SOIL CARBON OFFSETS AND THE PROBLEM OF LAND TENURE: CONSTRUCTING EFFECTIVE CAP & TRADE LEGISLATION

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I. INTRODUCTION

I recently had the opportunity to travel to Copenhagen to attend the fifteenth meeting of the Conference of Parties under the United Nations Framework Convention on Climate Change. I was part of a delegation sent by the Iowa chapter of the United Nations Association, a group whose goal is to foster awareness of the UN and its activities. My primary goal was to study the role agriculture plays in climate change and possible solutions agriculture may present for reducing the effects of global climate change. The most interesting aspect of the conference was how much of the discussion had switched from not merely reducing emission rates from various industries, but how the world would react to the effects of climate change already set in motion and how to begin reversing some of its effects. Because agricultural soils have the potential to absorb and hold carbon that is currently in the atmosphere, an increased focus on adaptation and mitigation means agriculture should play an important role in any global climate accord.

Regarding America's efforts to reduce greenhouse gas emissions, the most popular option thus far has been a cap-and-trade system, in which total emissions are capped and those who cannot reduce emissions are forced to purchase offsets on the open market. This approach has been popular, because it is believed that this will be the cheapest method of lowering total emissions.[1] Creating such a market, and therefore the right to emit carbon, would be the largest

1. *See* Dallas Burtraw & Richard Sweeney, *Property Rights Created Under a Federalist Approach to Tradable Emissions Policy*, *in* PROPERTY RIGHTS AND LAND POLICIES: PROCEEDINGS OF THE 2008 LAND POLICY CONFERENCE 317, 317-18 (Gregory K. Ingram & Yu-Hung Hong eds., 2009).

distribution of property rights in over a century.[2] The distribution of these rights will be an important component of successful and politically acceptable carbon legislation.[3] Commentators have noted that agricultural interests must be included in any successful global climate change agreement,[4] and the same is true for any successful American legislation. In order to get enough votes to pass any kind of emissions legislation, representatives and senators from rural areas must be convinced that the legislation will not unduly burden the agricultural community.[5] "Soil carbon losses caused by agriculture account for a tenth of [the] total" carbon that has been emitted into the atmosphere by human activity since 1850.[6] Thus, it stands to reason that soil carbon sequestration should be an important part of any program aimed at reducing the level of atmospheric carbon.

There are currently bills in both Houses of Congress that call for a cap-and-trade system that would limit the amount of carbon dioxide various industries and companies would be allowed to emit.[7] Agriculture uses a large amount of diesel fuel and electricity to power equipment, and a large amount of natural gas is needed to produce nitrogen and other fertilizers.[8] A cap on these inputs could raise prices and cause a decrease in farm income.[9] In an effort to offset the increased costs of a cap-and-trade system, many in Congress are enthusiastic about the idea of creating a system under which farmers can create carbon credits by employing certain kinds of plowing practices, such as reduced-till, conservation tillage or no-till farming.[10] These practices cause the soil to absorb and re-

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2. *Id.* at 319.

3. *See id*. at 351-52 (noting that the distributional impact could potentially have larger economic effects than environmental consequences).

4. *See* HELENA PAUL ET AL., AGRICULTURE AND CLIMATE CHANGE: REAL PROBLEMS, FALSE SOLUTIONS 11 (2009), *available at* http://www.econexus.info/pdf/Agriculture_climate_change_copenhagen_2009.pdf.

5. *See* JULIA OLMSTEAD, INST. FOR AGRIC. & TRADE POLICY, U.S. CLIMATE POLICY AND AGRICULTURE 2 (2009), *available at* http://www.iatp.org/iatp/publications.cfm?refid=106994. Resistance from the farm states' senators and representatives has already been seen in the 2009 Congressional negotiations regarding climate change. *Id.*

6. INT'L FED'N OF ORGANIC AGRIC. MOVEMENTS, ORGANIC AGRICULTURE: A GUIDE TO CLIMATE CHANGE & FOOD SECURITY 3 (2009), *available at* http://www.ifoam.org/growing_organic/1_arguments_for_oa/environmental_benefits/pdfs/IFOAM-CC-Guide-Web-20100210.pdf.

7. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 311 (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. §§ 111-182 (2009).

8. Bruce A. Babcock, *Costs and Benefits to Agriculture from Climate Change Policy*, IOWA AG REV., Summer 2009, at 2, *available at* http://www.card.iastate.edu/iowa_ag_review/summer_09/IAR.pdf.

