COMMENT

CURIOSITY AND CARBON: EXAMINING THE FUTURE OF CARBON SEQUESTRATION AND THE ACCOMPANYING JURISDICTIONAL ISSUES AS OUTLINED IN THE INDIAN ENERGY TITLE OF THE 2005 ENERGY POLICY ACT

I. INTRODUCTION

The promise of successful carbon sequestration and carbon trading is on the horizon. As such, the 2005 Energy Policy Act (EPAct 2005 or the Act) has a section devoted to Indian energy that attempts to jumpstart sequestration research in Indian country.[1] Title XXVI, the Indian Energy title, contains a governmental proposal that invites tribes to explore the renewable energy fields and carbon sequestration.[2] The EPAct 2005 states that the Director of a newly created Office of Indian Energy Policy and Programs shall "develop a program to support and implement research projects that provide Indian tribes with opportunities to participate in carbon sequestration practices on Indian land."[3] Included under the approved sequestration practices are geologic, forest, and agricultural sequestration.[4]

The premise behind sequestration is three-fold. First, sequestration reduces the presence of greenhouse gases in the atmosphere.[5] Second, sequestration can be a means for enhanced oil recovery.[6] Third, there is potential for the carbon market to make sequestration economically feasible.[7]

This paper examines the three types of sequestration promoted in the EPAct 2005 and further explores the jurisdictional issues surrounding supervision and control over carbon trading by Indian tribes. The feasibility of widespread carbon dioxide sequestration on tribal lands hinges on the ability of tribes to make sequestration economical and potentially earn a return on the sequestration both through enhanced oil recovery and the carbon market.

There currently are no mandatory governmental controls over carbon dioxide emissions in the United States. However, the federal government encourages corporations to begin keeping voluntary records of emissions and there is already an active carbon market trade facilitated by the Chicago Climate Exchange.[8]

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1. Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594.

2. *Id.*

3. Energy Policy Act of 2005 § 503(a).

4. *Id.*

5. NATIONAL ENERGY TECH. INST., U.S. DEP'T OF ENERGY, CARBON SEQUESTRATION TECHNOLOGY ROADMAP AND PROGRAM PLAN 2005: DEVELOPING THE TECHNOLOGY BASE AND INFRASTRUCTURE TO ENABLE SEQUESTRATION AS A GREENHOUSE GAS MITIGATION OPTION 3-4 (2005), http://www.netl.doe.gov/coal/Carbon%20Sequestration/pubs/2005_roadmap_for_web.pdf.

6. *Id.* at 11.

7. Gary C. Bryner, *Carbon Markets: Reducing Greenhouse Gas Emissions Through Emissions Trading*, 17 TULANE ENVTL. L.J. 267, 269-70 (2004).

8. Bryner, *supra* note 7, at 273.

The Kyoto Protocol is the global intergovernmental response to mitigating climate change.[9] It aims to reduce domestic emissions as a way to "turn the tide of global warming."[10] The Protocol set emission targets for industrialized nations as a means to implement the negotiated decisions made at the Framework Convention on Climate Change.[11] In 1997, as a part of the Kyoto negotiations, 160 nations, agreed to "place legally binding limits on carbon dioxide and other greenhouse gases."[12] Current projects in some states and in other parts of the world will serve as a model for tribes if sequestration proves to be a feasible option. This comment will survey programs currently in effect and those in different stages of development.[13]

II. OVERVIEW OF SEQUESTRATION AS DESCRIBED IN THE INDIAN TITLE OF ENERGY POLICY ACT

The EPAct 2005 provides a rough framework for tribal exploration and implementation of carbon sequestration. The applicable text of the Act reads as follows: "[t]he Director shall develop a program to support and implement research projects that provide Indian tribes with opportunities to participate in carbon sequestration practices on Indian land, including--(i) geologic sequestration; (ii) forest sequestration; (iii) agricultural sequestration; and (iv) any other sequestration opportunities the Director considers to be appropriate."[14]

The Act calls for coordination of research with similar projects conducted by the Secretary of Energy.[15] Furthermore, the research projects measure carbon levels and sequestered amounts, and are subject to review in order to assure that the projects do not threaten the "social and economic well-being of Indian tribes."[16]

Economic and legal feasibility plays an important role in the implementation of these sequestration research and pilot projects into the tribal landscape.

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9. Zoya E. Baily, *The Sink That Sank the Hague: A Comment on the Kyoto Protocol*, 16 TEMP. INT'L & COMP. L.J. 103, 105 (2002).

10. *Id.*

11. Baily, *supra* note 9, at 105. The Framework Convention on Climate Change (FCCC) established the precursory guidelines for mitigating global warming and requires signatories to the FCCC to "[p]romote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks, of sinks and reservoirs of all greenhouse gases . . . including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems." Alexander Gillespie, *Sinks and the Climate Change Regime: The State of Play*, 13 DUKE ENVTL. L. & POL'Y F. 279, 285 (2003).

12. Baily, *supra* note 7, at 105. The Protocol calls for industrialized nations (titled Annex 1 countries) to reduce emissions by 5% from 1990 levels while developing countries are not bound by any mandatory reduction commitments. *Id.*

13. The European Union has recently implemented mandatory carbon dioxide emissions controls as a result of the Kyoto Protocol and also has a resulting carbon trading market. Kelly Connelly Garry, *Managing Carbon in a World Economy: The Role of Am. Agric.*, 9 GREAT PLAINS NAT. RESOURCES J. 18, 22 (2005).

14. Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594.

15. *Id.*

16. Energy Policy Act of 2005 § 503(a).

III. THE ROLE OF CARBON SEQUESTRATION IN MITIGATING GREENHOUSE GASES

Carbon dioxide is not the only greenhouse gas. It does, however, account for roughly eighty percent of the greenhouse gases emitted by developed countries.[17] Greenhouse gases are those gases that "make up the Earth's atmosphere and trap the sun's heat, creating a natural 'greenhouse effect'."[18] Without human interaction with the environment the atmosphere maintains a balance of greenhouse gases.[19] However, human activities augment and increase the accumulation of greenhouse gases in the atmosphere.[20] Furthermore, according to the United States Department of Agriculture, "developed countries are the primary contributors of greenhouse gases; at thirty percent, the United States has the highest cumulative release of carbon dioxide."[21]

Carbon sequestration is the "capture and storage of CO_2 and other greenhouse gases that would otherwise be emitted to the atmosphere."[22] Sequestration provides the potential for "deep reductions in greenhouse gas emissions" in the United States.[23]

Geologic, Forest, and Agricultural Sequestration are the three forms of sequestration that the EPAct 2005 specifically recognizes.[24] Sequestration sucks up carbon from the atmosphere and stores it in "reservoirs."[25] A "reservoir" is "a component of a climate system where a greenhouse gas . . . may be stored."[26] The term "sink" describes the process of removing a greenhouse gas from the atmosphere.[27] Each of the sequestration methods in the EPAct 2005 mitigates greenhouse gases while "sinking" carbon through three unique methods.

