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Restore Texas Land: A Proposal to Utilize Emission Reduction Credits to Fund the Railroad Commission of Texas' Well Plugging Initiative

George Coates Roberts

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COMMENT

RESTORE TEXAS LAND: A PROPOSAL TO UTILIZE EMISSION REDUCTION CREDITS TO FUND THE RAILROAD COMMISSION OF TEXAS’ WELL PLUGGING INITIATIVE

GEORGE COATES ROBERTS*

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I. INTRODUCTION

The oil and gas industry is deeply rooted in the economy of Texas, which is responsible for a remarkable share of the nation’s oil and gas production. In 2021, Texas produced 43% of the nation’s oil and 25% of the nation’s natural gas.\(^1\) Being within a state seeking to maintain its strong industry presence, Texas judges and legislators generally advocate for policies that foster oil and gas production and innovation.\(^2\) However, as venturesome operators aim to strike resources, many become financially insolvent and unable to fulfill their obligation to plug their wells.\(^3\) Mandated in statewide

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Texas leads the nation in both energy production and energy consumption. In 2021, Texas produced more energy than any other state, accounting for almost 12 percent of the nation’s total net energy generation. During the same year, Texas was the largest producer of oil (43 percent), natural gas (25 percent) and wind-powered electricity (26 percent) in the nation.

2. See Lightning Oil Co. v. Anadarko E&P Onshore, LLC, 520 S.W.3d 39, 51 (Tex. 2017) (“[T]he longstanding policy of this state [is] to encourage maximum recovery of minerals and to minimize waste.” (citing TEX. CONST. art. XVI, § 59(a) (“The conservation and development of all the natural resources of this State, . . . are each and all hereby declared public rights and duties.”)); see also Coastal Oil & Gas Corp. v. Garza Energy Tr., 268 S.W.3d 1, 17 (Tex. 2008) (holding the industry practice of retrieving hydrocarbons by hydraulic fracturing is subject to the rule of capture does not constitute trespass).

Rule 14, an operator must assume responsibility for plugging the well in its drilling application to the Railroad Commission of Texas (RRC). Well plugging, the process of sealing or filling an inactive well with cement, is crucial in preventing the escape of oil and gas produced fluids or gases into the environment. Unplugged or improperly plugged wells have accumulated over the last century and have been an unfortunate byproduct of the industry. These wells damage the value of surface and mineral estates and pose risks to air quality and groundwater supplies. An aggregation of unplugged or improperly plugged wells can substantially impact the state’s environment.

Fortunately, the RRC administers a fund to address unplugged or improperly plugged wells. First established by the Texas Legislature in 1891 as a regulatory agency for the railroad industry, the RRC is responsible for regulating the transportation, storage, exploration, development, and production of oil and gas in the state. Supported through bonds, fees, penalties, donations, and other programs, the RRC’s Oil & Gas Regulation and Cleanup Fund (OGRC) provides for funding various actions related to oil and gas regulation. Included in the OGRC are funds allocated for

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5. See id. § 3.14(a)(1)(A) (“A cementing company, service company, or operator approved by the Commission or its delegate to mix and pump cement for the purpose of plugging a well in accordance with the provisions of this section.”).
6. See RICHARD W. HAMMACK ET AL., U.S. DEPT. OF ENERGY, METHODS FOR FINDING LEGACY WELLS IN LARGE AREAS 2 (June 16, 2016) (“In Texas alone, over 1,500,000 oil and gas wells have been drilled . . . and many of those wells were drilled before 1920.”) (citing M.A. Celia, S. Bachu, and S. Gasda, A Framework to Estimate CO2 Leakage Associated with Geological Storage in Mature Sedimentary Basins, AM. GEOPHYSICAL UNION, (Dec. 2022), https://ui.adsabs.harvard.edu/abs/2002AGUFM.U22A.06C/abstract [https://perma.cc/SML5-7E78]).
7. See generally Amy Townsend-Small & Jacob Hoschouer, Direct Measurements from Shut-In and Other Abandoned Wells in the Permian Basin of Texas Indicate Some Wells are a Major Source of Methane Emissions and Produced Water, 16 ENV’T RSCH. LETTERS, at 6–7 (2021) (“Our results indicate that abandoned wells . . . may be causing significant alterations to local hydrology and/or water quality.”).
8. See TEX. NAT. RES. § 81.067 (establishing a state treasury account dedicated to oil and gas regulation cleanup).
10. TEX. S.B. 68, 35TH LEG., R.S. (1917) (empowering the Railroad Commission of Texas to regulate oil transportation).
11. See TEX. NAT. RES. § 81.067(c) (enumerating the origin of funds for the cleanup fund, including “bonds and other financial security . . . under well-specific plugging insurance policies,” donations, and imposed fines).
plugging abandoned and orphaned wells.\textsuperscript{12} The industry uses the terms “abandoned” and “orphaned” interchangeably as a reference to unplugged or improperly plugged wells. Specifically, an “abandoned” well is one that is no longer economically viable, but plugged by the operator.\textsuperscript{13} However, not all abandoned wells are at issue. Well abandonment is the routine industry practice of plugging a well that has been inactive for greater than twelve months\textsuperscript{14} and the operator no longer wishes to produce.\textsuperscript{15} Alternatively, every “orphaned” well bears the risk of compromising its surrounding natural resources since an orphaned well is an unplugged noncompliant well whose operator’s “Organizational Report (Form P-5) has been delinquent for greater than [twelve] months.”\textsuperscript{16} If operators neglect to refile an annual P-5 form, the RRC deems the operator noncompliant.\textsuperscript{17} Consequently, the RRC faces the task of assessing the operator’s liability after the well becomes inactive. Operators who elect to “orphan” their wells can incur a minor penalty, evade responsibility, and leave plugging responsibility with the RRC.\textsuperscript{18}

In its P-5 permit application, the operator must submit a form of financial assurance before approval.\textsuperscript{19} Typically, operators satisfy this requirement by furnishing blanket bonds. The bond requirement allows an operator to pay a small up-front cost to an insurance company in return for much more extensive coverage if the operator goes bankrupt. In theory, the bond requirement exists as collateral to incentivize an operator to plug its well. In

\textsuperscript{12} See id. § 81.068 (“Money in the oil and gas regulation and cleanup fund may be used by the commission or its employees or agents for any purpose related to the regulation of oil and gas . . . .”).
\textsuperscript{14} See Orphan Wells with Delinquent P-5 Greater Than 12 Months, R.R. COMM’N OF TEX. (Dec. 19, 2022) https://www.rrc.texas.gov/oil-and-gas/research-and-statistics/well-information/orphan-wells-12-months/ [https://perma.cc/UYC2-WJ8V] (“Orphaned wells are inactive, non-complaint wells that have been inactive a minimum of 12 months . . . .”).
\textsuperscript{15} See 16 TEX. ADMIN. CODE § 3.14(d)(1) (2012) (R.R. Comm’n of Tex., Plugging) (mandating the operator and the cementer conform with the procedure set in the approved notice of intention to plug and abandon a well).
\textsuperscript{16} Orphan Wells with Delinquent P-5 Greater Than 12 Months, supra note 14.
\textsuperscript{17} TEX. NAT. RES. § 91.142(d)-(f).
\textsuperscript{18} See TEX. ADMIN. § 3.14(d)(1) (noting the Railroad Commission of Texas will impose penalties to an operator who fails to comply “with the general plugging requirements of this subsection”).
\textsuperscript{19} See TEX. NAT. RES. § 91.103 (“Any person, including any firm, partnership, joint stock association, corporation, or other organization, required to file an organization report under Section 91. 142 of this code shall execute and file with the commission a bond, letter of credit, or cash deposit.”).
reality, existing low bond requirements fail to provide for the high costs associated with plugging. In short, many operators elect to desert their inactive wells and leave the duty with the surface estate owner or the RRC.

While the Oil & Gas Regulation and Cleanup Fund (OGRC) exists to provide funding for the plugging of at-risk wells, the fund is insufficient to cover the cost of plugging every abandoned and orphaned well at issue. The fiscal year data of 2022 denotes 300,000 active wells exist in the state. Of these, the RRC estimates that upwards of 8,000 were orphaned as of September 2023. Texas will receive as requested additional support to fund plugging with substantial federal funds over the next ten years for the plugging of orphan wells. Without routine federal support, at the rate at which wells are abandoned and orphaned, the state cannot afford to remedy its continued abandoned and orphaned well predicament. The state must explore alternate avenues to bolster the OGRC to ensure that the state or taxpayers do not bear the actions of irresponsible well operators.

Opportunities, such as cap-and-trade and emission reduction credit (ERC) programs, have successfully incentivized corporations to reduce emissions. Such programs reward the capture or reduction of emissions

20. See Daniel Raimi et al., Columbia Univ. Green Stimulus for Oil and Gas Workers: Considering a Major Federal Effort to Plug Orphaned and Abandoned Wells 11 (July 2020) (indicating the high average cost of plugging wells ranges from $4,000 in some states to over $100,000 in others).