9. *See id*. at 3. The production cost increases for corn and soybeans would vary based on the cost of carbon allowances, but some economists are predicting an increase of $4.52 per acre. *Id.*

10. *See* Babcock, *supra* note 8, at 1-3.

tain more carbon,[11] and under a cap-and-trade system, farmers could sell that stored carbon to those who are unable to reduce their own carbon emissions to the level required by the new legislation. Under this system, the soil carbon offset serves two distinct purposes: long-term capture of carbon in soil, thereby reducing atmospheric levels of carbon dioxide, and a new income stream for farmers. While tenant farmers with short-term leases may need the income stream, they may, however, be unable to guarantee the long-term security of the carbon they sequester.

This Note examines the ability of tenant farmers to produce agricultural soil carbon offsets under the mandatory cap-and-trade bills now before Congress. It also provides suggestions on how to ensure tenant farmers are able to benefit from these programs, and at the same time ensure the successful storage of the sequestered carbon. Tenant farmers control a large percentage of American farmland in any given year; therefore, their participation is essential to any successful carbon credit plan involving soil carbon offsets. A contract to store carbon in agricultural soils is a long-term contract which currently requires a five year commitment,[12] but in the future may run as long as fifty years.[13] Many renters of farmland do not have leases that are this long.[14] Cap-and-trade legislation should recognize the limited ability of America's tenant farmers to participate. They cannot guarantee the security of the offsets they provide, because often they cannot guarantee their tenancy for the full term of the contract.

In Part II, this Note examines what a mandatory carbon market might look like in the United States, based on current, proposed legislation and voluntary carbon markets that involve tradable offsets for soil carbon sequestration. These markets can help provide insight into the pitfalls a carbon market can create. In Part III, the dual purposes of soil carbon offsets are analyzed in more detail, along with the regulatory and enforcement issues such offsets present. In order to be an effective part of a carbon market, soil carbon offsets will have to be secure and predictable for both producers and consumers. Finally, Part IV explores the complications presented by tenant farmers, along with possible solutions to make soil carbon offset contracts more secure, given the land tenure pat-

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11. *See* PAUL ET AL., *supra* note 4, at 4.

12. AgraGate Climate Credits Corp., Carbon Credit Program Exchange Soil Offset Contract 2, *available at* http://www.kfb.org/naturalresources/nrimages/soiloffsetcontract.pdf (last visited Sept. 15, 2010) [hereinafter AgraGate Contract]; E-mail from Michael Crist, Tatanka Resources, to Keith Duffy (July 15, 2010, 13:16:01 CDT).

13. Nancy Jorgensen, *No-till Farmers Reap Carbon Offset Payments*, MFA, INC., http://www.mfa-inc.com/web/guest/todaysfarmer/990901/990906 (last visited Sept. 15, 2010).

14. *See, e.g.*, MICHAEL DUFFY & DARNELL SMITH, IOWA STATE UNIV. EXTENSION, FARMLAND OWNERSHIP AND TENURE IN IOWA 18 (2008), *available at* http://www.extension.iastate.edu/Publications/PM1983.pdf.

terns of agricultural states, such as Iowa. If soil carbon offsets are to be part of a national carbon market, they need to guarantee long-term carbon sequestration, which this Note will show can only be achieved by landowner involvement.

II. WHAT WILL A MANDATORY CARBON MARKET IN THE UNITED STATES LOOK LIKE?

The American Clean Energy and Security Act currently before the House of Representatives sets forth a cap-and-trade system that limits carbon emitting industries to various levels of emissions.[15] The Senate version of that bill, the Clean Energy Jobs and American Power Act, also creates a market-based system, but presently it does not include a provision for the production of agricultural soil carbon offsets.[16] These bills have slightly different details, but they are both very similar to voluntary carbon markets that have existed for years. The Chicago Climate Exchange is a voluntary carbon market that can help provide guidance to today's elected representatives as they consider what features should go into a mandatory carbon market.

A. *Lessons from the Chicago Climate Exchange—Agricultural Soil Offsets in a Voluntary American Carbon Market*

The Chicago Climate Exchange is a voluntary carbon market that was set up for companies that wished to make voluntary, but legally binding, commitments to lower their total carbon output.[17] When contracting companies cannot lower their emissions to the levels they were at in previous years, they are required to buy carbon credits from various sources, one of them being agricultural soil carbon offsets.[18] There are a wide variety of organizations, both private and governmental, that have signed up with the Chicago Climate Exchange and committed to reducing their greenhouse gas emissions.[19] The Chicago Climate Exchange is especially helpful in examining a cap-and-trade system involving

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15. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 311 (2009) (as placed on the Senate calendar, July 7, 2009).

16. *See* Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009) (as introduced in the Senate, Sept. 30, 2009). This provision is not yet included, but as the bill is still pending, soil carbon credits may be included in a final cap-and-trade bill.

