

1-1-2012

Creating a Carbon Sequestration Right: A Legal Tool to Enhance the Use of Forest-Based Carbon Offsets

Abigail Stecker

Follow this and additional works at: https://repository.uchastings.edu/hastings_environmental_law_journal

 Part of the [Environmental Law Commons](#)

Recommended Citation

Abigail Stecker, *Creating a Carbon Sequestration Right: A Legal Tool to Enhance the Use of Forest-Based Carbon Offsets*, 18 *Hastings West Northwest J. of Env'tl. L. & Pol'y* 293 (2012)

Available at: https://repository.uchastings.edu/hastings_environmental_law_journal/vol18/iss2/2

This Article is brought to you for free and open access by the Law Journals at UC Hastings Scholarship Repository. It has been accepted for inclusion in *Hastings Environmental Law Journal* by an authorized editor of UC Hastings Scholarship Repository. For more information, please contact wangangela@uchastings.edu.

Creating a Carbon Sequestration Right: A Legal Tool to Enhance the Use of Forest-Based Carbon Offsets

Abigail Stecker^{*}

- I. INTRODUCTION
- II. CURRENT REGULATION
 - A. Main Entities Under AB 32
 - B. Cap-and-Trade Based System
 - C. Elements of an Offset Project
 - D. California's Forest-Based Offset Regulations
 - E. Other GHG Reduction Frameworks
- III. CHALLENGES FACING CURRENT FOREST-BASED OFFSET PROJECTS
 - A. Environmental Challenges
 - B. Regulatory Challenges
 - C. Legal Challenges
 - 1. Conservation Easements
 - 2. Timber Rights
- IV. THE CASE FOR A CARBON SEQUESTRATION RIGHT
 - A. Basic Characteristics of a Carbon Sequestration Right
 - B. Permanence
 - C. Ownership and Enforceability
 - D. Market Security
 - E. Model for Future Legislation
- V. THE SCOPE OF A CARBON SEQUESTRATION RIGHT
 - A. Offset Projects in Other States and Countries
 - B. Federal Land Within California
 - C. Tribal Land
 - D. Expanding the Scope
 - 1. Codifying a Federal or Tribal Statute
 - 2. Insurance Contributions Based on Legal Framework
- V. CONCLUSION

^{*} J.D., UCLA School of Law, 2012; B.A., Chapman University, 2009. First, a thank you to my family for encouraging and supporting me throughout my education. I am also very grateful to Professor Sean Hecht of UCLA School of Law for guiding me while writing this article.

I. Introduction

California must lower its greenhouse gas (“GHG”) emissions to 1990 levels by 2020¹ and to 80 percent below 1990 levels by 2050.² In order to lower the State’s cumulative GHG emissions, in late 2011, the State approved a cap-and-trade program requiring certain business firms to reduce their GHG emissions.³ As an alternative to reducing emissions, firms may purchase forest-based offsets that result in an equivalent emissions reduction elsewhere.⁴ These offsets may be tradable within California and other linked systems.

Forest-based offsets take advantage of a forest’s ability to convert carbon dioxide to solid carbon, thus reducing the amount of carbon dioxide in the atmosphere.⁵ Within a forest, trees absorb carbon through photosynthesis and store it in biomass, including the trunk, leaves, branches, and roots.⁶ Carbon is also stored in soil, plants, and floor litter.⁷ This absorption and storage is *biological* carbon sequestration (hereinafter referred to merely as “carbon sequestration.”)⁸ These offsets typically require implementation of changes in

1. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY § 38550–(West 2011).

2. Cal. Exec. Order No. S-3-05 (Jun. 1, 2005), available at <http://www.dot.ca.gov/hq/energy/ExecOrderS-3-05.htm>.

3. Cal. Air Res. Bd., *California Cap-and-Trade Program, Resolution 11-32*, 2, 4 (Oct. 20, 2011) [hereinafter Resolution 11-32], available at <http://www.arb.ca.gov/regact/2010/capandtrade10/res11-32.pdf>.

4. Cal. Air Res. Bd., *Climate Change Proposed Scoping Plan: A Framework for Change*, 37 (2008) [hereinafter Scoping Plan], <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>.

5. Econ. & Tech. Advancement Advisory Comm. (“ETAAC”), *Final Report: Technologies and Policies to Consider for Reducing Greenhouse Gas Emissions in California*, 2 (Feb. 11, 2008) [hereinafter ETAAC Report], <http://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf>.

6. See generally Cal. Climate Action Reg., *California Climate Action Registry Forest Project Protocol* (Aug. 20, 2010) [hereinafter Forest Protocol], http://www.climateactionreserve.org/wp-content/uploads/2010/08/Forest_Project_Protocol_V3.2_For_Board_Approval1.pdf.

7. *Id.*; see also Rebecca K. Smith, *Our National Forests as Carbon Sinks: A Timely and Appropriate Change in Management Emphasis*, 29 PUB. LAND & RESOURCE L. REV. 183, 187 (2009) (“[F]orests store 50 percent of their carbon in soil, 10 percent in woody debris, six percent in the forest floor, one percent in the understory, and only 33 percent in living trees.”).

8. Biological carbon sequestration is distinct from geological carbon sequestration. Geological sequestration involves the injection of carbon underground through a process called “carbon capture and storage.” This article only considers biological sequestration, and all references to “sequestration” or “carbon sequestration” refer only to *biological* sequestration. For a basic discussion of the difference between biological and geological sequestration, see *Carbon Dioxide (CO₂) or Carbon Sequestration*, OUR CLIMATE, <http://www.ourclimate.net/sequestration.htm> (last visited April 30, 2011).

forest management that increase that carbon sequestration. Management changes include allowing timber to grow past economic maturity, increasing buffer zones surrounding forests, changing clear cuts to group selection cuts, and reducing the likelihood of catastrophic fires.⁹

Despite the promise of forest-based carbon sequestration, it is unclear whether these offsets meet the basic requirements common to all offset systems, including permanence and enforceability. Without assurance that offsets are permanent, transferable, and adequately enforceable, firms may not feel secure in purchasing them,¹⁰ and California may lose the benefits of forest-based carbon sequestration. The mandatory nature of California's scheme amplifies the necessity of well-defined rights that are enforceable and transferable.¹¹

Various legal tools can be used to define and support forest-based offsets to ensure they perform as needed; however, present tools are inadequate. For example, while leaseholds and conservation easements are currently used to support forest-based offsets, they were not created with the unique characteristics of these offsets in mind. Current legal tools may not ensure that an offset projects is viable for the time necessary to truly sequester carbon,¹² thus the project would not satisfy the 100-year permanence element required of all offset projects.¹³

In the long term, these shortcomings could affect the enforceability of elements necessary to create a successful forest-based offset project. In addition, the current legal framework leaves room for debate regarding the ownership of the carbon versus the forest components that sequester the carbon.¹⁴ Uncertainty surrounding ownership creates a hurdle to the transfer of forest-based offsets within a market context.

If created and implemented with care, a statutory right clarifying these issues would provide more secure support for forest-based offset projects. A carbon sequestration right in the form of an easement provides an opportunity to ensure permanence as well as enforceability and transferability of forest-based offset projects. A carbon sequestration easement would be a real

9. SANDRA BROWN ET AL, PIER FINAL PROJECT REPORT: CARBON SUPPLY FROM CHANGES IN MANAGEMENT OF FOREST, RANGE, AND AGRICULTURAL LANDS IN CALIFORNIA: FOREST, 500-04-068F, 2 (March 2004), available at http://www.energy.ca.gov/pier/project_reports/500-04-068.html.

10. Matthieu Wemaere et al, *Legal Ownership and Nature of Kyoto Units and EU Allowances*, LEGAL ASPECTS OF CARBON TRADING: KYOTO, COPENHAGEN, AND BEYOND 35, 50 (David Freestone & Charlotte Streck, eds. 2009) ("The less defined and secure the allowances are, the less likely potential buyers will be willing to invest in them.").

11. *Id.* at 45.

12. Forest Protocol, *supra* note 6, at 7.

13. *Id.*

14. *See infra*, Part III.B.2.

property right because ownership of sequestered carbon is a stick in an owner's bundle of rights.¹⁵ It could be similar to a conservation easement; however, it must be tailored to the nonperpetual nature of forest-based offsets and must specify who owns the sequestered carbon.