21. See Daniel Raimi et al., Decommissioning Orphaned and Abandoned Oil and Gas Wells: New Estimates and Cost Drivers, 55 ENV'T SCL TECH. 10224, 10228 (2021) (“[O]ur median decommissioning cost is roughly $75,000 per well.”).


23. See Orphan Wells with Delinquent P-5 Greater Than 12 Months, supra note 14 (listing the total amount of orphaned wells per county as of September 2, 2023).

24. See Federally Funded Well Plugging, R.R. COMM’N OF TEX. https://www.rrc.texas.gov/ [https://perma.cc/JYC4-DCPW] (select “Oil and Gas”; then select “Environmental Cleanup”; and then select “Federally Funded Well Plugging”) (detailing the U.S. Department of the Interior allocation of federal funds to assist the Railroad Commission of Texas in its efforts to plug orphaned well sites).

25. See R.R. COMM’N OF TEX., INFRASTRUCTURE INVESTMENT AND JOBS ACT SEC. 40601 ORPHANED WELL PROGRAM (May 2022) (proportioning expenditures on plugging orphaned and abandoned wells in its application to receive federal support).

with a credit value varying for issuing agency or organization.\textsuperscript{27} In its administrative capacity, the Railroad Commission of Texas (RRC) does not have the scope of authority to reward such credits to corporations.\textsuperscript{28} However, the Texas Commission on Environmental Quality (TCEQ) conducts a successful and widely used ERC program that many companies and private entities utilize.\textsuperscript{29} RRC cap-and-trade and ERC participation in its well-plugging efforts could generate a consistent stream of support for its OGRC and provide a viable solution to the state’s perpetual difficulty. If granted eligibility, the RRC would initiate plugging at-risk abandoned or orphaned wells, apply for and claim an ERC for the value of plugging the well and eliminating the emissions, and be free to sell the ERC to Texas entities.

This Comment explores how the RRC may bolster its Oil & Gas Regulation and Cleanup Fund by using ERCs to alleviate Texas’ abandoned and orphaned well issue. Part II of this Comment addresses the incessant nature of the issue and the inadequacy of the existing state and federal plugging funds to provide resolve. Part III introduces the history of the U.S. Environmental Protection Agency’s (EPA) authority to regulate greenhouse gas emissions (GHGs), cap-and-trade, and ERCs. Part IV assesses the property interests of cap-and-trade credits and ERCs. Part V evaluates the legislative hurdles of permitting RRC participation in TCEQ’s ERC program.

\begin{itemize}
\item[\textsuperscript{27}] See Mass Emissions Cap and Trade Program, TEX. COMM’N ON ENV’T QUALITY, https://www.tceq.texas.gov/airquality/banking/mass_ect_prog.html, [https://perma.cc/87JC-9EQG] (“Program participants are required to use allowances or discrete emission credits to cover NO\textsubscript{x} emissions on an annual basis. The allowances available for use each year are capped at a level necessary to attain the National Ambient Air Quality Standards for ozone.”).
\item[\textsuperscript{28}] 30 TEx. ADMIN. CODE § 101.301 (2015).
\item[\textsuperscript{29}] See id. (Tex. Comm’n on Env’t Quality, General Air Quality Rules, Emissions Banking and Trading, Emission Credit Program, Purpose) (defining the program as credit allowances beyond those mandated per law and denoting participation in the program voluntary).
\end{itemize}
II. WHEN RESPONSIBILITY SHIFTS FROM THE OPERATOR TO THE RRC

A. An Operator’s Duty to Plug and the Bond Requirement

Every oil and gas well must have a permit. To obtain a drilling permit from the RRC, the operator must abide by five fundamental requirements. First, the operator must submit an application to the RRC that includes the operator’s contact information, proposed well location, and a general map of the area. Second, the operator must provide proof of financial assurance—guaranteeing that the operator possesses the fiscal resources to cover the costs of drilling, completing, and plugging the well. This financial assurance can be in the form of a bond, letter of credit, or alternative means. Third, the operator must provide notification to the surface owner of the proposed drilling operations detailing the drilling equipment, plans for casing and cementing the well, and the methods for handling and disposing of drilling fluids within fifteen days of permit issuance. Fourth, if necessary, an operator must obtain supplemental permits or approval from the TCEQ. Fifth, an operator must pay required fees, which vary depending on the type and amount of wells drilled. Lastly, the RRC reviews the application and issues a permit. An operator must renew its P-5 form or the operator will not remain in compliance with the

30. TEX. NAT. RES. § 91.142.
31. Id.; TEX. NAT. RES. § 91.109; TEX. NAT. RES. § 91.142(a)(2); TEX. NAT. RES. §§ 91.104(a)–(b); TEX. NAT. RES. § 91.753(a); see 16 TEX. ADMIN. CODE § 3.30(a) (2020) (R.R. Comm’n of Tex., Memorandum of Understanding Between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ)) (“Need for agreement. Several statutes cover persons and activities where the respective jurisdictions of the RRC and the TCEQ may intersect.”); see also 16 TEX. ADMIN. CODE § 3.78(c) (2017) (R.R. Comm’n of Tex., Fees and Financial Security Requirements) (clarifying Section 91.142’s organizational report fees requirements).
32. TEX. NAT. RES. § 91.142(a).
33. Id. § 91.109.
34. Id. §§ 91.104(a)–(b).
35. Id. § 91.753(a).
36. See 16 TEX. ADMIN. CODE § 3.30(a) (2020) (R.R. Comm’n of Tex., Memorandum of Understanding Between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ)) (“Need for agreement. Several statutes cover persons and activities where the respective jurisdictions of the RRC and the TCEQ may intersect.”).
RRC.38 The thorough permitting process ensures that the RRC maintains detailed records, which are utilized to assess liability in the event of a dispute. While the RRC has many oil and gas related responsibilities, it lacks authority over property rights, contract rights, and regulation of oil and gas market prices.39 Also, the RRC lacks jurisdiction over air pollution—except for the flaring or venting of natural gas—resulting from operators’ activities.40 The RRC and Texas Commission on Environmental Quality (TCEQ) each have respective authorities regarding water pollution.41

The RRC mandates the operator to plug its wells through the RRC bond requirement. The bond requirement, contained in the P-5 Organizational Report, serves as an assurance that the operator will “plug and abandon all wells and control, abate, and clean up pollution associated with the oil and gas operations and activities covered under the required financial security . . . .”42 Essentially an insurance policy, bonds serve as collateral for permitting and well plugging. If the operator becomes financially insolvent or cannot plug its well, the RRC calls on the bond company to aid in covering the cost of plugging the well. In theory, blanket bonds, performance surety bonds, and other forms of financial assurance should serve as a metaphorical carrot and stick.

38. Id. § 3.15(c)(1) (R.R. Comm’n of Tex., Surface Equipment Removal Requirements and Inactive Wells) (requiring an operator to plug an inactive well or obtain RRC approval to extend the time, which the operator may attempt to produce from the well).

39. See Tex. Gov’t. Code § 2001.001 et seq. (vesting procedures and policies for agency action, including those pertaining to the RRC).

40. See 16 Tex. Admin. Code § 3.32(e)(1) (R.R. Comm’n of Tex., Oil and Gas Division, Gas Well Gas and Casinghead Gas Shall Be Utilized for Legal Purposes) (authorizing the RRC to administer exempt gas releases, grant gas release to be burned in a flare, and regulate gas release in oil and gas production operations and plants).

41. In full, the code provides:

Discharges under Texas Water Code, Chapter 26. Under the Texas Water Code, Chapter 26, the TCEQ has jurisdiction over discharges into or adjacent to water in the state, except for discharges regulated by the RRC. Upon delegation from the United States Environmental Protection Agency to the TCEQ of authority to issue permits for discharges into surface water in the state of produced water, hydrostatic test water, and gas plant effluent resulting from the activities described in Texas Water Code §26.131(a), the TCEQ has sole authority to issue permits for those discharges.

16 Tex. Admin. Code § 3.30(B)(j) (2020) (R.R. Comm’n of Tex., Memorandum of Understanding Between the Railroad Commission of Texas (RRC) and the Texas Commission on Environmental Quality (TCEQ)).

