COMMENT

CONSUMING FOR THE ENVIRONMENT: A PROPOSAL FOR CARBON LABELS IN THE UNITED STATES

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I. INTRODUCTION

Fiji Water, a worldwide distributor of bottled water, grossed approximately $150 million in 2007, making it just a trickle in the downpour of the billion-dollar bottled water industry.[1] In 2007, the United States alone spent an alarming $11.7 billion on bottled water, making it the largest market for bottled water in the world.[2] This mass consumption has had serious ramifications on the environment. Less than 20% of water bottles are recycled in the United States,[3] despite consumer's familiarity with the concept.[4] The remaining 80% end up in landfills and incinerators[5] where they remain for 1000 years because plastic is not biodegradable.[6] However, this is just the tip of the iceberg.

What many consumers do not realize is the adverse environmental impact as a result of the transportation of these water bottles from the source in Fiji, an island in the South Pacific, to the worldwide locations where the bottles are sold. Fiji Water is shipped about 2000 miles from the Pacific Island country to be sold in stores in Los

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1. Claudia H. Deutsch, *For Fiji Water, a Big List of Green Goals*, N.Y. TIMES, Nov. 7, 2007, *available at* http://www.nytimes.com/2007/11/07/business/07fiji.html.

2. Erica Gies, *Rising Sales of Bottled Water Trigger Strong Reaction From U.S. Conservationists*, INT'L HERALD TRIB., Mar. 19, 2008, *available at* http://www.iht.com/articles/2008/03/19/technology/rbogbottle.php. Bottled water sales in the United States equaled 8.82 billion gallons in 2007; in 2006, forty-seven billion gallons were sold worldwide, up from forty-three billion gallons in 2005. *Id.* (citing Beverage Marketing data).

3. *Id.* (citing Container Recycling Institute).

4. David Grossman, *Breaking the Bottled Water Habit*, USA TODAY, Sept. 22, 2008, http://www.usatoday.com/travel/columnist/grossman/2008-09-19-bottled-water_N.htm. Generally, consumers assume that most plastic water bottles are recycled, but in reality that is not the case. *Id.* "[T]he market for recycling plastic is not as well developed as the infrastructure for recycling glass or paper." *Id.*

5. Container Recycling Institute, Bottled Water, http://www.container-recycling.org/plasfact/bottledwater.htm (last visited Mar. 29, 2008).

6. Grossman, *supra* note 4.

Angeles, and even farther for other locations around the world.[7] The excessive water miles traveled by Fiji Water, due to the international shipment of its product, resulted in the company being singled out by the United Kingdom's Food Commission as an "especially 'ludicrous' example of unnecessary importing."[8] The travel between Fiji and Los Angeles alone effectively doubles the amount of energy used to produce the water.[9] Overall, the process of bottling water for consumption in the United States released an estimated 2.5 million tons of carbon dioxide into the environment during 2006.[10] Shipping the product to its destination resulted in further carbon emissions—and all the while this resource is available from local taps.[11]

This is just one example of countless products which travel a significant number of miles before even making it to the shelves.[12] The carbon emissions caused by these needless miles are contributing to global warming, which is having a devastating impact on the environment.[13] Nevertheless, consumers purchase these products oblivious to the carbon emissions stemming from the product's manufacture and distribution.[14] Without this knowledge, however, consumers are left powerless. But they do not need to remain in the

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7. *See* Gies, *supra* note 2.

8. Waterworlds, Water Miles, http://waterworlds.wordpress.com/2007/11/05/water-miles-1/ (last visited Feb. 11, 2008).

9. Gies, *supra* note 2.

10. Pacific Research Institute, Bottled Water and Energy: A Fact Sheet, http://www.pacinst.org/topics/water_and_sustainability/bottled_water/bottled _water _and_energy.html (last visited Feb. 29, 2008).

11. Waterworlds, Water Miles, *supra* note 8.

12. *See, e.g.*, Michael P. Vandenbergh, *Climate Change: The China Problem*, 81 S. CAL. L. REV. 905, 906-07 (2008) (describing vegetable trays sold at a leading grocery store in England). Trays of a variety of vegetables are sold at Marks & Spencer, a leading grocery store in England. The vegetables are packaged in bundles and tied together with a chive. The chives are grown in England and are then shipped to Nairobi, Kenya. There, workers tie the chives around the vegetables and then shrink wrap the bundles. The vegetable trays are flown back to the grocery stores in England, where they are purchased by consumers who are unaware of their 8500 mile journey. *Id.* at 906-07 & n.4.

13. *See* ENERGY INFORMATION ADMINISTRATION, GREENHOUSE GASES, CLIMATE CHANGE, AND ENERGY (2008), *available at* http://eia.doe.gov/bookshelf/brochures/greenhouse/Chapter1.htm; *see also infra* Part II.

14. *See* Vandenbergh, *supra* note 12, at 906-07.

dark. Providing consumers with information is the idea behind a new trend promoting carbon labels on consumer products.

Carbon labels are logos that appear on consumer products which are designed to enlighten consumers to the "carbon footprint" of that particular product.[15] A carbon footprint is the measurement of the greenhouse gas emissions—particularly carbon dioxide—of an individual or business.[16] Carbon dioxide accounts for approximately 85% of the greenhouse gases that cause climate change, and therefore is the focus of many efforts to counter climate change.[17] It is theorized that individuals contribute approximately one-third of the total carbon dioxide emissions in the United States, and roughly 8% of the world's total emissions.[18] Furthermore, it is estimated that in the United States 60% of an individual's carbon footprint is attributable to the goods and services he or she buys.[19] Therefore, the impetus for carbon labels is that by providing consumers with information about the carbon content of a product, they will be able to make informed decisions about the goods they purchase and ultimately choose products with a smaller carbon footprint, and therefore less carbon emissions. This will decrease carbon footprints from individuals and consequently lead to a reduction in carbon emissions worldwide.

Carbon labels were introduced in the United Kingdom during 2007.[20] There are now twenty companies and approximately seventy-five products that have implemented the labels in the United

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15. *See* Carbon Label California, Home, http://www.carbonlabelca.org/ (last visited Mar. 30, 2008).

16. *See infra* Part IV.A; *see also* Vandenbergh, *supra* note 12, at 912 n.33.

17. *See* Michael P. Vandenbergh & Anne C. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 1673, 1680 (2007).

18. *Id.* at 1673. The total emission for all Americans in 2000 was roughly 4.1 trillion pounds, whereas the entire industrial sector emitted 3.9 trillion pounds. *Id.* at 1693-94. Individual behaviors surpass industry emissions and, therefore, changing consumers' behavior could have a profound impact on the environment.

19. Carbonfund.org, Certified CarbonFree Products, http://www.carbonfund.org/site/pages/businesses/category/CarbonFree%20Products/ (last visited Jan. 6, 2009); *accord* The Climate Conservancy, Products, http://www.climateconservancy.org/product.php (last visited Jan. 7, 2009).

20. Press Release, Carbon Trust, Carbon Trust Launches Carbon Reduction Label (Mar. 16, 2007), http://www.carbontrust.co.uk/News/presscentre/2007/160307_carbon_label.htm [hereinafter Carbon Trust Launches Carbon Reduction Label]; *see also infra* Part VI.E.

Kingdom.[21] In December 2008, the California State Assembly proposed legislation aimed at promoting the use of carbon labels.[22] The problem with California's plan is that it focuses on implementing the labeling program for goods sold only in California.[23] Likewise, independent companies in the United States have also undertaken to implement carbon labeling schemes.[24] These efforts are flawed, however, because they are leading to inconsistent labeling schemes throughout the United States. Using the United Kingdom and other eco-labeling schemes as an example, this comment suggests that carbon labeling is a valuable idea and should be implemented on the national level in the United States by the Environmental Protection Agency (EPA). Part II of this comment specifically describes what carbon emissions are and why they are harmful to the environment. Part III explains the broad category of eco-labeling, which includes carbon labels. Part IV examines what carbon labels are and provides examples of different types of labels being considered for carbon labeling. Part V of this comment acknowledges and refutes the criticisms of carbon labeling. Part VI looks at the successes of various labeling schemes already in use and examines the achievements of carbon labeling in the United Kingdom. Part VII sets forth a proposal for the implementation of carbon labeling in the United States and concludes that the United States should implement a national, government-sponsored carbon labeling program because of the drastic impact carbon emissions have on the environment.

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21. Press Release, Carbon Trust, Carbon Footprinting Takes a Major Step Forward With 7 New Companies Committing to Carbon Count Their Products (Apr. 2, 2008), http://www.carbon-label.co.uk/business/pdf/release05.pdf.

22. Carbon Labeling Act of 2009, Assem. B. 19, Reg. Sess. (Cal. 2008). The bill was originally proposed during the 2007-2008 regular session as Assembly Bill 2538, but was never voted on. Carbon Labeling Act of 2008, Assem. B. 2538, Reg. Sess. (Cal. 2008). The bill has now been re-introduced as Assembly Bill 19 for action during the 2009-2010 regular session of the California Assembly and is expected to pass sometime this year. ClimateChangeCorp.com, Summary of Global Carbon Labels, http://www.climatechangecorp.com/content.asp?ContentID=5828 (last visited Jan. 9, 2009).

23. Carbon Labeling Act of 2009 § 44574(a).

24. *See infra* Part VII.C.

II. CARBON EMISSIONS AND THEIR EFFECT ON THE GLOBAL ENVIRONMENT

Climate change is one of the most significant challenges facing the modern world. Man-made greenhouse gases are the main cause of recent climate change.[25] The United Nations' Intergovernmental Panel on Climate Change (IPCC)[26] concluded with "very high confidence"—at least a 90% probability—that greenhouse gases from human activity have caused the increase in temperatures since 1750.[27] Greenhouse gases are gases that contribute to the greenhouse effect in the Earth's atmosphere, and include carbon dioxide, water vapor, methane, and nitrous oxide.[28] These gases cause the global temperature to increase because they allow sunlight to enter the Earth's atmosphere.[29] When the sunlight hits the Earth's surface, some of the light is deflected as infrared radiation back into the atmosphere.[30] The greenhouse effect occurs when greenhouse gases prevent this radiation from entering back into space and instead trap it within the atmosphere, thereby causing an increase in the Earth's

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25. JAMES E. HANSEN, CAN WE DEFUSE THE GLOBAL WARMING TIME BOMB? 8 (2003), *available at* http://pubs.giss.nasa.gov/docs/2003/2003_Hansen.pdf; *see also* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 37 (Abdelkader Allali et al. eds., 2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf [hereinafter IPCC REPORT] (stating that "[g]lobal atmospheric concentrations of CO_2, CH_4 and N_2O, [which are greenhouse gases], have increased markedly as a result of human activities since 1750").

26. The IPCC was established in 1988 by two U.N. organizations, the World Meteorological Organization and the United Nations Environment Program. Anita M. Halvorssen, *UNFCCC, The Kyoto Protocol, and the WTO—Brewing Conflicts or Are They Mutually Supportive?*, 36 DENV. J. INT'L L. & POL'Y 369, 369 n.2 (2008). The IPCC consist of a group of 2000 scientists who were gathered to increase awareness about climate change and to suggest measures to be implemented. *Id.*

27. IPCC REPORT, *supra* note 25, at 27, 37; *see also* Halvorssen, *supra* note 26, at 371 (noting that the main reason for the increase in greenhouse gas emissions is human activity due to economic development since the Industrial Revolution).

28. CARBON TRUST, CARBON FOOTPRINTING: AN INTRODUCTION FOR ORGANISATIONS 8 (2007), *available at* http://www.carbontrust.co.uk/publications/publicationdetail?productid=CTV033 [hereinafter CARBON FOOTPRINTING].

