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NOTES

COMMUNITY-BASED TAX CREDITS: TAX CREDITS THAT REDUCE CONSUMER-DRIVEN POLLUTION BY ENCOURAGING COLLECTIVE ACTION

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INTRODUCTION

Kellen Bolden dreamed of being a millionaire.¹ Then, at the age of ten, his dreams were destroyed.² Kellen boarded his school bus after a day at Pointe South Elementary School, located in a community twenty miles south of Atlanta.³ Suddenly, without any warning, he collapsed onto the ground, gasping for breath.⁴ Despite urgent attempts to save his life, he passed away less than an hour later.⁵ The cause of death: asthma.⁶ The likely trigger: diesel exhaust from the school buses.⁷

Unfortunately, the loss of Kellen Bolden is not an isolated incident; Brennan Passons,⁸ Jovante Woods,⁹ and countless others, young and old, have lost their lives to asthma.¹⁰ In 2009, approximately one in ten children in the United States

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1. Lynne Peeples, *Air Pollution, Asthma Burden Unevenly Shared Among U.S. Children*, HUFFINGTON POST (May 7, 2012, 7:55 PM), http://www.huffingtonpost.com/2012/05/07/air-pollution-asthma-children-_n_1497818.html, archived at <http://perma.cc/F9KE-PTUQ>.

2. *Id.*

3. Valerie Gregg, *Sprawl*, MOMENTUM (Fall 2001), available at http://whsc.emory.edu/_pubs/momentum/2001fall/sprawl.html, archived at <http://perma.cc/T5TX-VWPH>.

4. *Id.*

5. *Id.*

6. *Id.*

7. *Id.*

8. Peeples, *supra* note 1.

9. Chandra Baldwin-Woods, *Chandra's Story: Losing a Son to Asthma*, MOMS CLEAN AIR FORCE (Mar. 27, 2012), <http://www.momscleanairforce.org/2012/03/27/chandras-story-losing-a-son-to-asthma/>.

10. In 1997, 3447 Americans died from asthma attacks. CENTER FOR DISEASE CONTROL, CDC VITAL SIGNS: ASTHMA IN THE US 2 (2011) [hereinafter CDC VITAL SIGNS], available at <http://www.cdc.gov/VitalSigns/pdf/2011-05-vitalsigns.pdf>, archived at <http://perma.cc/T5TX-VWPH>.

had asthma,¹¹ making it the most common chronic illness among children.¹² In 2007 alone, 3447 American adults and children died from asthma attacks.¹³ One of the major triggers of asthma is air pollution.¹⁴ In fact, air pollution claims the lives of an estimated 70,000 people in the United States each year.¹⁵

Yet, the tragic deaths of children like Kellen, Brennan, and Jovante do not capture the nation's attention like other recent tragic events, such as Hurricane Katrina, the Aurora Colorado massacre, Superstorm Sandy, and the Newtown Connecticut tragedy. With each of these, the loss of life was swift and enormous.¹⁶ But every day, innocent people—fathers and sons, mothers and daughters, the old and the young—are taken from us by a slow, silent killer. What is worse—we know the culprit. We know how to slow it down. We have simply failed to act.

This country has taken strides towards reducing air pollution and protecting the health of many of its citizens.¹⁷ But, it has not gone far enough. We need new ideas and solutions—solutions that hold all polluters accountable, address the inequities and disparities of air pollution, and incentivize and mobilize communities to act collectively to reduce air pollution.

This Note proposes a solution to help reduce air pollution in the United States. This solution comes in the form of a new tax credit, hereinafter referred to as the Community Clean Air Tax Credit (CCAT Credit). This tax credit would be available to individuals living in communities or neighborhoods that have taken steps to reduce air pollution. To be eligible to receive the CCAT Credit, the community or neighborhood as a whole must meet state-mandated pollution reduction goals. However, even if the community reaches the state-mandated goals, only the residents or households that individually meet the state goal would earn the CCAT Credit. The value of this tax credit would depend on the number

11. *Id.*

12. CENTER FOR DISEASE CONTROL, ASTHMA MORTALITY AND HOSPITALIZATION AMONG CHILDREN AND YOUNG ADULTS—UNITED STATES, 1980-1993 (1996), *available at* <http://wonder.cdc.gov/wonder/prevguid/m0041248/m0041248.asp>, *archived at* <http://perma.cc/4FAV-VDVU>.

13. CDC VITAL SIGNS, *supra* note 10, at 2.

14. U.S. ENVTL. PROT. AGENCY, SMOG—WHO DOES IT HURT? WHAT YOU NEED TO KNOW ABOUT OZONE AND YOUR HEALTH 2 (1999), *available at* <http://www.epa.gov/airnow/health/smog.pdf>, *archived at* <http://perma.cc/5FPK-8YDP>.

15. BERNIE FISCHLOWITZ-ROBERTS, EARTH POLICY INSTITUTE, AIR POLLUTION FATALITIES NOW EXCEED TRAFFIC DEATHS BY 3 TO 1 (Sep. 17, 2002), http://www.earth-policy.org/plan_b_updates/2002/update17, *archived at* <http://perma.cc/9RGY-Q38E>.

16. For example, within minutes, twelve people were killed in the movie theatre mass shooting in Aurora, Colorado. Twenty-six individuals, not including the gunman, were killed in the school shooting in Newtown, Connecticut. George Zornick, *Sixteen US Mass Shootings Happened in 2012, Leaving at Least 88 Dead*, NATION (Dec. 14, 2012, 4:18 PM), <http://www.thenation.com/blog/171774/fifteen-us-mass-shootings-happened-2012-84-dead#> *archived at* <http://perma.cc/3DSV-BRB3>.

17. These strides are largely the result of the Clean Air Act. *See* 42 U.S.C. §§ 7401-7671q (2006).

of goals met by each community, and on the number of goals each household individually satisfied. The goals, mandated by the state, could include reduction in average household electricity consumption, reduction in average per capita trash production, and increased residential recycling participation, just to name a few. Each goal has one common denominator—they would directly or indirectly result in a reduction in air pollution.