Financial assurance exists to cover the costs of plugging and abandoning a well along with cleaning up pollution associated with oil and gas operations, should the operator fail to do so.\textsuperscript{43} Existing low blanket bond requirements afford financially insolvent operators the opportunity to desert their wells without significant consequence.\textsuperscript{44} As a pro-drilling state, Texas maintains a low bond requirement to preserve oil and gas exploration opportunities. A blanket bond is the most cost-effective method of financial assurance and provides large operators, seeking to drill an unlimited number of wells, with a value discount.\textsuperscript{45} When providing blanket bonds as financial security operators with ten or fewer wells, they must have a minimum of $25,000 in financial assurance and operators with greater than ten and less than one-hundred wells must have a minimum of $50,000 in financial assurance, and operators with one-hundred or more wells must have a minimum of $250,000 in financial assurance.\textsuperscript{46} These low bond requirement brackets allow the operator to drill more wells than it can afford to plug. Blanket bonds decrease the average bond amount for each oil and gas well and increase the probability that bond amounts will be inadequate to foot the bill for plugging and cleanup. In the fiscal year of 2021, the RRC spent close to $49 million in well plugging,\textsuperscript{47} and in fiscal year 2020, the RRC spent more than $41 million in well plugging.\textsuperscript{48}

The bonding requirement often fails to achieve its intended purpose, leaving the RRC obligated to subsidize the plugging with state and federally appropriated funds. If an operator becomes insolvent and cannot plug its wells, the RRC calls on its surety bond company to provide funds to plug the well.\textsuperscript{49} The bond rarely covers the cost of plugging the well.\textsuperscript{50} Under

\footnotesize{\textsuperscript{43} See \textit{id.} (referencing bonds covering operator plugging and abandonment of its well).
\textsuperscript{44} See \textit{Raimi, supra} note 21, at 10,228 (explaining the harm to taxpayers when states set minimum blanket bonds below the average cost of decommissioning an oil and gas well).
\textsuperscript{45} \textit{Tex. Nat. Res.} \textsection 91.1042(a)(1–3) (permitting an operator with one hundred or more wells to submit a $250,000 blanket bond as a financial assurance to cover an unlimited amount of wells).
\textsuperscript{46} \textit{Id.} (requiring “(1) a person who operates 10 or fewer wells [to] file a $25,000 blanket bond”; (2) “a person who operates more than 10 but fewer than 100 wells [to] file a $50,000 blanket bond”; (3) “a person who operates 100 or more wells [to] file a $250,000 blanket bond”).
\textsuperscript{48} \textit{Id.}
\textsuperscript{49} See \textit{Raimi, supra} note 20, at 12 (stating it is uncertain whether future plugging costs would be similar to historical costs and providing estimates for newly modern wells in North Dakota costing over $150,000 per well).
\textsuperscript{50} See \textit{id.} (stating bonds are often insufficient to cover costs of plugging a well).}
the existing regulatory scheme, the law encourages operators to circumvent plugging liability and to remit collection to the RRC through the former bond.

B. Inactive Wells and RRC Procedure

Once an operator’s P-5 permit expires, the RRC no longer has the authority to require the operator to plug its well. To avoid being decommissioned, operators may pay a small fee and provide additional financial assurance to delay plugging and abandonment actions. For various reasons, many operators elect to pay the minimum amount determined by the RRC and keep the inactive well online indefinitely. Within a year after drilling, inactive wells must be plugged and abandoned or operations will cease—unless the RRC approves a plugging extension. “Inactive” is a status that describes a particular “unplugged well” that has been spudded or filled with “cemented casing and that has had no reported production, disposal, injection, or other permitted activity for a period of greater than 12 months.” For purposes of plugging requirements, an inactive well meets two characteristics: (1) for twelve consecutive months or longer, the well has not reported production of at least (a) five barrels of oil or (b) fifty Mcf, one thousand cubic feet of natural gas, each month; and (2) it is not permitted as a disposal or injection well. Typically, prolonged inactive wells are in the greatest danger of becoming orphaned because operators who indefinitely delay plugging are often on the verge of financial

51. See Jeremy G. Weber et al., Univ. of Pitt., Identifying the End: Minimum Production Thresholds for Natural Gas Wells 14 (2021) (“Once a well has been inactive for twelve months, it remains under inactive status until it meets the following minimum production threshold: . . . at least five barrels of oil or [fifty] Mcf of gas each month for at least three consecutive months . . . . Operators must decommission inactive wells that do not meet this production standard unless granted an extension.”).

52. Id. at 8 (providing low gas prices cause wells to become uneconomical and explaining why operators who anticipate a turn in market prices hold onto wells).

53. Tex. Nat. Res. Code Ann. § 89.023(a) (permitting the Railroad Commission of Texas to “grant an extension of the deadline for plugging an inactive well if the operator maintains a current organizational report with the commission”).


55. 16 Tex. Admin. Code § 3.15(a)(1) (2017) (R.R. Comm’n of Tex., Surface Equipment Removal Requirements and Inactive Wells) (allowing operators to maintain “active operation” if conducting oil and gas-related activities, as defined therein).
insolvency, electing to pay small fees compared to the much higher costs of plugging.\(^{56}\)

The RRC’s Oil Field Cleanup Program determines if the state should expend Oil & Gas Regulation and Cleanup Fund (OGRC) funds on an inactive well for plugging and abandonment.\(^{57}\) Accordingly, the RRC must decide whether to plug and abandon an inactive well or exercise its authority against the operator.\(^{58}\) Using its “Well Plugging Priority System” to determine the severity of the unplugged well on a scale from 1-4,\(^{59}\) the state-managed Well Plugging Priority System works to prioritize the plugging depending on well completion, wellbore conditions, well location concerning sensitive areas, and unique environmental, safety, or economic concern.\(^{60}\) Within the major categories, the most substantial weight bears on wells with factors, inter alia, fluid levels at or above the base of deepest usable quality water; whether the well is known or unknown; the lack of surface casing or set above the base of deepest usable quality water; the existence of an injection or disposal well; well pressured at the surface, and fluid located level less than 250 feet below the base of deepest usable quality water.\(^{61}\) Because it is virtually impossible to monitor every previously active well, the RRC relies on individual reporting to determine how many unplugged wells exist in the state.\(^{62}\)

\(^{56}\) See generally Orphan Wells with Delinquent P-5 Greater Than 12 Months, supra note 14 (describing an orphaned well and listing orphaned wells in Texas).

\(^{57}\) See Oil and Gas Regulation and Cleanup Fund, R.R. COMM’N OF TEX., https://www.rrc.texas.gov/oil-and-gas/environmental-cleanup-programs/oil-gas-regulation-and-cleanup-fund/ [https://perma.cc/XW7V-F5QH] (explaining the basic purpose of the OGRC (“This fund allows the Railroad Commission to plug abandoned oil and gas wells and clean-up abandoned oilfield sites.”)).


\(^{59}\) Id.

\(^{60}\) See id. (enumerating well-plugging priority factors, including its completeness and overall safety).

\(^{61}\) Id.

\(^{62}\) See Amal Ahmed, Abandoned “Dry Hole” Oil Wells Are Polluting Texas Farms, Ranches and Groundwater: The State Won’t Fix Them, TEX. TRIB. (Oct. 13, 2022), https://www.texastribune.org/2022/10/13/texas-abandoned-oil-wells-railroad-commission/ [https://perma.cc/9Q9E-CAA2] (detailing an instance wherein the RRC possessed no record of a leaking water well on a rancher’s property, and the rancher argued the RRC should take responsibility in plugging said well because the water well was a converted oil and gas well).
While the operator of the mineral estate is liable for ensuring that the well is properly plugged and abandoned, a surface owner who plugs an orphaned well on its property is entitled to compensation by the RRC. Under traditional common law rules, the surface estate is servient to the dominant mineral estate. The mineral estate may use the surface by any means necessary unless the surface estate can show an existing reasonable alternative. Aside from returning their property to its original appearance, surface estate owners are not incentivized to plug wells left behind by the mineral estate operator, particularly due to the RRC not possessing adequate resources to award total reimbursement to every surface estate owner. Per section 89.048 of the Texas Natural Resources Code,

\[
\text{[m]oney in the oil and gas regulation and cleanup fund in an amount not to exceed [50\%] of the lesser of: (1) the documented well-plugging costs; or}
\]

63. Tex. Nat. Res. § 89.048(d); see also Reimbursement to Surface Owners, R.R. Comm’n of Tex., https://www.rrc.texas.gov/oil-and-gas/research-and-statistics/well-information/orphan-wells-12-months/reimbursement-to-surface-owners/# [https://perma.cc/CF5W-5MGW] (choose “Oil and Gas”; then scroll down and choose “Oil and Gas Research and Statistics”; then open “Orphan Well with Delinquent P-5 greater than 12 months”; then click on “Reimbursement to Surface Owners of Certain Costs Incurred for Plugging an Orphan Well or Gass Well”) (“The Commission will reimburse the surface estate owner . . . in an amount not to exceed 50% of the lesser of (1) the documented well-plugging costs or (2) the average Commission Costs for plugging a similar well in the same general area within the preceding 24 months.”).

64. See Getty Oil Co. v. Jones, 470 S.W.2d 618, 622 (Tex. 1971) (“[T]he mineral estate owner is entitled to make reasonable use of the surface for the production of his minerals.” (first alteration in original) (quoting Acker v. Guinn, 464 S.W.2d 348 (Tex. 1971))).

