR CLIENTS, AND WORKING WITH GOVERNMENT AGENCIES ON CLIMATE CHANGE ISSUES (2008 ed.), *available at* 2008 WL 5689294, at *1.

4 Climate change resiliency is a community's capacity to respond to the climate change effect. "Simply, it is the ability to survive, recover from, and even thrive in changing climatic conditions." *What is Urban Climate Change Resilience?*, ASIAN CITIES CLIMATE CHANGE RESILIENCE NETWORK, http://www.acccrn.org/uccr/what-urban-climate-change-resilience (last visited Nov. 17, 2014), *archived at* http://perma.cc/X2HV-G2JC.

5 *See* Gill et al., *supra note* 1, at 115-16.

6 *What is Green Infrastructure?*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm (last updated June 13, 2014), *archived at* http://perma.cc/54L9-D6S2.

7 *Id.*

8 Hua-Peng Qin et al., *The Effects of Low Impact Development on Urban Flooding under Different Rainfall Characteristics*, 129 JOURNAL OF ENVTL. MGMT. 577, 577 (Nov. 15, 2013), http:/

water.[9] For better implementation in various communities, stormwater management through implementation of green infrastructure can be incorporated into regulatory programs, particularly with regard to stormwater management regulations for municipal separate storm sewer system (MS4s), combined sewer overflows (CSOs), and Total Maximum Daily Loads (TMDLs).[10]

STORMWATER

Stormwater is water originating from precipitation or snow melt.[11] Stormwater runoff is created when stormwater does not percolate into the ground.[12] In urban areas, such runoff will flow over the impervious surfaces (paved streets, parking lots, and building rooftops), carrying along debris, chemicals, sediments, and other pollutants that could adversely affect water quality.[13] To manage these impacts, the EPA and many state environmental agencies focus on measures to limit or control stormwater runoff.[14]

Currently, the Clean Water Act and various regulations require a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from regulated construction sites, industrial sites, and MS4 communities.[15] Stormwater permits require the permit holder to implement control measures and Best Management Practices (BMPs) to minimize pollutant discharges.[16] Despite such efforts, current programs still fail to mitigate the adverse effects of stormwater runoff due to the sheer volume of stormwater being discharged.[17] Green infrastructure can aid communities in reducing stormwater discharge volumes through infiltration, evapotranspiration, and capture and use.[18]

FUNDING OPTIONS

Although regulatory guidelines create a roadmap for implementing green infrastructure practices, stormwater management expenses and financial constraints of communities often create a significant challenge that impedes implementation.[19] Although green

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/www.sciencedirect.com/science/article/pii/S0301479713005495, *archived at* http://perma.cc/L56B-MD7Q.

9 *What is Green Infrastructure?*, *supra* note 6.

10 *Federal Regulatory Programs*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/infrastructure/greeninfrastructure/gi_regulatory.cfm (last updated Apr. 10, 2014), *archived at* http://perma.cc/47RT-8G53.

11 *Stormwater Homepage*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/polwaste/npdes/stormwater (last updated Sept. 09, 2014), *archived at* http://perma.cc/29PE-NLWF.

12 *Id.*

13 *Id.*

14 *Id.*

15 U.S. ENVTL. PROT. AGENCY, GREEN INFRASTRUCTURE PERMITTING AND ENFORCEMENT SERIES: FACTSHEET 4, STORMWATER 2, *available at* http://water.epa.gov/infrastructure/greeninfrastructure/upload/EPA-Green-Infrastructure-Factsheet-4-061212-PJ.pdf (last visited Jan. 11, 2015), *archived at* http://perma.cc/LW8E-EWSF.

16 *Id.*

17 *Id.*

18 *Id.*

19 U.S. ENVTL. PROT. AGENCY, MANAGING WET WEATHER WITH GREEN INFRASTRUCTURE, MUNICIPAL HANDBOOK, FUNDING OPTIONS 1 (Sept. 2008), *available at* http://water.epa

infrastructure practices are generally not more expensive than traditional stormwater management approaches, such practices do not fit within existing funding frameworks.[20] Therefore, the implementation of green infrastructure requires the development of alternative funding mechanisms better suited for green infrastructure projects.[21]