29. ENERGY INFORMATION ADMINISTRATION, *supra* note 13.

30. *Id.*

average temperature.[31] Of these greenhouse gases, carbon dioxide is the most abundant[32] and important human-produced greenhouse gas,[33] which can last at least a century in the Earth's atmosphere.[34]

This increase in atmospheric carbon dioxide is having a significant effect on natural and human systems.[35] The IPCC has reported with "high confidence"—about an 80% probability—that many natural systems are being affected by climate change.[36] Among the systems listed, the IPCC noted change relating to terrestrial biological systems, such as earlier timing of spring events and changes in marine and freshwater biological systems associated with rising water temperatures.[37] Climate change is also expected to disrupt ecosystems by causing species to travel north and to higher elevations, in order to compensate for the change in temperature.[38]

Humans are likewise impacted by this change in climate. A large percentage of the world's population lives along coastlines, and melting ice sheets pose a significant risk to the trillions of dollars worth of infrastructure there.[39] For example, in Florida, farmland that

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31. *Id.*

32. *See* Vandenbergh & Steinemann, *supra* note 17, at 1680 (stating that "carbon dioxide accounts for roughly 85% of the climate-forcing effect of [anthropogenic greenhouse gases]"); *accord* ENERGY INFORMATION ADMINISTRATION, *supra* note 13 (stating "[e]nergy-related carbon dioxide emissions . . . represented 82 percent of total U.S. anthropogenic greenhouse gas emissions in 2006").

33. HANSEN, *supra* note 25, at 8.

34. University Corporation for Atmospheric Research, Understanding Climate Change: Global Warming FAQs, http://www.ucar.edu/news/features/climatechange/faqs.jsp (last visited Feb. 22, 2008).

35. IPCC REPORT, *supra* note 25, at 26.

36. *Id.* at 27, 31-33.

37. *Id.* at 32-33; *see also* Time.com, The Effects of Global Warming: Exhibit D, http://www.time.com/time/2001/globalwarming/d.html (last visited Feb. 3, 2008) (noting there is evidence that earlier spring ice breakup in the Hudson Bay is resulting in polar bears having fewer cubs and a drastic drop in Pacific salmon populations during 1997 and 1998, when ocean temperatures rose six degrees Fahrenheit); Partick Parenteau, *Lead, Follow, or Get Out of the Way: The States Tackle Climate Change With Little Help From Washington*, 40 CONN. L. REV. 1453, 1470 (2008) (indicating that climate change harms vegetation as well as adversely affects human health).

38. Parenteau, *supra* note 37, at 1470.

39. HANSEN, *supra* note 25, at 13.

is up to 1000 feet inland from Biscayne Bay has been saturated by salt water, contaminating the land and rendering it useless for crops.[40] Furthermore, climate change is expected to also affect human health—especially the health of the elderly, young, and infirm.[41] With the predicted increase in ozone pollution, the associated risks of respiratory infection and aggravation of asthma are likely to result.[42] It is also suggested that this rise in climate will contribute to premature death for those with heart and lung disease.[43]

The gravity of global warming is becoming increasingly evident. Because carbon dioxide alone accounts for approximately 85% of the greenhouse gases causing climate change, its reduction is the main focus of efforts to halt climate change.[44] Likewise, it is the reason that carbon is the focus of the labeling proposal endorsed by this comment.

III. ECO-LABELING

Eco-labels are currently used to provide consumers with information about the environmental impact of the products they are purchasing.[45] Generally, eco-labels are awarded when a product meets an environmentally-preferred standard set by the organization awarding each particular label.[46] The information provided on eco-

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40. Time.com, The Effects of Global Warming: Exhibit E, http://www.time.com/time/2001/globalwarming/e.html (last visited Feb. 3, 2008). "Cape Hatteras Lighthouse was 1500 ft. from the North Carolina shoreline when it was built in 1870. By the late 1980s the ocean had crept to within 160 ft., and the lighthouse had to be moved to avoid collapse." *Id.* Another example of the effect of global warming is along the Brazilian shoreline in the Recife region where the shoreline "receded more than 6 ft. a year from 1915 to 1950 and more than 8 ft. a year from 1985 to 1995." *Id.*

41. Parenteau, *supra* note 37, at 1470.

42. *Id.*

43. *Id.* Climate change is leading to an increase in wildfires and insect outbreaks and is likely to continue to increase as temperatures become warmer and cause drier soils and longer growing seasons. *Id.*

44. Vandenbergh & Steinemann, *supra* note 17, at 1680.

45. Matthew Connolly, *Thinking Globally, Acting Locally: Cleaning Up Global Aquaculture Through Eco-Labeling in the United States*, 26 PUB. LAND & RESOURCES L. REV. 121, 130-31 (2005).

46. Ecolabelling.org, What are Ecolabels?, http://ecolabelling.org/eco-labels/ (last visited Feb. 12, 2008).

labels is based on the product's characteristics, the product's manufacturing method, or both.[47] Eco-labeling's two main goals are to allow consumers the opportunity to make environmentally-conscious decisions about the products they purchase by providing them with the information to do so and to encourage manufacturers to reduce the environmental impact resulting from the good's production.[48]

In order for eco-labels to be trusted, consistency in standards is essential. Conflicting standards "create consumer confusion and mistrust of the labels," which defeats the purpose of labeling.[49] The International Standards Organization (ISO), the world's largest developer and publisher of international standards, was created with the goal of homogeneity in mind.[50] The ISO's purpose is to "promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the sphere of intellectual, scientific, technological and economic activity."[51] Since its inception in 1947, the ISO has expanded its sphere of regulation.[52] Specifically, it has developed eco-labeling standards to address companies' concerns that promulgating eco-labeling programs based on different standards will hinder trade.[53] The problem with trade barriers is that

47. Connolly, *supra* note 45, at 130-31.

48. *Id.*

49. Teresa Hock, Comment, *The Role of Eco-Labels in International Trade: Can Timber Certification Be Implemented as a Means to Slowing Deforestation?*, 12 COLO. J. INT'L ENVTL. L. & POL'Y 347, 359 (2001).

50. *See* International Organization for Standardization, About ISO, http://www.iso.org/iso/about.htm (last visited Feb. 19, 2008). The ISO is an association of the national standards institutes of 157 countries that manage the system. *Id.* It is a nongovernmental organization that connects the public and private sector; many member institutes are part of the governmental structure in their countries, while many other members have their roots in the private sector. *Id.*

51. Christine Mikulich, *ISO 14000-14001, The Developing World's Perspective*, 17 TUL. ENVTL. L.J. 117, 122 (2003) (quoting Elizabeth Pinckard, Comment, *ISO 14000*, 8 COLO. J. INT'L ENVTL. L. & POL'Y 423, 424 (1997)).

52. *See* International Organization for Standardization, The ISO Story, http://www.iso.org/iso/about/the_iso_story.htm (last visited Jan. 9, 2009).

53. Hock, *supra* note 49, at 355 (citing Kristine Forstbauer & John Parker, Comment, *The Role of Ecolabeling in Sustainable Forest Management*, 11 J. ENVTL. L. & LITIG. 165, 176 (1966)); *see also infra* Part V.A.

the World Trade Organization's (WTO) most favored nation rules, laid out in the General Agreement on Tariffs and Trade (GATT), eliminate quantitative restrictions on imports between trading nations.[54] Eco-labels present a problem because they are inherently discriminatory due to inconsistent standards, which may cause importing nations to discriminate against trade partners because of the differing standards.[55]

To address this problem, the ISO developed the ISO 14000 series of environmental standards with a focus on environmental labeling.[56] Under its ISO 14000 series, the ISO identifies three main types of labeling schemes. ISO 14024 lays out the standards for type I labels, which are a "multi-attribute label developed by a third party."[57] Under type I labels, programs are developed which verify the environmental friendliness of a product by way of a seal of approval.[58] Type II labels, laid out in ISO 10421, are "single-attribute label[s] developed by the producer" of the product.[59] ISO 14025 identifies type III labels, which are eco-labels awarded after a full life-cycle assessment of a product is performed.[60] Type III labels are the type being promulgated for carbon labeling and are already in use in the United Kingdom.[61]

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54. Joost Pauwelyn, *U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law* 12 (Nicholas Inst. for Envtl. Policy Solutions, Duke Univ., Working Paper No. 07-02, 2007), *available at* http://www.nicholas.duke.edu/institute/internationaltradelaw.pdf.

55. Hock, *supra* note 49, at 350.

56. *Id.* at 355.

57. BSDglobal.com, The ISO 14020 Series, http://www.bsdglobal.com/markets/eco_label_iso14020.asp (last visited Feb. 19, 2008).

58. *Id.*

59. *Id.*

60. *Id.*

61. BRITISH STANDARDS INST., CARBON TRUST & DEFRA, GUIDE TO PAS 2050: HOW TO ASSESS THE CARBON FOOTPRINT OF GOODS AND SERVICES 12 (2008), *available at* http://www.bsigroup.com/upload/Standards%20&%20Publications/Energy/PAS2050%20Guide.pdf [hereinafter GUIDE TO PAS 2050].

IV. CARBON LABELS

A. Carbon Footprint Defined

Carbon labels are a specific type of eco-label that focus on providing the consumer with information about how much carbon dioxide and other greenhouse gases were emitted during the manufacture of a particular product—commonly referred to as a product's carbon footprint.[62] While there is disagreement over "whether the carbon footprint [of a product] needs to include indirect emissions embodied in upstream production processes or whether it is sufficient to look at just the direct, on-site emissions,"[63] three main methods have been developed for determining the carbon footprint of a product.[64] These methods vary in the extent to which they include or exclude the indirect emissions involved in the production of a product.

The first and most commonly used method in the emerging field of carbon labels is a life-cycle assessment which takes a holistic assessment of carbon emissions in the creation of a product.[65] Life-cycle assessments look at the product's full range of environmental damages by measuring carbon emissions from "cradle-to-grave" or "cradle-to-market."[66] This method provides the most accurate information because it accounts for emissions from a product's origins through its production and to disposal, and therefore is costly and time consuming. Taking such a holistic approach requires significant effort in order to gather the broad array of information necessary to gather

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62. *See* Carbon Label California, How It Works, http://carbonlabelca.org/4.html (last visited Mar. 4, 2008) [hereinafter How It Works].

63. THOMAS WIEDMANN & JAN MINX, ISA RESEARCH & CONSULTING, A DEFINITION OF "CARBON FOOTPRINT" 2 (2007), *available at* http://www.isa-research.co.uk/docs/ISA-UK_Report_07-01_carbon_footprint.pdf.

64. Carbon Label California, Methodology, http://www.carbonlabelca.org/5.html (last visited Mar. 4, 2008) [hereinafter Methodology].

65. *See, e.g.*, BRITISH STANDARDS INST., CARBON TRUST & DEFRA, PAS 2050: 2008, SPECIFICATION FOR THE ASSESSMENT OF THE LIFE CYCLE GREENHOUSE GAS EMISSIONS OF GOODS AND SERVICES (2008), *available at* http://www.bsigroup.com/upload/Standards%20&%20Publications/Energy/PAS2050.pdf [hereinafter PAS 2050: 2008].

66. *See* WIEDMANN & MINX, *supra* note 63, at 5; *see also* Methodology, *supra* note 64.

the data for this type of label, and this difficulty may ultimately discourage implementation.[67]

The second method used to determine a carbon footprint is the Environmental Input-Output Life-Cycle Assessment which was instituted by Carnegie Mellon University in the 1990s.[68] This method estimates the materials and energy expended and the resulting environmental emissions based on activities in the economy.[69] This method involves the use of generalized data from a state or national economy to determine the environmental impact attributable to each sector of the economy.[70] In the context of carbon labels, national averages, rather than a company's specific processes and practices, are used to calculate a carbon footprint.[71] While this model is less costly and less time consuming to implement, it does not allow the consumer to compare competing products or make selections based on a product's lower carbon emissions because this model uses averages instead of company-specific data.[72]

The third model is a hybrid of the prior two models and uses both company measurements and national averages to calculate a product's carbon footprint.[73] In this model, companies use information they already have, such as energy bills and the number of goods produced, and rely on national averages for information they do not have.[74]

The need for a standardized carbon label is apparent in the same concerns that led to the creation of the ISO standards for environmental labels.[75] While no consensus has been reached on the

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67. *See* Methodology, *supra* note 64.