65. See id. at 622 (“[W]here there is an existing use by the surface owner which would otherwise be precluded or impaired, and where under the established practice in the industry there are alternatives available to the lessee whereby the minerals can be recovered, the rules of reasonable usage of the surface may require the adoption of an alternative by the lessee.”).

66. See Tex. Nat. Res. § 89.048(d) (designating funds available to reimburse operators); see also Reimbursement to Surface Owners, R.R. Comm’n of Tex., https://www.rrc.texas.gov/oil-and-gas/research-and-statistics/well-information/orphan-wells-12-months/reimbursement-to-surface-owners/# [https://perma.cc/CF5W-5MGW] (choose “Oil and Gas”; then scroll down and choose “Oil and Gas Research and Statistics”; then open “Orphan Well with Delinquent P-5 greater than 12 months”; then click on “Reimbursement to Surface Owners of Certain Costs Incurred for Plugging an Orphan Well or Gass Well”) (“The Commission will reimburse the surface estate owner . . . in an amount not to exceed 50% of the lesser of (1) the documented well-plugging costs or (2) the average Commission Costs for plugging a similar well in the same general area within the preceding 24 months.”).
the average cost incurred by the commission in the preceding [twenty-four] months in plugging similar wells located in the same general area.\textsuperscript{67}

With no guarantee that the surface owner may recover up to fifty percent of the cost of plugging, the Railroad Commission of Texas (RRC) cannot reasonably rely on surface owners to initiate well plugging.\textsuperscript{68} Furthermore, royalty interest holders, mineral interest owners, and oil and gas lessors have neither an incentive nor liability for plugging an orphan well. The duty to plug the well rests on the operator—an agent appointed by the working interest shareholders—to conduct drilling operations and assume responsibility for regulatory compliance.\textsuperscript{69} Working interest holders may be held with plugging responsibilities for an inactive well,\textsuperscript{70} but the RRC may have difficulty identifying existing nonoperators if the operator is untraceable.

Texas is left in a predicament when operators fail to plug or improperly plug their wells. Because the RRC only imposes responsibility to the operator to plug a well when their P-5 form is valid or when they are granted a plugging extension, the RRC inherits newly orphaned and abandoned wells annually. The RRC is then forced to prioritize well plugging instead of remediating every compromised oilfield site.

\textbf{C. Operator Bailout: State and Federal Well Plugging Funds}

The RRC utilizes twenty-seven sources of revenue to plug neglected wells across the state to fund its OGRC.\textsuperscript{71} Still, the RRC lacks the resources to locate and plug every well. In 2022, the RRC requested a grant from

\textsuperscript{67} \textit{Tex. Nat. Res.} § 89.048(d).

\textsuperscript{68} \textit{See} \textit{Tex. Nat. Res.} § 89.012 (“If the operator of a well fails to comply . . . each nonoperator is responsible for his proportionate share of the cost of the proper plugging of the well within a reasonable time, according to the rules of the commission in effect at the time the responsibility attaches.”).


\textsuperscript{70} \textit{See} \textit{Tex. Nat. Res.} § 89.012 (“If the operator of a well fails to comply . . . each nonoperator is responsible for his proportionate share of the cost of the proper plugging of the well within a reasonable time, according to the rules of the commission in effect at the time the responsibility attaches.”).

\textsuperscript{71} \textit{Tex. Nat. Res.} § 81.067(c)1–(27).
Washington to assist in its site remediation efforts to provide some relief. With the passage of the Bipartisan Infrastructure Bill in November of 2021, Texas will receive $343,695,000 from the U.S. Department of the Interior over the next ten years to plug orphan wells. The federal government seeks to implement lasting climate policies to reduce greenhouse gas emissions (GHGs) emitted from the abundance of the nation’s orphaned and abandoned wells. Most notably, unplugged or improperly plugged wells emit methane, a GHG “with a global warming potential 86 times greater than carbon dioxide over a [twenty year] time horizon.”

The recent allocation of federal funds is a momentous step for the nation’s plugging efforts but is essentially a bailout for irresponsible operators who fail to plug. Taxpayer dollars are better utilized in progressing industry innovation and technologies than to serve as a safety blanket for negligent operators. Year after year, the RRC will inherit additional orphaned and abandoned wells. As drilling equipment advances, we can only expect plugging costs to increase. Federal funding buys the state more time in solving its concerning well abandonment predicament, but Texas cannot indefinitely rely on Washington to hold its hand in its emission reduction efforts.

72. See Letter from Wei Wang, R.R. Comm’n of Tex., Steve Feldgus, to Deputy & Steve Tryon, Dir., U.S. Dept’ of Interior (Mar. 30, 2022), https://www.rrc.texas.gov/media/1b5hvzzw/iija-well-plugging_rrc-texas-comments.pdf [https://perma.cc/V84N-8T7L] (providing comments on the draft State Initial Grant Guidance and requesting the Department of the Interior to clarify the conditions of the allotment of federal funds granted to the state of Texas for well site remediation).

73. Federally Funded Well Plugging, supra note 24 (detailing the U.S. Department of the Interior allocation of federal funds to assist the Railroad Commission of Texas in its efforts to plug orphaned well sites).

74. See Robert Sussman, Designing the New Green Deal: Where’s the Sweet Spot?, 49 ENV’T L. 10428, 10430 (2019) (illustrating how the federal government wishes to adopt new climate policies to reduce GHG emissions from the oil and gas sector).

75. Mary Kang et al., Identification and Characterization of High Methane-Emitting Abandoned Oil and Gas Wells, 113 PROCS. NAT’L ACADEMY SCI. U.S. 13636, 13636 (2016) (discussing how orphaned wells emit high amounts of methane into the atmosphere).

76. See 16 T EX. ADMIN. CODE § 3.15(a)(2) (2017) (R.R. Comm’n of Tex., Surface Equipment Removal Requirements and Inactive Wells) (providing the cost calculation for plugging an inactive well as “for each foot of well depth plugged based on average actual plugging costs for wells plugged by the Commission for the preceding state fiscal year for the Commission Oil and Gas Division district in which the inactive well is located”).
III. EMISSION REDUCTION INCENTIVE PROGRAMS

A. EPA and TCEQ Authority to Regulate GHGs

The Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) operate in a cooperative federalism framework to regulate GHG emissions in Texas. The EPA derives its authority to guide emission standards and set national air quality standards for various air pollutants from the Clean Air Act and Clean Water Act. The Clean Air Act mandates that each state follow a state implementation plan (SIP) to ensure compliance with national ambient air quality standards (NAAQS), while the Clean Water Act sets quality standards for all surface water contaminants. Responsible for developing and implementing Texas SIPs, the TCEQ works closely with the EPA to ensure state adherence to national standards. The EPA reviews SIPs and takes enforcement action against states who fail to adhere to their SIPs. The TCEQ has limited authority to restrict GHG emissions under Prevention of Significant Deterioration (PSD) review.

The Supreme Court has voiced its displeasure with the increasing amount of power exercised by administrative agencies. In City of Arlington v. FCC, Chief Justice John Roberts writes, “The administrative state ‘wields vast power and touches almost every aspect of daily life.’ The Framers could...
hardly have envisioned today’s ‘vast and varied federal bureaucracy’ and the authority administrative agencies now hold over our economic, social, and political activities.”

Paramount in delegating the scope of the EPA’s authority, the seminal Supreme Court case, *Massachusetts v. EPA*, 85 paved the way for the EPA to set emissions standards for vehicles, which, in turn, led to heightened regulations on nearly every large-scale industry. 86 In this case, Massachusetts and a coalition of other states, cities, and environmental organizations argued that the EPA had a duty to regulate GHGs under the Clean Air Act. 87 The Court held that the Clean Air Act “authorize[d] EPA to regulate greenhouse gas emissions from new motor vehicles” if the EPA “form[ed] a ‘judgment’ that such emissions contribute to climate change.” 88

Conversely, in *West Virginia v. EPA*, 89 the Supreme Court tailored the EPA’s authority to set performance standards. It held that Congress, not the EPA, possesses the authority to devise emission caps based on the “generation shifting approach” 90 that the EPA took in the Clean Power Plan. 91 The Court held that the EPA must point to “clear congressional authority” before regulating GHGs. 92 Together, *Massachusetts v. EPA* and *West Virginia v. EPA* illustrate that the EPA does possess substantial authority to regulate hazardous air contaminants from commercial and industrial sources, but does not possess overly broad authority to place

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86. *See generally id.* (providing the precedent for EPA regulation of GHGs in the United States).
87. *See id.* at 534 (“Nor can EPA avoid its statutory obligation by noting the uncertainty surrounding various features of climate change and concluding that it would therefore be better not to regulate at this time. If the scientific uncertainty . . . precludes EPA from making a reasoned judgment . . . EPA must say so.”) (citation omitted).
88. *Id.* at 528.
90. *See id.* at 2614 (recognizing the subjective nature of “generation shifting” and identifying EPA’s flawed standard for determining whether a plant’s output would fall under the best system of emissions reduction).
91. *See id.* at 2616 (“But it is not plausible that Congress gave EPA the authority to adopt on its own such a regulatory scheme in Section 111(d). A decision of such magnitude and consequence rests with Congress itself, or an agency acting pursuant to a clear delegation from that representative body.”).
92. *Id.* at 2620 (Gorsuch, J., concurring); *see Massachusetts*, 549 U.S. at 528 (“In relevant part, § 202(a)(1) provides that EPA shall by regulation prescribe . . . standards applicable to the emission of any air pollutant . . . which in [the Administrator’s] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.”) (omission in original) (alteration in original).
limits on the emissions of power plants and other industries. While the EPA does possess the authority to regulate GHGs throughout the United States, the RRC would work with the TCEQ to find solutions to address the state’s orphaned and abandoned well predicament.