There are two primary methods for financing green infrastructure programs that target stormwater management: stormwater fees and loan programs.[22] Stormwater fees are used to generate revenue for the implementation of green infrastructure into the existing stormwater management system by requiring an additional charge for new development projects planned in sensitive areas in such a way that disincentivizes building in those areas.[23] This method, if properly implemented, can direct the costs associated with stormwater management toward those properties that generate the most stormwater runoff.[24] In this way, stormwater management fees are "a fair, equitable method for charging the people that benefit from stormwater infrastructure."[25] Moreover, stormwater fees are a better alternative to direct taxation because municipalities have the authority to charge the stormwater fees for the service they provide while a stormwater tax can easily be avoided through one of the many tax exemptions.[26]

Although stormwater fees can be an equitable and efficient way for communities to sustain and improve stormwater infrastructure, it also can result in unexpected, adverse consequences if planned and implemented prematurely.[27] For instance, although it is a sound policy to direct the greatest costs towards those who create the most runoff, when too much burden is placed on residential properties, low-income families may have their water turned off due to an inability to pay monthly water bills with the increased fee.[28] Such a consequence does not serve the purpose of stormwater fees.[29]

When stormwater fees are impractical, loan programs can serve as an alternative, albeit less preferred, method to finance green infrastructure programs.[30] The EPA and the Clean Water State Revolving Fund (CWSRF) provide funding through loans for green infrastructure implementation.[31] The CWSRF money is readily available and can be used for a wide variety of projects.[32] The CWSRF is also an affordable way to finance projects that improve water quality because the associated interest rates are usually relatively low.[33]

.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_funding.pdf, *archived at* http://perma.cc/EMP2-8FYD.

20 *Id.*
21 *Id.*
22 *Id.*
23 *Id.* at 5.
24 *Id.* at 2.
25 *Id.*
26 *Id.*
27 *Id.* at 5.
28 *Id.*
29 *Id.*
30 *Id.* at 11.
31 *Id.*
32 *Id.* at 12.
33 *Id.*

RETROFIT POLICIES

Existing development projects in urbanized areas often do not have adequate stormwater controls and can therefore cause significant adverse impacts on water quality.[34] Moreover, stormwater regulations are usually limited in scope to mitigate pollution from new development.[35] Therefore, retrofitting existing stormwater infrastructure is essential to mitigate total stormwater runoff and pollution.[36]

Upgrading existing stormwater management systems requires significant capital investments; therefore, the most cost-efficient methods to either retrofit or supplement existing systems should be considered.[37] By using green infrastructure for urban stormwater retrofits, stormwater runoff and pollution will be mitigated without placing an excessive financial burden on communities because such infrastructure is typically cheaper than traditional infrastructure.[38] Green infrastructure is especially appealing because it provides additional economic and environmental benefits that are not otherwise available with traditional stormwater management systems and it incentivizes implementation of other various types of green infrastructure, such as green roofs that manage indoor temperatures.[39]

CONCLUSION

Green infrastructure provides many benefits to communities and helps develop climate change resiliency. Stormwater management is just one area that could be enhanced by the adoption of green infrastructure. With proper regulations and guidelines to encourage the implementation of green infrastructure into the existing and the future stormwater management system, stormwater runoff and pollution will be more effectively mitigated. However, efficient funding and financing of green infrastructure practices will be the key to successful implementation of such program.

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In preparation of this Washington Update, Mr. Nam consulted with Michael Weller, an attorney in the Environmental Strategies Group of Bracewell & Giuliani LLP's Washington, D.C. office. He advises clients in the energy, manufacturing, trade association, and financial sectors in government investigations and enforcement actions, regulatory compliance and advocacy, litigation, permitting and business transactions. He previously worked as a wildlife biologist and environmental consultant in California, Maryland, and Virginia.

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34 U.S. ENVTL. PROT. AGENCY, MANAGING WET WEATHER WITH GREEN INFRASTRUCTURE, MUNICIPAL HANDBOOK, GREEN INFRASTRUCTURE RETROFIT POLICIES 3 (Dec. 2008), *available at* http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_retrofits.pdf, *archived at* http://perma.cc/3E3W-NVY2.