A carbon sequestration easement would provide the strong enforcement rights associated with real property rights, including the use of injunctions to prevent or stop alterations to the forest that may negatively affect carbon sequestration. It would clarify which parties have standing to bring enforcement actions and against whom they may bring action. This type of easement would also specify who may sell a forest-based offset within a market setting.

Other factors will influence the scope, nature, and usefulness of a carbon sequestration easement in facilitating forest-based offsets. A California real property right will not apply on land outside of the state's jurisdiction. This includes federal and tribal land within California's borders, as well as land in other states and countries. Due to California's likely incorporation in a market that includes Canadian provinces,¹⁶ solving this problem is of the utmost importance to ensure that a carbon sequestration easement is actually useful.

The most direct solution is for other states, the federal government, and other countries to pass their own carbon sequestration legislation. In the meantime, and to successfully incorporate forest-based offset projects outside of California's jurisdiction, an insurance program can bridge the jurisdictional gaps. Such a program would require less insurance for offset projects supported by a carbon sequestration easement and more insurance for those supported by less effective legal tools.

Discussions regarding the necessity and form of a potential carbon right have begun.¹⁷ This Note is meant to assist and further these discussions and to promote the use of a carbon sequestration easement in order to secure the use of forest-based offsets within a cap-and-trade market. Part II discusses California's current legal framework, the background of offsets, and cooperation with the Western Climate Exchange, a regional GHG emission reduction scheme. Part III identifies the environmental, regulatory, and legal challenges facing current forest-based offset projects. Part IV introduces the use of a carbon sequestration easement to support forest-based offsets and discusses the potential benefits of such a legal tool. Part V analyzes the scope of a carbon

15. In *Roseland Plantation, LLC v. U. S. Fish and Wildlife Serv.*, 2006 U.S. Dist. LEXIS 29334 (W.D. La. April 5, 2006), the Court definitively found that "while it is not clear at the present time that [carbon] credits could be sold, they make up a portion of the bundle of rights in the real property."

16. Scoping Plan, *supra* note 4, at ES-8.

17. The Carbon Rights Discussion Group, a group of environmental law experts, is currently drafting a model statute for a carbon sequestration easement. See *Carbon Rights Roundtable Discussion: Meeting Summary and Proposed Next Steps* (July 21, 2010) [hereinafter Roundtable Discussion] (on file with author).

sequestration right and ways to expand the scope to make the right practical. Part VI concludes that despite the potential obstacles surrounding a carbon sequestration right the use of a carbon sequestration easement, if properly drafted, will support forest-based offsets.

II. Current Regulation

Under the California Global Warming Solutions Act of 2006 (“AB 32”), California must lower its GHG emissions to 1990 levels by 2020.¹⁸ In addition, pursuant to Governor Arnold Schwarzenegger’s Executive Order, California must further reduce emissions to 80 percent below 1990 levels by 2050.¹⁹

The California Air Resource Board, California Climate Action Registry, and the Climate Action Reserve will help guide California through the reduction process. The majority of reductions will occur through California’s participation in a regional cap-and-trade market, which will include the transfer of forest-based offsets. In order to enter the market, these offset projects must not only satisfy the elements universal to all such projects but also California’s specific forest-based offset guidelines.

A. Main Entities Under AB 32

The California Air Resources Board, the California Climate Action Registry, and the Climate Action Reserve each have important roles under AB 32. The California Air Resource Board (“CARB”) is a part of the California Environmental Protection Agency.²⁰ Its purpose is to reduce air pollutants in light of economic concerns in order to “promote and protect” the public’s health.²¹ It is the main governmental agency responsible for implementing AB 32²² and accordingly drafted the Climate Change Proposed Scoping Plan: A Framework for Change (“Scoping Plan”), which specifies the way in which the agency will implement AB 32 and achieve its mandates.²³

The Climate Action Reserve (“Reserve”) is a “national offset program” that works to ensure “integrity, transparency and financial value in the U.S. carbon

18. California Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY § 38550–(West 2011).

19. See *supra* note 2.

20. Cal/EPA Boards, Departments, and Offices, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (May 25, 2010), <http://www.calepa.ca.gov/CalEPA/default.htm>.

21. *Id.* (“The Air Resources Board’s (ARB) mission is to promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants in recognition and consideration of the effects on the economy of the state.”).

22. Scoping Plan, *supra* note 4, at ES-1.

23. *Id.*

market.”²⁴ Under AB 32, the Reserve drafted the California Climate Action Registry Forest Project Protocol (“Forest Protocol”), which specifies California’s standards for forest-based offset projects.²⁵ It then issues carbon credits to project owners based on the reduction achieved by an offset project throughout the life of the project.²⁶ The Reserve is the parent program of the California Climate Action Registry.²⁷

The California Climate Action Registry (“CCAR”) was created in response to a request by Californian companies for an official record of their GHG emissions.²⁸ CCAR members, including some of the world’s largest corporations, universities, and environmental organizations, voluntarily “measure, verify, and publicly report” their GHG emissions.²⁹ To effectuate efficient recording, CCAR created rules governing calculation and reporting of reductions.³⁰ In 2011, CCAR transferred its recording responsibilities to the Climate Registry (“Registry”), though it will continue to advocate on behalf of its members.³¹ The Registry now publicly records GHG emissions from CCAR members, as well as other companies and organizations throughout the country.³² Through the Registry, CCAR members can apply their voluntary reductions to mandatory reductions required under AB 32.³³

B. Cap-and-Trade Based System

The Scoping Plan estimates that the use of a cap-and-trade market will achieve 85 percent of California’s required emissions reductions.³⁴ Accordingly,

24. *About Us*, CLIMATE ACTION RESERVE, <http://www.climateactionreserve.org/about-us/> (last visited April 23, 2011).

25. *Id.*

26. *Id.*

27. *See Overview*, CALIFORNIA CLIMATE ACTION REGISTRY, <http://www.climateactionregistry.org/about.html> (last visited April 23, 2011) [hereinafter Registry Website] (noting that “the California Registry will continue to accept 2009 greenhouse gas emission reports through the end of 2010, and thereafter all emission reports should be submitted through The Climate Registry.”).

28. *Id.*

29. *Id.*

30. Registry Website, *supra* note 27.

31. *Id.*

32. *Id.* (“After [CCAR] becomes read-only at the end of 2010, [it] will continue to advocate on behalf of its members’ emission inventories to protect early actions made prior to the passing of AB32, and all emissions reports submitted to the California Registry will continue to exist in perpetuity.”).

33. *Id.* (“The Board will later determine the appropriate credit to be given for voluntary early actions and the conditions under which voluntary reductions may be used to comply with mandatory requirements[.]”).

34. Scoping Plan, *supra* note 4, at ES-3, 22. There is some debate about this, and it is currently undergoing California’s NEPA review. Governor Schwarzenegger

CARB is currently working to codify statutes implementing the cap-and-trade market³⁵ and expects to achieve full functionality by 2012.³⁶

A cap-and-trade system gives each firm within a regulated sector a limited amount of emission allowances.³⁷ Each allowance permits the firm to release a certain quantity of GHGs into the atmosphere.³⁸ The total allowances comprise the cap, the amount of emissions a firm may not exceed. If a firm reduces its emissions below its cap and has leftover allowances, it may sell those allowances in the market.³⁹ If a firm cannot reduce its emissions below its cap, it may purchase another firm's excess allowances.⁴⁰ Such a firm may also purchase an offset, which erases its own emissions to the extent the offset project reduced or avoided emissions.⁴¹

C. Elements of an Offset Project

The purpose of an offset project is to either remove GHG emissions from the atmosphere or prevent emission in the first place.⁴² Offsets are a popular way to reduce emissions because they can be "standardized and quantified."⁴³ A

appointed a Market Advisory Committee ("MAC"), whose goal is to recommend a useful form of market to satisfy AB 32. The MAC recommended a cap-and-trade system. See Market Advisory Comm., *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California* 5–6 (2007) [hereinafter MAC Recommendations], available at http://www.climatechange.ca.gov/publications/market_advisory_committee/2007-06-29_MAC_FINAL_REPORT.PDF. In addition, CARB determined that cap-and-trade system would be an effective way to satisfy the Act's reduction mandate. See ETAAC Report, *supra* note 5, at 1–4.

