

AMENDED IN SENATE FEBRUARY 15, 2013

SENATE BILL

No. 34

Introduced by Senator Rubio

December 3, 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, and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

SB 34, as amended, Rubio. Greenhouse gas: carbon capture and storage.

(1) Existing law requires the Division of Oil, Gas, and Geothermal Resources of the Department of Conservation to regulate the construction and operation of oil, gas, and geothermal wells. Pursuant to existing federal law, the federal Underground Injection Control (UIC) program, the United States Environmental Protection Agency delegated responsibility to the division to regulate class II wells, which are wells that use injections for, among other things, enhanced recovery of oil or natural gas. The federal UIC program implements regulations that apply to class VI wells, which include wells used for geologic sequestration of carbon dioxide under specific circumstances.

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 *would* require the division to regulate carbon dioxide enhanced oil recovery projects that seek to demonstrate carbon sequestration 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 the State Fire ~~Marshal~~ *Marshal* with the 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~~ *the* material of *the* 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.

(5) This bill would declare that it is to take effect immediately as an urgency statute.

Vote: $\frac{2}{3}$. Appropriation: no. Fiscal committee: yes.
State-mandated local program: no.

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

- 1 SECTION 1. This measure shall be known and may be cited
- 2 as the Carbon Capture and Storage Act of 2013.
- 3 SEC. 2. (a) The Legislature finds and declares all of the
- 4 following:
- 5 (1) California has established stringent short-term and long-term
- 6 greenhouse gas (GHG) reduction goals that are functionally similar
- 7 to the federal and international emission reduction goals. Executive
- 8 Order S-3-05 committed California to reduce the GHG emissions
- 9 to year 2000 levels by 2010 and to year 1990 levels by 2020, and

1 to 80 percent below the year 1990 levels by 2050, a level consistent
2 with the current scientific evidence regarding emission reductions
3 needed to stabilize the climate. The California Global Warming
4 Solutions Act of 2006 (Division 25.5 (commencing with Section
5 38500) of the Health and Safety Code) separately obligates
6 California to reduce GHG emissions to the year 1990 levels by
7 2020.

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

24 (3) The geologic storage of carbon dioxide is expected to provide
25 an effective means of storing carbon dioxide over geologic time
26 periods. The Intergovernmental Panel on Climate Change (IPCC),
27 in its 2005 Special Report on Carbon Dioxide Capture and Storage,
28 states that “[o]bservations from engineered and natural analogues
29 as well as models suggest that the fraction retained in appropriately
30 selected and managed geological reservoirs is very likely to exceed
31 ~~99%~~ 99 percent over 100 years and is likely to exceed ~~99%~~ 99
32 percent over 1,000 years.”

33 (4) The deployment of CCS can materially help California to
34 achieve its ~~long-term~~ long-term GHG emission reduction goals.
35 The International Energy Agency’s 2011 World Energy Outlook
36 describes CCS as a “key abatement option” that accounts for 18
37 percent of emission savings in a key modeled scenario. The
38 International Energy Agency further reports that CCS investment
39 must be made “now” if emission reductions are to be achieved
40 economically. The August 2010 report of the President’s

1 Interagency Task Force on CCS describes the technology as one
2 that can “greatly reduce” GHG emissions while playing an
3 “important role in achieving national and global” GHG reduction
4 goals. In its December 2010 report, the California Carbon Capture
5 and Storage Review Panel states that “[t]here is a public benefit
6 from long-term geologic storage of [carbon dioxide] as a strategy
7 for reducing GHG emissions to the atmosphere as required by
8 California laws and policies.”

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

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

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

31 (8) In another 2005 study, the United States Department of
32 Energy documented the potential energy production and GHG
33 storage potential of CO₂-EOR technology for California. That
34 study reached several conclusions, including California has a large
35 “stranded oil” resource base that will be left in the ground
36 following the use of today’s oil recovery practices, much of
37 California’s large “stranded oil” resource base is amenable to
38 CO₂-EOR, application of miscible and immiscible CO₂-EOR
39 would enable a significant portion of the California’s “stranded
40 oil” to be recovered, and the successful introduction and wide scale

1 use of CO2-EOR in California would stimulate the economy,
2 provide new higher paying jobs, and lead to higher tax revenues
3 for the state.

