AMENDED IN SENATE MAY 29, 2012

AMENDED IN SENATE MAY 2, 2012

AMENDED IN SENATE APRIL 9, 2012

SENATE BILL No. 1139

Introduced by Senator Rubio

February 21, 2012

An act to amend Section 659 of the Civil Code, to amend Section 51010.5 of the Government Code, to add Section 38572 to the Health and Safety Code, and to add Section 3239 to the Public Resources Code, relating to greenhouse gas.

LEGISLATIVE COUNSEL'S DIGEST

SB 1139, as amended, Rubio. Greenhouse gas: carbon capture and storage.

(1) Existing law requires the Division of Oil, Gas, and Geothermal Resources to regulate the construction and operation of wells. Under existing federal law, the division has been delegated with the responsibility of regulating class II wells under the federal Underground Injection Control program.

This bill would, *upon the adoption by the State Air Resources Board of a final methodology for carbon capture and storage projects seeking to demonstrate geologic sequestration of greenhouse gases,* specifically require the division to regulate carbon dioxide enhanced oil recovery projects that seek to demonstrate carbon sequestration ~~for~~ *under* various laws providing for the reduction of greenhouse gas emissions.

(2) The California Global Warming Solutions Act of 2006 requires the State Air Resources Board to establish regulations to achieve specified greenhouse gas emissions reduction goals. The act authorizes

the state board to include market-based compliance mechanisms in achieving those reduction goals.

This bill would require the state board, by January 1, 2016, to adopt a final methodology for carbon capture and storage projects seeking to demonstrate sequestration under various laws providing for the reduction of greenhouse gas emissions.

(3) The Elder California Pipeline Safety Act of 1981 vests the State Fire Marshal with the exclusive safety regulatory and enforcement authority over intrastate hazardous liquid pipelines and, to the extent authorized by an agreement between the State Fire Marshal and the United States Department of Transportation, interstate hazardous liquid pipelines.

This bill would additionally vest exclusive safety regulatory and enforcement authority over pipelines transporting a fluid consisting of more than 90% carbon dioxide compressed to a supercritical state.

(4) Existing law defines land as a material of earth and includes free or occupied space for an indefinite upward or downward distance for the purpose of prescribing ownership of land.

This bill would specify that free space includes pore space that can be possessed and used for the storage of greenhouse gas.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. This measure shall be known and may be cited as the Carbon Capture and Storage Act of 2012.

SEC. 2. (a) The Legislature finds and declares all of the following:

(1) California has established stringent short-term and long-term greenhouse gas (GHG) reduction goals that are functionally similar to the federal and international emission reduction goals. Executive Order S-3-05 committed California to reduce the GHG emissions to year 2000 levels by 2010 and to year 1990 levels by 2020, and to 80 percent below the year 1990 levels by 2050, a level consistent with the current scientific evidence regarding emission reductions needed to stabilize the climate. The California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code) separately obligates

California to reduce GHG emissions to the year 1990 levels by 2020.

(2) The scoping plan adopted pursuant to the California Global Warming Solutions Act of 2006 recognizes that carbon capture and storage (CCS) can play a role in helping the state meet its long-term GHG reduction goals. Cap-and-trade programs worldwide, including the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UN Doc. FCCC/CP/1997/7/Add.1, 37 ILM 22) and the European Union Emissions Trading Scheme (Directive 2003/87/EC, as amended), include CCS as a means for compliance. The 2010 Cancun Agreements under the Kyoto Protocol (UN Doc. FCCC/CP/2010/7/Add.1) envision that CCS will be able to generate certified emissions reductions (CERs) under the clean development mechanism (CDM). The 2011 Durban Platform under the Kyoto Protocol (UN Doc. FCCC/CP/2011/L.10) provides modalities and procedures regarding specifically how CCS projects may generate CERs under the CDM.

(3) The geologic storage of carbon dioxide is expected to provide an effective means of storing carbon dioxide over geologic time periods. The ~~International~~ *Intergovernmental* Panel on Climate Change (IPCC), in its 2005 Special Report on Carbon *Dioxide* Capture and Storage, states that "[o]bservations from engineered and natural analogues as well as models suggest that the fraction retained in appropriately selected and managed geological reservoirs is very likely to exceed 99% over 100 years and is likely to exceed 99% over 1,000 years."