68. Carnegie Mellon University, EIO-LCA: Free, Fast, Easy Life Cycle Assessment, http://www.eiolca.net/ (last visited Feb. 29, 2008). The method was originally theorized and developed by Wassily Leontief in the 1970s based on his input-output theory from the 1930s for which he won the Nobel Prize in Economics. *Id.* This theory was extended to account for environmental implications of economic activity in the Environmental Input-Output Life-Cycle Assessment. *Id.*

69. *Id.*

70. *See id.*

71. Methodology, *supra* note 64.

72. *Id.*

73. *Id.*

74. *Id.*

75. *See supra* Part III.

proper method to calculate a carbon footprint,[76] a standard approach is being developed in the United Kingdom.[77] The Carbon Trust, an independent company created by the U.K. government in 2001,[78] is working with the British Standards Institute, an independent business services organization,[79] to establish a standardized method for determining a product's carbon footprint.[80] The Carbon Trust focuses on input, output, and unit processes directly associated with the product in calculating its carbon footprint.[81] Indirect emissions, such as emissions from employees commuting to work, are not taken into account.[82]

The purpose of carbon labels, like eco-labels generally, is to provide consumers with information about the carbon produced through the creation of the product they are purchasing.[83] Therefore, the more accurate and individualized the information provided, the more effective the labels will be. Nevertheless, this desire for robust information must be balanced against cost and feasibility.

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76. *See* WIEDMANN & MINX, *supra* note 63, at 5-6; *see also* Methodology, *supra* note 64.

77. The Climate Conservancy, Climate Conscious Assessment Methodology, http://www.climateconservancy.org/ methodology.php (last visited Jan. 7, 2009) [hereinafter Climate Concious Assessment Methodology].

78. Carbon Trust, What Is the Carbon Trust, http://www.carbontrust.co.uk/about/about/ (last visited Mar. 2, 2008).

79. British Standard Institute, About BSI Group, http://www.bsi-global.com/en/About-BSI/ (last visited Feb. 30, 2008). "BSI British Standards is the National Standards Body of the UK, with a globally recognized reputation for independence, integrity and innovation in the production of standards that promote best practice. It develops and sells standards and standardization solutions to meet the needs of business and society." *Id.*

80. British Standard Institute, PAS Aim and Scope, http://www.bsi-global.com/en/Standards-and-Publications/How-we-can-help-you/Professional-Standards-Service/PAS-2050/PAS-Aim-and-Scope/ (last visited Feb. 29, 2008). "The PAS is intended as the first step towards a future internationally agreed method for organisations to measure the [greenhouse gas] emissions embodied in their goods and services." *Id.*; *see also infra* Part VI.E.

81. WIEDMANN & MINX, *supra* note 63 at 4.

82. *Id.*

83. How It Works, *supra* note 62.

B. Types of Carbon Labels

Another similar issue regarding carbon labels relates to what information should appear on the label itself. Generally, the aesthetics of labels and the information contained on labels impact the effectiveness of that particular label. While some labels are easier for consumers to read, it comes at the cost of less information on the label. There are three principal types of labels that balance informative data and simplicity of understanding to provide carbon emissions information to consumers.

First, there are low-carbon seals of approval which are awarded to products that "are the most carbon efficient within a [particular] product category."[84] While these labels are easy to understand, they do not provide consumers with information that differentiates products.[85] One example of a low-carbon seal is Energy Star, authorized by the EPA and the Department of Energy (DOE).[86] Energy Star is a voluntary labeling system that awards companies with the Energy Star label when they meet EPA and DOE criteria.[87] The label is useful because consumers are familiar with it,[88] but nevertheless it still lacks detailed information about energy efficiency.

Next, carbon ratings reflect a "tiered approach" to labeling.[89] This method gives a score to products by ranking them relative to one another.[90] For example, a product with low-carbon emissions would be given a score of five, whereas a product with high emissions would

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84. Carbon Label California, Types of Labels, http://www.carbonlabelca.org/7.html (last visited Feb. 4, 2008) [hereinafter Types of Labels].

85. *Id.*

86. Environmental Protection Agency, History of Energy Star, http://www.energystar.gov/index.cfm?c=about.ab_history (last visited Mar. 12, 2008) [hereinafter History of Energy Star].

87. Types of Labels, *supra* note 84.

88. Michael A. Livermore, *Reviving Environmental Protection: Preference-Directed Regulation and Regulatory Ossification*, 25 VA. ENVTL. L.J. 311, 329 (2007). "[O]ver half of the U.S. population is familiar with the [Energy Star] label." *Id.*

89. Types of Labels, *supra* note 84.

90. *See id.*

be given a score of one.[91] This tiered approach has been implemented for organic food in the United States.[92] Under the Organic Foods Production Act of 2000,[93] three types of labels were developed to classify organic foods: 100% organic, organic, and made with organic ingredients.[94] Only products which are classified as either 100% organic or organic can display the U.S. Department of Agriculture Organic Seal.[95] This approach allows for easy comparison of products, but requires the consumer to know the average product score in order to make a determination as to whether the product is above or below average.[96]

Finally, carbon score labels—the type of labels being used in the United Kingdom—quantify emissions to allow consumers to easily compare products and brands.[97] These scores rely heavily on company-specific data in order to accurately quantify emissions of a particular product.[98] Nutrition labels are a similar, more common type of scoring. Nutrition labels allow consumers to compare calories, fat, and vitamins among products and brands.[99] Until 1994, nutrition information on products was voluntary in the United States, but is now required by the Food and Drug Administration (FDA).[100] The inclusion of trans-fat on nutrition labels provides an example of the potential impact labeling can have.[101] Since the FDA required manufacturers to provide trans-fat content on nutrition labels, there has been a noticeable decline in the amount of trans-fat in foods.[102] One criticism of these labels is that the information is quite detailed

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91. *Id.*
92. *Id.*
93. Organic Foods Production Act, 7 U.S.C. §§ 6501-23 (2006).
94. Types of Labels, *supra* note 84.
95. *Id.*
96. *Id.*
97. *Id.*
98. *Id.*; *see also, e.g.*, PAS 2050: 2008, *supra* note 65.
99. Types of Labels, *supra* note 84.
100. Steve Keane, *Can a Consumer's Right to Know Survive the WTO?: The Case of Food Labeling*, 16 TRANSNAT'L L. & CONTEMP. PROBS. 291, 297-98 (2006).
101. Types of Labels, *supra* note 84.
102. *Id.*

and requires some knowledge on the part of the consumer regarding what the information means.[103]

All three labels, regardless of their advantages and disadvantages, are useful in providing consumers with knowledge about the carbon emissions associated with their purchases—and knowledge is power. By arming consumers with information about the products they are purchasing, they can use the power of their purses to change trends in society. But criticisms remain despite carbon labels' potential to incite a meaningful change in consumer behavior.

V. CRITICISMS OF CARBON LABELING

Carbon labeling is undoubtedly a valuable idea. In these fledgling stages of its implementation, however, skepticism remains about the potential challenges resulting from international trade, the negative effects labels may have on trade, and labels general ability to be effective.

A. World Trade Organization Challenges

One of the most discussed criticisms of carbon labels and eco-labeling concerns the potential challenges presented by the WTO's anti-protectionism rules. The criticism with regard to carbon labeling is that if companies and governments begin to favor locally produced goods, they will be in danger of violating the WTO's anti-protectionism rules.[104] Specifically, the most-favored nation status clauses set out in Articles I and III of the GATT require nations to treat all of their trading partners equally, which may apply to carbon labels.[105]

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103. *See* James Murray, *Tesco Defends Carbon Label Scheme*, BUS. GREEN, May 21, 2008, http://www.computing.co.uk/business-green/news/2217167/tesco-defends-carbon-label; *see also infra* Part V.C.

104. Caitlin Zaino, *Sticky Sticker Situation: Food Miles, Carbon Labelling and Development*, INT'L CTR. FOR TRADE & SUSTAINABLE DEV., May 2008, http://ictsd.net/i/news/bioresreview/12095/.

105. *Id.* Specifically, the most favored nation status requires that

> [w]ith respect to customs duties and charges of any kind imposed on or in connection with importation or exportation or imposed on the international transfer of payments for imports or exports . . . any advantage, favour, privilege or immunity granted by any contracting party to any product

Article III, paragraph 4 of the GATT provides that:

> The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use.[106]

An importing nation might violate paragraph 4 of the GATT if it discriminates against another country based simply upon the distance the product must travel.[107] Likewise, nations that discriminate against products for failure to display their carbon footprint, or countries that do not have carbon restrictions in place, may also violate the GATT.[108]

However, just as eco-labels have flourished in various countries around the world without interference by the WTO, so too can carbon labels.[109] First, carbon labels are permissible under Article III, paragraph 4, because nations using carbon labels do not discriminate against their trading partners based on products' food miles or for failing to display products' carbon footprint.[110] By keeping labeling programs voluntary, nations are still able to export goods to countries with carbon labeling programs, even if their goods do not have carbon labels.[111] Moreover, carbon labels simply provide consumers with information so they can make informed decisions about the products

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> originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.

General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT].

106. GATT, *supra* note 105.

107. Zaino, *supra* note 104.

108. Pauwelyn, *supra* note 54, at 12 (stating that any quantitative restriction on imports, such as discrimination based on failure to implement carbon restrictions, would violate Article XI of the GATT which eliminates all quantitative restrictions, unless justified under Article XX).

109. *See infra* Parts VI.A., VI.E.

110. *See* GATT, *supra* note 105; Hock, *supra* note 49, at 353-54 (providing solutions to the argument that eco-labels violate the GATT).

111. *See* Hock, *supra* note 49, at 352.

they are purchasing. Although the labels may ultimately lead to fewer imports from some nations, the laws imposing carbon labeling will give equal treatment to all products, regardless of their origin. The same can be said of nutrition labeling laws and other labeling laws which are "'trade blind'" and thus have not been subject to regulation by the WTO.[112]

Even if carbon labels are found to violate Article III, paragraph 4, the United States and other nations can defend the labels under Article XX, which sets forth exceptions to general GATT principles.[113] Namely, Article XX makes an exception and allows for adoption of measures which are "necessary to protect human, animal or plant life or health."[114] As discussed previously, climate change poses significant and undeniable risks to human, animal, and plant life.[115] The gravity of these risk to the Earth and its inhabitants is becoming more evident with each passing day, and measures aimed at halting climate change are surely "necessary to protect human, animal or plant life or health," within the meaning of Article XX.[116]

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112. NUTRITION LABELING HANDBOOK 99 (Ralph Shapiro ed., CRC Press 1995); *see also* Pauwelyn, *supra* note 54, at 16 (noting measures that apply only to imports are suspect, and measures that apply to both imports and domestic products evenly are generally accepted, as long as they do not discriminate against imports).

113. GATT, *supra* note 105. Specifically, Article XX states:

> [s]ubject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: . . . (b) necessary to protect human, animal or plant life or health . . . [and] (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

Id.

114. *Id. See, e.g.*, John J. Emslie, *Labeling Programs as a Reasonably Available Least Restrictive Trade Measure Under Article XX's Nexus Requirement*, 30 BROOK. J. INT'L L. 485, 515-24 (2005) (providing a number of examples when Article XX was effectively used as a means of justifying trade restrictions).

115. *See supra* Part II.

116. GATT, *supra* note 105; *see also* Pauwelyn, *supra* note 54, at 35-36 (expanding on the requirements for carbon regulations in order to fall within Article XX exceptions).