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

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

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

34 (12) Carbon dioxide injection and storage is subject to extensive
35 federal regulations. In December 2010, the USEPA finalized its
36 class VI regulations (76 Fed. Reg. 56982) under the Underground
37 Injection Control (UIC) program, and since that time the USEPA
38 has issued several detailed implementation guidance documents.
39 Those regulations do not apply unless carbon dioxide is being
40 injected for the primary purpose of long-term storage into an oil

1 and gas reservoir and there is an increased risk to underground
2 sources of drinking water compared to class II operations. The
3 UIC class VI well program regulations apply in California and are
4 implemented by the USEPA. The UIC class II well program
5 regulations apply in California and the USEPA has delegated its
6 implementation responsibilities to the Division of Oil, Gas, and
7 Geothermal Resources of the Department of Conservation.

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

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

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

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

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

36 659. (a) Land is the material of the earth, whatever may be
37 the ingredients of which it is composed, whether soil, rock, or
38 other substance, and includes free or occupied space for an
39 indefinite distance upwards as well as downwards, subject to

1 limitations upon the use of airspace imposed, and rights in the use
2 of airspace granted, by law.

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

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

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

16 51010.5. As used in this chapter, the following definitions
17 apply:

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

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

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

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

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

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

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

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

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

10 (b) “Flow line” means a pipeline that transports hazardous liquid
11 substances from the wellhead to a treating facility or production
12 storage facility.

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

17 (d) “Local agency” means a city, county, or fire protection
18 district.

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

23 (f) “Gathering line” means a pipeline eight inches or less in
24 nominal diameter that transports petroleum from a production
25 facility.

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

32 (h) “Public drinking water well” means a wellhead that provides
33 drinking water to a public water system as defined in Section
34 116275 of the Health and Safety Code, that is regulated by the
35 State Department of *Public Health Services* and that is subject to
36 Section 116455 of the Health and Safety Code.

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

1 (j) “Motor vehicle fuel” includes gasoline, natural gasoline,
2 blends of gasoline and alcohol, or gasoline and oxygenates, and
3 any inflammable liquid, by whatever name the liquid may be
4 known or sold, which is used or is usable for propelling motor
5 vehicles operated by the explosion type engine. It does not include
6 kerosene, liquefied petroleum gas, or natural gas in liquid or
7 gaseous form.

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

13 (l) “Carbon dioxide” means a fluid consisting of more than 90
14 percent carbon dioxide molecules.

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

17 38572. (a) On or before January 1, 2016, the state board shall
18 adopt a final quantification methodology for carbon capture and
19 storage projects seeking to demonstrate geologic sequestration.

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

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

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

28 (3) The demonstration of sequestration under the greenhouse
29 gas emission performance standard established pursuant to Chapter
30 3 (commencing with Section 8340) of Division 4.1 of the Public
31 Utilities Code.

32 (c) The state board shall consult with the Public Utilities
33 Commission and the State Energy Resources Conservation and
34 Development Commission on the development of the quantification
35 methodology, and, to the maximum extent possible, coordinate
36 the incorporation of the methodology into the emissions
37 performance standard enforcement processes of those commissions.

38 (d) The quantification methodology shall include a methodology
39 for carbon dioxide enhanced oil recovery projects seeking to
40 demonstrate simultaneous sequestration of injected carbon dioxide.