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17. Linda M. Young, *Soil Carbon Sequestration in Agriculture: The U.S. Policy Context*, Ag/Extension Communications for Montana State University (2003), *available at* http://www.montana.edu/wwwpb/pubs/mt200312.html [hereinafter *Soil Carbon Sequestration in Agriculture: The U.S. Policy Context*].

18. USDA FOREST SERVICE, GEN. TECH. REP. PSW-GTR-171, URBAN FORESTS AND CLIMATE CHANGE 1 (1999) [*hereinafter* URBAN FORESTS AND CLIMATE CHANGE].

19. *Id.*

20. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 1-2.

21. Kelly Connelly Garry, *Managing Carbon in a World Economy: The Role of Am. Agric.*, 9 GREAT PLAINS NAT. RESOURCES J. 18, 19 (2005).

22. NATIONAL ENERGY TECH. INST., U.S. DEP'T OF ENERGY, CARBON SEQUESTRATION TECHNOLOGY ROADMAP AND PROGRAM PLAN 2005: DEVELOPING THE TECHNOLOGY BASE AND INFRASTRUCTURE TO ENABLE SEQUESTRATION AS A GREENHOUSE GAS MITIGATION OPTION 4 (2005) http://www.netl.doe.gov/coal/Carbon%Sequestration/pubs/2005_roadmap_for_web.pdf.

23. *Id.*

24. Energy Policy Act of 2005 § 503(a). Sequestration in the Ocean is also a widely recognized means to sequester carbon dioxide, even though it is not one of the approved means in the Energy Policy Act. Phytoplankton in the ocean absorb inorganic carbon into their cells and are thought to sequester between "45-50 billion metric tons of inorganic carbon into their cells every year." However, the effect of sequestration on the ocean is debated and, thus, does not receive widespread attention as a means to feasibly sequester carbon dioxide. Gillespie, *supra* note 11, at 280.

25. Gillespie, *supra* note 11, 279.

26. *Id.*

27. Gillespie, *supra* note 11, at 279.

A. Geologic Sequestration

Geologic sequestration is "the capture of CO_2 directly from anthropogenic [manmade] sources and disposing of it into the ground for geologically significant periods of time."[28] Industry widely recognizes four main types of geologic sequestration: "un-minable coal beds, deep saline aquifers, depleted oil and gas reservoirs, and the ocean."[29] Regardless of the form of sequestration, "global sequestration capacity in depleted oil and gas fields . . . [has] the capacity to store 125 years of current worldwide CO_2 emissions from fossil fuel-fired power plants."[30]

Industry has already examined geological sequestration, in part, because oil and gas reservoir sequestration provides the potential for enhanced oil recovery (EOR).[31] Carbon dioxide EOR involves the injection of carbon dioxide deep into well reservoir rocks that are sealed by rock having low permeability.[32] Carbon dioxide EOR enables the gathering of an additional 10-15% more oil from a well and, additionally, some of the carbon dioxide remains trapped in the reservoir rock (sequestered).[33] The increase in revenue resulting from this additional oil provides the economic means to enable anthropogenic CO_2 to be feasibly employed.[34]

The Petroleum Technology Research Centre of Canada is currently pursuing EOR working with partnership organizations and corporations on the Weyburn oil field in southeast Saskatchewan.[35] By applying sequestration technology to global oilfields for the next one-hundred years, between one-half and one-third of global emissions could be eliminated from the atmosphere and billions of barrels of otherwise untapped oil could be produced.[36] For example, through application of EOR technologies in Western Canada alone, billions of barrels of oil could come into the market, and CO_2 emissions could drop to the equivalent of taking more than 200 million cars off of the road for a year's time.[37] According to the findings from the Weyburn project, EOR will allow the recovery of up to 60% more oil from oilfields.[38]

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28. Stephanie M. Haggerty, *Legal Requirements for Widespread Implementation of CO2 Sequestration in Depleted Oil Reserves*, 21 PACE ENVTL. L. REV. 197, 200-01 (2003). Anthropogenic sources are those sources that are created by human activity, largely the combustion of fossil fuels. *Id.* at 197

29. Haggerty, *supra* note 28, at 201.

30. *Id.* at 198.

31. Haggerty, *supra* note 28, at 201. The oil and gas industry uses enhanced oil recovery (EOR) in the field and, thus, already has a working sequestration model. *Id.*

32. Haggerty, *supra* note 28, at 201.

33. *Id.*

34. Haggerty, *supra* note 28, at 201-02.

35. PETROLEUM TECHNOLOGY RESEARCH CENTRE, IEA GHG WEYBURN CO2 MONITORING AND STORAGE PROJECT (2005), *available at* http://www.ptrc.ca/access/DesktopDefault.aspx? tabindex=0&tabid=81.

36. *Id.*

37. U.S. DEPARTMENT OF ENERGY, SUCCESSFUL SEQUESTRATION PROJECT COULD MEAN MORE OIL AND LESS CARBON DIOXIDE EMISSIONS (2005), *available at* http:www.fossil.energy.gov/news/techlines/2005tl_weyburn_mou.html [hereinafter SUCCESSFUL SEQUESTRATION PROJECT COULD MEAN MORE OIL AND LESS CARBON DIOXIDE EMISSIONS].

38. SUCCESSFUL SEQUESTRATION PROJECT COULD MEAN MORE OIL AND LESS CARBON DIOXIDE EMISSIONS, *supra* note 40.

Most of the present carbon dioxide EOR utilizes carbon dioxide extracted from deeply buried, naturally occurring CO_2 rock reservoirs rather than anthropogenic sources.[39] A switch to anthropogenic sources makes carbon dioxide enhanced oil recovery a perfect candidate for sequestration.[40] Using anthropogenic carbon dioxide for EOR helps mitigate, rather than add to, greenhouse gases while adding value through increased oil production.[41]

B. Forest Sequestration

Forests provide another source for sequestration. The roots of sequestration, so to speak, began when the Environmental Protection Agency (EPA) encouraged the planting of trees to absorb carbon approximately twenty years ago.[42] For forestry, carbon sequestration is the "annual rate of storage of CO_2 in above- and below-ground biomass over the course of one growing season."[43] The sequestration occurs during the photosynthesis process when atmospheric carbon dioxide absorbs through the pores of the leaf, combines with water, and converts to cellulose, sugars, or other materials in the chemical process triggered by sunlight.[44]

One of the main concerns of sequestration is containing the carbon sink in either a permanent or semi-permanent state.[45] While some of the carbon dioxide absorbed respires back to carbon dioxide, most of the materials in the photosynthesis process become fixed as wood, therefore making forestry a feasible carbon sink.[46]

Sequestration rates in forestry depend on tree growth rates and the lifespan of trees.[47] The United States Department of Agriculture reports that "[n]ewly planted forests accumulate CO_2 rapidly for several decades, and then the annual increase of sequestered CO_2 declines."[48] Moreover, old-growth forests may lose as much carbon dioxide as they sequester through the decay of dying trees.[49] Environmental stress on trees also influences sequestration.[50] When hot and dry weather stresses trees, they close their leaf pores, thus lowering the rates of sequestration.[51]

Urban and rural forestry are two unique approaches to forestry sequestration. Urban centers consume large amounts of energy and, in turn, release large amounts of carbon dioxide.[52] The greenhouse emissions of the ten

39. Haggerty, *supra* note 28, at 202.

40. *Id.* at 202.