B. Allowances, Offsets, and ERCs

Several pathways exist for the RRC to participate in environmental offset or capture credit programs. One possible way for the RRC to claim emission credit for plugging abandoned wells is through federally-recognized cap-and-trade credits. For example, the Regional Greenhouse Gas Initiative (RGGI) experienced success in regulating power plant produced carbon dioxide (CO2). The RGGI is a mandatory, market-based coalition among the states of Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia. However, Texas has not indicated an interest in joining the RGGI.

United States cap-and-trade originated in the early 1990s—just as the world began considering various policy options to regulate and reduce GHGs. One of the first cap-and-trade programs began in the United States in 1995 when the EPA launched its Acid Rain Program to reduce emissions of sulfur dioxide (SO2) and nitrogen oxides (NOx), which are compounds that cause acid rain. Under a cap-and-trade system,
“offsets” and “allowances” are two types of credits used to regulate GHGs.\textsuperscript{99} The government or a regulatory agency issues allowances to emit a specific amount of GHGs.\textsuperscript{100} Each allowance represents the consumer or companies’ right to emit a prescribed amount of gases, such as one ton of CO\textsubscript{2}.\textsuperscript{101} Companies must hold sufficient allowances to cover their emissions,\textsuperscript{102} and they may buy or sell allowances on the market to meet their emission reduction targets.\textsuperscript{103} Because RRC emissions regulation varies significantly between public and private companies, the RRC would best achieve attainable solutions by working to find state recognized solutions alongside the Texas Commission on Environmental Quality (TCEQ). Alternatively, the Government generates offsets credits generated through projects or activities that reduce or remove GHGs from the atmosphere.\textsuperscript{104} Offsets can be used to counterbalance a company’s emissions by reducing the number of allowances that the company is required to hold.\textsuperscript{105}

The nation’s leader in cap-and-trade implementation is the state of California.\textsuperscript{106} Texas would be wise to analyze California’s practices and


\textsuperscript{100} Id.


\textsuperscript{102} See Robert Sussman, Designing the New Green Deal: Where’s the Sweet Spot?, 49 ENV’T L. REP. 10428, 10449 (2019) (“Because these facilities are required to monitor their CO\textsubscript{2} emissions, compliance with emission limits is easy to measure and track.”).

\textsuperscript{103} See Carbon Credits vs. Carbon Offsets, supra note 101 (“Consumers can purchase offsets for emissions from a specific high-emission activity. An example would be a long flight. Or they can buy offsets on a regular basis to eliminate their ongoing carbon footprint.”).

\textsuperscript{104} See id. (explaining the nature of carbon offset trades in a voluntary market and specifying that purchase of offsets is not required by law).

\textsuperscript{105} See id. (“Carbon offsets are produced by independent companies that pull CO\textsubscript{2} emissions from the atmosphere. The offsets are then sold to companies that emit (or have emitted) CO\textsubscript{2}. In a sense, offset-producing companies are directly funded by those companies that emit GHGs.”).

results from implementing a widely utilized system. The California Air Resources Board (CARB) has implemented a cap-and-trade program that covers 85% of the state’s GHGs.107 Like the TCEQ, its authority is derived from state delegation and must comply with EPA SIP guidelines.108 In Association of Irritated Residents v. State Air Resources Board,109 the California Court of Appeals held that the California Global Warming Solutions Act gives the California Air Resources Board (CARB) broad discretion to implement GHG reduction strategies.110 An environmental justice group took action against CARB, concerned that the CARB’s cap-and-trade program would not achieve its intended purpose.111 Contending that the “gaps in scientific knowledge and scientific uncertainty in existing data on [GHG] emissions resulting from the complex biological processes . . . make the identification of real, permanent, additional, verifiable and enforceable reduction measures difficult to immediately implement,” the CARB did not pursue a maximum reduction plan because of a lack of scientific evidence behind proposed alternatives.112 Ultimately ruling in favor of the CARB, the California Court of Appeals found that the California Global Warming Solutions Act did not require CARB to achieve the maximum possible reduction of GHGs.113 This case cemented the CARB’s authority to exercise broad discretion in its plans to reduce the levels of GHGs in California.


108. See CAL. HEALTH & SAFETY CODE ANN. § 39000 (West 2022) (establishing the interest in the state of California to regulate emissions).


110. See id. at 1505 (“[W]e are satisfied that the Board has approached its difficult task in conformity with the directive of the Legislature, and that the measures that it has recommended reflect the exercise of sound judgment based upon substantial evidence.”).

111. See id. at 1504(“Indeed, another of AIR’s criticisms is that ARB ‘made no attempt to analyze potential disproportionate public health impacts to communities living closet to the facilities eligible to participate in the cap-and-trade system.’”).

112. Id. at 1502-03.

113. See id. at 1497 (“Even if other measures such as inflexible emission limits or emission taxes might conceivably result in greater reductions, the Act does not call for maximum reductions without qualification, but for maximum reductions that are both feasible and cost-effective.”).
Allowances and offsets are combined to help companies meet their emission reduction targets. Companies comply with emission reduction requirements by pairing allowances and offsets with the reduction of emissions directly through the use of cleaner technologies or practices. These incentive programs are structured to create a more flexible and cost-effective way to meet state mandates. Texas has not prioritized using cap-and-trade systems throughout the state but has implemented a Mass Emissions Cap-and-Trade program in the Houston–Galveston–Brazoria region, an area deemed a “nonattainment” zone. The TCEQ emission reduction credit (ERC) program has been implemented throughout the state, and the Discrete Emission Credit program is broken down into three categories recognized for emission reduction credits. The first category is “point source[s].” Point sources are “[t]ypically large, industrial, stationary sources, such as refineries, chemical plants, and power plants.” The second category is area sources for generally small, stationary, industrial, stationary sources, such as refineries, chemical plants, and power plants. These sources are known as “area sources,” which specify that emissions from this source are both stationary and do not meet the reporting requirements from “point sources.” The third category, and relevant to the topic addressed, is “mobile sources.” Mobile sources include “on-road sources such as cars, trucks, motorcycles, and other vehicles certified

114. See Carbon Credits vs. Carbon Offsets, supra note 101 (“For both consumers and companies, it makes financial sense to reduce emissions where it is cheapest and easiest to do so, even if that does not involve their own operations.”).
115. See id. (“There is a growing list of ways to do this, including plating forests, blasting rock into tiny pieces, storing carbon in manufactured devices, capturing methane gas at a landfill, and the holy grail of carbon sequestration: using sophisticated technology to turn CO2 emissions into a usable product.”).
117. See id. § 101.372(d) (providing the conditions to classify as a discrete emission reduction credit).
118. Id. § 101.372(b)(1).
120. TEX. ADMIN. § 101.372; see also TEX. COMM’N ON ENV’T QUALITY, supra note 119 (specifying the area sources must meet the reporting requirements of 30 TEXAS ADMIN. CODE § 101.10).
121. TEX. COMM’N ON ENV’T QUALITY, supra note 119.
122. TEX. ADMIN. § 101.372(b)(2).
for highway use” and “... non-road sources that typically do not operate on highways, such as planes, trains, drilling rigs, commercial boats, and equipment used for agriculture, industry, construction, mining, and commercial lawn maintenance.” Discrete emission reduction credits in the form of area sources or mobile sources would likely apply to ERCs claimed for plugging abandoned and orphaned wells, as drilling spacing units are “generally small, stationary” and do not meet the reporting requirements for point sources.

Additionally, drilling equipment expressly qualifies as a mobile source. To qualify as an ERC, an emission reduction must be “surplus, enforceable, permanent, and quantifiable.” Orphaned and abandoned wells emit real, qualifiable, and surplus emissions. Surplus means that a reduction falls below the emissions baseline. In addition, emission reductions must be federally enforceable under the state implementation plan (SIP), helping ensure that reductions remain permanent. Finally, in a nonattainment area, “the mobile source must have operated during the SIP emissions year.”