The idea behind this tax credit is simple. Air pollution cannot be significantly reduced by individuals and advocacy groups alone. It requires collective action. Thus, earning the tax credit requires not only individual action, but also the collective action of entire communities. Currently, this country's regulatory framework for reducing air pollution targets the emitters of pollution—power plants, businesses, and factories. Yet the consumers, the purchasers of the emitter's products, are the true source of pollution in this country. The purpose of the CCAT Credit is threefold. First, it is meant to shift the focus of air pollution reduction efforts away from the emitters, where it is currently focused, and onto the consumer. Second, it is meant to modify individual consumer behavior in a way that improves the environment. And third, it is meant to create a financial incentive to collectively act within one's community to reduce pollution.

This Note analyzes the potential benefits of implementing this proposed solution and examine why it is necessary. Part I provides a brief introduction to the current regulatory mechanism used to control and reduce pollution—the Clean Air Act. Part II examines why the current model is not working and identifies the ultimate source of pollution in this country—consumers. Part III examines the challenges in solving this problem and presents a new solution in the form of a community-based tax credit, which will alter consumer behavior while encouraging people to collectively act to reduce air pollution. Part IV addresses several issues that this tax credit is likely to raise, such as how it will be funded and ways to increase its effectiveness. This Note does not lay out the specific blueprint of this proposed CCAT credit. Rather, it explains how a commonly-used incentive (the tax credit) may be used to promote environmentally-positive behaviors at both an individual and community level. Individual action alone will not clean our polluted air, but community action might be able to finally turn the tides.

I. THE CLEAN AIR ACT

The primary regulatory mechanism used to control and reduce pollution is the Clean Air Act.¹⁸ Its purpose is “to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population.”¹⁹ The Act grants power to the Environmental Protection Agency (EPA) to establish national ambient air quality standards

18. Clean Air Act, 42 U.S.C. §§ 7401-7671q (2006).

19. 42 U.S.C. § 7401(b)(1) (2006).

(NAAQS),²⁰ which limit the maximum concentration of specific pollutants in the air.²¹ The federal government and the states share the responsibility of attaining these goals through cooperative federalism.²² The federal government sets the air quality standards, and the states prepare state implementation plans (SIPs) to meet these standards.²³ Once the EPA determines that a satisfactory SIP is in place, both the EPA and the state are tasked with enforcing the SIP against violators.²⁴

A. *Some Successes of the Clean Air Act*

In some respects, the Clean Air Act has had great success. It has resulted in a significant reduction of several pollutants that pose serious risks to human health, including carbon monoxide emissions,²⁵ lead emissions from gasoline,²⁶ sulfur dioxide emissions,²⁷ and hazardous air pollutant emissions.²⁸

This has resulted in positive health and economic impacts. Between 1970 and 1990, the implementation of the Act is estimated to have prevented 205,000 premature deaths, along with hundreds of thousands of cardiovascular and respiratory diseases.²⁹ In that same time period, the reduction in air pollution saved an estimated \$22 trillion in health care expenses and lost productivity at a cost of \$523 billion.³⁰ As of 2010, the EPA estimates that the annual economic benefit of air quality improvements associated with the Act is nearly \$2 trillion.³¹ The EPA publishes these statistics, along with several others, as indicative of its nationwide success in reducing air pollution.³² Unfortunately, these positive

20. *Id.* § 7409(a)(1)(A).

21. 40 C.F.R. §§ 50.1-50.17 (2006).

22. 42 U.S.C. § 7410(a)(1) (2006); *see also* Robert Fischman, *Cooperative Federalism and Natural Resource Law*, 14 N.Y.U. ENVTL. L.J. 179, 180 (2005) (describing cooperative federalism as “an arrangement under which a national government induces coordination from subordinate jurisdictions”).

23. *Id.* at § 7410(a)(1).

24. *Id.* at § 7413(a)(1)-(3) (2012).

25. Annual carbon monoxide emissions were reduced by 62% between 1970 and 2008. Craig N. Oren, *Is the Clean Air Act at a Crossroads?*, 40 ENVTL. L. 1231, 1235 (2010).

26. Between 1970 and 2005, lead emissions dropped by 99%. *Id.* at 1235-36.

27. Sulfur dioxide emissions fell by 66% between 1970 and 2008. *Id.* at 1236.

28. Hazardous air pollutant emissions fell by 40% between 1990 and 2005. U.S. ENVTL. PROT. AGENCY, OUR NATION’S AIR 1-2 (2010) [hereinafter OUR NATION’S AIR], *available at* <http://www.epa.gov/airtrends/2010/report/fullreport.pdf>, *archived at* <http://perma.cc/34JX-CZXB>.

29. NATIONAL WILDLIFE FEDERATION, THE CLEAN AIR ACT—HIGHLIGHTS OF THE FIRST 50 YEARS 1 (2010), *available at* <https://www.nwf.org/pdf/Policy-Solutions/CleanAirActFactSheet.pdf>.

30. NAT’L ASS’N OF CLEAN AIR AGENCIES, DON’T TAKE AWAY A STATE’S RIGHT TO PROTECT ITS CITIZENS FROM DIRTY AIR 4 (2005), *available at* <http://www.4cleanair.org/FinalBrochure-April05.pdf>, *archived at* <http://perma.cc/G625-E2R9>.

31. U.S. ENVTL. PROT. AGENCY, THE BENEFITS AND COSTS OF THE CLEAN AIR ACT: 1990 TO 2020 7-3 (2010), *available at* <http://www.epa.gov/oar/sect812/aug10/fullreport.pdf>.

32. OUR NATION’S AIR, *supra* note 28.

results are not felt by everyone, and the Act still has not achieved what its creators promised—“that all Americans in all parts of the country shall have clean air to breathe, air that will have no adverse effects on their health.”³³

B. Failures of the Clean Air Act

Many reports lead the public to believe that our federal, state, and local governments are successfully tackling the pollution problem in the United States.³⁴ But for thousands of people in this country, this is simply not true.³⁵ By painting the success of the Clean Air Act in broad strokes, the EPA neglects the persistent and devastating instances of failure. In 2011, the EPA knew of more than 1600 persistent violators of the Clean Air Act—sites the EPA believed required immediate attention.³⁶ Of these, 383 were placed on an EPA internal watch list for being serious and chronic polluters, but none have faced formal enforcement action for at least nine months.³⁷ For individuals living in the same communities as these chronic polluters, the EPA’s previously mentioned “successes” mean little to nothing.