41. Haggerty, *supra* note 28, at 202.

42. Garry, *supra* note 13, at 21.

43. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 3.

44. *Id.*

45. Carbon sinks are pools or reservoirs within ecosystems where carbon dioxide accumulates. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 4.

46. *Id.* at 3.

47. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 3.

48. *Id.*

49. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 3.

50. *Id.*

51. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 3.

52. *Id.* at 2.

largest cities in the United States account for 10% of the total emissions of the country.[53] Urban forests are a means to directly mitigate the emissions of cities.[54]

The strategic planting of urban forests allows trees to both act as carbon sinks and provide shading for lowered energy consumption.[55] Additionally, actively growing trees, such as newly planted trees, take up carbon dioxide at a faster rate than they respire CO_2, therefore creating a net reduction in atmospheric carbon dioxide.[56] Austin, Texas; Portland, Oregon; and Tucson, Arizona are all cities using urban forestry practices.[57] In Austin, residential tree planting will account for about one percent of the city's targeted carbon emission reduction.[58]

Rural forests are the other feasible option for forestry sequestration. The attraction of sequestration via forestry is enhanced by "the financial savings this option presents--especially when pursued in developing countries."[59] This is because the land in developing countries is much cheaper.[60] As a result, many developed countries undertake joint bilateral projects in developing countries.[61] The first joint project was in 1988 when an American power plant owner planted 52 million trees in Guatemala.[62] The plan was for the newly planted trees in Guatemala to offset the carbon dioxide emissions generated by the power plant in the United States.[63]

The vegetation in rural forests absorbs carbon dioxide in the same manner as urban forests. The added advantage of rural forests comes in the storage of carbon dioxide in the undisturbed foliage on the forest floor.[64] Rural forests store roughly sixty-three percent of the stored carbon in the trunk; twenty-seven percent is stored as biomass, nine percent is stored in dead material on the floor of the forest, and one percent is stored in understory vegetation.[65]

Some governmental programs are already in effect regarding forestry sequestration. The Forest Service, under the Farm Security and Rural Investment Act of 2002 makes carbon sequestration "one of the formal objectives under the Forest Land Enhancement Program" and plans to "increase tree planting, forest stand improvements, and agroforestry practices."[66] The effect of the EPA's registry of voluntary measures to "reduce, avoid, or sequester

53. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 2.

54. *Id.*

55. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 2.

56. *Id.* at 3.

57. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 2.

58. *Id.*

59. Gillespie, *supra* note 11, at 282.

60. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 3.

61. Gillespie, *supra* note 11, at 283. Other United States companies have made similar deals with Costa Rica. By 1998, Costa Rica had already sold "credits for more than 200,000 tons of carbon dioxide." *Id.*

62. Gillespie, *supra* note 11, at 283.

63. *Id.*

64. URBAN FORESTS AND CLIMATE CHANGE, *supra* note 18, at 4.

65. *Id.*

66. Garry, *supra* note 13, at 25; Farm Security and Rural Investment Act of 2002, Pub. L. 107, § 1001, 116 Stat. 134.

greenhouse gas emissions" is evident in the 362 programs focusing on forestry sequestration.[67]

While forestry sequestration is a means for sinking carbon, there are still major concerns surrounding the practice. For example, it is difficult to accurately predict how much carbon dioxide forests actually sequester.[68] In addition, there is concern that promotion of sequestration will cause existing forests to be destroyed to make way for tree farms. This fear has been addressed in policies, including the Kyoto Protocol, which "obliged developed countries, in fulfilling their [reduction] obligations, to promote sustainable development in a manner that would take 'into account its commitments under relevant international environmental agreements; promotion of sustainable forest management practices, afforestation and reforestation'."[69]

C. Agricultural Sequestration

Agricultural sequestration consists of conservative tillage, commonly low-till or no-till technology, adopting improved cropping systems, conversion of farming practices to use perennial crops, and restoring wetlands.[70] United States croplands have the potential to sequester about 8% of the total U.S. emissions of greenhouse gases, an amount roughly equal to 24% of the United States' reduction obligation if the U.S. were a party to the Kyoto protocol.[71] Of the sequestration techniques, the low-till, no-till, and management improvements in agriculture have the greatest potential to sequester carbon dioxide in soil.[72]

Ducks Unlimited (DU), an organization that focuses on conservation, restoration, and management of wetlands, cites two forms of potential carbon or greenhouse gas credits associated with restoration activities of terrestrial sequestration projects.[73] The first form converts farmland "back to native ecosystems" and eliminates the production of carbon dioxide, nitrous oxides, and methane that normally occurs with agricultural practice."[74] Second, "the re-established vegetation captures carbon dioxide from the atmosphere and accumulates it in the plant parts and soil" until the soil saturation reaches

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67. *Soil Carbon Sequestration in Agriculture: The U.S. Policy Context*, *supra* note 17.

68. Gillespie, *supra* note 11, at 293. For example, in 1998, one report suggested that forests in the United States sequestered just short of the total annual carbon dioxide emissions in the U.S. However, the study assumed that all forests were operating at a maximum capacity. In addition, the European Union's estimates of forest sequestration had a margin of error that exceeded 50%. *Id.*

69. Gillespie, *supra* note 11, at 296.

70. Hongli Feng, Jinhua Zhao, and Catherine L. Kling, *Towards Implementing Carbon Markets in Agric.* 1 (Iowa State Univ., Center for Agric. and Rural Dev., Working Paper 00-WP 261, Dec. 2000), *available at* http://www.card.iastate.edu/publications/synopsis.aspx?id=314 [hereinafter *Towards Implementing Carbon Markets in Agriculture*].

71. *Id.*

72. *Towards Implementing Carbon Markets in Agriculture*, *supra* note 70, at 1.