Lastly, the Agreement on Technical Barriers to Trade (TBT), a side treaty enacted after the GATT, specifically addresses environmental production restrictions.[117] The TBT acknowledges that nations have the authority to take measures to protect the environment and that doing so is a "legitimate objective" which justifies regulations that have the potential to restrict trade.[118] Nevertheless, the TBT gives the GATT the ultimate authority to strike down environmental regulations defining process and production methods if they are found to restrict trade.[119] Therefore, the ultimate power lies within the GATT; eco-labels, however, have been in use since they debuted thirty years ago in Germany and have yet to be defeated.[120]

While carbon labels may be able to survive statutory WTO challenges, several ethical considerations also present obstacles for carbon labeling.

B. Food Miles

Another criticism of carbon labels is that they will discourage economic growth in poor foreign markets.[121] This argument is based on the idea that goods with fewer food miles—that is, the miles needed to transport the good from where it was produced to where it will be sold—will emit less carbon into the environment because less fuel will be used to transport it; therefore, consumers will prefer those products.[122] For example, fresh fruit and vegetables traded between the United Kingdom and Africa generate $400 million in revenue alone, which "supports one million people living in Africa."[123] Trade between the United States and Africa totaled over $44 billion in

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117. Hock, *supra* note 49, at 352.

118. *Id.*; *see generally* Pauwelyn, *supra* note 54, at 27-40 (discussing the implications of the TBT on carbon labeling and finding that labels would not likely fall under the TBT, but would rather be subject to Article XX exceptions).

119. Hock, *supra* note 49, at 352-53.

120. *See infra* Part VI.A.

121. Paolo Tullio, *And You Thought the Carbon Footprint Debate Was Simple!*, IRISH INDEP., Apr. 1, 2008, *available at* http://www.independent.ie/lifestyle/food-drink/and-you-thought--the-carbon--footprint--debate-was--simple-1333673.html.

122. Zaino, *supra* note 104.

123. *Id.*

2004.[124] Arguably, carbon labeling will result in a disadvantage to these poor, foreign markets[125] that rely heavily on revenue from exports.[126]

While this disadvantage to poor foreign markets may be an unfortunate side effect of carbon labeling, it must be secondary to the more severe consequences presented by global warming.[127] Similarly, the well-being of the environment must prevail over the unfounded fear that consumers may not understand information provided on carbon labels.

C. Consumer Confusion

Critics of carbon labeling also argue that although consumers welcome the information on products, a majority of them do not understand the meaning of a carbon footprint.[128] This criticism has been challenged, however, with the recognition that customer understanding will develop over time.[129] In countries where carbon labeling has already been implemented, such as the United Kingdom, supporters state that customer comprehension levels are at the expected level, considering the recent introduction of the labels.[130] Furthermore, various types of labels are available and can be used to achieve a balance between ease of understanding and the quantity of information to reconcile consumer confusion, particularly during the initial phases of implementation.[131] Point-of-sale materials can also be distributed to introduce consumers to the concept of a carbon

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124. Trade Facts, U.S.-Africa Trade Is Up: Non-Oil AGOA Trade Expands, Office of U.S. Trade Representative, Mar. 8, 2005, http://www.ustr.gov/assets/Document_Library/Fact_Sheets/2005/asset_upload_file792_7354.pdf. This figure accounts for two-way trade, which includes both imports and exports. *Id.*

125. *See* Tullio, *supra* note 121.

126. *See* Zaino, *supra* note 104.

127. *See supra* Part II.

128. Murray, *supra* note 103.

129. *Id.*

130. *Id.* Dr. Steve John, Corporate Affairs Director at PepsiCo, Walkers' parent company, stated, "[i]t's true that consumer understanding of the figure [on the carbon label] was not high, but that is exactly where you'd expect it to be at the start of the story." *Id.*

131. *See supra* Part IV.B.

footprint, thereby developing their familiarly and comprehension of the information on the labels.[132]

Lack of familiarity regarding a useful device is no reason to avoid its use. Consumers' understanding, and consequently, the effectiveness, of the labels will develop with time.

D. Are Carbon Labels Even Effective?

Opponents of carbon labels are concerned about the effectiveness of labeling in improving the environment.[133] One critic challenged the effectiveness by asserting that there is an unquestioned assumption that the best way to reduce carbon emissions is simply to help consumers make more informed choices.[134] This critic contends there is only limited evidentiary proof that consumers would consider the information on carbon labels and states there is no proof that consumers would ever boycott products with high-carbon content altogether.[135] He maintains that boycotting would be the type of change needed for there to be a noticeable environmental impact, but is doubtful that such a change will occur.[136]

It is simply too early to conclusively determine the effectiveness of carbon labels on consumer habits. However, the recorded success of carbon footprint reductions already experienced by companies in the United Kingdom undermines the critics' arguments.[137] Furthermore, the success experienced by a number of other eco-labeling programs provides a hopeful basis for pursuing carbon labels.[138] Together, these experiences indicate carbon labeling has the potential to make a serious impact on the way manufacturers produce their products and on how consumers purchase those products.

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132. *See infra* Part VI.E.

133. *See* Ed Harris, *Would Carbon Labelling Help Us Make Good Food Choices?*, LOC. FOODS RES. PROJECT, Jan. 28, 2008, http://localfoods.wordpress.com/2008/01/28/would-carbon-labelling-help-us-make-good-food-choices/.

134. *Id.*

135. *Id.*

136. *Id.*

137. *See infra* Part VI.E.

138. *See infra* Part VI.

VI. EXPERIENCE AS A BASIS FOR CARBON LABELING'S VIABILITY

Labeling has proven to be an effective method of enlightening consumers of the implication of their purchases for many years. There are multiple success stories that demonstrate just how effective labels and eco-labels can be. In particular, Germany's Blue Angel labeling program has led to significant emission reductions.[139] The United States has also experienced similar achievements with Energy Star labels and, to a certain extent, with nutrition labels. Nongovernmental labeling efforts by the Forest Stewardship Council and Marine Stewardship Council have likewise enjoyed international success. And, perhaps most significantly, the United Kingdom's carbon labeling efforts have already resulted in emission reductions.

A. Germany's Blue Angel Label

Germany's Blue Angel program has experienced numerous recorded successes over the years. Introduced in 1978, the program became the world's first eco-labeling program and remains the most recognized eco-label.[140] Blue Angel is a voluntary, government-sponsored program that works with businesses and nongovernmental organizations.[141] The program is controlled by four institutions which grant certification: (1) the Environmental Label Jury, which is an independent administrative body comprised of both private and public representatives; (2) the Federal Ministry for the Environmental Nature Conservation and Nuclear Safety, the owner of the label and also the body that disseminates information to the public about decisions made by the Environmental Label Jury; (3) the Federal Environmental Agency, which acts as the office of the Environmental Label Jury and

139. Connolly, *supra* note 45, at 133. "Under Germany's Blue Angel eco-labeling program, emissions of sulphur dioxide, carbon monoxide, and nitrogen oxides fell by over 30% in the years after eco-labels for oil and gas heating appliances were introduced." *Id.* (citing *Trade, Environment and Development Aspects of Establishing and Operating Eco-Labeling Programmes*, U.N. TDBOR, 2nd Sess., ¶ 18, U.N. DOC. TD/B/WG.6/5 (1995)).

140. Der Blaue Engel, Welcome to the Blue Angel, http://www.blauer-engel.de/en/index.php (last visited Feb. 17, 2008).

141. Hock, *supra* note 49, at 354 (citing Surya P. Subedi, *Balancing International Trade With Environmental Protection: International Legal Aspects of Eco-Labels*, 25 BROOK. J. INT'L. L. 373, 377 (1999)).

also contributes to the development of the technical criteria for consideration in awarding the Blue Angel label; and (4) RAL gGmbH, the agency with the power to award labels.[142] Together, these organizations determine the guidelines for what constitutes an "environmentally-friendly" product.[143] RAL gGmbH then awards the Blue Angel label to products falling within this specific category.[144]

The program avoids criticism from the WTO because the certifying committee includes nongovernmental representatives.[145] This allows for maximum transparency—the ability of other parties to comment on the criteria required under eco-label certification during the planning stages so that appropriate changes can be made before implementation—in the preparation of this program.[146] This is one of the proposed solutions by the WTO to resolve the potential problem of eco-labels that violate the GATT.[147]

Specific success stories from Blue Angel's thirty-year life arise from a variety of products and reveal the potential of eco-labeling efforts.[148] Of particular relevance is the label's successful reduction of emissions for heating systems, as Blue Angel certification for space heat generation has continued to grow over the years.[149] It is asserted that "[w]ithout the Blue Angel it would have been impossible to achieve the low emission values and the high degree of efficiency."[150] Today, German manufacturers displaying the Blue Angel label are

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142. Der Blaue Engel, The Blue Angel—Who Is Behind It?, http://www.blauerengel.de/en/blauer_engel/who_is_behind_it/index.php (last visited Feb. 17, 2008) [hereinafter The Blue Angel—Who is Behind it?].

143. Subedi, *supra* note 141, at 378.

144. *See* The Blue Angel—Who Is Behind It?, *supra* note 142.

145. The certification committee is comprised of Germany's "Federal Environment Agency, an eleven-member NGO Environmental Label Jury, and the Institute for Quality Assurance and Labeling." Hock, *supra* note 49, at 354 (citation omitted).

146. *Id.* at 355.

147. *Id.* at 353-55.

148. *See* Der Blaue Engel, Success Stories of the Blue Angel, http://www.blauer-engel.de/en/blauer_engel/balance/success_stories.php (last visited Feb. 17, 2008) [hereinafter Success Stories of the Blue Angel].

149. *Id.*

150. *Id.*

among the world's leaders in heating systems.[151] In fact, Blue Angel-labeled products dominated the market until the 1990s[152] and are the leading example for environmentally-friendly heating systems.[153]

Today, the Blue Angel label is used by approximately 950 licensees for approximately 10,000 products.[154] The label has a brand awareness rating of 80%[155] and 66% of consumers surveyed by Blue Angel indicated they are willing to pay a higher price for environmentally-friendly products.[156] After thirty years, Blue Angel's widespread use and recognition shows the long-term impact eco-labels can have and provides a foundation for a promising future for carbon labels.

B. United States' Energy Star Label

Likewise, the United States is experiencing its own eco-labeling success with Energy Star labels. Energy Star is a labeling program that was introduced in 1992 by the EPA and aims to provide consumers with information about the energy efficiency of various products.[157] The stated purpose of the program is to "identify and promote energy-efficient products to reduce greenhouse gas emissions."[158] Over 12,000 private and public organizations have partnered with the EPA to deliver the information needed to allow consumers to make more energy-efficient decisions.[159] Currently, Energy Star labels appear on over fifty product categories and thousands of product models in the United States.[160] The success of the program is apparent, not only by the high participation in this voluntary program, but in the recorded cost savings of approximately sixteen billion dollars to businesses,

151. *Id.*
152. *Id.*
153. *Id.*
154. Der Blaue Engel, With 80 Percent Awareness—The World's Most Renowned Eco-label, http://www.blauer-engel.de/en/company/index.php (last visited Feb. 17, 2008).
155. *Id.*
156. Success Stories of the Blue Angel, *supra* note 148.
157. Livermore, *supra* note 88, at 328.
158. History of Energy Star, *supra* note 86.
159. *Id.*
160. *Id.*

organizations, and consumers in 2007.[161] Energy Star has contributed to a reduction in greenhouse gas emissions equal to that of twenty-seven million vehicles.[162]

Nevertheless, there are those who criticize Energy Star. In a recent Consumer Reports study, the DOE's standards for testing Energy Star appliances were criticized for being too relaxed, out of date, and too lenient in allowing companies to test their own products for compliance.[163] Even in light of these criticisms, however, the Energy Star logo is recognized by more than 70% of U.S. consumers.[164] In the interim, while the federal government makes the updates they admittedly need,[165] consumers at least know they are "getting some level of energy efficiency beyond the average when [they] see the logo."[166]

C. Forest Stewardship Council and Marine Stewardship Council

Although not associated with a governmental organization, like Blue Angel and Energy Star, the Forest Stewardship Council (FSC) and the Marine Stewardship Council (MSC) both provide examples of successful eco-labeling efforts in the international community, particularly within the developed world.