And while air pollution affects individuals of all races and socioeconomic classes, recent studies show a possible link between low socioeconomic status and greater harm from air pollution.³⁸ These individuals may face greater exposure to pollution because of factors such as housing market dynamics and land costs, which results in pollution sources being located near disadvantaged communities.³⁹ The lack of access to health care, poorer job opportunities, dirtier workplaces, and higher traffic also make these groups of individuals more susceptible to health threats caused by air pollution.⁴⁰ Additionally, existing health conditions may predispose certain disadvantaged groups to greater risks of the adverse effects of air pollution.⁴¹ So, while the Clean Air Act can be praised for what it has accomplished so far, it must not be forgotten that parts of this country, especially the most vulnerable, are still paying a heavy toll.

33. Senator Edmund Muskie, Remarks at Congressional Conference, 116 CONG. REC. 32901 (Sep. 21, 1970).

34. OUR NATION’S AIR, *supra* notes 28.

35. AMERICAN LUNG ASSOCIATION, STATE OF THE AIR 2012 8 (2012), available at <http://www.stateoftheair.org/2012/assets/state-of-the-air2012.pdf>, archived at <http://perma.cc/7KZL-FNJA> (“Over 127.2 million Americans live in the 235 counties where they are exposed to unhealthful levels of air pollution in the form of either ozone or short-term or year-round levels of particles.”).

36. Jim Morris, *Many Americans Left Behind in the Quest for Cleaner Air*, THE CENTER FOR PUBLIC INTEGRITY (Nov. 7, 2011, 5:00 AM), <http://www.publicintegrity.org/2011/11/07/7267/many-americans-left-behind-quest-cleaner-air>, archived at <http://perma.cc/CWY6-5BVK>.

37. *Id.*

38. AMERICAN LUNG ASSOCIATION, *supra* note 35, at 35.

39. *Id.*

40. *Id.*

41. *Id.*

A recent study estimates that the damage⁴² caused by the emissions of six major pollutants⁴³ in 2002 was \$184 billion across all market sectors of the economy.⁴⁴ The most damage was caused by agriculture and forestry (\$32 billion), utilities (\$62.6 billion), transportation (\$23.2 billion), and manufacturing (\$26.4 billion).⁴⁵ Pollution from households, including homes and cars, is not even included in this \$184 billion.⁴⁶ For example, the use of light duty cars and trucks caused an additional \$37 billion in air pollution damage.⁴⁷

But for as hard as it is to put a dollar figure on these adverse effects of air pollution, the loss of a human life cannot be measured in this way. The value of the lives of Kellen Bolden, Brennan Passons, Jovante Woods, and the many others that lost their lives to air pollution cannot be calculated by some mathematical formula. This is the true cost of society's failures, and until this country stops the loss of innocent life, the Clean Air Act can never be deemed a true success.

C. Limitations of the Act

The Clean Air Act has not yet achieved its primary goal of one hundred percent attainment of NAAQS.⁴⁸ At least part of the reason for its limited success, and the need for new ideas and solutions, is the Act's own limitations, including limitations in the design, implementation, enforcement of the Act, and its susceptibility to political control.

The Clean Air Act can be characterized as a command-and-control statute.⁴⁹ Command-and-control regulation is a system in which the federal government prescribes how much an individual pollution source is allowed to emit and the types of control equipment that must be used to meet this emission requirement.⁵⁰

42. Damages include adverse consequences for human health, decreased timber and agricultural yields, reduced visibility, accelerated depreciation of materials, and reductions in recreation services. Nicholas Z. Muller et al., *Environmental Accounting for Pollution in the United States Economy*, 101 THE AMERICAN ECONOMIC REVIEW 1649, 1659 (2011), available at <http://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.101.5.1649>, archived at <http://perma.cc/4P3U-B6XE>.

43. The six major pollutants are sulfur dioxide, nitrogen oxides, volatile organic compounds, ammonia, fine particulate matter, and coarse particulate matter. *Id.*

44. *Id.* at 1672.

45. *Id.* at 1664.

46. *Id.* at 1673.

47. *Id.*

48. See Daniel H. Cole & Peter Z. Grossman, *When is Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection*, 1999 WIS. L. REV. 887, 910 (arguing that command-and-control environmental regulations, such as the Clean Air Act, can be efficient and produce social benefits in excess of their costs).

49. *Id.*

50. U.S. ENVTL. PROT. AGENCY, GUIDELINES FOR PREPARING ECONOMIC ANALYSIS 4-3

When it enacted the Clean Air Act, Congress prescribed the following: the establishment of NAAQS by the EPA;⁵¹ the creation of technology-based emissions standards without regard to the costs of compliance across industries;⁵² and the imposition of New Source Performance Standards (NSPSs),⁵³ which placed the most stringent emission-reduction standards on new sources as opposed to older factories and plants.⁵⁴ There is little doubt that these direct regulations improved the quality of the air in the United States, but economists and policy analysts argue that these regulations have imposed great costs on society⁵⁵ and have still failed to meet NAAQSs for many parts of the country.⁵⁶ Additionally, all businesses in a particular industry are required to achieve the same pollution-control goal, costing some businesses much more money than others.⁵⁷ In order to address some of the problems with this command-and-control method, Congress began considering new solutions to reduce air pollution.⁵⁸

In the early 1990s, Congress amended the Clean Air Act by incorporating market-based incentives for pollution reduction.⁵⁹ Market-based approaches “create incentives for the private sector to incorporate pollution abatement into production or consumption decisions and to innovate in such a way as to continually search for the least costly method of abatement.”⁶⁰ Market-based reforms provide a more flexible approach than command-and-control regulations.⁶¹ One of the most prevalent market-based incentives is the cap-and-trade system.⁶² In this approach, a government body sets a nation-wide cap on the

(2010) [hereinafter GUIDELINES FOR PREPARING ECONOMIC ANALYSIS], *available at* [http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/\\$file/EE-0568-50.pdf](http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf), *archived at* <http://perma.cc/3SL4-RMRA>.