73. Dick Kempka and Dawn Browne, *Terrestrial Carbon Offsets for Industry Portfolios*, DUCKS UNLIMITED 2 (2005), *available at* http://www.ducks.org/conservation/documents/GreenTrading_DUv06.03.pdf [hereinafter *Terrestrial Carbon Offsets for Industry Portfolios*].

74. *Id.*

equilibrium.[75] DU reports that while storage periods vary, cropland converted to grassland takes between twenty and thirty years to achieve equilibrium.[76]

The prospective carbon sinks available in agriculture suggest that farmers might substantially profit from a system that pays them to sequester carbon.[77] In addition to the potential economic effects of soil sequestration, there are obvious environmental benefits as well. Through the adoption of carbon-enhancing activities, soil productivity increases, the quality of the water and air increases, and wildlife habitats are enhanced.[78]

Despite the possibility of economic return in soil sequestration, potential drawbacks remain. For example, carbon sinks may only keep carbon dioxide out of the atmosphere temporarily, as opposed to the near permanent sinks in geologic sequestration.[79] Additionally, while the Kyoto Protocol specifically accepts forestry sequestration, Kyoto does not formally recognize agricultural or geologic sequestration as an approved method for sequestering carbon.[80] Moreover, the annual policy changes in land use management can greatly affect carbon storage in soil.[81] Changes in policy and farming practices could cause the farmer to lose a potential carbon credit contract, mitigating the economic benefit to soil sequestration.[82]

Despite the potential pitfalls of soil sequestration, any form of carbon sink will have a positive value.[83] Moreover, while soil sequestration does not carry as significant a value as techniques that permanently reduce emissions or permanently sequester carbon, sequestration reduces global warming damage while storing carbon resulting in a net reduction even when carbon releases back into the atmosphere.[84]

D. Mitigating Greenhouse Gases

While scientific research exposed possible avenues for mitigating greenhouse gas problems, government policy has only lately seriously focused on sequestration as a means of lowering the atmospheric concentration of greenhouse gases, including carbon dioxide. The future of sequestration in the United States is closely tied to political policies. The federal government largely began exploring sequestration in 1987 and 1988 when Senators Al Gore, Tim Wirth, and John Chaffee discussed the threats of global warming and the "disruptive changes in climate due to increased emissions of greenhouse gases."[85]

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75. *Terrestrial Carbon Offsets for Industry Portfolios*, *supra* note 73, at 2.

76. *Id.*

77. Garry, *supra* note 13, at 26.

78. Hongli Feng, Jinhua Zhao, and Catherine L. Kling, *Carbon: The Next Big Cash Crop?*, CHOICES, Second Quarter 2001, at 16.

79. *Id.*

80. Baily, *supra* note 9, at 107.

81. *Towards Implementing Carbon Markets in Agriculture*, *supra* note 70, at 4.

82. *Id.*

83. *Towards Implementing Carbon Markets in Agriculture*, *supra* note 70, at 4.

84. *Id.*

85. Bryner, *supra* note 7, at 270.

During the administration of George H.W. Bush the White House promised to take action regarding greenhouse gases, but ultimately opposed any efforts to negotiate a binding agreement to reduce greenhouse emissions at the 1992 United Nations Conference on Environment and Development.[86]

Despite the opposition to binding agreements on greenhouse gas reductions, the United States did sign the United Nations Framework Convention on Climate Change that went into effect in 1994.[87]

In 1997, under the Clinton Administration, the opposition to climate change policies was so strong that the Senate unanimously passed a resolution that "(1) opposed U.S. participation in any climate accord that did not include binding limits on developing countries and/or would require action that might harm the U.S. economy and (2) required a bipartisan group of Senators to monitor climate change negotiations."[88] The 1999 House Appropriations Bill blocked any efforts to implement the policies of the Kyoto Protocol in the United States and evidenced the continuing political opposition to Kyoto policies.[89]

After the 2000 presidential election, the Executive Branch indicated that it might warm up to the idea of sequestration. Despite George W. Bush's announcement that the Administration was withdrawing from the Kyoto Protocol, the President promised to implement his own plan to reduce the threat of climate change.[90] However, the goal of the Bush Administration is to encourage energy efficiency instead of aiming to reduce the level of green house emissions overall.[91]

Even though the Bush Administration's actions resulted in significant improvements in efficiency, the total emissions of greenhouse gases from United States sources grew by 10.9% between 1990 and 2002.[92] Moreover, policy makers further stifled efforts in Congress to move the United States closer to mandatory reductions in emissions.[93] In her 2003 article, Stephanie M. Haggerty reported that carbon sequestration is the Administration's third approach to carbon management.[94] Haggerty asserted that increasing "efficiency of primary energy conversion and end use" and substitution of lower-carbon or carbon-free energy sources were the first and second priorities, respectively, of the Bush Administration.[95] The EPAct 2005, however, has breathed new life into carbon sequestration by promoting sequestration on tribal land.[96]

86. *Id.* at 270-71.
87. Bryner, *supra* note 7, at 271.
88. *Id.* at 272 (citing S. Res. 98, 105th Cong. (1997) (enacted)).
89. Bryner, *supra* note 7, at 273; (citing H.R. 2651, 106th Cong. (1999) (enacted).
90. *Id.*
91. Bryner, *supra* note 7, at 273.
92. *Id.*
93. Bryner, *supra* note 7, at 274.
94. Haggerty, *supra* note 28, at 200.
95. *Id.*
96. Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594.

E. The Carbon Credit Trade

The success of the research and development of sequestration will largely depend on the ability of the carbon credit market to balance the economic costs of emission regulations, which have thus far been the barrier to development of emission caps.[97] The structure of the carbon market centers on emissions regulation, allowing companies that exceed their allotted emissions to buy credits from companies that are below industry or governmental standards.[98]

While the federal government has yet to implement caps on carbon dioxide emissions, twenty-nine states placed limits on such emissions as of October 2003.[99] Additionally, as of 2004, the International Council for Local Environmental Initiatives reported that 140 cities and counties in the United States participate in its Climate Protection Campaign to reduce greenhouse gas emissions.[100] With the Kyoto Protocol taking effect in Europe in February 2005, the European market implemented the first mandatory carbon emission trading market.[101] The European market recently opened and operates on a free market theory, allowing commercial plants to trade emission credits while channeling the investments to companies with "the most energy-efficient technologies."[102]

Another factor to consider is the logistical issues surrounding the implementation of carbon markets. DU, which promotes carbon sequestration through landscape restoration, leads projects that tie industries into sequestration while building a foundation for carbon credit markets.[103] DU proposes that in order for carbon sequestration projects to meet the needs of investors, the following conditions must be present:

> · **Establish Carbon Baseline** – carbon storage within the project area must be measured, as well as an estimate made of the carbon that would have occurred if the project were not undertaken . . .
> · **Additionality** – the project must demonstrate additional benefits beyond business as usual . . .
> · **Leakage** – unanticipated increases and decreases in greenhouse gas benefits outside the project area . . .
> · **Co-benefits** – besides reducing emissions, projects should increase ecosystem values . . . .[104]

These examples provide the general format for sequestration registries that industry and research initiatives examine when constructing the infrastructure for the carbon trade.