17. Chicago Climate Exchange, Overview, http://www.chicagoclimatex.com/content.jsf?id=821 (last visited Sept. 15, 2010).

18. *See id.*

19. *See, e.g.*, Chicago Climate Exchange, Members of CCX, http://www.chicagoclimatex.com/content.jsf?id=64 (last visited Sept. 15, 2010).

soil carbon offsets, because it is the only large carbon exchange that permits the use of soil carbon offsets.[20]

The agricultural soil carbon offsets that are sold on the Chicago Climate Exchange come from farmers who have agreed to engage in certain farming practices, such as no-till or reduced-till farming.[21] No-till farming means that a farmer does not plow under the field in the fall but leaves the crop residue on top of the field instead.[22] Reduced-till or strip-till farming is when a farmer uses a narrower plow to limit soil turnover to narrow rows in the field.[23] As a result of either of these methods, the soil is not disturbed and thus lower amounts of carbon dioxide are released into the air.[24] The amount of carbon that is stored in the soil depends on the location of the farm and the type of tillage performed.[25] To sign up for the program, the operator of a farm enrolls his land in a five-year contract with a carbon aggregator who is registered with the Chicago Climate Exchange.[26] The aggregator then sells the credits that have been accumulated by the farmer on the Chicago Climate Exchange and keeps a percentage of the money as a fee.[27] The contract with the aggregator also requires that the project owner allow the Chicago Climate Exchange representative periodically inspect the fields subject to the offset contract.[28]

Since the rate of absorption of carbon for any particular area is determined based on county-wide average statistics, verification is simple: a third-party verifier visits the farm and visually inspects the ground for undisturbed crop residue.[29] If the field passes inspection, the credits are considered verified for that year. The aggregators then buy the credits from the farmer and sell them to companies that have not met their reduction targets. However, the Chicago Climate Exchange model and the contract used by the organization and its aggregators do not require a tenant to have signed a lease guaranteeing control of the

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20. PAUL ET AL., *supra* note 4, at 13.

21. Telephone Interview with Dave Krog, CEO, AgraGate Climate Credits Corp. (July 15, 2009).

22. *See* PAUL ET AL., *supra* note 4, at 17.

23. *See* MAHDI M. AL-KAISI & MARK HANNA, IOWA STATE UNIV. EXTENSION, CONSIDER THE STRIP-TILLAGE ALTERNATIVE 1 (2008), *available at* http://www.extension.iastate.edu/Publications/PM1901C.pdf.

24. PAUL ET AL., *supra* note 4, at 4.

25. *See* Chicago Climate Exchange, Continuous Conservation Tillage and Conversion to Grassland Soil Carbon Sequestration Offsets, http://www.chicagoclimatex.com/content.jsf?id=781 (last visited Sept. 15, 2010).

26. Telephone Interview with Dave Krog, *supra* note 21.

27. *Id*.

28. AgraGate Contract, *supra* note 12, at 3.

29. Telephone Interview with Doug Gronau, Farmer and Participant in Carbon Aggregation Project (July 27, 2009).

land for five years before he can enter into a five-year contract to produce carbon offsets.[30]

The companies that have signed reduction agreements with the Chicago Climate Exchange are under a contractual duty to reduce their emissions as opposed to a statutory duty which a mandatory cap-and-trade system would impose. However, the production of soil carbon offsets in the Chicago Climate Exchange is nearly identical to the system proposed by Congress;[31] as a result, past problems with the Chicago Climate Exchange should be examined prior to implementing a mandatory cap-and-trade scheme.

B. *Mandatory Foreign Carbon Markets*

1. *Canada's Mandatory Carbon Markets*

Canada also recognizes soil carbon sequestration or carbon sinks on agricultural land as offsets in a system similar to the one used by the Chicago Climate Exchange and proposed in the American Clean Energy and Security Act.[32] However, Canada's legislation has not dealt with the treatment of tenant farmers, meaning that courts will have to confront the question of tenants' rights to contract to store carbon under the common law.[33] The costs of legal disputes and other transaction costs may be extremely high if American legislation leaves the question of tenant eligibility up to the common law. One estimate by analogy to prior emission credits trading programs is that transaction costs could be as high as fifty percent of the value of the credits.[34] Given these high transaction and litigation costs, relying on the common law would likely be a mistake when crafting America's cap-and-trade legislation.

2. *European Carbon Markets*

Europe opened a mandatory carbon trading market in 2005.[35] Many of the soil carbon offsets in the European program, however, require around a thir-

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30. *See infra* Part IV.A; *see also* AgraGate Contract, *supra* note 12, at 2.

31. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 501-511 (2009).

32. *See* Steven A. Kennett et al., *Property Rights and the Legal Framework for Carbon Sequestration on Agricultural Land*, 37 OTTAWA L. REV. 171, 173-75 (2005-2006).

33. *See id.* at 194-96.