35 *Id.*

36 *Id.*

37 *Id.*

38 *Id.*

39 *Id.*

Federal Casenote

Exelon Wind 1, L.L.C. v. Nelson, 766 F.3d 380 (5th Cir. 2014)

Introduction

On September 8, 2014, the United States Court of Appeals for the Fifth Circuit held that, under the Texas Public Utilities Commission's (PUC) rule 25.242(c),[1] only qualifying facilities that provide "firm power" were eligible to enter into a Legally Enforceable Obligation (LEO) with utilities in Texas.[2]

Background

Exelon, plaintiff, owned and operated wind-generation facilities ("Facilities") in the Texas Panhandle.[3] Under the Public Utility Regulatory Policy Act (PURPA), the Federal Energy Regulatory Commission (FERC) "promote[s] energy purchases from cogeneration and small power production facilities," known as "qualifying facilities," including wind and other renewable power generating facilities.[4] While the Facilities generated electricity from wind, Exelon could not enter into a contractual commitment with Southwestern Public Service Company ("Southwestern")[5] to provide its electricity for next twenty years and to form a LEO.[6] Pursuant to PUC rules implementing PURPA, such agreements may not be entered into if the qualifying facilities, such as the Facilities, are unable to generate enough power to provide scheduled availability over a specified period of time.[7] While accepting its obligation to buy all wind-generated power offered by Exelon, Southwestern declined Exelon's assertion that it was able to provide such firm power.[8] In other words, Exelon could not form a LEO and was not allowed to charge more than the as-available prices.[9]

In June 2007, Exelon filed a complaint with the PUC, alleging that it had entered into a LEO with Southwestern, but that Southwestern, in denying the formation of a LEO, underpaid Exelon by refusing to pay for electricity generated at the Facilities at the fixed rate Exelon specified in the LEO.[10] The administrative law judge's (ALJ) Proposal for Decision determined, however, that Exelon was not a firm power generator, and therefore Exelon could not have validly formed a LEO with Southwestern pursuant to

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1 16 Tex. Admin. Code § 25.242(c)(5) (West 2015).
2 Exelon Wind 1, L.L.C. v. Nelson, 766 F.3d 380 (5th Cir. 2014).
3 *Id.* at 386.
4 *Id.* at 384 (citing 16 U.S.C. §§ 796(17), 824a–3(a); 18 C.F.R. §§ 292.101(b)(1), 292.203).
5 *Id.* at 386, 388 (Southwestern, a utility company that is required under PURPA to buy all of Exelon's wind-generated energy, was an intervener defendant in this case).
6 *Id.* at 386.
7 *Id.* at 385 (citing 16 Tex. Admin. Code Ann. § 25.242(c) (West 2015)).
8 *Id.* at 386.
9 *Id.* at 385 (explaining that under 18 C.F.R. § 292.304(d)(1), as-available basis is the price of the power at the time of delivery).
10 *Id.* at 385–86.

§ 25.242.[11] Consequently, the PUC Commissioners adopted an order ("PUC Order") consistent with the ALJ's Proposal for Decision, with the exception of one issue.[12] In the Proposal for Decision, the ALJ recommended that all wind power generators be categorized as unable to provide firm power because of the intermittent nature of wind.[13] The PUC Commissioners, however, determined that, although Exelon could not provide firm power, it was not necessary to conclude that every wind generator is likewise unable to do so.[14]

Subsequently, Exelon filed a petition for enforcement and declaratory order with the FERC, arguing that "all [q]ualifying [f]acilities are entitled to create [a LEO], regardless of whether the energy they produce is firm or non-firm."[15] Although declining to initiate an enforcement action, the FERC wrote a letter ("FERC's Letter"), stating that "a qualifying facility may form a [LEO] even if its power is non-firm."[16]

In December 2009, Exelon brought suit in the United States District Court for the Western District of Texas seeking declaratory and injunctive relief against the PUC.[17] The federal district court ultimately granted summary judgment in favor of Exelon and concluded that: (1) the PUC Order failed to implement the FERC's regulation; (2) all qualifying facilities are able to form a LEO; and (3) the PUC is enjoined from further enforcement of its firm power requirement as to the formation of a LEO.[18] Afterward, the PUC, Southwestern, and Occidental Permian Limited ("Occidental") appealed the federal district court's ruling on the basis of the federal district court's lack of subject matter jurisdiction.[19]

In its decision rendered in September 2014, the Fifth Circuit held that, with regard to Exelon's challenge of the PUC Order, the federal district court lacked subject matter jurisdiction, vacated the district court's judgment relating to the PUC Order, and directed the district court to dismiss the suit.[20] The Fifth Circuit further reversed and remanded the portion of the judgment concerning the PUC's implementation of the FERC's regulation.[21]