35. See Cal. Envir. Prot. Agency Air Res. Bd., *Proposed Regulation to Implement the California Cap-and-Trade Program: Part 1 Volume 1*, App. A (Oct. 28, 2010), available at <http://www.arb.ca.gov/regact/2010/capandtrade10/capv1appa.pdf>. The proposed regulation is currently enjoined from becoming effective because CARB did not receive approval for the proposal through the rulemaking process but instead went forward with the plan via a resolution to expedite the process. For further discussion, see *San Francisco Judge Deals a Major Setback to California's Cap-and-Trade Program*, NIXON PEABODY (March 24, 2011), http://www.nixonpeabody.com/publications_detail3.asp?ID=3749.

36. Scoping Plan, *supra* note 4, at 1.

37. *Id.* at 35–36.

38. *Id.* at 30.

39. MAC Recommendations, *supra* note 34, at 5–6.

40. *Id.*

41. *Id.* at 36.

42. See Philippe Cullet et al. *Activities Implemented Jointly in the Forestry Sector: Conceptual and Operational Fallacies*, 10 GEO. INT'L ENVTL. L. REV. 97, 109–110 (Fall, 1997) (citing Pedro Moura Costa, *Tropical Forestry Practices for Carbon Sequestration: A Review and Case Study from Southeast Asia*, 25 AMBIO 279 (1996)).

43. See James L. Olmstead, *Carbon Dieting: Latent Ancillary Rights to Carbon Offsets in Conservation Easements*, 29 J. LAND RESOURCES & ENVTL. L. 121, 123 (2009)

marketable offset project must be verifiable, real, additional, and permanent.⁴⁴

In order to be verifiable, a project must have the ability to be measured, monitored, and enforced.⁴⁵ To be measurable, an offset project must have a quantifiable amount of sequestered carbon.⁴⁶ Monitoring is required to verify that an offset project meets its goals.⁴⁷ Enforcement is necessary in order to assure an offset project meets the applicable standards.⁴⁸

An offset project must also be real, meaning that the project must actually reduce the GHG emissions it claims to reduce. A project must address both activity shifting and market leakage.⁴⁹ Activity-shifting leakage is the displacement of activities from within the offset project to a new location outside the project's boundary, thus increasing emissions outside the project's boundary.⁵⁰ Market leakage occurs when an offset project changes an established market of goods, causing additional emissions that mitigate the project's reductions; for example, avoided deforestation causes contractors to replace wood with products that emit more GHGs when building homes.⁵¹ Activity shifting and market leakage must thus be deducted from an offset project's total emission reduction.⁵²

In order to be additional, the offset project must reduce more emissions than already required by "any applicable land use laws or regulations."⁵³ Essentially, if an emission reduction would have occurred in the absence of an offset project, then the offset project is not additional.⁵⁴

To be permanent, an offset project must store carbon for the time necessary to make the sequestration worthwhile, often considered 100 years.⁵⁵ Offset projects should be insured against the ever-present risk of forest

[hereinafter *Olmstead Carbon Dieting*] ("Carbon offsets remain the most popular corporate anti-global warming measure.").

44. See *Forest Protocol*, *supra* note 6, at 37. See also Ross W. Gorte et al, CONG. RESEARCH SERV., RL34560, FOREST CARBON MARKETS: POTENTIAL AND DRAWBACKS 16 (2010) [hereinafter *CRS Report*], available at <http://www.cnire.org/NLE/CRSreports/10Jun/RL34560.pdf>.

45. *Id.*

46. *Id.* at 17.

47. *Id.*

48. *Id.*

49. *Olmstead Carbon Dieting*, *supra* note 43, at 130.

50. *Id.*

51. *Id.* at 133.

52. *Olmstead Carbon Dieting*, *supra* note 43, at 130.

53. *Id.* at 128–29.

54. *CRS Report*, *supra* note 44, at 16.

55. *Forest Protocol*, *supra* note 5, at 7. A 100-year timeframe is not unusual in the timber industry. See generally Howard Kenison et al., *Carbon Offsets from Soils and Forests—A Primer for Colorado Lawyers*, 38 COLO. LAW 63 (Nov. 2009).

destruction. Insurance usually requires the use of a back-up forest,⁵⁶ where the project owner sets aside 10 percent to 60 percent of project's emission reductions into an insurance pool.⁵⁷

D. California's Forest-Based Offset Regulations

Forest-based offsets are commonly used to make voluntary GHG reductions. These offsets reduce emissions by taking advantage of the forest as a carbon sink.⁵⁸ Within a forest, trees sequester carbon through photosynthesis and store it in biomass.⁵⁹ Carbon is also sequestered in the forest's soil, plants, and floor litter.⁶⁰ Essentially, the forest's ability to store carbon and reduce emissions is the foundation of a forest-based offset project.

California's use of forest-based offsets is pursuant to AB 32,⁶¹ and firms may use these offsets to satisfy up to 49 percent of their cap.⁶² California's offset standards are "rigorous and clear" in order to instill confidence in firms wishing to use offsets to meet their emission reduction goal.⁶³

Forest-based offsets, specifically, must meet the standards set forth under the Forest Protocol, which "provides requirements and guidance for quantifying the net climate benefits of activities that sequester carbon on forestland."⁶⁴ The Reserve drafted the first Forest Protocol in 2003 and has improved and revised it over the past eight years, culminating in the present Version 3.2.⁶⁵ The Reserve's goal is for the Forest Protocol to be a "rigorous, transparent, and comprehensive process . . . focusing on accurate and conservative accounting to ensure that credits are issued only for GHG reductions and removals that are real,

56. Forest Protocol, *supra* note 6, at 61.

57. CRS Report, *supra* note 44, at 19. The insurance requirement will be discussed more in Part V.

58. See generally *What Are Carbon Sinks?*, FERN, <http://www.fern.org/campaign/carbon-trading/what-are-carbon-sinks> (last visited Feb. 28, 2012).

59. Forest Protocol, *supra* note 6, at 2.

60. *Id.* See also Smith, *supra* note 7, at 187 ("[F]orests store 50 percent of their carbon in soil, 10 percent in woody debris, six percent in the forest floor, one percent in the understory, and only 33 percent in living trees.").

61. MAC Recommendations, *supra* note 34, at 61–62.

62. Scoping Plan, *supra* note 4, at 19. This standard is the same as the Regional Greenhouse Gas Initiative standard for GHG emissions.

63. See Forest Protocol, *supra* note 6, at 2 ("Adherence to the Reserve's high standards ensures that emissions reductions associated with projects are real, permanent and additional, thereby instilling confidence in the environmental benefit, credibility and efficiency of the U.S. carbon market."); see also ETAAC Report, *supra* note 5, at 7.

64. See Forest Protocol, *supra* note 6, at 2.

65. To view previous versions of the Forest Protocol, see *Forest Project Protocol Development*, CLIMATE ACTION RESERVE, <http://www.climateactionreserve.org/how/protocols/adopted/forest/development/> (last visited April 23, 2011).

permanent, additional, verifiable, and enforceable.”⁶⁶

The Forest Protocol divides forest-based offset projects into three categories: reforestation, project management, and avoided conversion.⁶⁷ A reforestation project “restor[es] tree cover on land that is not at optimal stocking levels and has minimal short-term (30-years) commercial opportunities.”⁶⁸ A management project requires a change in “management activities [to] maintain or increase carbon stocks on forested land relative to baseline levels of carbon stocks.”⁶⁹ Last, an avoided conversion project prevents the “conversion of forestland to a non-forest land use by dedicating the land to continuous forest cover through a conservation easement or transfer to public ownership.”⁷⁰

The Forest Protocol has specific requirements for both the additional and permanence elements of a forest-based offset. The baseline from which to measure additionality includes “all laws, regulations, and legally-binding commitments applicable to the Project Area at the time of the project’s initiation that could affect standing live carbon stocks.”⁷¹ Legal constraints also include government regulations that may influence zoning, restrictions, and stocking standards, as well as forest practice rules, and other legally binding requirements (including covenants, easements, and conservation plans).⁷²

The Forest Protocol’s permanence requirement specifies that the sequestered carbon must be stored for “at least 100 years.”⁷³ This includes monitoring, reporting, and verification throughout the 100 years, execution of a Project Implementation Agreement obligating the forest owner to “retire CRTs [carbon offset credits] to compensate for GHG reductions and removals,” and the maintenance of a “Buffer Pool to provide insurance against reversals of GHG reductions and removals due to unavoidable causes.”⁷⁴ The Buffer Pool system will be discussed further in a Part IV.B.