51. 42 U.S.C. §§ 7408, 7409 (2006).

52. *Id.* at § 7411.

53. *Id.* at § 7411(f).

54. Cole & Grossman, *supra* note 48, at 910.

55. See Robert W. Hahn, *The Politics and Religion of Clean Air*, REG., Winter 1990, at 21, *available at* <http://www.cato.org/doc-download/sites/cato.org/files/serials/files/regulation/1990/1/v13n1-3.pdf> (estimating that the total cost of air pollution protection is \$30 billion per year, which represents a form of invisible tax on users of commodities that are produced by industry).

56. AMERICAN LUNG ASSOCIATION, *supra* note 35, at 8 (“Over 127.2 million Americans live in the 235 counties where they are exposed to unhealthful levels of air pollution in the form of either ozone or short-term or year-round levels of particles.”).

57. See Cole & Grossman, *supra* note 48, at 910 (“All firms within a given regulated industry or category of industries had to achieve the same pollution-control goal, no matter that it cost one firm \$ 100 million to do so but another only \$ 10 million.”).

58. *Id.* at 931-32.

59. *Id.*

60. GUIDELINES FOR PREPARING ECONOMIC ANALYSIS, *supra* note 50, at 4-5.

61. *Id.*

62. *Id.*

amount of a pollutant that can be emitted.⁶³ This cap is then allocated to emitters in the form of emission permits, which represent the right to discharge a specific volume of a specific pollutant.⁶⁴ Each emitter must hold a number of permits equivalent to their emissions.⁶⁵ If an emitter needs to increase their volume of emissions, it can purchase permits from entities that do not require all of their permits.⁶⁶

One example of a successful cap-and-trade program is the sulfur dioxide trading program,⁶⁷ which was implemented in the 1990 Clean Air Act Amendments.⁶⁸ The annual health benefits derived from the Sulfur dioxide cap-and-trade program were estimated to be more than \$50 million per year in 2010, and the overall annual cost savings are estimated to be \$150 million.⁶⁹

However, in some cases, trading programs have increased emissions where the emissions permits sold were not being fully utilized by the owner.⁷⁰ This can occur where older, heavily polluting industries find it cheaper to purchase emissions permits rather than reduce their emissions—thereby creating “toxic hot spots.”⁷¹ Pollution trading in Los Angeles, for example, has led to concentrated toxic hot-spots in low-income and minority communities.⁷² This reinforces the fact that, while air quality has improved significantly since the passage of the Clean Air Act, not everyone is reaping the benefits.

In addition to these design challenges, the Clean Air Act faces other limitations in its implementation. First, its enforcement power is susceptible to shifting political ideologies of the Executive Branch.⁷³ Congress delegated the enforcement power of the Clean Air Act to the EPA,⁷⁴ which is a federal agency under the control of the executive branch.⁷⁵ For example, some believe that the

63. *Id.* at 4-7.

64. *Id.*

65. *Id.*

66. *Id.*

67. 42 U.S.C. § 7651b (2006).

68. Clean Air Act Amendments of 1990, Pub. L. No. 101-549.

69. Michael Faure, *Effectiveness of Environmental Law: What Does the Evidence Tell Us?*, 36 WM. & MARY ENVTL. L. & POL'Y REV. 293, 316 (2012).

70. *Id.*

71. Stephen M. Johnson, *Economics v. Equity: Do Market-based Environmental Reforms Exacerbate Environmental Injustice?*, 56 WASH & LEE L. REV. 111, 129 (1999).

72. Richard T. Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, DUKE ENVIRON. LAW AND POL. FORUM 231, 235 (1999) available at <http://scholarship.law.duke.edu/delpf/vol9/iss2/5>, archived at <http://perma.cc/YG89-EFN3>.

73. See generally Lisa Bressman & Michael P. Vandenbergh, *Inside the Administrative State: A Critical Look at the Practice of Presidential Control*, 105 MICH. L. REV. 47 (2006) (discussing the positive and negative effects of presidential control of federal agencies).

74. Clean Air Act of 1970, Pub. L. No. 91-604, 84 Stat. 1676.

75. Reorganization Plan No. 3 of 1970, 35 Fed. Reg. 15,623 (1970), reprinted in 84 Stat. 2086 (1970).

EPA was weakened during George W. Bush's presidency, and that his administration exercised strong central control over the EPA and other regulatory agencies.⁷⁶

In addition to this, recent litigation over new EPA rules has also hindered advancements in pollution reduction.⁷⁷ In *EME Homer City Generation, L.P. v. EPA*, the D.C. Circuit Court of Appeals recently struck down the EPA's new Cross-State Air Pollution Rule,⁷⁸ concluding that the "EPA ha[d] transgressed statutory boundaries."⁷⁹ This rule was designed to reduce sulfur dioxide emissions by 73% and nitrogen oxide by 54% at coal-fired power plants from 2005 levels.⁸⁰ These reductions would have significantly improved the lives of millions of Americans at a cost of \$800 million per year to the industry.⁸¹

These limitations of the Clean Air Act illustrate the need for new solutions. While the Act continues to improve the quality of air in the United States, and *could* one day live up to its promise, the question is—how many people will suffer the devastating consequences of air pollution before that promise is fulfilled?

II. THE SOURCE OF THE PROBLEM—THE CONSUMER

The current mechanism for regulating air pollution is almost entirely focused on the emitter, even though the consumer is becoming increasingly responsible for the pollution in this country:

There is general agreement that we are nearing the end of achieving major gains in pollution abatement from traditional sources, that a significant portion of the remaining environmental problems facing this country is caused by individual behavior, and that efforts to control that

76. See Cheryl Hogue, *Bush's Legacy At EPA*, CHEMICAL & ENGINEERING NEWS (Dec. 22, 2008), http://pubs.acs.org/cen/email/html/cen_86_i51_8651gov1.html, archived at <http://perma.cc/5HSJ-PVCZ> ("Under President George W. Bush, the [EPA] softened regulations that were hindering industry, issued regulations that were deemed industry-friendly, shuttered the agency's technical and scientific libraries, and reduced the information companies must submit on their release of toxic substances.").