The FSC is a nonprofit organization created for the purpose of promoting sustainable forest management through a voluntary certification program of forestry products.[167] The FSC does not make

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161. *Id.*

162. Press Release, U.S. Environmental Protection Agency, EPA Energy Star Partners Significantly Reduce Greenhouse Gas Emissions (Apr. 1, 2008), http://www.epa.gov (follow "Newsroom" hyperlink; then follow "News Releases" hyperlink; then follow "By Date" hyperlink; then follow "2008" hyperlink; then follow "EPA Energy Star Partners Significantly Reduce Greenhouse Gas Emissions" hyperlink).

163. *Energy Star Has Lost Some Luster*, CONSUMER REP., Oct. 2008, at 24-25.

164. *Id.* at 25.

165. *Id.* at 26. In a June 2008 meeting with Consumer Union representatives, David E. Rogers, the DOE's Deputy Assistant Secretary for Energy Efficiency in the Office of Technology Department, Energy Efficiency and Renewable Energy, recognized the federal test procedures need to be updated. *Id.*

166. *Id.* at 25 (quoting Jennifer Thorne Amann, director of the buildings program for the nonprofit American Council for an Energy Efficient Economy).

167. Xavier Pons Räfols & Luke Brander, *The Stewardship Council Model: A*

distinctions among forests based on the country in which they are located and therefore pursues a more international approach to eco-labeling.[168] The success of FSC is manifest in its worldwide implementation and use. The FSC has accredited certification bodies in eight countries,[169] and there are FSC certified forests in eighty-one countries.[170] Furthermore, worldwide FSC sales are currently estimated at approximately twenty billion dollars.[171] Many developed countries, such as the United States and countries in Europe, have experienced the council's success.[172]

Like the FSC, the MSC also has a more internationally focused scope. The MSC's purpose is to promote "sustainable marine fisheries by promoting responsible, environmentally appropriate, socially beneficial, and economically viable fishery practices, while maintaining the biodiversity, productivity, and ecological processes of the marine environment."[173] In promoting this purpose, the MSC also does not take into account the location of the fishery.[174] Since MSC certification was implemented in 2000, nearly 200 certified fish products have been introduced in seventeen countries across the world, including the United States and much of Europe.[175] MSC sales in 2008 neared one billion U.S. dollars, which marks the second year that its sales have grown almost 100% in market value.[176] Again, like

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Comparison of the FSC and MSC, 11 ILSA J. INT'L & COMP. L. 637, 638 (2005).

168. *Id.*

169. *Id.* at 655.

170. Forest Stewardship Council, About the Forest Stewardship Council—FSC, http://www.fsc.org/about-fsc.html (last visited Nov. 29, 2008).

171. Forest Stewardship Council, Facts & Figures, http://www.fsc.org/facts-figures.html (last visited Nov. 30, 2008).

172. Rafols & Brander, *supra* note 167, at 655. In comparing the regional totals of certified areas, European forests totaled 27 million hectares and North American forests totaled 9 million hectares, whereas African and Asian-Pacific forests each totaled only approximately 1.5 million hectares. *Id.*

173. *Id.* at 639.

174. *Id.*

175. *Id.* at 659.

176. Press Release, Marine Stewardship Council, Reaching New Heights: Global Market for MSC Labelled Products Close to $1 Billion (July 31, 2008), http://www.msc.org/newsroom/press_releases/archive-2008/reaching-new-heights-global-market-for-msc.

the FSC, the MSC noted that developed nations were "'certainly the most open to the idea of ecolabeling.'"[177]

In light of the receptiveness of the certification schemes of the FSC and the MSC, the prospect of a successful carbon labeling scheme is hopeful, particularly within the developed world. However, the American public's declining use of nutrition labels casts some doubt on the effectiveness of labeling in the United States.

D. Nutrition Labels in the United States

In 1994, the FDA implemented new requirements under the Nutrition Labeling and Information Act of 1990, which mandated that all packaged foods display nutrition information on their labels.[178] This requirement has successfully provided consumers with an efficient way of obtaining important dietary information and has consequently raised awareness about the value of a healthy diet.[179]

Nevertheless, a study by the Economic Research Service of the U.S. Department of Agriculture reveals that consumer use of nutrition labels when making food purchases declined between 1995 and 1996 and between 2005 and 2006, which may be a warning sign about the potential effectiveness of carbon labels.[180] However, there are many possible explanations for this decline.[181] First, standardized nutrition labels were implemented in 1994, just as the internet was taking off.[182] Today, consumers have access to numerous online sources of

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177. Rafols & Brander, *supra* note 167, at 659.

178. Keane, *supra* note 100, at 297-98.

179. *Id.* at 298; *see also* Marian Burros, *Eating Well; Read Any Good Nutrition Labels Lately?*, N.Y. TIMES, Dec. 1, 2004, at F1, *available at* www.nytimes.com (search "Eating Well; Read Any Good Nutrition Labels Lately"; follow the "Eating Well; Read Any Good Nutrition Labels Lately" hyperlink) (presenting the results of a telephone survey where 85% of respondents claimed to read the nutrition label some or all of the time and nearly two-thirds of respondents admitted having used the information to make a purchasing decision).

180. JESSICA E. TODD & JAYACHANDRAN N. VARIYAM, THE DECLINE IN CONSUMER USE OF FOOD NUTRITION LABELS, 1995-2006, at iii (2008).

181. *Consumer Use of Food Labels, Part II*, FOOD, NUTRITION & SCIENCE, Sept. 29, 2008, http://www.foodnutritionscience.com/index.cfm/do/Monsanto.article/articleId/211.cfm. Jessica Todd, co-author of the study, indicated that there are a number of reasons for the decline in use. *Id.*

182. *Id.*

nutritional information and thus need not rely on nutrition labels alone.[183] Also, as more consumers have increased their out-of-home food consumption, they encounter nutrition labels less frequently, further accounting for this decline.[184] Finally, the educational campaigns launched when nutrition labels first hit the market are now a thing of the past, leaving consumers to their own understanding of nutrition label content.[185] Therefore, while this decline may suggest that nutrition labels need to be revamped, it in no way indicates that nutrition labels or labeling efforts generally are altogether useless. In fact, the same study revealed that nutrition fact panel usage declined by a total of only 3%.[186]

Furthermore, nutrition labels are distinguishable from carbon labels. Nutrition labels are criticized for having too much information by including facts such as calories, fat, and vitamin content, whereas carbon labels are limited in scope. The EPA found that simple labels, like carbon labels, convey information to consumers more effectively than complicated labels.[187] Labels with too much information may lead to consumer confusion. However, carbon labels simply provide the consumer with information about the carbon footprint of that particular product.[188] Initially, consumers may require instruction on how to use carbon labels to explain the meaning of a carbon footprint, particularly if carbon score labels are chosen.[189] However, carbon labels provide information only on carbon emissions and unlike

183. *Id.*

184. *Id.*

185. *Id.*

186. TODD & VARIYAM, *supra* note 180, at iii. The report also indicated that the use of the ingredient list declined by 11% and use of the panel's information about calories, fat, cholesterol, and sodium decreased by 10%. *Id.* However, use of fiber information increased by 2% and use of sugar content information remained constant. *Id.*

187. Ciannat M. Howett, Note, *The "Green Labeling" Phenomenon: Problems and Trends in the Regulation of Environmental Product Claims*, 11 VA. ENVTL. L.J. 401, 410 (1992) (discussing the results of a study commissioned by the EPA) (citing APPLIED DECISIONS ANALYSIS, INC., ENVIRONMENTAL LABELING IN THE UNITED STATES, BACKGROUND RESEARCH ISSUES AND RECOMMENDATIONS, DRAFT REPORT 49 (1990)).

188. *See supra* Part IV.B.

189. *See supra* Part IV.B.

nutrition labels, which provide information on multiple nutrition categories, they will not overwhelm consumers with excessive data.

Some skeptics of carbon labeling may try to assert that the decline in the use of nutrition labels in the United States is a reason to avoid implementation of carbon labels; however, their arguments will be unfounded. First, the decline in nutrition label usage is minor and explainable. Furthermore, carbon labels are distinguishable from complicated nutrition labels. In fact, the future of carbon labels is bright in light of the successes already experienced in the United Kingdom.

E. Carbon Labels in the United Kingdom

The Carbon Trust is an independent company created by the British government in 2001 for the purpose of accelerating "the move to a low-carbon economy by working with organisations to reduce carbon emissions and develop commercial low-carbon technologies."[190] In an effort to promote its goal of establishing a low-carbon economy and to provide a solution to high-carbon emissions, the Carbon Trust introduced "carbon reduction labels."[191] The purpose of these labels is to encourage companies to calculate their carbon footprint in order to provide both companies and consumers with a full understanding of the impact that their products and services have on the environment.[192] Ascertaining the carbon footprint of an organization can be the first step in an effort to reduce the carbon

190. Carbon Trust, About Us, http://www.carbontrust.co.uk/about (last visited Oct. 2, 2008). To achieve this mission, the Carbon Trust focuses on five business areas to provide: (1) insight into the risks and prospects presented by climate change; (2) solutions to help both the business and public sectors reduce their carbon emissions; (3) innovations in low carbon technology; (4) enterprise by way of developing low carbon businesses; and (5) investments in clean energy businesses which demonstrate commercial potential. Carbon Trust, What Is the Carbon Trust, http://www.carbontrust.co.uk/about/about/ (follow "What Is the Carbon Trust?" hyperlink; then follow "Find Out More" hyperlink) (last visited Mar. 2, 2008).

191. *See* Carbon Trust, The Carbon Reduction Label, http://www.carbon-label.com (last visited Feb. 14, 2009).

192. *See* Carbon Trust, Welcome to the Carbon Trust's Carbon Reduction Label Site, http://www.carbon-label.com/individuals/default.aspx (last visited Feb. 20, 2009).

emissions it produces.[193] The Carbon Trust points out, however, that there is little use in calculating a carbon footprint unless the organization reduces its emissions and improves its efficiency.[194] These successes are more likely to occur if consumers are made aware of this carbon footprint and choose products based on the information on carbon labels.

As indicated above, carbon reduction labels reveal the amount of carbon and other greenhouse gases emitted as part of a product's manufacture, distribution, and disposal—that product's carbon footprint.[195] In the United Kingdom, companies choosing to place the label on their product are also signifying their commitment to reduce the carbon footprint of their products within the next two years.[196] Companies thereby agree to a "reduce it or lose it" clause which states that if they do not reduce their carbon footprint within two years, the Carbon Trust will withdraw the label.[197]

At the request of the Carbon Trust and the Department for Environment, Food and Rural Affairs (DEFRA), the British Standards Institution (BSI) has undertaken to establish a uniform standard for calculating a product's carbon footprint.[198] The methodology, referred to as the Publicly Available Specification (PAS), is a "process life-cycle assessment . . . approach to evaluating [greenhouse gas] emissions associated with goods or services."[199] BSI completed its second phase of consultations in March 2008[200] to create a single standard for determining life-cycle assessments,[201] and it recently

193. Carbon Trust, Developing the Standard, http://www.carbontrust.co.uk/carbon/briefing/developing_the_standard.htm (last visited Mar. 5, 2009) [hereinafter Carbon Trust, Developing the Standard].

194. *Id.*

195. Carbon Trust, The Carbon Reduction Label Explained, http://www.carbon-label.com/business/label.htm (last visited Feb. 20, 2009).