34. Burtraw & Sweeney, *supra* note 1, at 321.

35. Kelly Connelly Garry, Commentary, *Managing Carbon in a World Economy: The Role of American Agriculture*, 9 GREAT PLAINS NAT. RESOURCES J. 18, 22 (2005).

ty-year commitment,[36] as opposed to the five-year commitment proposed by the United States House of Representatives and used by the Chicago Climate Exchange.[37] Requiring a commitment of thirty years in American legislation would prevent nearly all tenant farmers from participating in a soil carbon sequestration program.

The model put forth by the Chicago Climate Exchange is the only workable program for agricultural carbon offsets of those presented, because it does not rely on traditional common law property doctrine and does not require unduly long commitments by farm operators who may be tenants.

C. *Agricultural Soil Carbon Offsets Under the Market-Based System Proposed in the American Clean Energy and Security Act of 2009*

The American Clean Energy and Security Act of 2009 is Congress' most recent attempt to reduce the amount of carbon in the atmosphere. Under the bill, agriculture is not capped, but rather is seen as a viable source of offsets.[38] The bill is very large and touches on emissions reductions in many areas of the economy, but it draws the broad framework for the carbon offset market in general,[39] and it specifically outlines how the agricultural carbon credit program is to be administered.[40]

The soil carbon offset provisions of the American Clean Energy and Security Act are very similar to the Chicago Climate Exchange's program.[41] Under the Chicago Climate Exchange, anyone who "own[s] or control[s]" farmland, regardless of how long he will own or control it, is allowed to enroll that land in a five-year soil carbon offset production contract.[42] Similarly, the American Clean Energy and Security Act also has broad language regarding who can enroll eligible farmland: "The term 'offset producer' means an owner, operator, landlord, tenant, or sharecropper who has or shares responsibility for ensuring that an offset practice is established and maintained during the crediting period for purposes of an offset credit."[43]

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36. E-mail from Michael Crist, *supra* note 12.
37. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 504(e)(2)(A) (2009); AgraGate Contract, *supra* note 12, at 2.
38. OLMSTEAD, *supra* note 5, at 2.
39. H.R. 2454 § 311 (amending the Clean Air Act, 42 U.S.C. §§ 7401-7671 (2006), as § 732).
40. H.R. 2454 §§ 501-53.
41. *Compare id.*, *with* AgraGate Contract, *supra* note 12.
42. AgraGate Contract, *supra* note 12, at 2.
43. H.R. 2454 § 501(a)(9).

The details of the American Clean Energy and Security Act program, such as how credits will be awarded per acre per year, what practices will warrant a farmer receiving carbon credits, and how those credits will be verified, are left up to the USDA,[44] but the structure is similar to the one used by the Chicago Climate Exchange. The similarities between the Chicago Climate Exchange and the American Clean Energy and Security Act mean that past problems with the Chicago Climate Exchange are likely to appear in the government's scheme if not corrected. One of these problems is how to involve tenant farmers and yet ensure the permanence of the carbon being sequestered.

III. SOIL CARBON OFFSETS: THEIR PURPOSE, EFFECTIVENESS, DEFINITION, CREATION, AND REGULATION

A. *The Purposes of Soil Carbon Offsets*

Under a cap-and-trade scheme, soil carbon offsets have two purposes: reducing the amount of greenhouse gases in the atmosphere, and boosting farm income to make up for the higher input costs farmers will pay. The first concern, a reduction in greenhouse gases, is largely a scientific question, while the second concern is much more legal in nature. Tenant farming can present complications for both of these issues, which are discussed in Part IV, but first, it is important to understand why soil carbon offsets should be included in cap-and-trade legislation.

1. *Greenhouse Gas Reduction*

There is mixed scientific sentiment about the ability of offsets to sequester sufficient greenhouse gasses to have an impact on global climate change.[45] The obvious concern is that once the contract period expires, the farmer may stop using the new tillage method, thereby releasing the once stored carbon back into the atmosphere. Because the top of the soil is only visually inspected for crop residue and the soil is not sampled to verify actual carbon storage, there may be inaccurate predictions about how much carbon is actually being stored.[46] However, there is strong evidence that some carbon will be immediately pulled from the atmosphere when carbon sequestration is employed.[47]

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44. *See* H.R. 2454 §§ 501-07.

45. *See* SARAH-JAYNE CLIFTON, FRIENDS OF THE EARTH, A DANGEROUS OBSESSION: THE EVIDENCE AGAINST CARBON TRADING AND FOR REAL SOLUTIONS TO AVOID A CLIMATE CRUNCH 38-42 (2009), *available at* http://www.foe.co.uk/resource/reports/dangerous_obsession.pdf.

46. Telephone Interview with Dave Krog, *supra* note 21.

47. *See* Garry, *supra* note 35, at 24.

While the extent of the benefits of soil carbon credits may be in doubt, they remain politically popular and a way of reducing atmospheric carbon that is relatively easy to implement.