- 1 The methodology shall address multiple modes of carbon dioxide
2 transportation, including pipeline, rail, and road transportation.
3 The methodology shall do all of the following:
- 4 (1) Ensure that greenhouse gas emission reductions, achieved
5 pursuant to the methodology, are real, permanent, quantifiable,
6 verifiable, and enforceable by the state board.
 - 7 (2) Demonstrate that sites are capable of long-term containment
8 of carbon dioxide.
 - 9 (3) Identify and characterize potential natural and manmade
10 leakage pathways, and provide implementation of appropriate risk
11 management and corrective actions.
 - 12 (4) Provide design, construction, and operation parameters to
13 prevent, mitigate, and remediate the creation or activation of
14 leakage pathways and the migration of carbon dioxide or fluids
15 into any zone in a manner not authorized by the methodology.
 - 16 (5) Minimize fugitive carbon dioxide emissions from carbon
17 dioxide enhanced oil recovery projects seeking to demonstrate
18 simultaneous sequestration of injected carbon dioxide.
 - 19 (6) Provide for post injection closure and the long-term
20 responsibility for carbon dioxide sequestered.
 - 21 (7) Verify, monitor, account for, and report carbon dioxide
22 quantities sequestered, injected, recycled, leaked, vented, and in
23 any other categories as deemed appropriate by the state board.
- 24 (e) The state board shall not quantify any carbon dioxide from
25 an enhanced oil recovery project seeking to demonstrate
26 simultaneous sequestration of injected carbon dioxide that is
27 incapable of transitioning to class VI in accordance with applicable
28 requirements of the federal Safe Drinking Water Act (42 U.S.C.
29 Sec. 300f et seq.).
- 30 (f) ~~The methodology may, utilizing,~~ *Utilizing existing*
31 *requirements under federal and state law to the extent possible,*
32 ~~existing requirements under federal and state law, include those~~
33 *the methodology may include* surface and subsurface
34 characterization, monitoring, operational requirements, reporting,
35 accounting, and verification requirements; and ~~conditions:~~
36 *conditions to ensure the accurate quantification of emissions.*
- 37 (g) In adopting the methodology, the state board shall, to the
38 maximum extent feasible, harmonize the adopted methodology
39 with greenhouse gas storage or sequestration quantification
40 methodologies used by other state, federal, or international

1 greenhouse gas emission reduction programs if it does not
2 compromise the ability of the methodology to verify sequestration
3 or accurately quantify emissions.

4 (h) This section does not modify, limit, or supersede the
5 operation of other laws applicable to carbon dioxide capture,
6 transportation, or underground injection, or their application by
7 the State Energy Resources Conservation and Development
8 Commission, the Public Utilities Commission, the Division of Oil,
9 Gas, and Geothermal Resources, or the California Environmental
10 Protection Agency; and its boards, offices, and departments.

11 (i) In adopting the methodology, the state board shall consider
12 the potential for direct, indirect, and cumulative emission impacts
13 that may result from carbon capture and storage projects seeking
14 to demonstrate geologic sequestration.

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

17 3239. (a) Upon the final adoption of a quantification
18 methodology for carbon capture and storage projects seeking to
19 demonstrate geologic sequestration of carbon greenhouse gases
20 by the State Air Resources Board pursuant to Section 38572 of
21 the Health and Safety Code, the division shall, under its regulatory
22 authority to permit class II injection wells in the state pursuant to
23 the authority delegated to the division pursuant to Section 1425
24 of the federal Safe Drinking Water Act (42 U.S.C. Sec. 300h-4),
25 and pursuant to Section 38572 of the Health and Safety Code,
26 regulate the injection of carbon dioxide at an enhanced oil recovery
27 project seeking to demonstrate simultaneous geologic sequestration
28 of greenhouse gases pursuant to the greenhouse gas emission
29 performance standard under Chapter 3 (commencing with Section
30 8340) of Division 4.1 of the Public Utilities Code, under the
31 mandatory reporting of greenhouse gas emissions pursuant to
32 Article 2 (commencing with Section 95100) of Subchapter 10 of
33 Chapter 1 of Division 3 of Title 7 of the California Code of
34 Regulations, or for any regulation implementing a cap-and-trade
35 program or other market-based compliance mechanism that may
36 be adopted pursuant to the California Global Warming Solutions
37 Act of 2006 (Division 25.5 (commencing with Section 38500) of
38 the Health and Safety Code).

39 (b) Pursuant to subdivision (a), the division and the State Air
40 Resources Board shall execute an agreement using a coordinated

1 and comprehensive regulatory approach, including oversight and
2 short-term and long-term monitoring requirements and verification,
3 for geologic sequestration of greenhouse gases during and
4 following enhanced oil recovery operations.

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

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

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

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

20 SEC. 7. This act is an urgency statute necessary for the
21 immediate preservation of the public peace, health, or safety within
22 the meaning of Article IV of the Constitution and shall go into
23 immediate effect. The facts constituting the necessity are:

24 In order to facilitate the sequestration of greenhouse gases as
25 quickly as possible, it is necessary that this act take effect
26 immediately.