77. See *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7, 12 (D.D.C. 2012).

78. The Cross-State Air Pollution Rule, 76 Fed. Reg. 48,208 (Aug. 8, 2011), was promulgated by the EPA in order to effectuate section 110(a)(2)(D)(i)(I) of the Clean Air Act, 42 U.S.C. 7410(a)(2)(D)(i)(I), which requires "upwind" states to prohibit emissions that contribute significantly to the pollution of "downwind" states.

79. *EME Homer City Generation, L.P.*, 696 F.3d at 12.

80. Valerie Volcovici, *Court Strikes Down EPA Rule on Coal Pollution*, REUTERS (Aug. 21, 2012 4:54 PM), <http://www.reuters.com/article/2012/08/21/us-usa-epa-ruling-idUSBRE87K0NQ20120821>, archived at <http://perma.cc/R6P8-AQZV>.

81. U.S. ENVTL. PROT. AGENCY, CROSS-STATE AIR POLLUTION RULE (CSAPR), <http://www.epa.gov/airtransport/CSAPR/index.html>, archived at <http://perma.cc/982-MTYU> (last updated June 26, 2014).

behavior have either failed or not even been made.⁸²

The emissions produced as a result of consumer demand, as well as consumer behavior, are imposed on all of society.⁸³ This is a negative externality—a social cost which is neither incurred by the producer or the individual who consumes the product, but rather society as a whole.⁸⁴ To counteract the social costs of externalities, mechanisms such as regulation, liability, taxation, and subsidies are employed to force the parties responsible for producing these costs to internalize them.⁸⁵ However, most of the currently-used mechanisms target the producer of the pollution, not the consumer.⁸⁶ For example, the command-and-control regulations⁸⁷ force *producers* to lower emissions by implementing production constraints.⁸⁸ Market-based approaches,⁸⁹ such as cap-and-trade programs, seek to achieve the same result through a more flexible and efficient manner.⁹⁰ But both target the *producers*.⁹¹ While these approaches have resulted in reduced pollution, further reductions require increased focus on deterring environmentally-destructive individual *consumer* behaviors.⁹²

While opinion polls show that people generally rate protecting the environment as among their highest priorities, many individuals continue to behave in environmentally-destructive ways.⁹³ A former EPA Administrator once

82. Hope M. Babcock, *Assuming Personal Responsibility for Improving the Environment: Moving Toward A New Environmental Norm*, 33 HARV. ENVTL. L. REV. 117, 117 (2009).

83. See F. ANDERSON ET AL., ENVIRONMENTAL IMPROVEMENT THROUGH ECONOMIC INCENTIVES 4 (1978) (examining the economic, legal, engineering, and political aspects of an environmental control strategy that promotes money “charges” on environmentally harmful conduct).

84. *Id.*

85. See Daniel B. Kelly, *Strategic Spillovers*, 111 COLUM. L. REV. 1641, 1655 (2011) (discussing the costs of strategic spillovers—where parties generate externalities purposely—and potential solutions for eliminating this behavior).

86. James P. Kimmel, Jr., *Disclosing the Environmental Impact of Human Activities: How a Federal Pollution Control Program Based on Individual Decision Making and Consumer Demand Might Accomplish the Environmental Goals of the 1970s in the 1990s*, 138 U. PA. L. REV. 505, 526 (1989).

87. Command-and-control regulations “prescribe how much pollution an individual source or plant is allowed to emit and/or what types of control equipment it must use to meet such requirements.” GUIDELINES FOR PREPARING ECONOMIC ANALYSIS, *supra* note 50, at 4-3.

88. Kimmel, *supra* note 86, at 526.

89. See *supra* text accompanying notes 59-66.

90. Kimmel, *supra* note 86, at 526.

91. *Id.*

92. Babcock, *supra* note 82, at 117.

93. See Michael P. Vandenbergh, *Order Without Social Norms: How Personal Norm Activation Can Protect the Environment*, 99 NW. U. L. REV. 1101, 1118-19 n.72 (2005) (citing RILEY E. DUNLAP ET AL., HEALTH OF THE PLANET 83 tbl.15 (1993) (results of a 1992 international opinion survey of citizens in twenty-four nations)).

remarked, “we like to drive big power cars, use a lot of electricity, generate a lot of waste, enjoy cheap food, live in grassy suburbs, and collectively send pollution in massive amounts to often distant waterways and airsheds.”⁹⁴ The majority of the population behaves in such ways—by driving cars, fertilizing and mowing yards, pouring household chemicals on the ground and down the drain. Each behavior might only contribute minute amounts of pollutants, but in the aggregate across millions of individuals, it results in a stunning amount of pollution.⁹⁵

For example, individuals discharge fifty times more benzene⁹⁶ than all large industrial facilities combined.⁹⁷ Ninety-five percent of urban carbon monoxide emissions come from tailpipes and minor source emissions.⁹⁸ Motor vehicles, consumer products, and other small, non-industrial sources now contribute 76% of all air toxins.⁹⁹

In order to continue reducing air pollution, this country must address these individual behaviors. The Clean Air Act will continue to be used to reduce air pollution produced by the emitters, but consumers must be held accountable for their environmentally-destructive decisions.

III. OVERCOMING BARRIERS TO CONSUMER CHANGE AND COLLECTIVE INACTION WITH THE USE OF A NEW TAX CREDIT

Numerous barriers stand in the way of transforming the average American consumer into one that both accepts responsibility for their pollution contributions and then behaves in a way to reduce it. But, changing the behaviors of a few individuals is not enough. Pollution is a nation-wide problem that requires a nation-wide solution. Therefore, another barrier to improving the quality of the air is the difficulty of mobilizing a large group of individuals to act collectively to reduce pollution.¹⁰⁰ Modifying individual consumer behaviors and inducing collective action are both necessary in order to solve the pollution

94. Babcock, *supra* note 82, at 120 (citing WILLIAM D. RUCKELSHAUS, STOPPING THE PENDULUM, ENVTL. F. 26-27 (1995)).

95. Michael P. Vandenbergh, *From Smokestack to SUV: The Individual as Regulated Entity in the New Era of Environmental Law*, 57 VAND. L. REV. 515, 518 (2004).