(4) The deployment of CCS can materially help California to achieve its long term GHG emission reduction goals. The International Energy Agency's 2011 World Energy Outlook describes CCS as a "key abatement option" that accounts for 18 percent of emission savings in a key modeled scenario. The International Energy Agency further reports that CCS investment must be made "now" if emission reductions are to be achieved economically. The August 2010 report of the President's Interagency Task Force on CCS describes the technology as one that can "greatly reduce" GHG emissions while playing an "important role in achieving national and global" GHG reduction goals. In its December 2010 report, the California Carbon Capture and Storage Review Panel states that "[t]here is a public benefit

from long-term geologic storage of [carbon dioxide] as a strategy for reducing GHG emissions to the atmosphere as required by California laws and policies."

(5) Despite the existence of comprehensive federal CCS regulations, impediments to the deployment of CCS technology in California remain, including specific gaps in California laws and regulation. Many of these gaps are identified and discussed by the California Carbon Capture and Storage Review Panel's December 2010 report. These gaps include clarifying ownership of the pore space and clarifying regulatory responsibility for permitting CCS projects.

(6) By exercising a leadership role in CCS technology, California will position its economy, technology centers, financial institutions, and businesses to benefit from efforts to reduce emissions of GHGs through CCS.

(7) California has ample geologic storage capacity for carbon dioxide. In a 2005 report, the United States Department of Energy determined that the state has a "huge potential for geological sequestration capacity." The study estimated that the saline formations have a storage capacity of 146 to 840 gigatons of carbon dioxide. Moreover, those formations also have large numbers of oil and gas fields and significant potential for carbon dioxide enhanced oil recovery (CO2-EOR). The CO2-EOR technology is a proven mature technology that can be used to sequester carbon dioxide given adequate regulatory oversight.

(8) In another 2005 study, the United States Department of Energy documented the potential energy production and GHG storage potential of CO2-EOR technology for California. That study reached several conclusions, including California has a large "stranded oil" resource base that will be left in the ground following the use of today's oil recovery practices, much of California's large "stranded oil" resource base is amenable to CO2-EOR, application of miscible and immiscible CO2-EOR would enable a significant portion of the California's "stranded oil" to be recovered, and the successful introduction and wide scale use of CO2-EOR in California would stimulate the economy, provide new higher paying jobs, and lead to higher tax revenues for the state.

(9) Carbon dioxide capture is subject to federal regulations. The United States Environmental Protection Agency (USEPA) regulates

air emissions of GHGs through several regulatory programs, including the Prevention of Significant Deterioration (PSD) and Title V permitting programs under the federal Clean Air Act (42 U.S.C. Sec. 7401 et seq.). The USEPA's PSD and Title V Permitting Guidance for Greenhouse Gases states that permit writers must consider CCS technology to be "available" as part of the five-step Best Available Control Technology assessment process. Subpart PP (commencing with Section 98.420) of, subpart RR (commencing with Section 98.440) of, and subpart UU (commencing with Section 98.470) of, Part 98 of Title 40 of the Code of Federal Regulations prescribing GHG reporting rules separately require companies engaged in the injection of carbon dioxide, geological sequestration of carbon dioxide, or other CCS-related operations to report their atmospheric emission of GHGs. These regulations apply in California.

(10) Carbon dioxide transport is subject to comprehensive federal regulation by all modes, including pipeline, road, or ground. These regulations apply in California.

(11) The pipeline transport of carbon dioxide is a proven mature technology. In its 2005 special report of CCS, the IPCC states that the "[p]ipeline transport of [carbon dioxide] operates as a mature market technology (in the [United States], over 2,500 [kilometers] of pipelines transport more than 40 [million metric tons of carbon dioxide] per year)." Federal government data demonstrate that carbon dioxide pipelines have been operated safely. Meanwhile, the trucking industry has safely transported significant quantities of carbon dioxide for decades for a variety of commercial end users, including the carbonated beverage industry.