DU also describes the potential structure of the carbon credit market.[105] The actual transaction requires an investor, typically the buyer of the carbon

97. Haggerty, *supra* note 28, at 268.

98. Bryner, *supra* note 7, at 268.

99. *Id.* at 276.

100. Bryner, *supra* note 7, at 277.

101. Garry, *supra* note 13, at 23.

102. *Id.*

103. *See generally*, DUCKS UNLIMITED, DUCKS UNLIMITED'S CARBON SEQUESTRATION PROGRAM (2005), http://www.ducks.org/conservation/CarbonSequestration.asp [hereinafter DUCKS UNLIMITED'S CARBON SEQUESTRATION PROGRAM].

104. *Id.*

105. *Terrestrial Carbon Offsets for Industry Portfolios*, *supra* note 73, at 2.

credit, and an aggregator, who brings the carbon to market.[106] DU describes the typical buyer as an actor in industry that needs to offset carbon dioxide that its manufacturing activities emit.[107] The aggregator gathers credits from landowners who perform the actual changing of landscape in order to sequester the carbon.[108]

The carbon market must clear many more hurdles before implementation on a national scale is feasible. For example, there must be an efficient way to take an accounting of credits and get those credits to market. Furthermore, the current national carbon registry is voluntary.[109] Carbon trading in the United States exists primarily through the Chicago Climate Exchange.[110] It is feared that the implementation of carbon trading will detract from the real issue of carbon dioxide pollution, and, as a result, some critics seek to limit the scope of trading.[111] Nonetheless, these first steps, in addition to European efforts where carbon sequestration is mandatory, demonstrate that industry and governmental institutions take sequestration seriously.[112] Incentives, such as the carbon market and federal emission standards, provide the key to encouraging industry to make the necessary changes to lower carbon dioxide emissions.

V. JURISDICTIONAL ISSUES CONCERNING TRIBAL INVOLVEMENT IN THE CARBON TRADING MARKET

The true feasibility of sequestration in the United States will largely hinge on the economics of sequestration. As a result, sequestration requires a carbon market. Tribes, like states and industry, will look to use the carbon market trade to augment sequestration's ecological benefits. There are three possibilities regarding sequestration on tribal lands. Tribal self regulation on fee lands, tribal regulation under EPA supervision, or tribal regulation rights under the EPAct 2005. The central question addressed in this paper is whether tribes will be allowed to regulate their own sequestration and subsequent carbon trading under the provisions of the Indian Energy Title of the EPAct 2005. The complicated past of tribal regulation plays a key role in addressing the issue of regulation of the future carbon credit market.

A. History of Jurisdiction Over Tribes and Tribal Activity

The Commerce Clause states that Congress retains the authority to "regulate Commerce with foreign Nations, and among the several States, and

106. *Id.* at 3.

107. *Terrestrial Carbon Offsets for Industry Portfolios*, supra note 73, at 3.

108. *Id.*

109. ENERGY INFORMATION ADMINISTRATION, DEPARTMENT OF ENERGY, VOLUNTARY REPORTING OF GREENHOUSE GASES PROGRAM BROCHURE (2005), *available at* http://www.eia.doe.gov/oaiaf/1605/Brochure.html.

110. *See generally*, Chicago Climate Exchange, http://www.chicagoclimatex.com (Last visited Oct. 26, 2005).

111. Bryner, *supra* note 7, at 269.

112. *See generally*, Chicago Climate Exchange, http://www.chicagoclimatex.com (Last visited Oct. 26, 2005); CHICAGO CLIMATE EXCHANGE-EUROPEAN CLIMATE EXCHANGE, INTRODUCTION TO EUROPEAN CLIMATE EXCHANGE (2005), *available at* http://www.europeanclimateexchange.com/index_flash.php.

with the Indian Tribes."[113] This reference to Indian Tribes is commonly known as the Indian Commerce Clause.[114] Over time, the relationship between the federal government and tribal governments has evolved. One result of this evolution is the Trust Doctrine.

The trust doctrine, one of the most important aspects of relations between tribal governments and the U.S., originated in *Cherokee Nation v. Georgia*.[115] In *Cherokee Nation*, the Cherokee Tribe challenged the extension of Georgia state law onto Indian lands.[116] The Court described the Cherokees, and other Tribal Nations, as "domestic dependent nations" and characterized the relationship between the federal government and tribes as "that of a ward to his guardian."[117] This has come to be known as the Trust Doctrine.

As a part of the Trust Doctrine, Congress retains plenary power over Indian tribes.[118] In *United States v . Kagama*, the Court specifically held that the United States, and not the individual states, retained jurisdiction over the tribes

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113. FELIX S. COHEN, HANDBOOK OF FEDERAL INDIAN LAW 207 (Rennard Strickland et al. eds., 1982 ed.) (1942) [hereinafter HANDBOOK OF FEDERAL INDIAN LAW].

114. Additionally, the Federal government exercises authority over tribes under the Treaty Clause of the Constitution. The Treaty Clause grants exclusive authority to the national government to enter into treaties and was a foundational power for federal control over Tribes. Congress discontinued the practice of treaty making with the tribes in 1871. As a result, contemporary Supreme Court decisions base modern exercise of federal power over Indian affairs on the Indian Commerce Clause. HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 207-08. Additional sources of Congressional power over tribes include the Discovery Doctrine and the Property Clause. The Property Clause states that Congress may dispose of and regulate "the Territory or other Property belonging to the United States." HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 208-09; U.S. CONST. art IV, § 3, cl. 2. This power originates from the fee ownership of Indian lands, which the United States holds in trust for the tribes. HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 208. The Discovery Doctrine established the relationship that turned fee possession of tribal lands over to the United States. Johnson v. M'Intosh, 21 U.S. 543, 574 (1823).

> They were admitted to be the rightful occupants of the soil, with the legal as well as just claim to retain possession of it, and to use it according to their own discretion; but their rights to complete sovereignty, as independent nations were necessarily diminished, and their power to dispose of the soil at their own will, to whomever they pleased, was denied by the original fundamental principle, that discovery gave exclusive title to those who made it.