JURISDICTION: AS-APPLIED V. IMPLEMENTATION

There are two kinds of review of a state agency's action under the PURPA.[22] The first type of review is based on an implementation claim that a state agency has failed to implement a legitimate implementation plan under section 824a–3(f) of the PURPA.[23] In this case, federal courts have "exclusive" jurisdiction over the matter.[24] The second

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11 *Id.* at 386–87.
12 *Id.* at 387.
13 *Id.*
14 *Id.*
15 *Id.*
16 *Id.*
17 *Id.*
18 *Id.* at 387-88.
19 *Id.* (describing that Occidental was Southwestern's biggest consumer).
20 *Id.* at 400.
21 *Id.*
22 *Id.* at 388.
23 *Id.*
24 *Id.*

type of review is triggered by a claim that an application of a state agency's implementation plan is unlawful.[25] Here, state courts have "exclusive" jurisdiction.[26]

The Fifth Circuit overturned the district court's opinion and held Exelon's challenge required the second type of review so that only state courts have jurisdiction to hear Exelon's case.[27] The court provided several reasons for its decision. First, although as-applied challenges might create "their *stare decisis* effect in future cases" concerning similar facts and/or legal issues, that does not convert them into in-fact-implementation challenges.[28] Second, the PUC refused to establish "a categorical rule preventing wind generators from forming [LEOs]";[29] rather, it treated Exelon's claims as an individual case and issued an order limiting its effect only to Exelon.[30] Third, concerning the FERC's Letter, the Fifth Circuit expressly announced that the determination of federal jurisdiction is a province of the courts to decide, not the FERC.[31] Furthermore, the Fifth Circuit stated that "even assuming *arguendo* that . . . [the] federal agency is . . . entitled to deference," the FERC's Letter is, at most, an "informal guidance document," which "lack[s] the force of law."[32] Therefore, it does not warrant "*Chevron*-style deference."[33] For the foregoing reasons, the Fifth Circuit concluded that the district court lacked power to hear Exelon's challenges to the PUC Order.[34]

Implementation of PURPA

While declining its jurisdiction over the PUC Order dispute, the Fifth Circuit rendered its determination as to Exelon's second claim: whether the PUC Rule 25.242 appropriately implemented the FERC's Regulation.[35] In other words, "[d]oes PUC[ ] have discretion in implementing PURPA, to create a policy effectively excluding some types of [q]ualifying [f]acilities from creating [a LEO], pursuant to [FERC] regulations?"[36] The district court held that states lack such discretion,[37] noting that 18 C.F.R. § 292.403(d) "by its unambiguous, plain language, entitles 'each' [qualifying facility] to sell energy

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25 *Id.*
26 *Id.*
27 *Id.* at 394.
28 *Id.* at 391 (emphasis added) (citing In re Cao, 619 F.3d 410, 430, 433 (5th Cir.2010) *(en banc)* (Jones, C.J., concurring in part and dissenting in part)).
29 *Id.* at 390; Exelon Wind 1, LLC v. Smitherman, No. A-09-CA-917-SS, 2012 WL 4465607, at *11 (W.D. Tex. Sept. 25, 2012) (describing that the ALJ's ruling indicated that wind generated power is not constantly available, so "all wind-energy is necessarily nonfirm").
30 *Nelson*, 766 F.3d at 390.
31 *Id.* at 392 (quoting Reeb v. Econ. Opportunity Atlanta, Inc., 516 F.2d 924, 926 (5th Cir. 1975); Lopez–Elias v. Reno, 209 F.3d 788, 791 (5th Cir. 2000); Shweika v. Dep't of Homeland Sec., 723 F.3d 710, 719 (6th Cir. 2013)).
32 *Id.* (emphasis added).
33 *Id.*
34 *Id.* at 393.
35 *Id.* at 394.
36 *Smitherman*, 2012 WL 4465607, at *5.
37 *Id.* at *8.