E. Western Climate Initiative Standards

Forest-based offsets that satisfy California’s standards will be incorporated into a regional cap-and-trade market through the Western Climate

66. See Forest Protocol, *supra* note 6, at 3.

67. *Id.* at 4–5.

68. *Id.* at 4.

69. *Id.* at 5.

70. *Id.*

71. *Id.* at 53.

72. *Id.* at 54. In California, the baseline must also include silvicultural treatments or any requirements in the California Forest Practice Rules. *Id.* at 53–54.

73. *Id.* at 7.

74. *Id.* at 62.

Initiative (“WCI”).⁷⁵ The WCI is a coalition of four Canadian provinces and California, whose purpose is to create a regional cap-and-trade market for voluntary and mandatory emission reductions.⁷⁶ California’s participation in the WCI market is in lieu of creating its own exclusive cap-and-trade market.⁷⁷ Accordingly, California must comply with the WCI’s standards in order to participate in the regional market.

The WCI created an Offsets Committee (“Committee”) for the express purpose of developing standardized guidelines for the regional market.⁷⁸ The WCI defined offsets as tradable “compliance instruments.”⁷⁹ The broad definition was purposeful,⁸⁰ in order encompass each member’s unique offset standards. The Committee rejected specific measures for determining permanence and decided to leave regulatory details up to each jurisdiction.⁸¹

The Committee does; however, requires the project owner provide a “contingency plan which addresses how, in the event of a reversal that is the result of proponent intention or negligence, any affected offset certificates will be replaced.”⁸² This contingency plan must be enforceable regardless of the proponent’s solvency or ownership interest in the project.⁸³ The WCI’s contingency requirement will be satisfied through the Forest Protocol’s Buffer Pool, discussed further in Part IV.B.

The Committee additionally requires that the offset project owner legally own the GHG reduction resulting from the project.⁸⁴ The Committee specifically contemplated that carbon offsets may include a property right, and in the absence of such property right, requires the jurisdiction to provide an explanation of the applicable legal framework.⁸⁵ The Committee will consider differing legal frameworks when finalizing the program’s regulations.⁸⁶

75. See Resolution 11-32, *supra* note 3.

76. History, WESTERN CLIMATE INITIATIVE, <http://www.westernclimateinitiative.org/history> (last visited Feb. 28, 2012).

77. Scoping Plan, *supra* note 4, at ES-8, 30.

78. Offset Committee Task Group 3, *Offset Protocol Review*, WESTERN CLIMATE INITIATIVE 1 (April, 2010) [hereinafter WCI Review], available at <http://www.westernclimateinitiative.org/component/repository/Offsets-Committee-Documents/WCI-Review-of-Existing-Offset-Protocols/>.

79. *Offset System Essential Elements Final Recommendations Paper*, WESTERN CLIMATE INITIATIVE 2 (July, 2010) [hereinafter WCI Recommendations], available at http://www.westernclimateinitiative.org/archived_comments/Offsets%20Essential%20Elements%20Final%20Recommendations.277.pdf.

80. WCI Review, *supra* note 78, at 11.

81. *Id.* at 16.

82. WCI Recommendations, *supra* note 78, at 6.

83. *Id.*

84. *Id.* at 3.

85. *Id.* at 12.

86. *Id.*

F. Other GHG Reduction Frameworks

There are many other GHG reduction frameworks, including the Kyoto Protocol, the Regional Greenhouse Gas Initiative (“RGGI”), and the Midwest Greenhouse Gas Reduction Accord (“Accord”). California is not a member of any of these reduction systems, and they are not directly relevant to the creation of a Californian carbon-sequestration right. The United States has chosen not to ratify the Kyoto Protocol, and California cannot do so unilaterally.⁸⁷ In addition, the Kyoto Protocol’s Clean Development Mechanism project only incorporates forest-based offsets in developing countries, whereas California has no such restriction.⁸⁸ The RGGI is a mandatory system with a GHG reduction goal that applies only to power plants, whereas AB 32 requires GHG reductions from many more firms.⁸⁹ Last, the Accord plans to be compatible with the WCI, of which California is already member.⁹⁰

III. Challenges Facing Current Forest-Based Offset Projects

Forest-based offsets face a unique mix of challenges, but some stand above the rest. Primary environmental challenges include ensuring permanence and avoiding leakage; regulatory challenges include verification and enforcement; and legal challenges revolve around the inadequacy of conservation easements and timber rights. These challenges are so intertwined that, without a sufficient legal framework to support forest-based offset projects, they may become too much to overcome.

A. Environmental Challenges

The unharnessed power of nature affects forests on a daily basis, subjecting forest-based offset projects to uncertainties that may be beyond human control. This creates a challenge to ensuring permanence and avoiding leakage. A carbon sequestration right may not be able to affect the elements but will give offset project owners the ability to cope with and potentially avoid reversibility and leakage.

Permanent storage of carbon is essential for the success of an offset project; however, it is difficult to achieve because sequestration is subject to

87. *Id.*

88. *Id.*

89. *Id.*

90. *Midwestern Greenhouse Gas Reduction Accord*, CORE: CARBON OFFSET RESEARCH & EDUCATION, <http://www.co2offsetresearch.org/policy/MGGRA.html> (last visited April 23, 2011).

reversibility.⁹¹ Reversibility is the concept that carbon may not stay permanently stored for the time necessary to achieve an emission reduction.⁹² Natural reversals may occur due to natural disasters such as forest fires or severe insect infestations. Reversals can also occur due to events such as logging or human-caused fires. Right now, there is no way to guarantee that presently safe forest-offset projects will not be harmed in the future.⁹³

Avoiding leakage is an additional challenge to the success of an offset project. Avoiding leakage means that an offset project does not “simply displace emissions from within the project area to areas outside the project boundaries, thereby destroying the environmental integrity of the effort.”⁹⁴ The Forest Protocol specifically identifies timber harvesting as an area of concern and recognizes the likelihood that a forest-based offset project may merely shift harvesting from the project area to other forestlands.⁹⁵ If an offset project displaces rather than removes or reduces emissions, it does not actually offset any emissions.

B. Regulatory Challenges

In order for a forest-based offset to be marketable within a cap-and-trade market, it must satisfy applicable regulations.⁹⁶ The Forest Protocol requires that offset projects be both verifiable and enforceable.⁹⁷ Verification and enforcement are difficult to achieve due to intertwined legal interests between the forest owner and the offset project owner. A carbon sequestration right will be able to clarify ownership interests and thus alleviate regulatory headaches due to uncertain ownership interests.

Verification is necessary to determine the baseline from which to measure sequestration.⁹⁸ After the offset project begins, carbon sequestration must be verified every six years, and if a project is not verified, it is considered

91. Rômulo Silveira da Rocha Sampaio, *Seeing the Forest for the Treaties: The Evolving Debates on Forest and Forestry Activities Under the Clean Development Mechanism Ten Years After Kyoto*, 31 *FORDHAM INT'L L.J.* 634, 672 (2008).

92. See Cullet, *supra* note 42, at 117 (“Sustainability cannot accommodate measures with reversible effects because the mitigation of climate change is a long-term objective that should not, and cannot, stop after ten, twenty or even ninety-nine years simply because this represents the end of a project.”).

93. William Boyd, *Ways of Seeing in Environmental Law: How Deforestation Became an Object of Climate Governance*, 37 *ECOLOGY L.Q.* 843, 870-71 (2010).

94. *Id.* at 871.

95. Forest Protocol, *supra* note 6, at 21.

96. Applicable regulations include standards set by the Western Climate Initiative, which incorporate the Forest Protocol, as well as any additional requirements set forth by AB 32.

97. Forest Protocol, *supra* note 6, at 3.

98. *Id.* at 73.

terminated.⁹⁹ A main obstacle to verification is the scope of the offset project. For example, if a project owner only has a right to the trees, none of the sequestration occurring in the vegetation and shrubs would count toward the offset. Initial and subsequent verifications are also subject to question if the project owner does not even have a right to the sequestered carbon in the first place.