(12) Carbon dioxide injection and storage is subject to extensive federal regulations. In December 2010, the USEPA finalized its class VI regulations (76 Fed. Reg. 56982) under the Underground Injection Control ~~program~~ (UIC) *program*, and since that time the USEPA has issued several detailed implementation guidance documents. Those regulations do not apply unless carbon dioxide is being injected for the primary purpose of long-term storage into an oil and gas reservoir and there is an increased risk to underground sources of drinking water compared to class II operations. The UIC class VI well program regulations apply in California and are implemented by the USEPA. The UIC class II well program regulations apply in California and *the* USEPA has

delegated its implementation responsibilities to the Division of Oil, Gas, and Geothermal Resources of the Department of Conservation.

(13) The goals of creating a regulatory framework that ensures the safe deployment of CCS technology in a manner consistent with the state's goals for GHG reduction can best be accomplished by clarifying the ownership of the pore space and the regulatory responsibility of permitting CCS projects.

(b) It is the intent of the Legislature to create a clear and comprehensive permitting regime for CCS projects in California.

(c) In enacting this act, the Legislature does not intend to require the deployment of CCS technology but only to provide a clear and certain regulatory structure for CCS projects.

(d) In enacting this act, the Legislature intends to clarify the Division of Oil, Gas, and Geothermal Resources' authority to regulate carbon dioxide injection for enhanced oil recovery projects, the State Fire Marshal's authority to regulate carbon dioxide intrastate pipelines, that free space includes pore space that can be possessed and used for the storage of greenhouse gas, and that the remaining provision of this measure applies to CCS projects and carbon dioxide enhanced oil recovery projects seeking to reduce a compliance obligation pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code) by demonstrating simultaneous sequestration of injected carbon dioxide. The Legislature does not intend to limit or supersede the division's authority as it relates to existing or future carbon dioxide enhanced oil recovery projects that do not seek to reduce a compliance obligation pursuant to the California Global Warming Solutions Act of 2006.

SEC. 3. Section 659 of the Civil Code is amended to read:

659. (a) Land is the material of the earth, whatever may be the ingredients of which it is composed, whether soil, rock, or other substance, and includes free or occupied space for an indefinite distance upwards as well as downwards, subject to limitations upon the use of airspace imposed, and rights in the use of airspace granted, by law.

(b) (1) The free space specified in subdivision (a) includes pore space that can be possessed and used for the storage of greenhouse gas in the state.

(2) This subdivision does not change or alter the law as it relates to the rights belonging to, and the dominance of, the mineral estate, and does not change or alter the incidents of ownership or other rights of the owners of the mineral estate, including the right to mine, drill, complete, or abandon a well, the right to inject substances to facilitate production, the right to implement enhanced recovery for the purposes of recovery of oil, gas, or other minerals, or the dominance of the mineral estate.

SEC. 4. Section 51010.5 of the Government Code is amended to read:

51010.5. As used in this chapter, the following definitions apply:

(a) "Pipeline" includes every intrastate pipeline used for the transportation of hazardous liquid substances, carbon dioxide, or highly volatile liquid substances, including a common carrier pipeline, and all piping containing those substances located within a refined products bulk loading facility that is owned by a common carrier and is served by a pipeline of that common carrier, and the common carrier owns and serves by pipeline at least five of these facilities in the state. "Pipeline" does not include the following:

(1) An interstate pipeline subject to Part 195 of Title 49 of the Code of Federal Regulations.

(2) A pipeline for the transportation of a hazardous liquid substance in a gaseous state.

(3) A pipeline for the transportation of crude oil that operates by gravity or at a stress level of 20 percent or less of the specified minimum yield strength of the pipe.

(4) Transportation of petroleum in onshore gathering lines located in rural areas.

(5) A pipeline for the transportation of a hazardous liquid substance offshore located upstream from the outlet flange of each facility on the Outer Continental Shelf where hydrocarbons are produced or where produced hydrocarbons are first separated, dehydrated, or otherwise processed, whichever facility is farther downstream.

(6) Transportation of a hazardous liquid by a flow line.

(7) A pipeline for the transportation of a hazardous liquid substance through an onshore production, refining, or manufacturing facility, including a storage or inplant piping system associated with that facility.