196. *Id.*

197. Carbon Trust Launches Carbon Reduction Label, *supra* note 20.

198. *See* Carbon Trust, Developing the Standard, *supra* note 193.

199. GUIDE TO PAS 2050, *supra* note 61, at 9.

200. British Standards Inst., PAS 2050—Assessing the Life Cycle Greenhouse Gas Emissions of Goods and Services, http://www.bsi-global.com/en/Standards-and-Publications/How-we-can-help-you/Professional-Standards-Service/PAS-2050/ (last visited Mar. 5, 2009).

201. Press Release, British Standards Inst. and Carbon Trust, BSI British

released the final specifications in October 2008.[202] During BSI's consultations, it received input from approximately 1000 organizations in the United Kingdom and the international community, as well as from individuals across a variety of industries, to contribute to the standard and determine the best practice available.[203] In doing so, it has provided for maximum transparency by involving all interested parties in developing the specifications for certification, thereby potentially avoiding criticism from the WTO.[204]

PAS 2050 is comprised of a five-step method to calculate the carbon footprint of any good or service. First, a process map or flow chart must be created in order to identify all materials, activities, and processes that contribute to the particular product's life-cycle.[205] Second, the boundaries for the carbon footprint analysis are defined to determine the "scope [of] the product['s] carbon footprint."[206] Wherever possible, the defined boundaries should be consistent with those defined in ISO 10425, the third type of label created by the ISO.[207] Next, specific data must be gathered to ensure accurate and more readily comparable carbon footprints.[208] Then, the carbon

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Standards Announces Consultation on GHG Emissions Standard (Feb. 22, 2008), http://www.bsi-global.com/en/about-BSI/NewsRoom/BSINewscontent/Disciplines/Sustainability/2nd-consultation/.

202. *See generally* PAS 2050: 2008, *supra* note 65, at 12; GUIDE TO PAS 2050, *supra* note 61, at 12 (noting "[t]he system boundary defines the scope for the product carbon footprint, i.e. which life cycle stages, inputs and outputs should be included in the assessment.").

203. BSI British Standards Announces Consultation on GHG Emissions Standard, *supra* note 201.

204. *See supra* Part V.A.

205. GUIDE TO PAS 2050, *supra* note 61, at 9-10.

> To develop a product process map, start by breaking down the selected product's functional unit into its constituent parts (e.g. raw materials, packaging) by mass using internal expertise and available data or desktop research. A product specification or bill-of-materials is a good starting point. Focus on the most significant inputs first, and identify their respective inputs, manufacturing processes, storage conditions and transport requirements.

Id. at 10.

206. *Id.* at 12-15.

207. *Id.* at 12; *see also supra* Part III.

208. GUIDE TO PAS 2050, *supra* note 61, at 15-20. PAS 2050 defined Data

footprint is calculated by totaling all materials, energy, and waste for all activities in a product's life-cycle and multiplying that number by the product's emission factor.[209] Lastly, a company may choose to measure the uncertainty of its carbon footprint.[210] This step is optional but may be beneficial in establishing a greater confidence in the footprint number.[211]

Carbon labels were unveiled on shelves in the United Kingdom in April 2007.[212] The first product to display the label was Walker's Cheese and Onion crisps—Walker's best-selling flavor of crisps.[213] The new packaging made its debut in approximately 250 major supermarkets and independent retailers.[214] A year and a half later, there are twenty companies with approximately seventy-five products using PAS 2050 as a trial method for carbon labeling.[215]

Although the labels are still in the developmental stages and have been in use for only a year and a half, the initiative continues to expand monthly.[216] An increasing number of businesses are committing to reduce their carbon footprints and are experiencing success in their efforts.[217] In fact, businesses are already noticing a reduction in their carbon footprints as a result of their implementation

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Quality Rules which a PAS 2050-compliant carbon footprint assessment must meet. *Id.* at 15. "Good quality data helps to build a footprint that represents a 'typical' product's life cycle, over a defined time period, recognising variations in geography, distance and materials." *Id.*

209. *Id.* at 20. Calculating a carbon footprint typically requires a mass balance—"[t]he quantification of the total amount of all materials into and out of a process"—in order to ensure that all materials have been fully accounted for and that no waste streams are missing. *Id.*

210. *Id.* at 34.

211. *Id.*

212. Carbon Trust Launches Carbon Reduction Label, *supra* note 20.

213. *Id.*

214. *See id.*

215. Carbon Footprinting Takes a Major Step Forward With 7 New Companies Committing to Carbon Count Their Products, *supra* note 21.

216. *Id.*

217. *See generally id.* Peter Watson of the company British Sugar stated that "[w]e are delighted to be involved in this initiative with the Carbon Trust. Our focus on reducing our energy usage has delivered significant results and we are keen to support the development of a common standard for carbon footprinting." *Id.*

of the requirements under PAS 2050.[218] The labels' impact on consumers has yet to be determined, as the implementation of these labels is still in its fledgling stages. However, David North, Tesco's Director of Governmental Affairs and Corporate Responsibility, stated that although it is "too early in the trial to report on the impact on sales," the results look "pretty encouraging so far."[219] Furthermore, efforts are being made to help advance consumer understanding of the product's footprint, as well as its manufacturer's own carbon footprint.[220] For example, Boots, another company that engaged in carbon labeling at the outset, is providing information to consumers about the carbon footprint that appears on its products through point-of-sale material, and it is advising consumers on how to reduce their own carbon footprints.[221] This has the potential to cause a significant impact in the way consumers shop, as well as the way they live their lives, particularly in light of the green consumerism that is gaining momentum.

The success already experienced by the United Kingdom in its carbon labeling efforts, in addition to the achievements of other eco-labeling programs, is an indication of the potential impact that carbon labels can have on consumers in America. Individual Americans contribute an estimated one-third of the total carbon dioxide emissions in the United States and about 8% of the world's total emissions.[222] By providing Americans with the information to make environmentally conscious decisions, the adverse environmental impact caused by individuals in the United States can be reduced.

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218. *See generally id.* David Farrell of the company Colors noted that "[t]he Carbon Trust with its PAS 2050 LCA methodology has provided us with the guidance and tools to achieve [meaningful emission reductions]." *Id.*

219. Murray, *supra* note 103. Tesco has plans to put carbon labels on all of its products. *Id.* Tesco is Britain's largest and most profitable supermarket chain. Corporate Watch, Tesco: A Corporate Profile, http://www.corporatewatch.org.uk/?lid=252#sum (last visited Jan. 7, 2009).

220. Carbon Trust Launches Carbon Reduction Label, *supra* note 20.

221. *Id.*

222. Vandenbergh & Steinemann, *supra* note 17, at 1673. The total emission for all Americans in 2000 was roughly 4.1 trillion pounds, whereas the entire industrial sector was 3.9 trillion pounds. *Id.* at 1693-94. Emissions from individual behaviors are surpassing industry emissions and, therefore, changing consumer behavior could have a profound impact on the environment. *See id.*

VII. A PROPOSAL FOR CARBON LABELING IN THE UNITED STATES

Before it is possible to recommend a policy for implementing carbon labels in the United States, it is necessary to examine the historical evolution of U.S. environmental policies and laws. Examining the environmental laws and policies will reveal the reasons why a national, governmentally regulated policy for carbon labels is necessary.

A. Environmentalism in the United States

Following World War II the United States experienced growth in environmental awareness.[223] A new public understanding emerged of the environment as a "living system . . . rather than just a storehouse of commodities to be extracted or a physical or chemical machine to be manipulated."[224] This rise in environmentalism forced air pollution control onto the nation's policy agenda. California was the first state to pass an air pollution law in 1947.[225] However, despite state action, air pollution flowed across local and state lines and could not effectively be controlled by state and local governments.[226]

The Air Pollution Control Act of 1955 was the first federal air pollution law.[227] This legislation mandated that state and local governments were responsible for air pollution regulation, although it granted five million dollars to research and to assist state governments.[228] The legislature continued to address air pollution by replacing the Air Pollution Control Act with the Clean Air Act of 1963.[229] The Clean Air Act shifted the burden of regulating air

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223. *See* RICHARD N. L. ANDREWS, MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY 201 (1999).

224. *Id.* at 202.

225. U.S. Environmental Protection Agency, *Origins of Modern Air Pollution Regulations*, http://www.epa.gov/apti/course422/apc1.html (last visited Feb. 29, 2008) [hereinafter *Origins of Modern Air Pollution Regulations*].

226. ANDREWS, *supra* note 223, at 203.

227. *Origins of Modern Air Pollution Regulations*, *supra* note 225.

228. ANDREWS, *supra* note 223, at 208; *see also Origins of Modern Air Pollution Regulations*, *supra* note 225.

229. *Origins of Modern Air Pollution Regulations*, *supra* note 225.

pollution to the federal level.[230] This was the first of five federal laws in seven years, ending with the Clean Air Act of 1970, which ultimately gave the federal government primary regulatory authority over national air quality standards, industrial emission permits, and motor vehicle emissions.[231] Also during 1970, President Nixon created the EPA by executive order.[232] The creation of the EPA marked a drastic change in the United States' policy toward air pollution.[233] Although prior federal involvement was limited to advisory and educational roles, the EPA promoted strict enforcement of air pollution laws.[234] The EPA was given the challenging task of repairing damage previously done to the environment and creating standards to assist Americans in making a cleaner environment a reality.[235] The EPA has since continued to shape the nation's policy on air pollution.

More recently, disputes have arisen between states and private organizations against the EPA over the EPA's lack of involvement in reducing greenhouse gas emissions under the auspices of the Clean Air Act. The EPA's reluctance to act has the potential to impact nationwide carbon labeling efforts in the United States. Of particular relevance is the disagreement that led to the U.S. Supreme Court's 2007 decision in *Massachusetts v. Environmental Protection Agency*.[236] A group of twelve states, four local governments and a number of private organizations brought suit against the EPA in an effort to force the EPA to regulate greenhouse gases as pollutants under section 202 of the Clear Air Act.[237] The issue before the Court was whether the "EPA has the statutory authority to regulate

230. ANDREWS, *supra* note 223, at 208.

231. *Id.* at 209.

232. *Origins of Modern Air Pollution Regulations*, *supra* note 225.

233. *Id.*

234. *Id.*

235. *Id.*

236. Massachusetts v. Envtl. Prot. Agency, 549 U.S. 497 (2007).

237. *Id.* at 505 nn.2-4. Section 202(a)(1) of the Clean Air Act requires that the EPA "shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class . . . of new motor vehicles . . . which in [the EPA Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. §7521(a)(1).

greenhouse gas emissions from new motor vehicles[,] and if so, whether its stated reasons for refusing" were justified.[238] In a five-to-four decision, the Court found that greenhouse gases constitute "air pollutants" under the Clean Air Act and therefore can be regulated by the EPA.[239] It reasoned that the definition, which includes "'*any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air'" encompasses all airborne compounds and, furthermore, that carbon dioxide and other greenhouse gases are undeniably "'physical [and] chemical substance[s].'"[240] The Court also concluded the EPA's reasons for not regulating greenhouse gases were insufficient.[241] It further stated the EPA can avoid regulating greenhouse gases only if it determines that they do not contribute to climate change or, alternatively, if it offers a reasonable explanation for not exercising its discretion to do so.[242] The Court determined that the EPA did not do either, but rather acted "arbitrar[ily], capricious[ly] . . . [and] otherwise not in accordance with [the] law"—a violation of section 7607(d)(9) of the Clean Air Act.[243]

The implications of the Court's decision in *Massachusetts v. Environmental Protection Agency* are potentially far reaching. The case held that greenhouse gases are subject to regulation as air pollutants under the current Clean Air Act.[244] While the Court in its decision acknowledged that the EPA has some latitude and may ultimately decide not to regulate if it so chooses, at a minimum the EPA must "ground its reasons for action or inaction in the statute."[245] The EPA has since taken steps to consider regulation of greenhouse gases. On July 11, 2008, the EPA issued an Advanced Notice of

238. Massachusetts v. Envtl. Prot. Agency, 549 U.S. at 505.

239. *Id.* at 532.