Id. at 574; "Spain did not rest her title solely on the grant of the Pope. Her discussions respecting boundary, with France, with Great Britain, and with the United States, all show that she placed in [sic] on the rights given by discovery." 21 U.S. 574. The Doctrine grants the federal government possession of fee title to Indian lands and the federal government brings Indian lands into the scope of lands over which the government can exercise control with the Property Clause. HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 209. "Indian property however, is more properly classified as private property, subject to broad congressional control and special fiduciary obligations, rather than as public lands or other federal territory or property." HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 210. As a result of the allotment policy, "the boundaries of many reservations now encompass land held by nonmembers in fee simple in addition to tribally owned land held in trust by the federal government, land held in trust for individual members, and land owned in fee by tribe members." Jana B. Milford, *Tribal Authority Under the Clean Air Act: How Is It Working?*, 44 NAT. RESOURCES J. 213, 217 (2004) (citing JUDITH V. ROYSTER & MICHAEL C. BLUMM, NATIVE AMERICAN NATURAL RESOURCES LAW: CASES AND MATERIALS 9 (2002)).

115. Cherokee Nation v. Georgia, 30 U.S. (5 Pet.) 1 (1831).

116. *Id.* at 2.

117. *Cherokee Nation*, 30 U.S. (5 Pet.) 17.

118. HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 217 (citing Delaware Tribal Business Comm. v. Weeks, 430 U.S. 73, 83-84 (1977)); United States v. Alceal Band of Tillamooks, 329 U.S. 40, 57 (1946).

because of the Trust Doctrine.[119] The Court stated "[t]hese Indian tribes are the wards of the nation. They are communities dependent on the United States."[120]

B. Federal Regulation

The federal government exercises jurisdiction over tribes concerning environmental and energy issues through administrative agencies exercising authority granted by Congress.[121] The courts have used the government's fiduciary or trust duty as a basis for awarding damages for the "mismanagement of Indian resources . . ." when the federal agency "has been assigned comprehensive responsibility to manage them for the benefit of tribes."[122]

The federal government holds much of tribal land in trust and may exercise control over the tribes by requiring federal governmental approval for contracts made regarding Indian interests in land.[123] For example, the Secretary of the Interior, or a designee thereof, must approve agreements or contracts with tribes that encumber "Indian lands for a period of 7 or more years."[124] Thus, if energy contracts regarding sequestration last for more than seven years, the approval of the Secretary of the Interior would be necessary in order for the contract to be valid unless the contract is covered under the new procedures in the Indian Energy Title. It should be noted, however, that Secretarial review is applicable only to tribal trust lands and not agreements regarding tribal land held in fee. Therefore, if sequestration and subsequent carbon trading occurred on tribally held fee land, Secretarial approval of carbon trading agreements would not be necessary.[125]

The EPA, an administrative agency, has a subsidiary American Indian Environmental Office that exercises jurisdiction over enforcing environmental protection laws on Indian reservations.[126] While there is no definitive answer on how the federal government will treat carbon trade and sequestration on tribal lands, the EPA currently exercises authority over various aspects of tribal environmental issues.[127] In addition, it authorizes tribes to assume responsibility

119. 118 U.S. at 383-84.

120. *Id.*; The Court expounded further by stating that tribes are "dependent largely for their daily food; dependent for their political rights. They owe no allegiance to the states, and receive from them no protection . . . . From their very weakness and helplessness, so largely due to the course of dealing of the federal government with them, and the treaties in which it has been promised, there arises the duty of protection, and with it the power. This has always been recognized by the executive, and by congress, and by this court, whenever that question has arisen." 118 U.S. 384 (1886).

121. *Id.*

122. Milford, *supra* note 114, at 216.

123. *See generally*, Pub. L. No. 106-179, § 2, 114 Stat. 46 (2000).

124. *Id.*

125. The case of *Penobscot Indian Nation v. Key Bank of Maine* illustrates the extent of the trust relationship though which the federal government exercises control. 112 F.3d 538 (1st Cir. 1997). The case held that agreements made concerning Indian trust lands but not approved by the Secretary of the Interior were null and void. *Id.* at 545. However, the case further held that contracts concerning tribal fee lands were not subject to Secretarial approval under section 81. *Penobscot*, 112 F.3d 546.

126. U.S. DOE ENERGY EFFICIENCY AND RENEWABLE ENERGY WEBSITE, FEDERAL LEGAL ISSUES, http://www.eere.energy.gov/tribalenergy/guide/federal_legal.html (2005) [hereinafter FEDERAL LEGAL ISSUES].

127. *Id.*

to adopt water or air quality standards for their reservations under the Clean Water Act and the Clean Air Act.[128] As such, it is logical that tribes may extend this power to regulation of carbon sequestration and the carbon trade internally.

C. Tribal Self Regulation Under the Energy Policy Act

The Indian Title of the EPAct 2005 dedicates much effort to the development of tribal energy. A part of this initiative is the portion of the EPAct 2005 referring to carbon dioxide sequestration. In order to make these possibilities realities, the EPAct 2005 accommodates tribal supervision of energy development by stating that tribes may assume control over tribal energy projects once the Secretary approves an initial tribal energy policy agreement.[129]

Under the EPAct 2005, it is conceivable that a tribe will develop a sequestration practice as part of a larger energy development scheme on tribal lands and, effectively, avoid federal regulation of such activities by way of an approved "tribal energy resource agreement."[130] If allowed to do so, tribes could avoid the jurisdiction of federal regulatory agencies such as the Department of Energy (DOE) and the EPA. The jurisdiction over the accompanying carbon market trading, likewise, falls under the control of the tribe and is not subject to federal governance. Tribes can then determine for themselves the direction and practices surrounding potential carbon trading, thus making sequestration more feasible.

There is a logical bridge from control over tribal energy schemes and tribal control over sequestration and carbon credit trading. The EPA already gives tribes authority to act as states under the Clean Water Act (CWA), Clean Air Act (CAA), and the Safe Drinking Water Act (SDWA).[131] The EPA established

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128. FEDERAL LEGAL ISSUES, *supra* note 126. This is similar to Pub. L. No. 109-58, § 503(a), 119 Stat. 594 in that Congress has allowed tribes to exercise control over portions of tribal energy policy and regulations. Such treatment is analogous to the EPA allowing states to self-regulate aspects of energy and environmental programs. State Program Requirements, 40 CFR § 123.1 (2006).

129. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 ("a lease or business agreement described in paragraph (1) shall not require review by or the approval of the Secretary under section 2103 of the Revised Statutes (25 U.S.C. 81), or any other provision of law, if--

(A) the lease or business agreement is executed pursuant to a tribal energy resource agreement approved by the Secretary under subsection (e);

(B) the term of the lease or business agreement does not exceed--

(i) 30 years; or

(ii) in the case of a lease for the production of oil resources, gas resources, or both, 10 years and as long thereafter as oil or gas is produced in paying quantities; and

(C) the Indian tribe has entered into a tribal energy resource agreement with the Secretary, as described in subsection (e), relating to the development of energy resources on tribal land (including the periodic review and evaluation of the activities of the Indian tribe under the agreement, to be conducted pursuant to subsection (e)(2)(D)(i)).").