(8) Transportation of a hazardous liquid substance by vessel, aircraft, tank truck, tank car, or other vehicle or terminal facilities used exclusively to transfer hazardous liquids between those modes of transportation.

(b) "Flow line" means a pipeline that transports hazardous liquid substances from the well head to a treating facility or production storage facility.

(c) "Hydrostatic testing" means the application of internal pressure above the normal or maximum operating pressure to a segment of pipeline, under no-flow conditions for a fixed period of time, utilizing a liquid test medium.

(d) "Local agency" means a city, county, or fire protection district.

(e) "Rural area" means a location that lies outside the limits of any incorporated or unincorporated city or city and county, or other residential or commercial area, such as a subdivision, a business, a shopping center, or a community development.

(f) "Gathering line" means a pipeline eight inches or less in nominal diameter that transports petroleum from a production facility.

(g) "Production facility" means piping or equipment used in the production, extraction, recovery, lifting, stabilization, separation, or treatment of petroleum or associated storage or measurement. (To be a production facility under this definition, piping or equipment must be used in the process of extracting petroleum from the ground and transporting it by pipeline.)

(h) "Public drinking water well" means a wellhead that provides drinking water to a public water system as defined in Section 116275 of the Health and Safety Code, that is regulated by the State Department of Health Services and that is subject to Section 116455 of the Health and Safety Code.

(i) "GIS mapping system" means a geographical information system that will collect, store, retrieve, analyze, and display environmental geographical data in a database that is accessible to the public.

(j) "Motor vehicle fuel" includes gasoline, natural gasoline, blends of gasoline and alcohol, or gasoline and oxygenates, and any inflammable liquid, by whatever name the liquid may be known or sold, which is used or is usable for propelling motor vehicles operated by the explosion type engine. It does not include

kerosene, liquefied petroleum gas, or natural gas in liquid or gaseous form.

(k) "Oxygenate" means an organic compound containing oxygen that has been approved by the United States Environmental Protection Agency as a gasoline additive to meet the requirements for an "oxygenated fuel" pursuant to Section 7545 of Title 42 of the United States Code.

(*l*) "Carbon dioxide" means a fluid consisting of more than 90 percent carbon dioxide molecules.

SEC. 5. Section 38572 is added to the Health and Safety Code, to read:

38572. (a) On or before January 1, 2016, the state board shall adopt a final quantification methodology for carbon capture and storage projects seeking to demonstrate geologic sequestration.

(b) The methodology adopted pursuant to subdivision (a) shall be used for the quantification of emissions as part of compliance obligations under either of the following:

(1) The mandatory reporting requirements adopted pursuant to Section 38530 of the Health and Safety Code.

(2) The demonstration of sequestration for the purposes of any regulation implementing a market-based compliance mechanism pursuant to this part.

(c) The methodology adopted pursuant to subdivision (a) shall be suitable for use for the demonstration of sequestration under the greenhouse gas emission performance standard established pursuant to Chapter 3 (commencing with Section 8340) of Division 4.1 of the Public Utilities Code.

(d) The state board shall consult with the Public Utilities Commission and the State Energy Resources Conservation and Development Commission on the development of the quantification methodology, and, to the maximum extent possible, coordinate the incorporation of the methodology into the emissions performance standard certification processes of those commissions.

(e) The quantification methodology shall include a methodology for carbon dioxide enhanced oil recovery projects seeking to demonstrate simultaneous sequestration of injected carbon dioxide. The methodology shall address multiple modes of carbon dioxide transportation, including pipeline, rail, and road transportation. The methodology shall do all of the following:

(1) Demonstrate that sites are capable of long-term containment of carbon dioxide.

(2) Identify and characterize potential natural and man-made leakage pathways, and provide implementation of appropriate risk management and corrective actions.

(3) Provide design, construction, and operation parameters to prevent, mitigate, and remediate the creation or activation of leakage pathways and the migration of carbon dioxide or fluids into any zone in a manner not authorized by the methodology.

(4) Minimize fugitive carbon dioxide emissions from carbon dioxide enhanced oil recovery projects seeking to demonstrate simultaneous sequestration of injected carbon dioxide.