Enforcement of offset projects is challenging for regulators as well as project owners. Regulators need to have the ability to protect stored carbon from actions (or omissions) by the project owner that may diminish the emission reduction. Regulators and project owners need to have the ability to do the same against third parties. The project owner should have a right to the sequestered carbon in order to have standing to enjoin actions that harm the sequestration process or the stored carbon. Unfortunately, it is presently unclear whether a right to sequestered carbon even exists within all-inclusive fee ownership.¹⁰⁰ If such a right does exist, problems may arise regarding which party holds it, because within the offset context, fee ownership is often split through the transfer of timber rights and use of conservation easements.¹⁰¹

C. Legal Challenges

Proper legal tools are necessary to harness the natural uncertainty involved in forest-based offset projects and manage regulatory problems. The two most prominent legal tools currently supporting offset projects are conservation easements and timber rights. Neither of these provides sufficient rights to ensure that project owners can cope with reversibility or leakage. They also do nothing to assist verification of sequestered carbon, and give neither project owners nor government agencies the tools to enforce sequestration. Their shortfalls have the potential to hinder the development and use of forest-based offsets.

1. Conservation Easements

Conservation easements are the preferred real property method for securing forest-based offset projects; however, they do not appropriately protect offset projects.¹⁰² California's conservation easement law defines a conservation easement as a limitation binding upon successive owners with the purpose of

99. *Id.* at 11.

100. *See supra* note 15.

101. Forest Protocol, *supra* note 6, at 5.

102. The Forest Protocol requires that a conservation easement support the offset project. It is unclear from the Forest Protocol what the requirement that the conservation easement "support the project" means. It is possible that it means an express reference to the offset project in the conservation easement is required. Alternatively, it may mean that, while the conservation easement need not expressly permit the carbon offset project, neither may it prohibit the project. *Id.* at 16.

retaining land in its natural state.¹⁰³ It is “an interest in real property voluntarily created and freely transferable in whole or in part” and is “perpetual in duration.”¹⁰⁴

First, conservation easements do not address carbon sequestration. Through a conservation easement, land is transferred to a land trust (or government agency) for the purpose of conserving the land.¹⁰⁵ The land trusts holds the easement for the benefit of the public,¹⁰⁶ not for the benefit of the firm using the offset to reduce its emissions. Currently, conservation easements support forest-based offset projects merely through a “latent” right because such easements do not include language protecting carbon sequestration.¹⁰⁷

Second, courts are likely to scrutinize conservation easements due to common law hostility toward permanent land restrictions.¹⁰⁸ None of California’s eighteen statutory easements mentions or even alludes to carbon sequestration.¹⁰⁹ The closest easement language includes the “right of taking water, wood, minerals, and other things” or the right of “receiving air, light, or heat from or over, or discharging the same upon or over land . . .”¹¹⁰ Fitting a carbon sequestration right into either of those definitions is problematic. Thus, a carbon sequestration right must explicitly provide for a right in stored carbon to ensure that, even under close scrutiny, courts will respect the quasi-permanent land restriction necessary to satisfy offset requirements.

Although the conservation easement statute states that the characteristics of a conservation easement are those specified in the instrument creating the easement,¹¹¹ it is notable that it does not specify that the *right* transferred is that specified in the easement. Further, all interest not explicitly transferred remain

103. CAL. CIV. CODE § 815.1 (West 2011). “For the purposes of this chapter, “conservation easement” means any limitation in a deed, will, or other instrument in the form of an easement, restriction, covenant, or condition, which is or has been executed by or on behalf of the owner of the land subject to such easement and is binding upon successive owners of such land, and the purpose of which is to retain land predominantly in its natural, scenic, historical, agricultural, forested, or open-space condition.”

104. CAL. CIV. CODE § 815.2 (West 2011).

105. James L. Olmstead, *Capturing the Value of Appreciated Development Rights on Conservation Easement Termination*, 30 ENVIRONS ENVTL. L. & POL’Y J. 39, 50 (2006) [hereinafter Olmstead Capturing].

106. *Id.*

107. Olmstead Carbon Dieting, *supra* note 43, at 135.

108. Kenison, *supra* note 55, at 67. One commenter has suggested that it is intended as the sole means by which such easements can now be created. See Comment, *Open Space Procurement Under Colorado’s Scenic Easement Law*, 60 U. Colo. L. Rev. 383 (1989).

109. CAL. CIV. CODE 801 (West 2011).

110. CAL. CIV. CODE § 801(5), (8) (West 2011).

111. CAL. CIV. CODE § 815.2(d) (West 2011).

with the owner of the land.¹¹² Even if liberally construed,¹¹³ interpreting the statute to create and protect a carbon sequestration right would be a stretch.

Third, conservation easements do not sufficiently protect a forest-based offset as a financial service.¹¹⁴ California's conservation easement statute begins with a statement of public purpose in support of the preservation and conservation of important environmental assets.¹¹⁵ This makes it clear that in California, conservation easements protect conservation values, not the economic service provided through a forest-based offset.¹¹⁶ Carbon sequestration is a service and is paid for and traded in markets as an economically valuable entity. The price paid is for sequestration, rather than conservation.¹¹⁷ Thus, under a conservation easement, if there were a situation pitting carbon sequestration against a traditional conservation value, conservation would prevail to the detriment of the offset project.¹¹⁸

The continued use of conservation easements to support forest-based offset projects may make determining who owns certain rights difficult. A clearly delineated carbon sequestration right can protect a forest-based offset project even if another form of conservation or financial project is on the same land.

2. Timber Rights

In addition to conservation easements, timber rights have been used to support forest-based offsets. Timber rights are a common form of transferring ownership of one of the most prominent elements of a forest, the trees. Under California law, timber rights are included in fee ownership,¹¹⁹ thus the fee owner

112. CAL. CIV. CODE § 815.4 (West 2011).

113. CAL. CIV. CODE § 816 (West 2011).

114. See generally Laurie Ristino, *Conservation Easements in an Ecosystem Services Age*, 24 Nat. Resources & Env't 56 (Winter 2010).

115. CAL. CIV. CODE § 815 (West 2011). "The Legislature finds and declares that the preservation of land in its natural, scenic, agricultural, historical, forested, or open-space condition is among the most important environmental assets of California. The Legislature further finds and declares it to be the public policy and in the public interest of this state to encourage the voluntary conveyance of conservation easements to qualified nonprofit organizations."

116. See Ristino, *supra* note 114, at 57 (discussing the shortfalls of conservation easements).

117. *Id.*

118. Providing special protection for carbon sequestration may have unintended consequences and harm other ecosystem services, animals, or conservation goals.

119. In California, property includes "all mines, minerals, and quarries in the land, all standing timber whether or not belonging to the owner of the land, and all rights and privileges appertaining thereto." CAL. REV. & TAX. CODE § 104(b) (West 2011).

may transfer that right to a third party (for example, an offset project owner).¹²⁰

California timber rights include “standing timber,” and do not purport to include carbon sequestration or soil, grass, and shrubs.¹²¹ If only timber rights secure an offset project, then carbon sequestration is not actually secured.¹²² If an offset project does not include the right to the item it purports to sell, then it cannot sell it.

Even if timber rights include carbon sequestration, trees are responsible for less than half of a forest’s carbon sequestration.¹²³ Equating carbon sequestration with timber rights is thus highly problematic. An explicit carbon sequestration right would eliminate the murky problems that occur when carbon sequestration is secured merely by timber rights.

IV. The Case For a Carbon Sequestration Right

A carbon sequestration right would avoid the environmental, regulatory, and legal challenges facing offset projects before they affect the cap-and-trade market. The most effective form for this right is a real property easement. A carbon sequestration easement would help ensure permanence, clarify ownership of stored carbon, and assist enforcement efforts. It would also promote market security and provide a model for other jurisdictions.

A. Basic Characteristics of a Carbon Sequestration Right

A carbon sequestration right encompassing both the sequestration and storage of carbon would support the marketability of forest-based offsets.¹²⁴ There are two main options for this type of right: personal property or real property.

A personal property right would arise from a right in the initial emission allowance. For example, in Australia, under the Carbon Pollution Reduction Scheme, permits are considered a personal property right.¹²⁵ For this to occur in California’s scheme, the carbon offset credits that the Reserve issues to each project would need to constitute a personal property right. However, unlike Australia, neither AB 32 nor the Scoping Plan provide for a right in carbon offset

120. A non-fee owner can transfer and hold title to standing timber. *See, e.g.,* *Sears v. Ackerman*, 138 Cal. 583 (1903).