Once an entity creates an ERC, using that ERC requires either a SIP revision approved by the EPA or state approval under general trading rules. Once created and approved, an entity may use ERCs in four types of emissions trades: bubbles, netting, offsets, and banking. A corporation can increase its emissions from one of its sources as long the corporation decreases an equal or more significant amount of emissions from another of its sources.

Following EPA guidelines in its execution of the Texas SIP plan, the TCEQ considers air pollution from ozone, particulate matter, carbon

123. TEX. COMM’N ON ENV’T QUALITY, supra note 119; TEX. ADMIN. CODE § 101.372.
124. TEX. COMM’N ON ENV’T QUALITY, supra note 119.
125. See id. (“[I]nclude non-road sources that typically do not operate on highways, such as ... drilling rigs ... and equipment used for ... industry ... maintenance”).
127. See TEX. ADMIN. § 101.372(d)(1–3).
128. See id. at § 101.372(d)(2)(C).
monoxide, lead, sulfur dioxide, and nitrogen dioxide as the most hazardous air pollutants. Excluded from the EPA list of criteria pollutants is methane. As of January 2023, “a regulatory pathway for the permitting of methane does not exist outside of the PSD major source program. Under the EPA’s definition, methane is not considered a VOC. As outlined by EPA standards, Texas Commission on Environmental Quality (TCEQ) ERCs can be generated by reducing or removing criteria air pollutants, including CO2, SO2, NOx, and VOCs. These compounds are common pollutants emitted by various sources, including power plants, industrial facilities, and transportation. Environmental groups have petitioned the EPA to reclassify methane as a VOC due to its damaging effects on the tropospheric ozone. As of January 2023, VOCs include industrial solvents and “by-products produced by chlorination in water treatment, such as chloroform.” Since methane is the most concerning pollutant emitted from orphaned and abandoned wells, this classification may result in complications for the RRC use of ERC to fund its Oil & Gas Regulation and Cleanup Fund (OGRC).

Nonetheless, to qualify as an ERC, a project must demonstrate that it has reduced or removed a specific quantity of one of the pollutants, as mentioned earlier. The TCEQ also has various requirements for the type

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131. *See* 40 C.F.R. § 51.100(s)(1) (2019) (“(VOC) means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. (1) This includes any such organic compound other than the following, . . . [m]ethane . . . .”).
of projects that are eligible to generate ERCs, including requirements related to the location, and type of project and the type of emission reductions being achieved.

The state legislature charged the Texas Commission on Environmental Quality with oversight of the Texas Clean Air Act (TCAA), which provides the regulatory guidelines to “safeguard the state’s air resources from pollution.”136 As part of the TCAA, the TCEQ adopted rules to regulate air pollution emissions and groundwater contamination.137 An ERC created must receive certification by the TCEQ.138 These standards enable the TCEQ to grant emission reduction credits (ERC) to entities when specific emissions are reduced or eliminated. If the TCEQ certifies the reduction, the company can trade or use its ERCs within a designated area to offset emissions from a new source.139

The RRC must further develop its orphaned well emission monitoring methods to demonstrate real, qualifiable, and surplus emissions of methane or other substances before satisfying TCEQ standards.140 Those who reduce VOCs and NOx from the air will earn ERC and can trade the credit to a willing buyer for market price.141 Nevertheless, no such consideration

136. See TEX. HEALTH & SAFETY CODE ANN. § 382.002 (mandating compliance with the provisions of Section 382.002 under TCEQ guidance).
137. Id. § 382.016(a)(1); see also TEX. WATER CODE ANN. § 5.011 et. seq. (outlining the Texas Commission on Environmental Quality’s general objectives for water administration).
138. See 30 TEX. ADMIN. CODE § 101.303(d) (2017) (Tex. Comm’n on Envt Quality, Emission Reduction Credit Generation and Certification) (“The owner or operator of a facility with potential ERCs shall submit an application form specified by the executive director and signed by an authorized account representative . . . .”).
139. See id. § 101.306 (“[E]mission credits may be used as the following: (1) offsets for a new source . . . . (2) mitigation offsets for action by federal agencies . . . (3) an alternative means of compliance with volatile organic compound and nitrogen oxides reduction requirements . . . (4) netting by the original applicant . . . or (5) compliance . . . .”).
140. See Letter from Wei Wang, Exec. Dir. of the R.R. Comm’n of Tex., to Steve Feldgus, Deputy Assistant Sec’y for Land and Minerals Mgmt., & Steve Tyrion, Dir. of Envt Pol’y and Compliance (Mar. 30, 2022) (“Most state oil and gas regulatory agencies are authorized to regulate emissions of methane and hydrogen sulfide for the purposes of prevention of waste of natural resources and protection of human health and safety. They are not generally authorized under the federal Clean Air Act for the regulation of air quality and, therefore, do not have the expertise, equipment, or contracts for such monitoring. As a result, overly complex and redundant monitoring requirements will result in fewer wells being plugged . . . .”).
141. See TEX. ADMIN. CODE § 101.306(“[E]mission credits may be used as the following: offsets for a new source . . . mitigation offsets for action by federal agencies . . . an alternative means of compliance with volatile organic compound and nitrogen oxides reduction requirements . . . netting by the original applicant . . . compliance”).
exists for the sequestration of methane. The TCEQ’s ERC program accelerates and incentivizes the reduction of GHGs resulting from recognized industrial pollution. Cap-and-trade systems, as such, have incentivized corporations to sequester qualifiable compounds, claim the ERC, and sell to another entity for profit.

IV. EVALUATING CAP-AND-TRADE AND ERC PROPERTY INTERESTS

A. Regulatory Taking Concern

A concern for an RRC participation in claiming ERC credits is whether an RRC claim of an ERC from a mineral estate would create an unconstitutional taking of property. The concepts of cap-and-trade and ERCs are relatively new, and the legal ramifications of claiming such credits are unsettled.

Fundamental oil and gas law provides that traditional mineral estate ownership is comprised of five rights: (1) the executory right; (2) the right to develop; (3) the right to receive bonus payments; (4) the right to receive delay rental payments; and (5) the right to receive royalties. A mineral estate owner may separate and convey any of its five rights of ownership. However, without the executory right, the scope of ownership is a royalty interest. The mineral estate is commonly severed from the surface estate, and a mineral interest is “[t]he right to search for, develop, and remove minerals from land or to receive a royalty based on the production of minerals.” As mentioned previously, the mineral estate is dominant over the surface estate, and the operator may use the surface in any manner reasonably necessary to extract the minerals it is entitled to extract, abiding by lease provisions. Given that the surface estate possessor has the first opportunity to plug the well and may receive partial reimbursement for

143. JOHN S. LOWE ET AL., CASES AND MATERIALS ON OIL AND GAS LAW at 113 (7th ed. 2018).
144. See id. at 115 (“A person who owns only a royalty interest has no right to execute an oil and gas lease. Thus, by its nature, a royalty interest is a nonexecutive interest, although a royalty owner may convey the royalty interest itself.”).
146. Getty Oil Co. v. Jones, 470 S.W.2d 618, 621 (Tex. 1971).
plugging an orphaned well, a surface owner might apply for an ERC claim for its emissions reduction. However, the surface estate owner likely possesses no ownership over the emissions that emanate from the borehole unless it possesses concurrent ownership of the mineral estate. Thus, the surface estate owner likely lacks standing to pursue relief when an administrative agency claims an ERC from under the surface estate.

The compounds that emerge from the well and become considered hazardous emissions belong to the mineral estate, most likely. Notably, of the most concerning oil and gas produced GHGs, methane comprises the bulk of what is universally known as “natural gas.” In determining whether an ERC is a mineral right, courts might examine whether the instrument implies that the granting party intends to convey the substance and whether the ERC is considered a mineral among common industry lay language. In Roseland Plantation L.L.C v. United States Fish and Wildlife Service, the federal court in Louisiana held that “the right to report, transfer, or sell carbon credits is a part of the bundle of rights associated

147. TEX. NAT. RES. CODE ANN. § 89.048(d); see also Reimbursement to Surface Owners, R.R. COMM’N OF TEX. OIL AND GAS DIV., https://www.rrc.texas.gov/oil-and-gas/research-and-statistics/well-information/orphan-wells-12-months/reimbursement-to-surface-owners/#:~:text=An%20%22orphaned%22%20well%22%20is%20defined,%2D5%2C%20Organization%20Report%2C%20has [https://perma.cc/CF5W-5MGW] (“The Commission will reimburse the surface estate owner from the state’s Oil and Gas Regulation and Cleanup fund (OGRC) in an amount not to exceed 50% of the lesser of (1) the documented well-plugging costs or (2) the average Commission costs for plugging a similar well . . . .”).