96. Benzene is an air emission produced by burning coal and oil and motor vehicle exhaust. U.S. ENVTL. PROT. AGENCY, BENZENE, <http://www.epa.gov/ttnatw01/hlthef/benzene.html> archived at <http://perma.cc/D54C-W63H> (last updated Feb. 3, 2012). Acute exposure can cause drowsiness, dizziness, headaches, respiratory tract irritation, and unconsciousness. *Id.* Chronic exposure has caused various blood diseases, reproductive problems in females, increased incidence of leukemia. *Id.*

97. Vandenbergh, *supra* note 95, at 571.

98. *Id.* at 542 n.95.

99. For this and numerous other statistics, see Babcock, *supra* note 82, at 120-23.

100. See Paul G. Harris, *Collective Action on Climate Change: The Logic of Regime Failure*, 47 NAT. RESOURCES J. 195, 199-204 (2007) (discussing the failures of modern climate regimes using Mancur Olson’s classical theory of collective action).

problem in the United States.¹⁰¹

A tax credit, such as the one proposed in this Note, is capable of modifying both individual and group behaviors. The idea of this tax credit stemmed largely from ideas promoted by two prominent scholars: John Dernbach and Mancur Olson. Dernbach has focused on barriers preventing individual behavior changes and has proposed legislative solutions to overcome them.¹⁰² Mancur Olson, on the other hand, focused much of his work on the barriers preventing collective action and ways to encourage action from a large group.¹⁰³ This Note takes an idea shared by both Dernbach and Olson—namely the idea of using positive inducements¹⁰⁴—and shows how it can be used in the form of a tax credit to overcome individual and group behavior barriers.

A. Barriers to Changing Individual Consumer Behaviors

Changing individual consumer behavior is a challenging task with many obstacles.¹⁰⁵ Some of these obstacles are overcoming deeply-engrained habits, conforming environmental views with consumer preference, encouraging individuals to use self-restraint, and changing personal behavior that is deeply grounded in self-interest.¹⁰⁶ Any solution to the problem of consumer-driven pollution must address some or all of these obstacles.¹⁰⁷

One of the most challenging obstacles to overcome is breaking deeply engrained habits.¹⁰⁸ Habits control individuals' behaviors, even if they are expensive to maintain.¹⁰⁹ Driving alone instead of carpooling or wasting electricity by leaving lights on are examples of these increasingly costly behaviors, yet people continue to engage in these habits.¹¹⁰ These habits become even more difficult to break if the sought-after behavior is inconvenient, costly, or requires significant effort,¹¹¹ such as transporting recyclable products to a

101. See Katrina Fischer Kuh, *When Government Intrudes: Regulating Individual Behaviors That Harm the Environment*, 61 DUKE L.J. 1111, 1114-15 (2012) ("Individual behaviors and lifestyles lie at the core of both the climate-change problem and its potential solutions."); see also Harris, *supra* note 100, at 195-96.

102. John C. Dernbach, *Harnessing Individual Behavior to Address Climate Change: Options for Congress*, 26 VA. ENVTL. L.J. 107 (2008). Dernbach is a Distinguished Professor of Law at Widener Law School.

103. Olson was a distinguished economist and social scientist whose work primarily focused on the theory of collective action, much of which is contained in his seminal work, *The Logic of Collective Action*. MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION* 51 (1965).

104. See Dernbach, *supra* note 102, at 152-53; see also OLSON, *supra* note 103, at 51.

105. See Babcock, *supra* note 82, at 125.

106. *Id.*

107. *Id.* at 174-75.

108. *Id.* at 130.

109. *Id.*

110. *Id.*

111. *Id.*

recycling bin if no recycling pickup is available.

Individuals also have difficulty conforming their consumer preference to their support for environmental laws.¹¹² This “may help explain the disconnect between citizen support for environmental laws and consumer behavior that often does not reflect a concern for the environment.”¹¹³ One example is the placement of a “Save the Whales” sticker on the window of an SUV, a vehicle that uses excessive amounts of fuel, the production of which consequently threatens the continued existence of the whale.¹¹⁴

Individuals also struggle with self-restraint.¹¹⁵ People can exercise self-restraint on small matters like giving up something for Lent,¹¹⁶ but reaching zero discharge of pollution would require a “political community sufficiently motivated to overcome the barriers to self-restraint.”¹¹⁷ Individual behavior is also driven by wants, needs, and lifestyle decisions.¹¹⁸ One example is an individual’s choice to drive solo to work rather than carpooling because that individual prefers privacy and solitude.¹¹⁹

These are just a few of the many barriers that stand in the way of changing individual consumer-driven behaviors.¹²⁰ But, these challenges are multiplied when efforts are made to modify the behaviors of a collective group. Both must be addressed, and can possibly be addressed by this Note’s proposed tax credit, in order to significantly reduce air pollution in the United States.

B. Barriers Preventing Large-Scale Collective Action

Society wants clean air but there is seldom a common interest in paying for it.¹²¹ This is because “any single person’s efforts will inevitably produce small

112. Michael P. Vandenberg, *The Social Meaning of Environmental Command and Control*, 20 VA. ENVTL. L.J. 191, 212 n.111 (2001).

113. *Id.*

114. Babcock, *supra* note 82, at 132.

115. Holly Doremus, *Biodiversity and the Challenge of Saving the Ordinary*, 38 IDAHO L. REV. 325, 351 (2002).

116. Lent, in the Christian church, is a forty-day fast in preparation for Easter. Nancy Haught, *Season of Lent’s as much about adding as abstaining*, OREGONIAN (Feb. 24, 2013, 5:04 PM), http://www.oregonlive.com/living/index.ssf/2013/02/season_of_lents_as_much_about.html, archived at <http://perma.cc/M8MJ-DUSS>. In the modern era, Christians often commit to breaking a bad habit or giving up certain foods, such as chocolate, desserts, or alcohol, for the 40-day period of Lent. *Id.*

117. Doremus, *supra* note 115, at 351.

118. Babcock, *supra* note 82, at 133.

119. *Id.*

120. *Id.* at 125.