240. *Id.* at 528-29.

241. Massachusetts v. Envtl. Prot. Agency, 549 U.S. 497, 534 (2007).

242. *See id.*

243. *Id.*

244. *See id.* at 532. *Cf.* Jason Scott Johnston, *Climate Change Confusion and the Supreme Court: The Misguided Regulation of Greenhouse Gas Emissions Under the Clean Air Act*, 84 NOTRE DAME L. REV. 1, 2-3 (2008) (criticizing the Supreme Court's decision to require the EPA to regulate greenhouse gases under the Clean Air Act).

245. Massachusetts v. Envtl. Prot. Agency, 549 U.S. at 535.

Proposed Rulemaking.[246] The notice points out the complexity and magnitude of regulating greenhouse gases under the Clean Air Act and presents the concerns of other federal agencies surrounding the regulation of greenhouse gases by the EPA.[247] In addition, the notice requests commentary from other agencies regarding the EPA's regulation of greenhouse gases.[248] The EPA clarified that the notice does not present a policy decision by the EPA, but rather is intended to promote discourse on the subject to help resolve the issue of the EPA's role in climate change.[249]

What is apparent from the ruling in *Massachusetts v. Environmental Protection Agency* is that the EPA has the authority to regulate greenhouse gases; therefore, the EPA should implement carbon labeling in the United States rather than leave it to individual states or independent companies. Although the ruling in *Massachusetts v. Environmental Protection Agency* is limited to regulation of greenhouse gas emissions from vehicles, the Court pointed out that the EPA is generally responsible for regulation of greenhouse gases under section 202 of the Clean Air Act.[250] It would be nearly impossible for the EPA to deny the apparent effects that greenhouse gases have on the environment.[251] Consequently, the EPA will have to provide a reasonable explanation for not regulating, which it has yet to do, at least with regard to vehicle emissions.[252] While the EPA has yet to determine the final course on how to regulate greenhouse gases, it is clear that the EPA remains reluctant to get involved.

The Obama Administration, however, presents a promising opportunity for the EPA's hesitancy to transform into action. The administration has already expressed its commitment to the

246. ENVTL. PROT. AGENCY, REGULATING GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, ADVANCE NOTICE OF PROPOSED RULEMAKING (2008), *available at* http://www.epa.gov/climatechange/emissions/downloads/ANPRPreamble.pdf [hereinafter ADVANCE NOTICE OF PROPOSED RULEMAKING].

247. *See id.*

248. *See id.*

249. *Id.*

250. Massachusetts v. Envtl. Prot. Agency, 549 U.S. at 532.

251. *See supra* Part II.

252. *See generally* ADVANCE NOTICE OF PROPOSED RULEMAKING, *supra* note 246.

environment in its comprehensive "New Energy for America" plan. The plan proposes an economy-wide cap-and-trade program[253] to reduce greenhouse gas emissions to "80% below 1990 levels by 2050."[254] Furthermore, the administration wants to develop the United States into a leader on climate change.[255] To achieve this goal, it aspires to re-connect with the United Nations Framework Convention on Climate Change, which is the leading international forum focusing on climate change.[256] Additionally, the administration wants to create a Global Energy Forum, comprised of the world's largest emitters, for the purpose of focusing on global energy and environmental issues.[257] The Pew Center on Global Climate Change acknowledged President Obama as exhibiting "the kind of leadership the country and the world have been waiting for."[258] The Pew Center recognizes that if Congress works with the President to enact the proposed cap-and-trade system,

253. Cap-and-trade is defined by the EPA as:

> [A] market-based policy tool for protecting human health and the environment. A cap and trade program first sets an aggressive cap, or maximum limit, on emissions. Sources covered by the program then receive authorizations to emit in the form of emissions allowances, with the total amount of allowances limited by the cap. Each source can design its own compliance strategy to meet the overall reduction requirement, including sale or purchase of allowances, installation of pollution controls, implementation of efficiency measures, among other options. Individual control requirements are not specified under a cap and trade program, but each emissions source must surrender allowances equal to its actual emissions in order to comply. Sources must also completely and accurately measure and report all emissions in a timely manner to guarantee that the overall cap is achieved.

U.S. Environmental Protection Agency, Cap and Trade, http://www.epa.gov/airmarkt/cap-trade/index.html (last visited Nov. 29, 2008).

254. Barack Obama & Joe Biden, New Energy for America, http://my.barackobama.com/page/content/newenergy_more#emissions (last visited Mar. 6, 2009).

255. *Id.*

256. *Id.*

257. *Id.*

258. Press Release, Pew Center on Global Climate Change, Statement: A Response to Obama's Remarks to Bi-Partisan Governors' Climate Summit (Nov. 18, 2008), http://www.pewclimate.org/statement/obama/11-18-08.

significant emission reduction in the United States will undoubtedly follow.[259]

In the face of this progressive and environmentally conscious administration, it is unlikely the EPA will be able to continue to avoid regulation of greenhouse gas emissions for long. Furthermore, efforts have already been taken by the California legislature and by nonprofit organizations to begin implementation of a voluntary carbon labeling program, and therefore the future for carbon labeling in the United States looks certain.

B. California Leading the Way: Proposed Law in the United States on Carbon Labeling

In December 2008, Representative Ira Ruskin proposed Assembly Bill 19, The Carbon Labeling Act of 2009, for action by the California legislature.[260] Much like the program in the United Kingdom, the bill proposes a voluntary carbon labeling program aimed at standardized labeling of life-cycle carbon footprints for products sold in California.[261] The legislation designates the California Air Resources Board as the agency to develop a labeling standard to communicate to consumers the carbon footprint of a product relative to an average comparable product sold in the state.[262] The legislation, which is expected to pass sometime in 2009,[263] may help California reach its larger goal of a 25% reduction of greenhouse gas emissions by 2020, as mandated by the California Global Warming Solutions Act of 2006.[264] Already, businesses such as "Cirque du Soleil, the Anderson Valley Brewery, and Timberland are voluntarily putting labels on their products."[265]

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259. *Id.*

260. Carbon Labeling Act of 2009, Assem. B. 19, Reg. Sess. (Cal. 2008).

261. *See id.* § 44574(a).

262. *Id.* §§ 44572(b), 44574(b)(1).

263. ClimateChangeCorp.com, *supra* note 22.

264. *See* Press Release, Gov. Schwarzenenegger Signs Landmark Legislation to Reduce Greenhouse Gas Emissions (Sept. 27, 2006), http://gov.ca.gov/press-release/4111/; *see also* California Global Warming Solutions Act of 2006 § 38550, Assem. B. 32, Reg. Sess. (Cal. 2006).

265. Carbon Label for California, Public Policy, http://carbonlabelca.org/10.html (last visited Sept. 4, 2008). After Timberland

The problem with California's plan is that it focuses on implementing the program for goods sold only in California.[266] Namely, the bill focuses on state commerce regulation as a means for helping California achieve its larger goal of greenhouse gas emission reduction prescribed in the California Global Warming Solutions Act.[267] However, in a nation where interstate commerce is at the core of our economy and a world where the international marketplace is prominent, such a small, state-based policy is far too limited in scope. Similarly, carbon labeling efforts by individual companies in the United States are insufficient to achieve the goal of carbon reduction as they are already resulting in inconsistent labeling schemes that will fail to achieve the desired result.

C. Independent Carbon Labeling Schemes in the United States

Carbon Fund, an independent, nonprofit carbon offset provider, has undertaken to develop a "Certified Carbon Free" label in the United States.[268] In order to carry the Carbon Free label, a product's carbon footprint is tested by using a life-cycle assessment to determine the product's carbon emissions.[269] The product must then offset the emissions to render it carbon neutral.[270] Six products currently display the label, with another five currently undergoing the certification

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calculated its carbon footprint, it discovered a large amount of emission was coming from the methane emitted by the cows that provide the shoe leather rather than the production, shipment, or retail sale of its shoes. Vandenbergh, *supra* note 12, at 940-41. As a result, Timberland is exploring changing the raw material used to reduce methane emissions. *Id.* at 941.

266. Carbon Labeling Act of 2009, § 44574(a).

267. *Id.* § 44571. In the statute's "Finding and Declarations" section, it specifically notes that global warming poses a serious threat to California's well-being and that the California Global Warming Solutions Act "provides a regulatory framework to establish and enforce greenhouse gas emission reductions." *Id.* Furthermore, it finds that voluntary consumer decisions "can play a significant role in helping California meet its greenhouse gas emission reduction targets, but only if consumers have useable and reliable information about the greenhouse gas emissions resulting from their product choices." *Id.*

268. ClimateChangeCorp.com, *supra* note 22.

269. Carbonfund.org, *supra* note 19.

270. *Id.*

process.[271] Carbon neutrality, however, is an ambitious goal that fails to recognize incremental change through acknowledgement of carbon reduction rather than complete carbon neutrality, which may be more feasible and effective in the long run. The "reduce it or lose it" clause being used by the Carbon Trust in the United Kingdom is perhaps a more reasonable alternative.[272]

California's Climate Conservancy is another nonprofit organization that has developed what it calls a "Carbon Conscious" label.[273] The Climate Conservancy also uses life-cycle assessments to determine a product's carbon footprint.[274] After a product's footprint is determined using the Climate Conservancy's methodology, it is scored using a carbon rating scheme.[275] The products are then awarded either a bronze, silver, or gold rating based on their carbon emissions, or lack thereof.[276] While Climate Conservancy is currently using its own methodology for life-cycle assessments, it is also one of the companies commenting on the Carbon Trust's PAS 2050 specifications.[277] The Carbon Trust has also set up offices in the United States and is partnering with companies such as the Coca-Cola Company and PepsiCo to determine these companies' products' carbon footprint for the purposes of implementing carbon reduction labels.[278]

These voluntary, nongovernmental programs, however, are problematic. They are already causing a patchwork of labeling schemes that will undoubtedly fall short. The inconsistency of labels will cause consumer confusion and mistrust of the labels, which is precisely why the ISO promulgated standardization of environmental labels.[279] Like patchwork legislation at the state level, patchwork labeling schemes are insufficient and therefore it is necessary for the EPA to take the lead to avoid exacerbation of these problems.

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271. ClimateChangeCorp.com, *supra* note 22.
272. *See supra* Part VI.E.
273. *Id.*
274. ClimateChangeCorp.com, *supra* note 22.
275. *See supra* Part IV.B.
276. ClimateChangeCorp.com, *supra* note 22.
277. Climate Conscious Assessment Methodology, *supra* note 77.
278. ClimateChangeCorp.com, *supra* note 22.
279. *See* Mikulich, *supra* note 51, at 123.

D. The Proposal

Although individual organization and state efforts are a noble and worthwhile cause, it is the EPA that should be taking the lead on carbon labeling. It is critical that the EPA no longer dodge regulation simply because regulation presents a complex and controversial challenge. Regulation of greenhouse gases is an important goal in the twenty-first century that cannot be avoided simply because it is daunting. Like air pollution laws in the mid-twentieth century, greenhouse gas regulation, specifically carbon labeling, cannot be effectively dealt with at the state level or by individual companies for a number of reasons.