121. *Id.*

122. Roundtable Discussion, *supra* note 17, at 3–4.

123. *See supra* note 7.

124. Michelle Passero, *The Nature of the Right of Interest Created by a Market for Forest Carbon*, 3 CARBON & CLIMATE L. REV. 248 (2008).

125. *Id.* at 57. (“[T]he CPRS goes a step further in the regulatory treatment of emission rights in that it explicitly refers to the allowance holder’s right to compensation in the event of expropriation of its emission rights by the Government.”).

credits or emission allowances.¹²⁶ California affirmatively made this decision to avoid potential takings issues if the state altered a firm's emission allowance.¹²⁷ Accordingly, a personal property right would be an inappropriate form for a carbon sequestration right.

A real property right is desirable because the carbon sequestration process is included in forest management, and forest management is an interest in real property.¹²⁸ In addition, a real property right would provide stronger enforcement mechanisms than contracts¹²⁹ and may help standardize enforcement proceedings brought to protect offset projects.¹³⁰

As an easement, a carbon sequestration right would support sequestration as a conservation right founded as an interest in real property.¹³¹ It must encompass carbon stored not just in trees but also in vegetation, shrubs, grass, and soil.¹³² The right must also include an entitlement to currently stored carbon as well carbon stored in the future¹³³ and last for at least 100 years.¹³⁴ The easement should provide both the project owner and the state secure standing and preserve the carbon sequestration and additionally give the project owner a right to access the property to foster sequestration and storage.¹³⁵

B. Permanence

One of the most prominent benefits of a carbon sequestration easement would be the support of the permanence element of an offset project.¹³⁶ Under the Forest Protocol, an offset project must exist for roughly five generations.¹³⁷ In the absence of a property right, contracts are commonly used as the legal framework to support an offset. Unfortunately, contracts are poor tools to support offset projects because they unlikely to last for 100 years and have

126. Scoping Plan, *supra* note 4, at 110.

127. Passero, *supra* note 124, at 253.

128. Roundtable Discussion, *supra* note 17, at 3.

129. *See* Passero, *supra* note 124, at 250–52 (comparing contract law with real property law).

130. *See* Roundtable Discussion, *supra* note 17, at 4–5 (discussing the benefits of a carbon sequestration right).

131. E-mail from Michelle Passero, Senior Climate Policy Advisor, The Nature Conservancy to Carbon Rights Discussion Group (April 11, 2011) (on file with author).

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.*

136. Roundtable Discussion, *supra* note 17, at 3.

137. Forest Protocol, *supra* note 6, at 7.

limited remedies.¹³⁸ Real property instruments are more likely than contracts to last for 100 years because they have the ability to run in perpetuity until termination and thus bind present and future landowners and activities.¹³⁹

In addition, an offset project owner should not be able to efficiently breach a contract and abandon the project. With a contract, parties can modify remedies.¹⁴⁰ Contracts are also susceptible to vague terms, and intentional or negligent drafting.¹⁴¹ Property right remedies, however, are more secure than contractual remedies. Easements have strong and clear remedies because history has required heightened levels of security in order to facilitate market transfers.¹⁴² Weak remedies create uncertainty that in turn would increase risk and thus increase price, making the property less desirable.¹⁴³ A carbon sequestration easement would also specify forms of remedies in order to ensure the project is permanent.

C. Ownership and Enforceability

Clear recognition of a carbon sequestration easement will help secure the “title to carbon” through verification of reductions, execution of contracts, and enforcement of the offset.¹⁴⁴ Specifically, it would clarify who owns the sequestered carbon, versus the trees or the underlying land.¹⁴⁵ Under the Forest Protocol, a forest-based offset is not approved unless the project owner also owns the right to sequester the carbon.¹⁴⁶

Often times, multiple parties have property interests within the same forest. Even a fee owner may be restricted by covenants and easements that give an interest in the property to a third party.¹⁴⁷ Currently, the Reserve decides who holds the required rights if the fee interest is fractured.¹⁴⁸ In “some cases, the Reserve may determine that an entity or individual that is not the owner in fee nonetheless does have a complete and perpetual interest in the trees on the property.”¹⁴⁹

138. E-mail from Michelle Passero, *supra* note 131.

139. Roundtable Discussion, *supra* note 17, at 3–4.

140. Tamar Frankel, *Essay: The Legal Infrastructure of Markets: The Role of Contract and Property Law*, 73 B.U.L. REV. 389, 400 (1993).

141. *Id.*

142. *Id.* at 401.

143. *Id.*

144. Passero, *supra* note 124, at 252.

145. *Id.*

146. Forest Protocol, *supra* note 6, at 5–10. The Forest Owner must sign an “Attestation of Title” upon each project verification.

147. Forest Protocol, *supra* note 6, at 5.

148. *Id.*

149. *Id.* at 5–7.

This essentially means that the Reserve is equating a right to control the trees with the right to sequester carbon, perhaps to reflect California's timber rights. Reliance on timber rights, as previously discussed, is inherently problematic.¹⁵⁰ In addition to the shortcomings of timber rights, it is troubling that the Reserve is subjectively determining ownership interests in carbon. Ownership should be recognized through law; its existence should not depend upon the discretion of a governmental agency. The use of a carbon sequestration easement would provide chain of title that would combat these problems and assist enforcement.

D. Market Security

Without clear ownership rights and a solid legal framework, offset projects are insecure, and firms are therefore hesitant to them as a tool to reduce GHG emissions. In effect, the lack of a secure offset framework has the ability create a market barrier to the successful implementation of AB 32.¹⁵¹

The Chicago Climate Exchange ("CCX") provides a direct example of how a lack of market security can harm a cap-and-trade market. The CCX was North America's "largest and longest running greenhouse gas emission reduction program."¹⁵² Within the CCX, over 300 members volunteered to reduce GHG emissions through 2010.¹⁵³ Members commonly traded forest-based offsets as standardized communities within the market.¹⁵⁴

Some of the problems that prevented members from renewing their commitment to voluntary reductions past 2010 arose from CCX's "relaxed" land restriction requirements for forest-based offset projects.¹⁵⁵ Within CCX, only restrictive covenants supported forest-based offsets because they were easier to alter than conservations easement.¹⁵⁶ It took "a large leap of faith" for CCX's members to believe that the restrictive covenants and relaxed regulations would actually result in a permanent carbon sequestration.¹⁵⁷ In fact, now that CCX is closed, there is no enforcement mechanism to ensure that the previously traded

150. See *supra* Part III.C.

151. See ETAAC Report, *supra* note 5, at 4.

152. See Overview, CHICAGO CLIMATE EXCHANGE, <http://www.chicago-climatex.com/content.jsf?id=23> (last visited on April 23, 2011) [hereinafter CCX Overview].

153. Kenison, *supra* note 55, at 64. See also CCX Overview, *supra* note 147 ("From 2003 through 2010 CCX operated as a comprehensive cap and trade program . . . [i]n 2011 CCX launched the Chicago Climate Exchange Offsets Registry Program.")

154. Kenison, *supra* note 55, at 63.

155. *Id.* at 66.

156. *Id.* at 66–67.

157. *Id.*

offset projects continue to sequester carbon.¹⁵⁸

The CCX's requirements were seriously flawed when it came to actually reducing GHG emissions. It is imperative that California does not merely purport to reduce emissions but actually does. A carbon sequestration easement would ensure that offset projects are legally enforceable over long periods as well as clarify ownership and in turn enhance the transferability of forest-based offsets. CCX's problems highlight the difference between voluntary and mandatory markets. The mandatory nature of AB 32 makes the difference, and in order for it to be successful, firms must have faith in the market.

E. Model for Future Legislation

In addition to the practical benefits of a carbon sequestration easement, such a right would provide a model for other jurisdictions to copy when considering their own GHG emission reduction plans. The passage of AB 32 was a historic step, which "helped put climate change on the national agenda, and [spurred] action by many other states."¹⁵⁹ In addition, as a member of the WCI, California is in a unique position to affect state, federal, and even Canadian legislation concerning carbon rights within the offset framework.