121. Arnold W. Reitze, Jr., *Federalism and the Inspection and Maintenance Program Under the Clean Air Act*, 27 PAC. L.J. 1461, 1474 (1996) (“Americans are not eager to sacrifice to protect the environment. They want both a clean, safe environment and the freedom to behave in a manner that makes protecting such an environment very difficult.”).

effects.”¹²² Consequently, a “self-interested and rational person in a democracy will choose to do nothing and instead take a ‘free ride’ on the efforts of others.”¹²³ For this reason, Mancur Olson asserted that organizing large groups of individuals seeking a public good such as clean air would be extremely difficult.¹²⁴

The theory is, as Olson points out in *The Logic of Collective Action*,¹²⁵ assuming that individuals in a group are rational, self-interested actors, everyone in that group with a common interest will act collectively to achieve that common interest.¹²⁶ But, empirical evidence does not support this theory.¹²⁷ Olson argues, “unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interests.”¹²⁸

According to Olson,

in order for the individuals in a large group to undertake the costs of collective action, there must be some sort of sanction or incentive distinct from the good being sought: “Only a separate and selective incentive will stimulate a rational individual in a latent group to act in a group-oriented way.”¹²⁹

The incentive must work selectively on individuals in the group, not on the group as a whole.¹³⁰ One of the “most common categor[ies] of incentives would be one that brings economic benefit—or difficulty—to the recipient.”¹³¹ An obvious candidate for such an incentive is a tax credit.

C. Tax Credits as a Means of Changing Behaviors

A shared tenet of both Dernbach’s and Olson’s approach to changing individual and group behaviors is the use of incentives targeted at individuals.¹³² Dernbach proposes the use of individual tax incentives, including credits and

122. Michael C. Blumm, *Public Choice Theory and the Public Lands: Why “Multiple Use” Failed*, 18 HARV. ENVTL. L. REV. 405, 418 (1994).

123. *Id.*

124. OLSON, *supra* note 103, at 126-29.

125. *Id.* at 1.

126. Harris, *supra* note 100, at 200 (citing OLSON, *supra* note 103, at 1).

127. OLSON, *supra* note 103, at 2.

128. *Id.*

129. Harris, *supra* note 100, at 203 (quoting OLSON, *supra* note 103, at 51).

130. *Id.* (citing ROBERT O. KEOHANE, *AFTER HEGEMONY: COOPERATION AND DISCORD IN THE WORLD POLITICAL ECONOMY* 77 (1984)).

131. *Id.*

132. See Dernbach, *supra* note 102, at 152-53 (arguing that Congress should enact legislation that incentivizes individuals, as opposed to emitting entities such as factories, to reduce their greenhouse gas emissions); see also OLSON, *supra* note 103, at 51.

deductions, to induce individuals to act in environmentally-friendly ways.¹³³

Similarly, one of Olson's approaches to collective action solutions was the use of a selective incentive separate from the public good being sought.¹³⁴ For example, if the public good being sought is clean air, promoting the benefits of clean air is not compelling enough to induce collective action. There must be another separate incentive.¹³⁵ The incentive must also be selective, meaning that only those individuals who act for the public good are rewarded with the incentive.¹³⁶

A tax credit could serve as this separate, selective incentive. First, it is separate from the public good being sought—clean air. Second, it can be awarded selectively to individuals who worked towards achieving the group goal. To further strengthen the effectiveness of the incentive towards maximizing collective action, the tax credit would only become available if a certain percentage of the community (or neighborhood) participated in reaching the group goal. For example, if reduced electricity consumption is the group goal, a tax credit would be available for the individuals that reduce their electricity consumption below a certain level *only if the community or neighborhood as a whole* reduces its electricity consumption to a mandated level.

There is little doubt that a tax incentive provides an incentive for socially-desirable behaviors on both an individual and group level. But, in order to be effective, it needs to provide a strong enough incentive to overcome the immense barriers that impede individual and group behavior changes.

1. The Use of Tax Credits to Induce and Reinforce Behaviors.—The tax system has long been used to not only raise revenue, but also to encourage and advance socially-favored behaviors and economic goals by providing tax incentives.¹³⁷ As early as 1791, an excise tax was placed on alcohol to help curb consumption.¹³⁸ Today, a common tax method for influencing behaviors comes in the form of tax incentives.¹³⁹ These tax incentives are used to influence several types of socially-desirable behaviors such as research and development activities, the purchase of energy-efficient technology, and the pursuit of higher education.¹⁴⁰

A tax credit is a dollar-for-dollar reduction in an individual's total tax

133. Dernbach, *supra* note 102, at 152.

134. OLSON, *supra* note 103, at 51.

135. *Id.*

136. *Id.*

137. Daniel S. Goldberg, *Tax Subsidies: One-time vs. Periodic: An Economic Analysis of the Tax Policy Alternatives*, 49 TAX L. REV. 305, 305 (1994).

138. Alex Altman, *A Brief History Of: Sin Taxes*, TIME MAG. (Apr. 2, 2009), available at <http://www.time.com/time/magazine/article/0,9171,1889187,00.html>, archived at <http://perma.cc/ZRU5-YGTY>.

139. Shane Stinson et al., *Energy-efficient Tax Credits: Experimental Evidence on the Relative Power of Tax Incentives 1* (2012) (unpublished manuscript), available at <http://buchheit.ba.ttu.edu/Energy%20efficient%20tax%20incentives.pdf>, archived at <http://perma.cc/DAD-5ZBG>.