'either' as available 'or' LEO."[38] Thus, the current PUC Order radically limits 18 C.F.R. § 292.403(d), which, in turn, amounts to an unlawful implementation of PURPA.[39]

The Fifth Circuit disagreed with the district court for three separate but related reasons. First, it determined that the PUC was entitled to deference because states have wide-ranging authority to implement the PURPA either by promulgating regulations or by resolving disputes on a "case-by-case basis."[40] Second, neither the PURPA nor the FERC regulation addresses "whether non-firm energy providers may form [LEOs]."[41] The court further stated that, if the FERC did not set forth a specific guideline with regard to a LEO when it had the opportunity to do so, it intended to grant power to define "the parameters for creating a [LEO] to the states and their regulatory agencies."[42] Third, "under the cooperative federalism scheme" established by the PURPA, states have the discretion to design their respective regulatory plans in determining the specific countours for the formation of a LEO.[43] Therefore, even though the PUC Rule 25.242 prohibits non-firm power facilities, such as Exelon, from entering into a LEO, it does not automatically indicate that the PUC failed to fully implement the FERC's regulation.[44] Therefore, the Fifth Circuit reversed and remanded the portion of the judgment concerning the PUC's implementation of the FERC's regulation.[45]

DISSENTING OPINION

Circuit Judge Edward C. Prado raised concerns about the effect of the majority's findings on a federal program that promotes renewable energy and alternative energy growth.[46] While concurring with the majority's holding on jurisdiction, the dissent disagreed with the majority as to the PUC's implementation issues.[47] The dissent re-defined an important issue in the case: when "those federal and state agencies offer conflicting interpretations of the federal regulation, to which agency, if any, should [the court] defer?"[48]

The dissent supported its opinion, among others, on the basis of the plain language of the FERC's regulation.[49] Specifically, Judge Prado brought attention to 18 C.F.R. § 292.304(d), which allows that each qualifying facility has the option of either (1) entering into as-available contract agreements, or (2) forming a LEO.[50] According to the dissent, that the choice belongs to each qualifying facility means that "it belongs to

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38 *Id.* at *10.
39 *Id.* at *8.
40 *Nelson*, 766 F.3d at 394 (quoting Power Resource Grp., Inc. v. Pub. Util. Comm'n of Tex., 422 F.3d 231, 236 (5th Cir. 2005)).
41 *Id.* at 395.
42 *Id.* at 396.
43 *Id.*
44 *Id.*
45 *Id.* at 400.
46 Exelon Wind 1, L.L.C. v. Nelson, 766 F.3d 380, 400-01 (5th Cir. 2014) (Prado, J., dissenting); *see also Smitherman*, 2012 WL 4465607, at * 2 (describing the purposes of PURPA).
47 *Nelson*, 766 F.3d at 400.
48 *Id.* at 402.
49 *Id.*
50 *Id.* at 401–02; *see also Smitherman*, 2012 WL 4465607, at *2 (explaining relevant FERC regulations).

'every' qualifying facility."[51] The dissent argued that the majority improperly disregarded the FERC's regulation.[52] Thus, the dissent concluded that the court did not need to reach the second prong of *Chevron* test because the plain language of the FERC's regulation prohibits the PUC's interpretation, and the court must defer to the FERC's interpretation.[53]

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STATE CASENOTES

NOTICE REQUIREMENT IN ADMINISTRATIVE HEARINGS: JURISDICTIONAL STATUS AND THEIR ROLE IN EXHAUSTION OF ADMINISTRATIVE REMEDIES

INTRODUCTION

The Third Court of Appeals recently addressed the requirements for adequate notice of an underground injection well application under Texas Water Code Chapter 27 *in Texas Commission on Environmental Quality v. Denbury Onshore, LLC*.[1] In *Denbury Onshore*, the court found that the notice requirements of Texas Water Code section 27.018(c) were not jurisdictional and that a failure to provide notice under that section would not deprive the court of jurisdiction.[2] The case also presented an example where actual knowledge of administrative proceedings triggered the administrative exhaustion requirement.[3]

BACKGROUND

Appellant TexCom Gulf Disposal, LLC ("TexCom") submitted an application to the Texas Commission on Environmental Quality (TCEQ) seeking an underground injection control well permit to construct and operate wells for wastewater disposal purposes in Montgomery County, Texas.[4] The State Office of Administrative Hearings

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51 *Nelson*, 766 F.3d at 403 (quoting Sierra Club v. Envtl. Prot. Agency, 536 F.3d 673, 678 (D.C. Cir. 2008)).

52 *Id.* at 404.

53 *Id.* at 402.