148. See LOWE, supra note 143, at 113 (“Terms such as surface owner, owner of the surface interest, or surface estate are often used to describe the interest of the landowner who owns the entire interest other than the mineral interest or owns a fractional mineral interest along with a possessory surface interest.”).

149. Compare Moser v. U.S. Steel Corp., 676 S.W.2d 99, 102 (Tex. 1984) (establishing the “ordinary and natural meaning” test, which is “a severance of minerals in oil, gas, and other minerals clause includes all substances within the ordinary and natural meaning of the word, regardless of whether their presence or value is known at the time of severance”), with Heinatz v. Allen, 217 S.W.2d 994, 1000 (Tex. 1949) (holding substances having “no rare or exceptional character or value, being useful only for building purposes” are considered a part of the surface estate and not part of the mineral estate).

150. See Moser, 676 SW.2d at 103 (“The mineral owner, as owner of the dominant estate, has the right to make any use of the surface . . . .”).

151. See Townsend-Small & Hoshoeuer, supra note 7, at 2 (2021) (noting the high rates of venting and flaring during the lack of natural gas pipelines during the COVID-19 pandemic).

152. See Moser, 676 S.W.2d at 102 (establishing the “ordinary and natural meaning test”).

with property ownership." ERCs are typically considered personal property interests because they can be bought, sold, and traded like any other personal property. Contrarily, the Roseland case suggests that an ERC is an interest in real property. Comparatively, once operators produce oil or gas, those hydrocarbons shift from an interest in real property to a personal property interest. The idea is that in an "ownership in place" state—like Texas, where the mineral estate owner owns said minerals—the minerals are subject to the rule of capture, and the mineral estate owner only owns the minerals until migrating to another mineral estate.

A routine industry practice is for oil and gas operators to produce hydrocarbons and subsequently store the hydrocarbons in an empty underground reservoir. In this instance, the hydrocarbons would become personal property when extracted from the ground and remain personal property when stored in an underground reservoir. Determinative with the nature of the use of the property, the classification of ERCs as personal or real property is vital in establishing whether the RRC would commit an unconstitutional taking by claiming an ERC from privately owned minerals. Orphaned and abandoned wells’ emissions of GHG have an undeniable impact on public health and the environment.

154. Id. at *4.
155. See generally Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1003 (1984) ("[I]t may have been employed in a more accurate sense to denote the group of rights inhering in the citizen’s relation to the physical thing, as the right to possess, use and dispose of it.") (citing United States v. General Motors Corp., 323 U.S. 373, 377–78 (1945)).
156. See Roseland Plantation, 2006 WL 8420578, at *4 ("[T]his court finds that the right to report, transfer, or sell carbon credits is part of the bundle of rights associated with property ownership. It is therefore not necessary to wait to see whether the government will later change the character of that property right.").
157. See Texas Am. Energy Corp. v. Citizens Fid. Bank & Tr. Co., 736 S.W.2d 25, 27–28 (Ky. 1987) (holding when previously extracted gas or oil is subsequently stored in underground reservoirs capable being defined with certainty and integrity of said reservoirs is capable of being maintained, the minerals remain personal property).
158. See LOWE, supra note 143, at 113 ("In states that follow the ownership in place theory . . . the mineral interest also includes a possessory right in the oil and gas beneath the property—subject, of course, to the law of capture.").
159. See Tex. Am. Energy Corp., 736 S.W.2d at 26 (discussing hydrocarbon storage in Kentucky includes underground storage reservoirs).
160. Id. at 27–28.
161. See RICHARD W. HAMMACK ET AL., U.S. DEPT. OF ENERGY, METHODS FOR FINDING LEGACY WELLS IN LARGE AREAS 1 (June 16, 2016) ("[G]roundwater aquifers can be contaminated by surface pollutants flowing down wells or by deep, saline water diffusing upwards. Likewise, natural gas,
unconstitutional taking of personal property, ERCs created by the RRC could receive justifications to protect public health.

B. Considerations for Regulating Oil and Gas Produced Methane and Other GHGs

Moreover, the release of methane from abandoned and orphaned wells may contaminate the environment and pose serious health risks to inhabitants near the wells.\textsuperscript{162} Methane is the primary component of natural gas, so the chemical compound has considerable value as a fuel.\textsuperscript{163} When natural gas lacked a durable market, venting or flaring was a routine industry practice.\textsuperscript{164} Flaring is the act of burning natural gas, which results in the production of CO\textsubscript{2}.\textsuperscript{165} Venting is the direct release of natural gas—which contains considerable amounts of methane—into the atmosphere.\textsuperscript{166} Today, flaring and venting are extensively regulated.\textsuperscript{167} The RRC permits operators to vent and flare natural gas only for ten days following the completion of the well.\textsuperscript{168} Outside that period, the RRC requires operators to request an exception hearing for flaring outside the established rules.\textsuperscript{169} While venting and flaring are regulated closely, the existence of over 8,500 orphaned wells in the state seems to contradict the recent RRC focus on limiting flaring and venting exceptions.

The most viable option for the RRC is participation in TCEQ's emission reduction credit (ERC) program to monitor and eliminate methane emitted

\textsuperscript{162} Groom, supra note 3 (addressing the environmental impact of methane-leaking abandoned wells).

\textsuperscript{163} NATURAL GAS FLARING AND VENTING: STATE AND FEDERAL REGULATORY OVERVIEW TRENDS, AND IMPACTS, OFFICE OF FOSSIL ENERGY, U.S. DEPT OF ENERGY OFFICE OF OIL AND NATURAL GAS, at 1 (June 2019).

\textsuperscript{164} See id. (“While each producing region flares gas for various reasons, the lack of a direct market access for the gas is the most prevalent reason for ongoing flaring.”).

\textsuperscript{165} Flaring, UNIV. OF CALGARY ENERGY EDUC., https://energyeducation.ca/encyclopedia/Flaring [https://perma.cc/Z4VJ-9SLU].

\textsuperscript{166} See OFFICE OF FOSSIL ENERGY, supra note 163, at 1. (“Venting is the direct release of natural gas into the atmosphere, typically in small amounts.”).

\textsuperscript{167} See 16 TEX. ADMIN. CODE § 3.32(c)(1) (2023) (R.R. Comm’n of Tex., Gas Well Gas and Casinghead Gas Shall Be Utilized for Legal Purposes) (recognizing the industry need to vent or flare methane, and requiring operators to apply for an exception to the Railroad Commission of Texas to vent or flare methane for “releases of greater than [twenty-four] hours’ duration or less”).

\textsuperscript{168} Id. § 3.32(c)(1)(A) (designating the time period for release).

\textsuperscript{169} Id. § 3.32(c) (referring to several exceptions to the otherwise set twenty-four hour duration to release).
from orphaned and abandoned wells. However, several hurdles exist before
the RRC could use ERCs as an available solution to support its Oil & Gas
Regulation and Cleanup Fund (OGRC). First, at the federal level, EPA
would reclassify methane as a VOC. This classification may result from a
consensus that other VOCs accompany almost all methane streams, and the
regulation of those streams is already either required or regulated. As
mentioned, TCEQ does not recognize methane as a VOC based on EPA
classification. The EPA’s list of priorities reflects a wide variety of social,
political, and economic influences, but methane, as of now, is excluded from
the list of VOCs.

While RRC participation in ERCs is a lucrative solution to alleviate the
abandoned and orphaned well issue, its participation likely hinges on the
reclassification of the compound. Nonetheless, petitioning for the
classification of methane as a VOC could become a double-edged sword for
the RRC. Reconsidering methane as a VOC could confound multiple
methane emitting industries, including agriculture and waste management.
On the other hand, if considered a VOC, various industries could begin
profiting from the voluntary sequestration of their pollutants. The RRC
could make a compelling case to the Texas Legislature to permit its
engagement in TCEQ’s ERCs.

V. ADMINISTRATIVE PARTICIPATION IN EMISSION REDUCTION CREDIT
SYSTEMS

A. Paving the Way

For a Texas administrative agency to participate in a program designed
for corporations to meet emissions standards would be unprecedented.
However, the concept of a governmental agency utilizing voluntary ERCs
to become net neutral applies to every administrative agency in the nation,
not only those responsible for regulating natural resources. Administrative
agencies expend copious amounts of energy, operating from sizable

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170. Letter from Robert Ukeiley, Senior Att’y, Env’t Health, to Michael S. Regan, Adm’r of the
U.S. Env’t Prot. Agency, & Joseph Goffman, Principal Deputy Assistant Adm’r of the U.S. Env’t Prot.
Agency Office of Air and Radiation (Apr. 6, 2021) (petitioning for reconsideration of methane and
ethane as a VOC, pointing to recent growth of oil and gas production to increases of atmospheric
methane and ethane).