2. *Soil Carbon Credits Represent an Important New Income Stream for Farmers*

One of the reasons to include soil carbon sequestration provisions in cap-and-trade legislation is to gain the support of senators and representatives from agricultural states and districts. The extra money farmers can earn by selling soil carbon offsets is predicted to eclipse the higher fuel and fertilizer costs cap-and-trade legislation may cause.[48] It is also important to keep in mind that, as one economist noted, "any disruptive change in climate will have a far greater impact on livelihoods than will the price of carbon."[49]

In recent years, American farm subsidy payments have come under fire in the international community.[50] The United States has "agreed to reduce internal agricultural subsidies that are production and trade distorting."[51] While traditional crop subsidies may cause problems for the United States under World Trade Organization treaties, so-called "green payments" are a perfectly acceptable way to assist farm income.[52] A program can be a "green payment" if it causes minimal trade and price distortion, and fits into one of eleven categories, including "payment under environmental programs."[53] Carbon sequestration could certainly be a green payment program, and would be a way to replace lost subsidy income in the wake of a World Trade Organization crackdown on government-funded agricultural subsidies.

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48. Babcock, *supra* note 8, at 11; s*ee* OFFICE OF ATMOSPHERIC PROGRAMS, U.S. ENVTL. PROT. AGENCY, ECONOMIC IMPACTS OF S. 1733: THE CLEAN ENERGY JOBS AND AMERICAN POWER ACT OF 2009, at 8 (2009), *available at* http://www.epa.gov/climatechange/economics/pdfs/EPA_S1733_Analysis.pdf.

49. Babcock, *supra* note 8, at 11.

50. *See* William J. Even, Note, *Green Payments: The Next Generation of U.S. Farm Programs?*, 10 DRAKE J. AGRIC. L. 173, 174 (2005).

51. *Id.* at 175. Green payment is defined as "a payment that efficiently links the production of environmental goods and services with the opportunity to derive an income over and above the cost of producing those goods and services." *Id*. at 173. These decoupled and minimally trade-distorting payments qualify as "Green Box" subsidies, which is the "final traffic signal category in the WTO lexicon." *Id.* at 177.

52. *See id.* at 177-78.

53. *Id.*

B. *Under Traditional Property Law, Who Has the Right to Create Soil Carbon Offsets?*

Many current form leases do not contain language on who has the right to enroll the property in a carbon sequestration contract.[54] Traditional property law will have great difficulty in defining and categorizing a piece of land's ability to sequester carbon.[55] It is not clear whether this characteristic is a part of the fee simple ownership, profit à prende, a mineral resource, personal property or a growing crop.[56] Each of these possibilities has some strengths and some weaknesses. This confusion over who has the right to produce and receive the "ownership" benefits of carbon credits must be addressed by any climate change bill. Laws that place value on carbon sequestration should state as clearly as possible whether the landlord or the tenant owns the rights if the lease is silent on the subject.

C. *How and by Whom Will Compliance be Regulated?*

The agency assigned to administer the program is an important consideration with important consequences. The American Clean Energy and Security Act vests the authority to set up the cap-and-trade system with the Environmental Protection Agency (EPA).[57] However, the USDA is given the authority to create offset programs that will allow for the creation of carbon credits to be traded within the system set up by the EPA.[58] The USDA will have the authority to make rules that will establish offset methodologies, such as altered tillage, reduced fertilizer use, afforestation, and manure management.[59] The USDA is also charged with creating provisions to address leakage or reversals from agricultural carbon storage sites,[60] establish third-party verification requirements and certifi-

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54. *See* Iowa State Univ. Extension, Iowa Cash Rent Farm Lease (Short Form) (July 2005), *available at* http://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-16.pdf; Iowa State Univ. Extension, Iowa Farm Lease (Feb. 1999), *available at* http://www.extension.iastate.edu /agdm/wholefarm/pdf/c2-12.pdf; MidWest Plan Serv., Iowa State Univ., Cash Farm Lease with Flexible Provisions (1997), *available at* http://www.extension.iastate.edu/publications/NCR76.pdf; Univ. of Ill. Extension Farm Bus. Mgmt. & Mktg., Illinois Cash Farm Lease, *available at* http://www.farmdoc.illinois.edu/legal/Farmdoc_Form_CL01_0912.pdf (last visited Sept. 15, 2010).

55. Kennett et al., *supra* note 32, at 178.

56. *See id.* at 178-85.

57. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 311 (2009) (amending the Clean Air Act, 42 U.S.C. §§ 7401-7671 (2006), as § 732).

58. *Id.* § 502.

59. *Id.* § 503.