1 Tex. Comm'n on Envtl. Quality v. Denbury Onshore, LLC, 2014 WL 3055912 (Tex. App.—Austin July 3, 2014) (mem. op.).

2 *Id.* at *6; *see also* TEX. WATER CODE § 27.018(c) (West 2011).

3 *Denbury Onshore*, 2014 WL 3055912, at *9.

4 *Id.* at *1.

(SOAH) conducted a preliminary hearing on the application and issued a proposal for decision in 2008, which the TCEQ then remanded upon review.[5] During remand, Denbury Onshore, LLC ("Denbury") became the lessee-operator of the minerals underlying the site and filed a plea claiming SOAH lacked jurisdiction because proper notice had not been mailed to Bank of America, N.A., Trustee for Sabine Royalty Trust ("Sabine"), the mineral estate owner.[6] TexCom responded with an affidavit from the land manager of the executive rights holder for Sabine, which indicated that the executive rights holder "was aware" of the application and had no objections to the proposed development.[7] Denbury's plea was denied, and SOAH issued a decision recommending the permit application be denied.[8] However, the TCEQ approved the permit in 2011.[9]

SUBSEQUENT LITIGATION

Sabine challenged the permit's issuance as an ultra vires act due to a failure to provide the statutorily required notice of TexCom's application, which Sabine contended was a judicial prerequisite to the Commission or SOAH holding a contested case hearing.[10] As a result, various appellees filed claims based on the lack of notice to Sabine and on the merits of the permit, which were then consolidated.[11]

TexCom and the TCEQ sought dismissal of both Sabine's claims entirely and the appellees' notice-related claims, maintaining that Sabine had notice, as evidenced by the executive rights holder's affidavit, and despite that notice, Sabine failed to avail itself of available administrative remedies.[12] Sabine, on the other hand, contended that it and its executive rights holder were unaware of the contested case until June 2010.[13] The district court granted judgment in favor of Sabine.[14]

TCEQ'S APPEAL

On appeal, the TCEQ claimed the District Court erred by: (1) finding section 27.018(c)'s requirements to be jurisdictional; (2) denying the pleas to the jurisdiction for failure to exhaust administrative remedies; and (3) denying the other appellees' pleas based on a determination that they lacked standing to complain about lack of notice to Sabine.[15]

THIRD COURT OF APPEALS' DECISION

The Third Court of Appeals found that the requirements of section 27.018(c) were not jurisdictional.[16] The court reasoned that the plain language of the section did not

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5 *Id.*
6 *Id.*
7 *Id.*
8 *Id.*
9 *Id.* at *2.
10 *Id.*
11 *Id.*
12 *Id.* at *3.
13 *Id.* at *2.
14 *Id.* at *3.
15 *Id.* at *4.
16 *Id.* at *6.

demonstrate the requisite intent to make section 27.018(c) jurisdictional.[17] While the section's use of the words "must" and "may not" supported the claim that section 27.018(c)'s requirements are mandatory, the court noted that merely being mandatory does not mean that compliance is jurisdictional.[18]

The court noted that interpreting the notice requirement as jurisdictional would encourage an affected person who had knowledge of proceedings but who had no proper notice to refrain from participating in the proceedings until a final order was issued contrary to their desired outcome.[19] The court rejected the appellees' concerns that this understanding would enable the TCEQ to grant an application without affected persons having received notice and opportunity to participate, reasoning that the affected person can petition the TCEQ to suspend the permit.[20]

The court next addressed the issue of exhaustion of remedies.[21] The court agreed with the TCEQ's point of error that Sabine failed to exhaust administrative remedies and therefore lacked standing because Sabine had actual knowledge, yet failed to participate in the hearing.[22] Evidence and judicial admission conclusively established that Sabine had actual knowledge of the proceedings as of June 2010.[23] Administrative remedies were available at that time, and Sabine failed to take advantage of any of the remedial options available to it.[24]

The court reversed and dismissed the claims brought by Sabine and other appellees based on an alleged lack of notice to Sabine, finding that section 27.018(c) is evidentiary and not jurisdictional, and that Sabine had failed to exhaust its administrative remedies after receiving notice of the hearings.[25]

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17 *Id.* at *5.
18 *Id.*
19 *Id.*
20 *Id.*
21 *Id.* at *6.
22 *Id.*
23 *Id.*
24 *Id.*
25 *Id.* at *9-10.

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