Especially within a multi-jurisdiction context (whether it be national, regional, or international), it would clearly be beneficial to have a singular framework supporting all forest-based offsets, regardless of where the land is situated. Different standards within the same market create market insecurity. For example, in the European Union, each country enacted its own regulations under their cooperative ETS Directive, resulting in multiple legal frameworks.¹⁶⁰ This left the private sector in fear of the resulting E.U. market.¹⁶¹ If other states, the federal government, or even international governments enact a similar carbon sequestration, the consistent legal framework would hopefully avoid the fear plaguing the E.U. market.

V. The Scope of a Carbon Sequestration Right

A carbon sequestration right would only apply to offset projects within California's jurisdiction. It would not apply to offset projects located in other WCI member's territories, other states, and other countries. Even within California's boundaries, offset projects on federal or tribal land would not benefit from a carbon sequestration right.

The most efficient way to expand the scope of a carbon sequestration right

158. *Id.* at 65. See also *CCX Exchange Offsets and Exchange Early Action Credits*, CCX CONFIDENTIAL, at § 9.8.4.1, app. 9.2Aiii (2004), available at http://www.scs-certified.com/docs/CCX_Rulebook_Chapter09_OffsetsAndEarlyActionCredits.pdf.

159. Scoping Plan, *supra* note 4, at ES-1.

160. Wemaere, *supra* note 10, at 49–50.

161. *Id.*

would be for other states, the federal government, and other countries to enact their own carbon sequestration right legislation. Until other states and countries enact similar legislation, an insurance system can bridge the gap in between offset projects in different jurisdictions. Under an insurance system, an offset project not supported by a form of carbon sequestration right would be required to have more insurance than an otherwise supported offset project.

A. Offset Projects in Other States and Countries

California does not have an interest in or jurisdiction to affect title to real property outside its borders.¹⁶² California's courts have recognized that "jurisdiction to affect the title to real estate by a judgment in rem, or directly against the thing itself, exists only in the courts of the state wherein the land is situated."¹⁶³ A carbon sequestration right would be an interest in land; therefore, a California statute affecting property rights would not apply in other states or countries.

B. Federal Land within California

The United States owns roughly 45 percent of the land in California.¹⁶⁴ These holdings are normally referred to as "enclaves."¹⁶⁵ Case law developed over the last century clearly recognizes federal jurisdiction over these enclaves.¹⁶⁶ Once federal jurisdiction vests, it cannot be rescinded without congressional action,¹⁶⁷ because "[s]tates do not have authority to legislate for areas under the exclusive legislative jurisdiction of the United States."¹⁶⁸

In 1954, the Department of Justice recognized that federal-state jurisdictional relations were in "a confused and chaotic state" and commissioned an interdepartmental committee to thoroughly study federal

162. 33 CAL. JUR. 3d. *Family Law* § 758 (West 2011).

163. *Taylor v. Taylor*, 192 Cal. 71, 76 (1923).

164. See *Printable Maps: Federal Lands and Indian Reservations*, NATIONAL ATLAS (Feb. 3, 2011), <http://www.nationalatlas.gov/printable/fedlands.html>. For California, see *California: Federal Lands and Indian Reservations*, NATIONAL ATLAS (2003), <http://www.nationalatlas.gov/printable/images/pdf/fedlands/CA.pdf>.

165. 91 C.J.S. *Continued Operation of State Laws* § 15 (2011).

166. Lowell H. Becraft, Jr., *Federal Jurisdiction*, CONST. SOC'Y, <http://www.constitution.org/juris/fedjur1.htm> (last visited April 23, 2011).

167. *Id.*

168. INTERDEPARTMENTAL COMMITTEE FOR THE STUDY OF JURISDICTION OVER FEDERAL AREAS WITHIN THE STATES, *JURISDICTION OVER FEDERAL AREAS WITHIN THE STATES 5-6* (1957) [hereinafter *Committee Report*], available at http://www.cspoa.org/library/convention_packet_2012/EISENHOW/Jurisdiction%20Over%20Federal%20Areas%20Within%20The%20States.pdf.

legislative jurisdiction.¹⁶⁹ The committee concluded that, even though federal land is within state boundaries, it “does not take from Congress the power to . . . prescribe the conditions upon which others may obtain rights in them, even though this may involve the exercise of . . . police power.”¹⁷⁰ The Constitution granted power to the federal government over its land, thus permitting it to prevent interference by the states.¹⁷¹

The basis for this jurisdiction is in Article I, Section 8, Clause 17 of the Constitution.¹⁷² Out of this clause grew the notion that the federal government holds property for the benefit of all states and thus should not be subject to the jurisdiction and laws of any particular state.¹⁷³ Although this clause was not originally interpreted in a uniform fashion¹⁷⁴ many states enacted statutes allowing the federal government to acquire state land, the effect of which was “implementing clause [seventeen] and thereby vesting in the United States exclusive legislative jurisdiction over all lands acquired by it in the States.”¹⁷⁵ Under these statutes, states relinquished control over federal enclaves.¹⁷⁶

Over time, the federal government relinquished some jurisdictional control, allowed states to tax on federal lands, and exercise some forms of civil and criminal regulation.¹⁷⁷ However, the federal government has never allowed a state to control federal property rights, states are not even allowed to regulate wildlife on federal lands, let alone the land itself.¹⁷⁸ A California carbon sequestration right would therefore not apply on federal enclaves within the state.

C. Tribal Land

Similar to the federal government, Indian tribes are not subordinate to

169. *Id.* at iv. (“On my recommendation, and with your approval, there was organized on December 15, 1954, an interdepartmental committee to study problems of jurisdiction related to federally owned property within the States.”).

170. *Id.* at 255.

171. *Id.* at 260.

172. U.S. CONST. art. I, § 8, cl. 17; *see also* Committee Report, *supra* note 168, at 132–136 (the California Constitution reserves state jurisdiction from the federal government in situations regarding water on lands subsequently acquired by the federal government).

173. Committee Report Part I, *supra* note 168, at 7.

174. *Id.* at 9.

175. *Id.*

176. *Id.* at 10. (“[T]he transfer to the United States of exclusive legislative jurisdiction over an area has the effect, speaking generally, of divesting the State and any governmental entities operating under its authority of any right to tax or control private persons or property upon the area.”).

177. *Id.*

178. *National Audubon Society v. Davis*, 144 F. Supp. 2d 1160 (N.D. Cal. 2000), *rev’d in part on other grounds*, 307 F.3d 835 (9th Cir. 2002).

state governments.¹⁷⁹ However, tribes often do not hold title to their own land; the United States holds the majority of tribal land in trust for the benefit of the tribe.¹⁸⁰ A statutory definition of tribal land includes “any tract, or interest therein, that the United States holds in trust status for the benefit of a tribe or individual Indian” and “land the title to which is held by an individual Indian or a tribe and which can only be alienated or encumbered by the owner with the approval of the Secretary because of limitations contained in the conveyance instrument pursuant to federal law.”¹⁸¹

Accordingly, both federal and tribal laws govern easements on tribal land.¹⁸² Under federal law, leases on tribal land are limited to twenty-five years, with an option to extend for an additional twenty-five years, subject to approval of the Bureau of Indian Affairs (“BIA”).¹⁸³ The BIA must also approve easements lasting longer than seven years.¹⁸⁴ These restrictions are extra obstacles an offset project owner must satisfy in order to ensure a project on tribal land is permanent.

State interest in governing tribal land is normally too minimal to compete with otherwise applicable federal law.¹⁸⁵ However, if there is a strong enough interest, a state may regulate tribal land.¹⁸⁶ Conservation of state resources has previously been held to be an interest strong enough to interfere with tribal rights.¹⁸⁷ Carbon sequestration easements are meant to support the marketability of forest-based offset projects; conservation is at best a secondary goal. As such, it seems unlikely that a court would consider a carbon

179. See e.g. *Legislator’s Handbook*, 2011, MONTANA LEGISLATURE 5 (Dec. 12, 2010), <http://leg.mt.gov/css/For-Legislators/Publications/legislator%20handbook.asp> (“Indian tribes have the right to develop their own form of government and to establish their own civil and criminal laws.”).

180. National Indian Forest Resources Management Act, 25 U.S.C. § 3120 (West 2011) (“Nothing in this title shall be construed to diminish or expand the trust responsibility of the United States toward Indian forest lands, or any legal obligation or remedy resulting therefrom.”). There is also restricted fee land, where the tribe holds title but the land cannot be alienated, and fee land purchased by tribes, where the tribe acquires the land under statutory authority. *Tribal and Indian Land*, TRIBAL ENERGY AND ENVIRONMENTAL INFORMATION CLEARINGHOUSE, <http://teeic.anl.gov/triballand/index.cfm> (last visited April 23, 2011).