First, if the EPA does not take the lead on carbon labeling before states begin implementing their own schemes, it may result in preemption problems between state and federal laws in the future.[280] In other words, state laws concerning carbon labeling may be preempted by the EPA's future policies which it promulgates under the auspices of the Clean Air Act.[281] Litigation over preemption of state regulation of greenhouse gases has already been seen in the case of *Central Valley Chrysler-Jeep v. Witherspoon*.[282] In this case, motor vehicle manufacturers and dealers sued the California Air Resources Board to prevent the enforcement of regulations adding greenhouse gas emission standards to California's existing motor vehicle standards.[283] The automobile industry argued that California Assembly Bill 1493, which requires manufacturers to begin reducing emission rates for cars by 2009, was preempted by the federal Energy Policy and Conservation Act (EPCA), as well as the Clean Air Act, unless the EPA issued a preemption waiver.[284] The U.S. District Court for the Eastern District of California refused to grant the government's motion for judgment on the pleadings, finding that the industry had

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280. Beveridge & Diamond PC, *The Massachusetts v. EPA Greenhouse Gas Decision*, Apr. 4, 2007, http://www.beveridgediamond.com/assets/attachments/2007-04-04_MA_v_EPA_Greenhouse_Gas_Decision.pdf.

281. *Id.*

282. Cent. Valley Chrysler-Jeep v. Witherspoon, 456 F. Supp. 2d 1160, 1163 (E.D. Cal. 2006).

283. *Id.* at 1166 n.4; JUSTIN R. PIDOT, GLOBAL WARMING IN THE COURTS: AN OVERVIEW OF CURRENT LITIGATION AND COMMON LEGAL ISSUES 14 (2006).

284. PIDOT, *supra* note 283, at 14.

stated a claim for preemption of California law under the EPCA[285] and that the EPA had not issued a waiver for preemption as required under the Clean Air Act.[286]

Similar preemption challenges are a distinct possibility for carbon labeling schemes developed by the individual states. California has already started to implement a carbon labeling scheme, which would likely be preempted if the EPA begins regulation. In light of the success of carbon labeling already experienced in the United Kingdom, carbon labeling efforts already underway in the United States, and the number of other countries that have also committed to the implementation of carbon labeling,[287] it may be only a matter of time before carbon labels become prevalent in the United States. Therefore, would be prudent for Congress to expressly grant the EPA

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285. *Id.* at 15.

286. Beveridge & Diamond PC, *supra* note 280, § III.C.

287. In France, two supermarkets, Casino and E. Leclerc, have introduced voluntary carbon labeling. ClimateChangeCorp.com, *supra* note 22. Likewise, Switzerland's largest supermarket introduced carbon labels in 2007 and another ten to twelve companies will begin using the labels in the coming months. *Id.* Canada uses a somewhat different approach and allows companies to calculate their own carbon footprint online according to existing standards. *Id.* Thereafter, the company can download the "Carbon Counted" logo, which forty companies now display. *Id.* There are also a number of carbon labeling schemes currently in the works in other countries. For example, on July 28, 2008, the Ministry of Environment in South Korea announced that products sold in South Korea, including imports, will be required to contain information about their carbon footprints beginning in 2009. James Lim, *Products Sold in South Korea Must Include Carbon Footprint Data, Beginning in 2009*, 31 INT'L ENVTL. REP. (BNA) 758 (2008). Likewise, Japan has plans to put carbon labels on a variety of products by spring 2009 under a government-approved calculation and labeling scheme. Justin McCurry, *Japan to Launch Carbon Footprint Labelling Scheme*, Aug. 20, 2008, http://www.guardian.co.uk/environment/2008/aug/20/carbonfootprints.carbonemissions. Japan anticipates that its model will be even more comprehensive than the scheme already implemented in the United Kingdom because it will provide a detailed breakdown of each product's carbon footprint. *Id.* Germany's government launched a pilot labeling scheme in April 2008. ClimateChangeCorp.com, *supra* note 22. Sweden is also developing a carbon label for locally manufactured food products. *Id.* China Energy Investment Corporation is working with the Carbon Trust to determine the footprint of Chinese businesses and products. *Id.* The European Union, although uncommitted to carbon labeling at this point, is considering the idea as well. *Id.* Lastly, Australia and Finland are also considering carbon labeling schemes. *Id.*

power to implement carbon labels in order to avoid efforts by the states that will face preemption problems in the future.

Additionally, if the EPA implements a carbon labeling program now, it will avoid patchwork legislation among the states and patchwork labeling schemes of various companies. In order for carbon labels—like eco-labels in general—to affect consumer behavior, there must be uniformity in the standards and labels;[288] patchwork legislation or labeling schemes would be detrimental to the success of carbon labeling. Also, it is unlikely each state would immediately implement carbon labeling schemes; therefore, a strong federal policy has a greater potential to achieve emission reductions than state policies alone.[289] Moreover, having a single nationwide regulation would make it easier for companies to comply with standards, rather than adhere to various sources of regulation.[290]

Furthermore, the EPA has already undertaken to establish a national standard for determining life-cycle assessments—the method promulgated in PAS 2050 in the United Kingdom used to identify a product's carbon footprint.[291] The EPA established the National Risk Management Research Laboratory (NRMRL), which is assigned the task of examining approaches to help prevent and reduce risks from pollution that threaten the environment and human life.[292] As part of its efforts, the NRMRL established guidelines on how to determine a life-cycle assessment, [293] which is similar to the United Kingdom's PAS 2050 guidelines. The purpose of these guidelines is to encourage manufacturers to determine the comparative environmental effect of various products.[294] The EPA should use these guidelines—in conjunction with the PAS 2050 guidelines and the guidelines developed by companies in the United States who have already

288. Hock, *supra* note 49, at 359 (noting that "[i]nconsistent standards can create consumer confusion and mistrust of the labels").

289. *See id.*

290. WORLD RES. INST., THE BOTTOM LINE ON STATE AND FEDERAL POLICY ROLES 1 (2008), *available at* http://pdf.wri.org/bottom_line_state_fed.pdf.

291. *See supra* Part VI.E.

292. SCIENTIFIC APPLICATIONS INTERNATIONAL CORPORATION, LIFE CYCLE ASSESSMENT: PRINCIPLES AND PRACTICE, at iii (2006) *available at* http://www.epa.gov/nrmrl/lcaccess/pdfs/600r06060.pdf.

293. *Id.* at 3. *Cf.* PAS 2050: 2008, *supra* note 65, at 12.

294. Howett, *supra* note 187, at 424.

undertaken carbon labeling efforts—to develop a national program for determining a carbon footprint using a life-cycle assessment. The fact that the EPA has already established guidelines for determining a carbon footprint further confirms that it is the appropriate agency to undertake carbon labeling efforts in the United States.[295]

Lastly, the EPA is already responsible for labeling schemes which regulate greenhouse gases, such as Energy Star[296] and fuel economy labels, and therefore it is logical it continue to spearhead eco-labeling efforts. While there are other agencies that handle labeling in the United States—such as the Federal Trade Commission,[297] the Food and Drug Administration,[298] and the U.S. Department of Agriculture[299]—the EPA is in charge of environmental policies in the United States, and therefore is the appropriate agency to handle carbon labeling. What is apparent from these other labeling efforts, however, is they indicate the effectiveness of labeling as a method for accomplishing public policy goals.

Although it is critical the EPA lead this effort, it is similarly important that the regulatory scheme the EPA implements is a voluntary program and is in conjunction with nongovernmental

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295. Additionally, there is currently a House Resolution which would "require large publicly traded companies and significant emitters of greenhouse gases to report their emissions to the Environmental Protection Agency." Greenhouse Gas Accountability Act of 2007, H.R. 2651, 110th Cong. (2007). *See also* Consolidated Appropriations Act of 2008, H.R. 2764, 110th Cong. (2007) (ordering no less than $3.5 million to be used by the EPA to publish a rule requiring all sectors of the economy to report their greenhouse gas emissions above appropriate thresholds).

296. *See supra* Part VI.B.

297. The Federal Trade Commission is responsible for regulating product claims on labels and in advertising to prevent unfair competition, as well as regulating environmental claims. Howett, *supra* note 187, at 414.

298. The Food and Drug Administration is charged with regulating food and nutrition labels. U.S. Food and Drug Administration, Food Labeling and Nutrition: Overview, http://www.cfsan.fda.gov/label.html (last visited Nov. 30, 2008).

299. The U.S. Department of Agriculture's purpose is to develop and execute policy on farming, agriculture, and food. *See* U.S. Department of Agriculture, Mission Statement, http://www.usda.gov (follow "About USDA" hyperlink; then follow "Mission Statement" hyperlink) (last visited Nov. 30, 2008). In pursuing this mission, the FDA has implemented labeling schemes to certify products are safe for human consumption, among other things. *See* U.S. Department of Agriculture, Labeling Procedures, http://www.fsis.usda.gov/Regulations_&_Policies/Labeling_Procedures/index.asp (last visited Nov. 30, 2008).

organizations so as to avoid WTO challenges.[300] Other national eco-labeling programs, such as the Blue Angel label in Germany and carbon labels in the United Kingdom, have effectively avoided WTO challenges because the programs are voluntary and remain government sponsored, not government mandated. [301] By keeping labeling schemes optional, countries are still able to export goods into other countries that have implemented eco-labeling programs without violating the GATT.[302] Additionally, including nongovernmental representatives in the certification process for the labels will allow for maximum transparency in developing the standard.[303] By working with companies already pursuing carbon labeling in the United States, such as the Carbon Fund and Climate Conservancy,[304] the EPA can achieve this goal of transparency.

It is important for Congress and the EPA to endorse a carbon labeling scheme now in order to avoid preemption problems, patchwork legislation, and patchwork labeling schemes. An endorsement from Congress would confirm the EPA's role in carbon labeling. However, the EPA already has the implicit power to do so as a result of the Supreme Court's ruling in *Massachusetts v. Environmental Protection Agency* and has already established guidelines for determining a carbon footprint. Therefore, the United States should begin developing a voluntary carbon labeling program, if it truly intends to be a leader on climate change, as the Obama Administration has proposed.

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300. *See supra* Part V.A.

301. *See supra* Parts VI.A, VI.E.

302. *See, e.g.*, Hock, *supra* note 49, at 352 (noting that voluntary labels, such as the United States' voluntary "dolphin-safe tuna" label have been held to be consistent with the GATT because countries can still export tuna to the United States without this label).

303. *Id.* at 354-55 (discussing the ability of the Blue Angel label to be transparent by including nongovernmental representatives in its certifying body).

304. The Climate Conservancy has specifically indicated its commitment toward transparency. The Climate Conservancy, Summary of Climate Conscious Assessment, http://www.climateconservancy.org/assessment.php (last visited Jan. 7, 2009). It asserts that "TCC's methodology will always be completely transparent and open and will strive for scientific accuracy by always using the best available data and accounting practices." *Id.*

VIII. CONCLUSION

Carbon labeling is an innovative and meaningful way to refocus both consumer and merchant behavior towards becoming more environmentally conscious. The labels achieve the two goals of eco-labeling: providing consumers with the information to make environmentally-conscious decisions and encouraging manufacturers to reduce the environmental impact of the goods they produce. Carbon labels enlighten consumers about the impact that their purchases and actions have on the environment. This is particularly important considering many of today's consumers grew up in a world where preserving the environment was not a main concern. The effects of human behavior on the environment are undeniable and the United States must respond accordingly. Consumers now need to redirect their focus and carbon labels provide a means to achieve this goal. Additionally, the labels encourage and allow companies to look at the effect their production practices are having on the environment and make adjustments to offset their footprints. For example, in November 2007, Fiji Water announced plans to become carbon negative, thereby making up for the carbon emissions released during the production and distribution of its water, after calculating its carbon footprint.[305]

With the Obama Administration's commitment to making the United States a leader in climate change, the time to act is now.[306] The administration needs to work with Congress to expressly grant the EPA the power to make a voluntary carbon labeling scheme in the United States a reality. A carbon labeling program will help the nation achieve the proposed significant reduction of greenhouse gas emissions by 2050.[307] Furthermore, it will demonstrate the United

305. Deutsch, *supra* note 1.

306. *See* Obama & Biden, *supra* note 254.

307. *Id.*

States' commitment to climate change by implementing solutions that are proving effective in other nations. A national policy promoting carbon labels is necessary in order to raise awareness and achieve the best possible result in the efforts to halt climate change.

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