60. *Id.* § 504.

cation of offset credits,[61] and conduct audits of the verifiers and the offset producers.[62] Keeping this program within the USDA is critical to its success, because the Department "better understands farmland issues and can more ably implement the program than the EPA" can.[63] The USDA is an organization that is already familiar with farmers and the land they will use in a carbon sequestration program. When comparing the effectiveness of other environmental programs involving farmland, it has been noted that the USDA staff may be more effective when dealing with farmers because of the preexisting relationships they may have formed and more potential to have a farming background to which farmers can relate.[64] While the EPA may be the best group to oversee the entire cap-and-trade system, vesting authority in the USDA to establish the regulations for the soil carbon offsets will help ensure the maximum participation level possible by all farmers, including tenant farmers.

D. *Effectiveness of Soil Carbon Credits at Accomplishing Their Purposes*

1. *Reduction of Greenhouse Gasses*

Soil carbon sequestration immediately reduces the amount of carbon in the atmosphere, because it actually takes carbon out of the air and stores it in the soil.[65] The downside is that soil can only absorb a certain amount of carbon before reaching a saturation point where it can no longer absorb new carbon, and thus is no longer functioning as a carbon negative feature in the environment.[66] Another issue is actually proving whether or not carbon is being pulled out of the atmosphere. The technology exists to measure soil carbon levels at a ninety-five percent accuracy rate,[67] but if the government only requires a visual inspection of the crop residue on the field to verify the practice, proving long-term storage benefits are actually taking place may be difficult.[68] Results may be questionable if laws simply require practices to be carried out but do not actually require proof that carbon was sequestered. The long-term security of the carbon offset may also be a problem. If a tenant-operator withdraws the land from the program or

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61. *Id*. §§ 506-07.
62. *Id.* § 511.
63. OLMSTEAD, *supra* note 5, at 2.
64. Christopher S. Elmendorf, *Ideas, Incentives, Gifts, and Governance: Toward Conservation Stewardship of Private Land, in Cultural and Psychological Perspective*, 2003 U. ILL. L. REV. 423, 470 (2003).
65. *See* Garry, *supra* note 35, at 24.
66. *See, e.g.*, PAUL ET. AL., *supra* note 4, at 19.
67. Garry, *supra* note 35, at 23.
68. Telephone Interview with Doug Gronau, *supra* note 29.

loses control of the land, the sequestered carbon may be released into the air by the next operator.[69] Soil carbon sequestration is an effective and responsive means of countering climate change, but in order to have a long-term impact, the land's future enrollment in the project must be secure.

2. *Soil Carbon Credits as a Potential Income Stream*

Aside from the scientific issues involved with carbon sequestration, there are also numerous potential financial problems with soil carbon sequestration. First, it is difficult to predict what a carbon credit will sell for, since prices have ranged from as low as fifty cents to as high as nine dollars in the United States.[70] This variability makes it extremely difficult to predict how much money farmers will actually be able to make from their credits.[71] However, the program can only help increase farm income if enough farmers, including tenant farmers, can participate.

IV. COMPLICATIONS ARISING FROM INCREASED NON-OWNER OPERATION OF FARMLAND

A. *Failing to Include Tenant Farmers May Undermine the Goals of the Soil Carbon Credit Program*

Increasing rates of tenancy indicate that if the two purposes of soil carbon offsets, the reduction in carbon and the income stream, are to be carried out, tenant farmers will have to be allowed to participate. Survey results also show that younger farmers are less likely to own land than older farmers, and instead they must operate as a tenant until the rare occasion when farmland comes onto the market.[72] Thus, if soil carbon credits are to continue to be useful in the future, these younger tenant farmers must be allowed to participate. Using Iowa as an example, in 2007, fifty-four percent of farmland acres were under the control of tenant operators.[73] Perhaps the most significant problem facing tenants that wish to participate in these programs is the length of tenancy itself. Only fourteen percent of Iowa's cash-leased farmland is under a fixed lease for a period of

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69. *See* PAUL ET AL., *supra* note 4, at 8, 14.

70. Telephone Interview with Doug Gronau, *supra* note 29.

71. *See* OFFICE OF ATMOSPHERIC PROGRAMS, *supra* note 48, at 8. The added revenue that the agricultural sector may receive has been estimated to be between $1.2 billion and $18.8 billon. *Id.*

72. *See* DUFFY & SMITH, *supra* note 14, at 11.