181. 25 C.F.R. 162.101 (West 2012).

182. Stephen P. Kelly et al., *Lex Helius: The Law of Solar Energy: Tribal Laws and Land Issues*, AGRICULTURAL MARKETING RESOURCE CENTER 2, http://www.agmrc.org/media/cms/Tribal_Laws_and_Land_Issues_F3057C0C07496.pdf (last visited April 23, 2011).

183. 25 U.S.C. § 415 (West 2011).

184. 25 U.S.C. § 81 (West 2011).

185. Jane Marx et al., *Tribal Jurisdiction Over Reservation Water Quality and Quantity*, 43 S.D. L. REV. 315, 340–41 (1998).

186. See generally 41 AM. JUR. 2d. *Indians; Native Americans* § 46 (2011).

187. *Id.*

sequestration easement paramount to federal law, especially because a preemption analysis must be determined with the goal of tribal self-governance in mind.¹⁸⁸

Even if a carbon sequestration easement could be considered for the primary benefit of conservation, environmental regulation on tribal land has generally not been left up to states. In *Washington Department of Ecology v. EPA*,¹⁸⁹ the court affirmed the EPA's rejection of Washington Department of Ecology's request to regulate activities on tribal lands under the Resource Conservation and Recovery Act.¹⁹⁰ The court determined that states could not exercise jurisdiction over tribal land in the absence of express Congressional intent.¹⁹¹ This decision laid the framework "for a conclusive determination that states are pre-empted even from environmental regulation of non-Indians within Indian country."¹⁹² Therefore, regardless of the primary purpose of a carbon sequestration easement, it is practically impossible to apply a California statutory right on tribal land.

D. Expanding the Scope

Although a carbon sequestration right is limited in scope, a cap-and-trade market system can still incorporate offset projects in every jurisdiction. The most direct way to expand the scope is to encourage other jurisdictions to adopt a similar carbon sequestration right. The more practical way to incorporate multi-jurisdiction offset projects would be through an insurance program that rates risk based on the nature of the legal framework supporting the offset project.

1. Codifying a Federal or Tribal Statute

The most direct way for a carbon sequestration right to apply on federal land would be pursuant to a federal statute. A federal statute would also apply to the land the federal government holds in trust for the benefit of tribes.¹⁹³ A federal carbon sequestration right would likely be codified around the current conservation easement statute, in Chapter 7, Section 1997 of the United States Code.¹⁹⁴ In the alternative to a federal right, tribes are sovereign and could

188. Marx, *supra* note 185, at 316.

189. 752 F.2d 1465 (9th Cir. 1985).

190. *Id.*

191. *Id.* at 1469-70.

192. Marx, *supra* note 185, at 342.

193. National Indian Forest Resources Management Act, 25 U.S.C. § 3104 (West 2011).

194. 7 U.S.C. § 1997 (West 2011).

adopt a carbon sequestration right within tribal law.¹⁹⁵ Tribal enactment would also cover land not held by the federal government.

2. Insurance Contributions Determined by Legal Support

Regardless of the use of a carbon sequestration right, there is an ever-present risk of loss inherent in an offset project.¹⁹⁶ Insurance is therefore necessary to protect the project's promised emission reduction from human or natural destruction that may hinder the carbon sequestration and storage.¹⁹⁷ Basing insurance contributions on an offset project's risk would help integrate multi-jurisdiction projects into a singular market.

Unfortunately, insurance companies do not yet provide standard policies for offset projects.¹⁹⁸ An alternative form of insurance is a "back-up forest."¹⁹⁹ Under this form of insurance, the project owner splits the forest into two unequal parts. The larger becomes the actual offset project, and the smaller becomes the back-up forest. Like the offset project, the back-up forest is managed to sequester and store carbon to reduce and remove emissions.²⁰⁰ If the offset project is harmed, the back-up forest's emission reductions are credited to the offset project.²⁰¹ For example, under the CCX rules, the back-up forest was equal to 20 percent the entire forest, and its emission reductions were credited to the offset project if it failed to meet its reduction goal.²⁰²

In California, the Forest Protocol requires project owners to contribute a portion of the offset project's carbon-offset credits to a Buffer Pool.²⁰³ If an unavoidable reversal of carbon sequestration or storage occurs, the Reserve removes the equivalent amount of carbon-offset credits from the Buffer Pool and credits them to the offset project.²⁰⁴ The Buffer Pool holds carbon offset credits in what is essentially an insurance account for all offset projects.²⁰⁵

195. Tribes even have authority to regulate non-Indian owners on their land. In *Montana v. United States*, 450 U.S. 544, 565 (1981), the Court held that "Indian tribes retain inherent sovereign power to exercise some forms of civil jurisdiction over non-Indians on their reservations, even on non-Indian fee lands."

196. *Olmstead Carbon Dieting*, *supra* note 43, at 133–34.

197. *Id.*

198. *Id.* at 134.

199. A completely separate forest can include a portion of the forest that the actual offset project is on. For example, 90 percent of the forest may be used for the offset project, while 10 percent is the back-up forest.

200. *Olmstead Carbon Dieting*, *supra* note 43, at 133–34.

201. *Id.*

202. *Kenison*, *supra* note 55, at 65.

203. *Forest Protocol*, *supra* note 6, at 61.

204. *Id.* at 45–56. If the reversal was avoidable, then the owner must compensate by removing CRTs from its own Reserve account.

205. *Id.* at 67.

The Reserve calculates a project's Buffer Pool contribution by multiplying the total reduction goal by the risk level.²⁰⁶ The risk assessment is unique to each project.²⁰⁷ The Forest Protocol provides an example of a risk evaluation: If the Reserve issues an offset project ten carbon offset credits, and the project's risk rating is 10 percent, then nine carbon offset credits go to the owner's reserve account, and one credit goes to the Buffer Pool.²⁰⁸ The risk assessment is reviewed on a yearly basis.²⁰⁹ If the risk declines throughout the project's life, the Reserve may return carbon offset credits that were held in the Buffer Pool and vice versa if the risk increases.²¹⁰

Currently, the Reserve considers an offset project's risk level lower if the project owner simultaneously records a conservation easement with the offset project.²¹¹ The Reserve also contemplates that the use of alternate third-party insurance would lower the offset project's the risk level.²¹²

A carbon sequestration right could lower an offset project's risk level in a way similar to a conservation easement or an alternate form of third-party insurance. In fact, a carbon sequestration easement would functionally provide more security than a conservation easement. The use of such a right to secure an offset project should lower the risk level and in turn lower contributions to the Buffer Pool. An equivalent offset projects not supported by a carbon sequestration right would thus be required to contribute more to the Buffer Pool. Higher contributions may also encourage other jurisdictions to adopt a carbon sequestration right. Within a cap-and-trade system, like the WCI's proposed market, insurance contributions based on risk will facilitate the trade of offset projects located in every jurisdiction.

VI. Conclusion

A carbon sequestration right would support the use of forest-based offsets to facilitate the satisfaction of AB 32's emission reduction standards. Under AB 32, California will enter into a cap-and-trade market with Canadian provinces through the WCI. The WCI market will include only forest-based offsets that are verifiable, real, additional, and permanent. Firms participating in the market will be more willing to purchase these offsets when they are assured that a secure legal tool supports the underlying carbon sequestration and storage.

A conscientiously drafted and implemented carbon sequestration right will provide adequate legal support for forest-based offset projects. The right

206. *Id.* at 65.

207. *Id.* at 66.

208. *Id.* at 67.

209. *Id.*

210. *Id.*

211. *Id.* at 62.

212. *Id.*

must be based in real property, explicitly apply to both carbon sequestration and storage, last for 100 years, and clarify who owns present and future carbon reserves. A carbon sequestration easement will satisfy these requirements. The scope of this right is limited to offset projects located within California's jurisdiction; however, within a cap-and-trade market, an insurance system can help incorporate offset projects located in other jurisdictions. Under this system, risk-based insurance contributions will be lower for offset projects supported by a carbon sequestration right when compared to an equivalent project not supported by such a right. In addition to these suggestions, there is still much to be determined regarding the form and application of a carbon sequestration right; however, it is clear that such a right would be beneficial.