130. Energy Policy Act of 2005 § 503(a)(2)(A).

131. EPA Laws, Regulations & Guidance: Indian Tribes; Eligibility for Program Authorization, 40 C.F.R. §§ 123, 124, 131, 142, 144, 145, 233, 501 (1994), *available at* http://www.epa.gov/owindian/laws3.htm [hereinafter Indian Tribes; Eligibility for Program Authorization]. All three statutes (CWA, CAA, and SDWA) specify that "in order to receive [treatment as states], a tribe must be federally recognized and possess a governing body carrying out substantial duties and powers. In addition, each requires that a tribe possess civil regulatory jurisdiction to carry out the functions it seeks to exercise. Finally, all three require that a tribe be reasonably expected to be capable of carrying out those functions." *Id.*

qualifications under each separate act in order to have approval for "treatment as a state" (TAS).[132]

In *City of Albuquerque v. Browner*, the Tenth Circuit Court of Appeals affirmed tribal control over standards under the CWA even when these standards override state interests.[133] The Court held that Congress authorized the EPA to treat Indian tribes as states and preserved the right of tribes to "govern their water resources within the comprehensive statutory framework of the Clean Water Act."[134]

The Court's interpretation in *City of Albuquerque v. Browner* will likely open the door to broad interpretations of statutes regarding tribal regulation in the future. The DOE has the jurisdictional authority over the provisions applicable to tribes under the Indian Energy Title.[135] Specifically, the Secretary of the DOE established within the DOE an Office of Indian Energy Policy and Programs (Office) to be headed by a Director.[136] Accordingly, the Director of the Office or the Secretary of the DOE would make the determination of how broadly to interpret the sections of the title that give tribes the ability to sequester carbon and to establish energy development plans.[137]

The EPA may also have jurisdiction over tribal sequestration. Under the CAA, the EPA has authority over "[e]mission reduction credits, emission credit banking and emission credit trading."[138] The EPA retains control over credit trading and may interpret tribal jurisdiction over credit trading resulting from sequestration on Indian lands. It is clear that the EPA is willing to give tribes more power to govern environmental and pollution issues and tribal control over the carbon credit trade would be in line with TAS over CAA, CWA, and SDWA.

Federal governmental policies regarding tribes are moving toward tribal self-governance. The EPA allows for extensive tribal self governance and their policy is an example of what the DOE could adopt under the Energy Policy Act. The CAA, CWA, SDWA, and the Indian Energy title of the EPAct 2005 expand the scope of tribal jurisdiction. It is logical that tribes will also be given the opportunity to control sequestration and the resulting carbon credit trading either through the DOE's Office or through the EPA.

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132. Indian Tribes; Eligibility for Program Authorization, *supra* note 131. Furthermore, the EPA recognizes that "determinations regarding tribal jurisdiction apply only to activities within the scope of EPA programs." *Id.* Additionally, "once [the EPA] makes a jurisdictional determination in response to a tribal application regarding any EPA program, it will ordinarily make the same determination for other programs unless a subsequent application raises different legal issues." Indian Tribes; Eligibility for Program Authorization, *supra* note 131. This application does not automatically extend tribal jurisdiction to regulate activities in one particular area and may not establish jurisdiction over other similar activities automatically. *Id.* This being said, the extension of TAS to tribal regulation of carbon sequestration falls in line with regulation of other pollutants that are covered under the CAA, CWA and SDWA.

133. *See generally*, City of Albuquerque v. Browner, 97 F.3d 415 (10th Cir. 1996).

134. *Id.* at 418.

135. Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594.

136. *Id.*

137. Chevron, USA, Inc. v. Natural Res. Def. Council, 467 U.S. 837, 842-43 (1984); City of Albuquerque v. Browner, 97 F.3d 415, 422 (1996).

138. Consolidated Papers, Inc. v. State of Wisconsin, Dept. of Natural Res., 392 N.W.2d 847 (Wis. Ct. App. 1986).

VI. DEVELOPING A CARBON MARKET: CURRENT PROTOTYPES

When considering the future of carbon sequestration and credit trading on Indian lands, it is helpful to look at current models. Despite the absence of federal mandatory emissions regulation currently in effect in the United States, President Bush encouraged industry to begin reducing emissions "per unit of economic activity."[139] However, an elective carbon inventory already exists in the United States. The Energy Information Administration, a subsidiary of the DOE, has established the "Voluntary Reporting of Greenhouse Gases Program."[140]

The Clinton Administration established the Voluntary Reporting of Greenhouse Gases Program (Program) as part of the Energy Policy Act of 1992.[141] There are several policy goals underlying the Program:

> to gain recognition for environmental stewardship; to inform the public debate about activities aimed at achieving reductions in greenhouse emissions; to establish a public record of emissions and reductions that may be referenced for future consideration; to demonstrate support for voluntary approaches to achieving environmental policy goals; to contribute to information exchanges on the most effective ways to reduce emissions of greenhouse gases; to demonstrate progress toward meeting commitments to reduce emissions of greenhouse gases made under voluntary programs.[142]

The Program accepts reporting on carbon dioxide, and it allows reports, including baseline emissions since 1987, emission reductions beginning in 1991, specific conservation projects, and future commitments to reduce emissions.[143] The Voluntary Reporting Program establishes the basis for a future carbon market, and allows companies to begin tailoring their business practices to carbon sequestration and trading.[144]

In addition to start-up emissions reporting, the Chicago Climate Exchange trades carbon on the futures market.[145] The Chicago Climate Exchange also provides a forum for trading and an opportunity to help structure the market.

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139. Bryner, *supra* note 7, at 273. Several bills were introduced in Congress that would have implemented carbon emission standards and established emission registry and established credits to be used in the future in trading. *Id.* at 274.

140. DEPARTMENT OF ENERGY: ENERGY INFORMATION ADMINISTRATION, VOLUNTARY REPORTING OF GREENHOUSE GASES PROGRAM BROCHURE (2005), *available at* http://www.eia.doe.gov/oaiaf/1605/Brochure.html.

141. *Id.* (citing § 1605(b) of the 1992 Energy Policy Act).

142. DEPARTMENT OF ENERGY: ENERGY INFORMATION ADMINISTRATION, VOLUNTARY REPORTING OF GREENHOUSE GASES PROGRAM BROCHURE (2005), *available at* http://www.eia.doe.gov/oaiaf/1605/Brochure.html.