73. *See id*. at 8.

more than three years.[74] That small percentage of leased land in addition to owner operated land, which is only about half of the farmland in Iowa, is all that would be eligible to be enrolled in a carbon credit program if that program required ownership or control for at least five years.[75]

Current voluntary markets are silent on the issue of whether or not a tenant can participate without the landowner's approval, and this has led to problems of land being removed prior to completion of the contract period.[76] Removing the land from the contract early can result in a financial penalty for farmers. This uncertainty could cause tenant farmers to refrain from participation as the contracting parties to the sequestration agreements without the assurance of long-term leases, thereby undermining both the greenhouse gas reduction and the farm income goals of the program. Long-term tenure insecurity could also result in unsecure carbon offsets, which if securitized and re-sold, creates the possibility of "subprime carbon" that could be exploited and create a lack of confidence in the entire cap-and-trade bill.[77]

One possible way to solve this problem is for tenants to simply sign five-year leases with the landowner and then enroll the land themselves. If a landowner and tenant sign a five-year lease, the tenant can then guarantee that he will control the land for the period required to contract for offset production, and the problem of land tenure can be avoided. This solution, while it seems simple, may prove impractical, as over eighty-five percent of landowners—again using Iowa as an example—have chosen not to enter into leases that long.[78] There are many possible reasons for this reluctance, but generally there is a feeling among landowners that keeping the flexibility of a short term lease is a good idea.[79]

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74. MICHAEL DUFFY ET AL., IOWA STATE UNIV. EXTENSION, SURVEY OF IOWA LEASING PRACTICES 2 (2007), *available at* http://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-15.pdf.

75. *See id.*

76. *See* E-mail from Michael Crist, *supra* note 12; E-mail from Pat Evans, Pacific Nw. Seed Ass'n, to Keith Duffy (July 19, 2010, 12:22 CDT) (on file with author); Telephone Interview with Dave Krog, *supra* note 21. The remedies for such breaches may be part of a soil carbon offset production contract. E-mail from John Hodges, SunOne Solutions, to Keith Duffy (July 21, 2010, 00:33 CDT) (on file with author); E-mail from David Miller, Director, Research & Commodity Servs., Iowa Farm Bureau Fed'n, to Keith Duffy (July 21, 2010, 17:34 CDT) (on file with author). However, solving the problem of land tenure and carbon offsets with financial penalties for farmers who are forced to withdraw prematurely still creates an unstable source of carbon offsets.

77. *See* STEVE SUPPAN, INST. FOR AGRIC. & TRADE POL'Y, SPECULATING ON CARBON: THE NEXT TOXIC ASSET 5 (2009).

78. DUFFY ET AL., *supra* note 74, at 2.

79. Interview with J. Gordon Arbuckle, Assistant Professor and Extension Rural Sociologist, Iowa State Univ., in Ames, Iowa (July 13, 2009).

B. *Landowners May Experience Difficulties When Attempting to Control Their Tenant's Farming Practices*

If the tenant is not able to enroll the land in the carbon offset production program, perhaps the landowner could simply enroll the land himself and then require the tenant to perform the farming practices required by the offset production contract. Landowners often face significant difficulties when trying to control and supervise a tenant's farming practices,[80] and such control would be necessary in order to ensure compliance with a carbon sequestration contract. For those in the State of Iowa, the case of *Thompson v. Mattox* is instructive.[81] In *Thompson*, a woman who had power of attorney over a relative's farm attempted to have a long-term oral lease declared void.[82] She felt the tenant had violated the terms of the lease that required him to farm in accordance with an "implied duty of 'good husbandry,'" and if he was not, she had the power to "control and supervise" his farming activities.[83] The court disagreed and ruled that there must be more specific language in a lease to allow a landowner to have that level of control over a tenant.[84]

Many form leases commonly used in the states that would participate in the production of soil carbon offsets do not have this degree of specificity and generally rely on the parties to insert their own specific language governing the landowner's right to control the tenant's farming practices.[85] Also, oral leases make up about thirty-three percent of all farm leases in Iowa,[86] and even though an implied duty of good husbandry attaches to those oral leases, it would not allow a landlord to control a tenant's farming practices.[87]

Since many landowners are reluctant to sign a five-year lease with a tenant, and tenants will not enroll because their lease is too short and they do not want the potential liability for released credits if they lost control of the rented

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80. *See* DUFFY & SMITH, *supra* note 14, at 18 (describing the lack of incentive short-term tenants have to practice conservation and the high rate of absentee landowners leasing to tenant farmers).

81. Thompson v. Mattox, No. 03-1650, 2005 WL 425471 (Iowa Ct. App. Feb. 24, 2005).

82. *Id.* at *1.

83. *Id.* at *2.

84. *Id.*

85. *See* Iowa Cash Rent Farm Lease (Short Form), *supra* note 54; Iowa Farm Lease, *supra* note 54; Cash Farm Lease with Flexible Provisions, *supra* note 54; Illinois Cash Farm Lease, *supra* note 54.

86. *See* DUFFY ET AL., *supra* note 74, at 2.

87. *See* Thompson v. Mattox, No. 03-1650, 2005 WL 425471, at *2 (Iowa Ct. App. Feb. 24, 2005).

land, it will be very difficult for soil carbon credits to function as an income stream or as an effective means of reducing atmospheric carbon.