(5) Provide for post injection closure and the long-term liability for carbon dioxide injected during operation, transition to class VI wells, and post closure.

(6) Verify, monitor, account for, and report carbon dioxide quantities sequestered, injected, recycled, leaked, vented, and in any other categories as deemed appropriate by the state board.

(f) The state board shall not quantify any carbon dioxide from an enhanced oil recovery project seeking to demonstrate simultaneous sequestration of injected carbon dioxide that is incapable of transitioning to a class VI well pursuant to the federal Safe Drinking Water Act (42 U.S.C. Sec. 300f et seq.).

(g) The methodology may, utilizing, to the extent possible, existing requirements under federal and state law, include any surface and subsurface characterization, monitoring, operational requirements, reporting, accounting, and verification requirements, and conditions to be administered by the state board or other agencies to ensure the accurate quantification of emissions.

(h) In adopting the methodology, the state board shall, to the maximum extent feasible, harmonize the adopted methodology with greenhouse gas storage or sequestration quantification methodologies used by other state, federal, or international greenhouse gas emission reduction programs if it does not compromise the ability of the methodology to verify sequestration or accurately quantify emissions.

(i) This section does not modify, limit, or supersede the operation of other laws applicable to carbon dioxide capture, transportation, or underground injection, or their application by the State Energy Resources Conservation and Development

Commission, the Public Utilities Commission, the Division of Oil, Gas, and Geothermal Resources, or the California Environmental Protection Agency, and its boards, offices, and departments.

(j) In adopting the methodology, the state board shall consider the potential for direct, indirect, and cumulative emission impacts that may result from carbon capture and storage projects seeking to demonstrate geologic sequestration and ensure that emissions of criteria pollutants are not higher than would occur in the absence of the carbon capture and storage project.

SEC. 6. Section 3239 is added to the Public Resources Code, to read:

3239. (a) ~~The~~ *Upon the final adoption of a quantification methodology for carbon capture and storage projects seeking to demonstrate geologic sequestration of carbon greenhouse gases by the State Air Resources Board pursuant to Section 38572 of the Health and Safety Code, the* division shall, under its regulatory authority to permit class II injection wells in the state pursuant to the authority delegated to the division pursuant to Section 1425 of the federal Safe Drinking Water Act (42 U.S.C. Sec. 311h-4), and pursuant to Section 38572 of the Health and Safety Code, regulate the injection of carbon dioxide at an enhanced oil recovery project, including an enhanced oil recovery project seeking to demonstrate simultaneous geologic sequestration of greenhouse ~~gas~~ *gases* pursuant to the greenhouse gas emission performance standard under Chapter 3 (commencing with Section 8340) of Division 4.1 of the Public Utilities Code, under the mandatory reporting of greenhouse gas emissions pursuant to Article 2 (commencing with Section 95100) of Subchapter 10 of Chapter 1 of Division 3 of Title 7 of the California Code of Regulations, or for any regulation implementing a cap-and-trade program or other market-based compliance mechanism, *except for the creation of offset credit,* that may be adopted pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5 (commencing with Section 38500) of the Health and Safety Code).

(b) Pursuant to subdivision (a), the division and the State Air Resources Board shall execute an agreement using a coordinated and comprehensive regulatory approach, including oversight and short-term and long-term monitoring requirements and verification, for geologic sequestration of greenhouse gases during and following enhanced oil recovery operations.

(c) In developing the regulations pursuant to subdivision (a), the division shall consider, at a minimum, both of the following:

(1) That long-term successful geologic sequestration may require adherence to standards and methods exceeding existing enhanced oil recovery and underground injection control practices and regulations.

(2) That all hydrocarbon reservoirs, given the diversity of California's geology, well treatment, and production practices, may not be suitable for long-term successful geologic sequestration.

(d) This section does not modify, limit, or supersede any other law applicable to carbon dioxide capture, transportation, or underground injection, or its application by the State Energy Resources Conservation and Development Commission, the Public Utilities Commission, the division, or the California Environmental Protection Agency, and its boards, offices, and departments.

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