143. *Id.*

144. World Business Council for Sustainable Development, a separate and non-governmental organization has established the Greenhouse Gas Protocol. The Protocol provides "standards and guidance for companies and other types of organizations preparing a [greenhouse gas] emissions inventory" and covers the six greenhouse gases included in the Kyoto Protocol (i.e. carbon dioxide, methane, nitrous oxide, hydroflorocarbons, perfluorocarbons, and sulphur hexafluoride). WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT, THE GREENHOUSE GAS PROTOCOL-A CORPORATE REPORTING AND ACCOUNTING STANDARD (REVISED EDITION) (2005), *at* http://www.ghgprotocol.org/plugins/GHGDOC/details.asp?type=DocDet&ObjectId=MTM3NTc.

145. *See generally*, Chicago Climate Exchange, http://www.chicagoclimatex.com (Last visited Oct. 26, 2005).

While there are currently no federal standards for carbon dioxide emissions, the state of New Mexico recently announced that it will join the Chicago Climate Exchange emission reduction and trading program.[146] By joining the Exchange, the Governor agreed to set an emissions reduction goal of four percent by 2010.[147] As part of the agreement with the Exchange, New Mexico must "meet its [greenhouse gas] reduction goals or buy credits to offset emissions above the targets."[148] In order to prepare for emissions trading and tracking of reductions, New Mexico must compile an inventory of the state's emissions and then have an independent auditor verify the figures in order to establish the emissions baseline.[149]

Many new carbon markets have surfaced as a consequence of the Kyoto Protocol. Canada has "embraced the goal of reducing its greenhouse gas emissions by six percent from 1990 levels" and established a pilot program where carbon credit buyers and sellers may submit documents as evidence of their exchanges which may be recognized in the future upon the implementation of mandatory reduction schemes.[150] Moreover, Alberta is developing a plan that will allow companies to gain credits through employees who telecommute to work.[151]

In January 2005, the European Union Greenhouse Gas Emission Trading Scheme began operation and assumed the role of the largest multi-country, multi-sector Greenhouse Gas emission trading scheme in the world.[152] The European Union (EU) implemented the carbon trade as a way to meet the emission standards established by the Kyoto Protocol.[153] The EU uses the European Climate Exchange system, a wholly owned subsidiary of the Chicago Climate Exchange, as a forum for their carbon market trading.[154] As the

146. OFFICE OF THE GOVERNOR, STATE OF NEW MEXICO, GOVERNOR BILL RICHARDSON MAKES NEW MEXICO FIRST STATE TO JOIN NATIONAL CLIMATE CHANGE EFFORT (2005), *available at* http://www.chicagoclimateex.com/news/press/release_20050916_NewMexico_print.html; [hereinafter GOVERNOR BILL RICHARDSON MAKES NEW MEXICO FIRST STATE TO JOIN NATIONAL CLIMATE CHANGE EFFORT]. Massachusetts and New Hampshire were the first states to implement mandatory reduction of carbon emissions regarding power plant emissions. As of October 2003: (B)ills had been passed in twenty-nine states that placed caps on carbon dioxide emissions, created registries to track emissions and emissions trades, encouraged the production and use of alternative fuels, and/or encouraged carbon sequestration through agricultural practices and tree planting. Bryner, *supra* note 7, at 276.

147. *Id.* Other participants include IBM, DuPont, Ford Motor Company, the cities of Chicago, Oakland, and Boulder. CHICAGO CLIMATE EXCHANGE, MEMBERS OF THE CHICAGO CLIMATE EXCHANGE, *available at* http://www.chicago climatex.com/about/members.html.

148. GOVERNOR BILL RICHARDSON MAKES NEW MEXICO FIRST STATE TO JOIN NATIONAL CLIMATE CHANGE EFFORT, *supra* note 149.

149. *Id.* New Mexico General Services Department (GSD) will compile an inventory of the state's emissions. GOVERNOR BILL RICHARDSON MAKES NEW MEXICO FIRST STATE TO JOIN NATIONAL CLIMATE CHANGE EFFORT, *supra* note 149.

150. Bryner, *supra* note 7, at 279.

151. *Id.*

152. EUROPA, THE EUROPEAN UNION GREENHOUSE GAS EMISSION TRADING SCHEME (EU ETS), *at* http://www.europa.eu.int/comm/environment/climat/emission.htm (2005).

153. *See generally, id.*

154. CHICAGO CLIMATE EXCHANGE-EUROPEAN CLIMATE EXCHANGE, INTRODUCTION TO EUROPEAN CLIMATE EXCHANGE, *at* http://www.europeanclimateexchange.com/index_flash.php (last visited Nov. 3, 2005).

European market grows and evolves, it provides an ideal model for future carbon dioxide trading in the United States.

V. SUMMARY

The EPAct 2005 unveiled the Indian Energy title and the subsequent sequestration section in order to jumpstart carbon dioxide sequestration on tribal lands.[155] In order for sequestration to be economically feasible, tribes must have the ability to trade carbon dioxide credits. The resulting carbon trade will pose some jurisdictional issues. As a result of the United States government's trust relationship with tribes, the federal government retains control over tribal trading through either the DOE or the EPA unless it relinquishes control via statute or in a treaty.[156]

The EPAct 2005 allows tribes to maintain regulatory control over approved energy plans.[157] Therefore, if a tribe has an approved plan in place it will likely be free to exercise control over sequestration and the resulting carbon market. Additionally, the EPA's current policy of treating tribes as states under the CAA, CWA, and SDWA encourages extension of self-regulation in the sequestration and carbon credit trade sectors.[158] Moreover, because the agency overseeing the implementation of statutes will have significant flexibility, the EPA or the DOE will have the opportunity to interpret the Indian Energy title in accordance with current policy trends and allow tribes to self-regulate on sequestration and trading matters.[159]

Sequestration benefits the environment and the economies of tribes. Using the current carbon markets in the United States and in Europe, tribes have clear models for implementation of carbon trading and sequestration on tribal lands. As a result of current policy and statutory interpretations, the tribes will also likely benefit from the ability to self-regulate in both carbon dioxide sequestration and the carbon credit trading.

Leslie R. Dubois

155. Energy Policy Act of 2005, Pub. L. No. 109-58, § 3501, 119 Stat. 594.

156. HANDBOOK OF FEDERAL INDIAN LAW, *supra* note 113, at 217 (citing Delaware Tribal Business Comm. v. Weeks, 430 U.S. 73, 83-84 (1977)); United States v. Alceal Band of Tillamooks, 329 U.S. 40, 57 (1946).

157. Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594.

158. *See generally*, Indian Tribes; Eligibility for Program Authorization, *supra* note 131.

159. *See generally*, City of Albuquerque v. Browner, 97 F.3d 415, 422 (10th Cir. 1996).