171. MICHAEL S. REGAN, ADM’R, U.S. ENV’T PROT. AGENCY, FY 2022–2026 EPA
STRATEGIC PLAN 48 (March 2022).
buildings, operating fleets of vehicles, and manning various pieces of machinery.

Agencies throughout the country could benefit from participation in cap-and-trade markets and use ERCs to offset their emissions or meet regulatory requirements. Such programs provide an incentive for entities to reduce their emissions and help reduce pollutants from the atmosphere. By using ERCs to fund its OGRC, the RRC would be able to demonstrate its desire to take a proactive approach to address environmental concerns.

B. Texas Sunset Advisory Commission Review

RRC’s ability to participate in market trading of emission reduction credit (ERC) hinges on the state legislature’s passage of a bill to amend the Railroad Commission of Texas (RRC) rules. The Texas legislature relies on the Texas Sunset Advisory Commission (SAC) to review the operations and effectiveness of state agencies. The Texas legislature created the SAC in 1977 to periodically evaluate state agencies and ensure they operate efficiently and effectively.

The law requires SAC to review state agencies every twelve years, recommend whether or not the agency should continue to exist, and suggest improvements to the agency. The SAC staff evaluates the agency and issues recommendations for possible change. The SAC considers the recommendations, hears public testimony, and decides on proposed changes to bring to the legislature. The SAC holds public hearings to


173. See id. (outlining the energy consumption by source, including diesel and gasoline, fuel oil, and natural gas).

174. TEX. GOV’T CODE ANN. §§ 325.003(a)(a-1), 325.007(a).


176. See SUNSET ADVISORY COMMN., SUNSET IN TEXAS 1 (2016–17) (“Agencies typically undergo review once every twelve years, and about twenty to thirty agencies go through the Sunset Process each legislative session.”).

177. See id. at 3 (“Public Hearings: Sunset staff presents its report and recommendations, Agency presents its response, Sunset Commission hears public testimony, Staff compiles all testimony for Commission consideration, Sunset Commission meets again to consider and vote on recommendations.”).

178. See id. at 3–4 (“Sunset staff uses specific criteria set by the Legislature to evaluate each of the programs and functions of a state agency placed under Sunset review.”).
gather input from stakeholders, including industry representatives and members of the public. The SAC will submit a proposal to the legislature for any changes or improvements. The legislature can then decide whether to accept the SAC recommendations and pass legislation implementing them.

In 2017, the SAC conducted a systematic review of the RRC and found that the agency could better utilize and improve its oil and gas enforcement program. It concluded that the RRC must develop a strategic plan for its Oil and Gas Division to track and measure the effectiveness of monitoring and enforcement. Additionally, the SAC identified the inadequacy of the existing bond requirements covering the cost of plugging and abandonment of wells. It found that bonds only supported 15.9% of the total annual plugging costs.

The SAC implores the RRC to maintain stricter reporting and monitoring of its well-plugging program. Interestingly, it recommended the RRC dismantle its Oil and Gas Regulation and Cleanup Fund Advisory Committee, finding that the commission staff, and not the advisory committee, efficiently reports to RRC commissioners and the Texas legislature more efficiently than the Oil and Gas Regulation and Cleanup Fund Advisory Committee.

From its 2016–17 report, the SAC views the RRC as a crucial administrative agency to the state of Texas, but the RRC needs sustained

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179. See id. at 1 (“This process creates a unique opportunity and powerful incentive for the Legislature and stakeholders to look closely at each agency and make key improvements to how state government works”).
180. See REP. LARRY GONZALEZ ET AL., SUNSET ADVISORY COMM’N, STAFF REPORT WITH FINAL RESULTS RAILROAD COMMISSION OF TEXAS, H. 85-1818, Reg. Sess., at 39 (Tex. 2017) (“At minimum, the Oil and Gas Division strategic plan should include the measures accurately capturing the effectiveness of the monitoring and enforcement program over time.”).
181. See id. (recommending the Oil and Gas Division monitor measurements for violations by type).
182. See id. at 44 (“Bond funds collected to plug abandoned wells only cover [15.9%] of the total annual plugging cost . . . the Railroad Commission collected $4,288,068 in blanket bonds from [ninety-four] operators who abandoned 1,584 wells . . . In the same year the Railroad Commission spent $11,772,895 plugging 692 wells.”).
183. See id. at 60 (“[T]he committee has not met since February 2012 and has not issued a report since 2009 . . . . In addition, commission staff . . . routinely tracks and reports to the railroad commissioners and the [l]egislatures on these matters relating to the Oil and Gas Regulation and Cleanup Fund.”).
184. See id. (noting the Railroad commission is inefficient for its originally intended purpose).
efforts to improve the efficiency of its OGRC. A move to bolster the OGRC with Texas Commission on Environmental Quality (TCEQ) ERCs could plausibly satisfy the SAC’s desire to develop the OGRC into an enhanced resource for the state.

VI. CONCLUSION

Orphaned and improperly abandoned wells will continue to encumber private property and public land so long as Texas remains the nation’s leading oil-and-gas producing state. Justifiably, ranch owners and rural community members have voiced their frustration with the existing efforts to plug and abandon at risk wells. Improperly plugged or unplugged wells can contaminate water supplies and contribute to air pollution, affecting Texas livestock, agriculture, and decreasing property values. Rather than relying on taxpayer dollars to foot the bill of irresponsible operators, the RRC must search for long-term solutions for its statewide issue.

By implementing ERCs, the RRC could provide a viable and self-fulfilling resolution to the orphaned and abandoned wells predicament in Texas, but not without some clear hurdles. A federal move to classify methane as a VOC could incentivize the rapid plugging of at-risk wells throughout the nation and allow a clear path for the RRC to claim ERCs for reducing well-produced methane. However, it is unlikely that the RRC would advocate to reconsider methane as a VOC and risk confounding the entire industry to a headache of heightened regulations. Conversely, the classification of methane as VOC could bear little significance in determining RRC’s eligibility to participate in the ERC program, as orphaned and abandoned wells emit various hazardous substances.

Together, the Texas legislature and the SAC should recognize the utility of augmenting the OGRC with ERCs. If utilized by the RRC, this market-based mechanism would result in a state-wide reduction of GHG emissions, creating a long-lasting impact to preserve air and water quality throughout Texas.

185. See id. ("The Railroad Commission’s reporting requirement on the Oil and Gas Regulation and Cleanup Fund continues to serve a useful purpose.").
186. See Amal Ahmed, Abandoned “Dry Hole” Oil Wells Are Polluting Texas Farms, Ranches and Groundwater: The State Won’t Fix Them, TEX. TRIB. (Oct. 13, 2022), https://www.texastribune.org/2022/10/13/texas-abandoned-oil-wells-railroad-commission/ [https://perma.cc/9Q9E-CAA2] (detailing an instance where the RRC possessed no record of a leaking water well on a rancher’s property and the rancher argued, since the water well was a converted oil and gas well, the RRC should take responsibility in plugging said well).
the state.\textsuperscript{187} RRC participation would increase recognition of the program and create widespread adoption of TCEQ’s emission reduction credit (ERC) program. Additionally, RRC participation would provide the state with a reliable funding source.\textsuperscript{188} No longer would the state need to apply for federal grants to aid in support. Engaging in the transaction of ERCS with public and private corporations would supply the RRC with a steady stream of revenue to apply to the OGRC. Lastly, integration of RRC site remediation would help promote the development of sensible emission reduction credit technologies and generate jobs for the state. Not only would companies recognize the economic opportunity for plugging orphaned and abandoned wells, but the RRC would also accelerate the mission of plugging every at-risk abandoned or orphaned well in the state. With a market-based mechanism, the RRC could help reduce greenhouse gas emissions (GHGs), provide a reliable source of funding to address orphaned wells, and promote the development of emission reduction technologies in Texas.

Ultimately, embracing emission reduction solutions such as cap-and-trade could be paramount in preserving the responsible extraction of fossil fuels in Texas. As illustrated, the complex limitations on the respective duties of the EPA, TCEQ, and SAC create challenges for the passage of swift legislation. Ideally, the RRC, Texas lawmakers, and the oil and gas industry can recognize the benefits of embracing a system designed to join with the TCEQ in providing sensible solutions to treat unrelenting trouble for the State of Texas.

\textsuperscript{187} See Letter from Wei Wang, Exec. Dir. of the R.R. Comm’n of Tex., to Steve Feldgus, Deputy Assistant Sec’y for Land and Minerals Mgmt., & Steve Tyron, Dir. of Env’t Pol’y and Compliance (Mar. 30, 2022) (providing comments on the draft State Initial Grant Guidance and requesting the Department of the Interior clarify the conditions of the allotment of federal funds granted to the state of Texas for well site remediation).

\textsuperscript{188} Id. at 4 (providing comments on the draft State Initial Grant Guidance and requesting the Department of the Interior clarify the conditions of the allotment of federal funds granted to the state of Texas for well site remediation).