C. *Any Cap-and-Trade Legislation Should Restrict Participation in Soil Carbon Offset Production to Landowners*

Soil carbon offsets are an important source of income to both owner-operators and tenant-operators, but in order to ensure the long-term security of the offsets, the best solution is to draft a statute that only allows those who own land to enroll it in a carbon sequestration contract. The reasons are: (1) the USDA may allow too many farmers to enroll; (2) the insecure tenure status of tenants may lead to insecure carbon offsets; and (3) landowners are more likely to ensure a tenant's compliance than tenants are to obtain five-year leases of farmland.

1. *The USDA Will Face Pressure to Issue as Many Credits as Possible*

As discussed in this Note, the USDA is an organization that farmers are used to dealing with and prefer to deal with over the EPA.[88] This is an excellent reason to assign the responsibility of administering the soil carbon offset program to the USDA. But, the farmer-friendly nature of the Department is also a good reason for Congress to provide clear, specific direction as to who is eligible to participate in offset production and who is not. The currently-proposed American Clean Energy and Security Act does not provide specific instruction, but gives broad authority to the USDA to define who can and cannot take part in a soil carbon offset program.[89] Without definite direction from Congress, the Department will have an incentive to please farmers by allowing as many operators as possible to produce offsets, regardless of how long they have control of the land they are enrolling.

2. *Allowing Tenant Farmers to Enroll Land Would Decrease the Security of Soil Carbon Offsets*

There is already a great deal of concern regarding the financial implications of the commoditization of carbon emissions and sequestration, particularly when it comes to soil carbon sequestration.[90] There are fears that carbon markets

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88. *See supra* Part III.C.

89. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 503 (2009); *see also supra* Part II.C.

90. *See* SUPPAN, *supra* note 77, at 3-5.

may lead to speculating in carbon by purchasing carbon offsets, and if those offsets are insecure, the result may be the creation of "subprime carbon" from "shoddy carbon offset credits."[91] Soil carbon is already particularly suspect because it is not accepted by the European carbon market, and there are disputes over the science of soil sequestration itself.[92] Allowing tenant farmers with predominantly short-term leases to commit to a carbon sequestration contract will only serve to further these fears and reduce the value of soil carbon offsets.

3. *Restricting Participation to Landowners Is the Best Solution to Ensure an Effective Cap-and-Trade Bill*

Congress should restrict soil carbon offset production to landowners only. A landowner will have the tenure security needed to ensure that a soil carbon offset is a secure, long-term means for reducing atmospheric carbon. While this may seem unfair to the tenant farmer, making contracts exclusively with landowners is a superior allocation of resources for rights arising from the property. First, despite high rates of tenancy, a large portion of farmland is still under owner-operator control, and therefore would still be eligible.[93] This means that many farmers would still be able to participate without any tenant-related difficulties. The second reason to deal only with landowners when entering into offset contracts is that landowners who are not the farm operator can still control a farm tenant's practices if their lease is sufficiently specific as to how the farm must be managed. While this may mean that a landowner cannot simply rely on a standard form lease or an implied duty of good husbandry,[94] a landowner may certainly add more specific provisions into a standard farm lease as he sees fit. If the tenant is not willing to use no-till or reduced-till farming as the landowner's carbon offset production contract requires, then the landowner is free to find another tenant. Under this scenario, a landowner with a carbon offset contract in place may be willing to accept a lower rent due to the extra income he is receiving from the carbon offsets. This means he may charge the farmer a lower rent for the land, thereby accomplishing the goal of reduced farm costs, even for tenant farmers. This reduction in rent scenario seems more probable than the sudden widespread acceptance of five-year leases, which would be necessary to ensure the security of offsets produced by a tenant farmer.

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91. *Id.* at 5.
92. PAUL ET AL., *supra* note 4, at 19; *see supra* Part II.B.2.
93. *See supra* Part IV.A.
94. *See* Thompson v. Mattox, No. 03-1650, 2005 WL 425471, at *2 (Iowa Ct. App. Feb. 24, 2005).

V. CONCLUSION

The debate over climate change legislation is complicated and touches on a wide variety of issues. If legislation is passed, it will impact every sector of the economy and industry. The agricultural sector has a lot at stake in these negotiations. Agriculture can be just another capped sector that will fight for its share of the pie as the right to emitted greenhouse gasses is divided, or agriculture can be seen as a sector that is capable of producing more pieces of that pie. In order for this to be a viable, realistic role for agriculture, however, Congress must be satisfied that soil carbon offsets are a real, long-term, secure means of reducing greenhouse gas levels. In order for this to happen, Congress must avoid the temptation to pass the difficult decision on ownership of carbon credit rights to an agency and should limit the ability to produce soil carbon offsets to those who can create the most secure soil carbon offsets: the landowners. There are enough inherent variables involved in soil carbon sequestration. Tenancy should not be one of them.