140. *Id.* at 1 n.1.

liability.¹⁴¹ The government uses them to incentivize behaviors, such as making an investment in energy-efficient home appliances, by offsetting some of the cost of that behavior.¹⁴² For example, if a high-efficiency washing machine costs \$1500 (compared to \$1000 for a standard washing machine), then offering a tax credit for \$500 would encourage the purchase of the high-efficiency appliance because the cost is comparable and it offers long-term energy savings. Residential energy-efficiency tax credits¹⁴³ were first introduced in the 1970s as a way to increase energy conservation and efficiency.¹⁴⁴ They benefit the consumer by reducing utility bills, but also support environmental objectives by reducing the demand for electricity generated by using fossil fuels.¹⁴⁵ In 2010, the residential sector consumed 23% of the total energy in the United States.¹⁴⁶ Thus, reducing residential demand can have a significant impact on the burning of fossil-fuels and the generation of air pollution.¹⁴⁷

Currently, the federal government offers two tax credits related to residential energy-efficiency and renewable-energy generation technologies.¹⁴⁸ The first credit (IRC § 25C) allows taxpayers to claim a credit for energy-efficiency improvements made to their primary residence.¹⁴⁹ The second credit (IRC § 25D) allows taxpayers to claim a credit for properties that generate renewable energy (e.g. solar panels, geothermal heat pumps, small wind energy, fuel cells) that they install on their residence.¹⁵⁰ The purpose of the credits is to reduce the cost of investing in energy-efficient technology because consumers ironically forgo making these investments even though the long term reduced utility bill outweighs the initial investment cost.¹⁵¹

These tax incentives can be quite powerful influencers.¹⁵² For example, the

141. BLACK'S LAW DICTIONARY 695 (2d ed. 2001).

142. MARGOT L. CRANDILL-HOLICK & MOLLY F. SHERLOCK, CONG. RESEARCH SERV. R42089, RESIDENTIAL ENERGY TAX CREDITS: OVERVIEW AND ANALYSIS 6 (2012).

143. This Note's proposed CCAT Credit is not limited to energy-efficiency behaviors. It simply compares the CCAT Credit to federal energy-efficiency tax credits because they both focus on reduced energy consumption and, consequently, air pollution.

144. CRANDILL-HOLICK & SHERLOCK, *supra* note 142, at 1.

145. *Id.*

146. *Id.*

147. See Hannah C. Granade et al., *Unlocking Energy Efficiency in the U.S. Economy*, MCKINSEY & CO., at iii (2009), <http://pacenow.org/wp-content/uploads/2012/07/McKinsey-Study-on-Energy-Efficiency-in-the-US.pdf>, archived at <http://perma.cc/5WUG-9TUD>.

148. Several states also offer similar energy-efficiency tax credits. See DSIRE—DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, *Financial Incentives for Energy Efficiency*, <http://www.dsireusa.org/summarytables/finee.cfm> archived at <http://perma.cc/ZRZ6-FCMQ> (last visited July 29, 2014).

149. 26 U.S.C. § 25C (2006).

150. *Id.* § 25D.

151. CRANDILL-HOLICK & SHERLOCK, *supra* note 142, at 4.

152. Steven Nadel, *Energy Efficiency Tax Incentives in the Context of Tax Reform 4* (July 2012) (unpublished manuscript) (on file with the American Council for an Energy-Efficient

new home tax credit, which provides a credit of \$2000 for builders of homes that use 50% less energy for space heating and cooling, has significantly raised the market share of energy-efficient homes.¹⁵³ When first enacted in 2006, only 0.7% of new homes sold qualified for this credit.¹⁵⁴ By 2011, 11% of new homes sold qualified for the tax credit.¹⁵⁵ Similarly, tax credits for energy-efficiency improvements have also been shown to alter consumer behavior.¹⁵⁶ In 2006, 4.3 million taxpayers claimed tax credits for energy-efficiency improvements.¹⁵⁷ By 2009, this number rose to 6.8 million taxpayers.¹⁵⁸

These tax credits have the ability to significantly reduce electricity demand and reduce air pollution and greenhouse gases.¹⁵⁹ Some studies have found that energy-efficiency tax incentives, if implemented on a nation-wide scale, could reduce current electricity consumption by 23% by 2020, potentially abating 1.1 gigatons¹⁶⁰ of greenhouse gases annually.¹⁶¹ The potential is there to significantly reduce energy consumption and air pollution, but the current tax credit system's potential, particularly in regards to energy-efficiency tax credits, is not being fully exploited.

2. *Deficiencies in the Tax Credit System.*—While many taxpayers are taking advantage of these energy-efficiency tax credits, there are several problems with these tax credits which prevent them from effectively changing consumer behavior. They do not always spur behavior changes, they are not available to everyone, and they are not widely utilized by those that can use them.¹⁶² With some modifications, however, a new tax credit could be implemented in a way that addresses the individual and collective action problems that have for so long hindered pollution reduction efforts.

One question that has plagued critics of these tax credits is whether the credits have actually caused additional energy-efficiency investment, or if they

Economy), available at <http://aceee.org/files/pdf/white-paper/energy-efficiency-tax-incentives.pdf>.

153. *Id.*

154. *Id.* at 5, tbl.1.

155. *Id.*

156. *Id.*

157. *Id.* at 6.

158. *Id.*

159. *Id.* at 8.

160. *Id.* A gigaton is equivalent to one billion metric tons, which is equal to about 2.2 billion pounds. U.S. ENVTL. PROT. AGENCY, *Sources of Greenhouse Gas Emissions*, <http://www.epa.gov/climatechange/ghgemissions/sources.html>, archived at <http://perma.cc/7EFZ-VZUQ> (last updated Apr. 17, 2014) (follow “Million Metric Tons of CO₂ equivalent” hyperlink, located in the “Total U.S. Greenhouse Gas Emissions by Economic Sector in 2010” figure). As a comparison, a small car weighs approximately one metric ton. *Id.* In 2010, the United States produced 6.6 billion metric tons of greenhouse gases. *Id.* Thus, these energy-efficiency tax credits, if properly and fully implemented, could reduce the amount of greenhouse gas emissions by 1.1 billion metric tons. Nadel, *supra* note 152, at 8.

161. Granade et al., *supra* note 147, at iii.

162. CRANDILL-HOLLICK & SHERLOCK, *supra* note 142, at 7-8, 11.

have simply rewarded consumers for investments that would have been made absent such tax incentives.¹⁶³ In other words, are they really changing individual behaviors in a socially-desirably way? In many cases, the answer is “no.”

There are several possible explanations for why the tax credits might not actually be altering individual behaviors. First, the savings associated with the tax credit are not realized until tax returns are filed, which might be months after the technology is purchased.¹⁶⁴ Thus, the high investment cost of the technology can discourage purchasing this technology if the incentive is not available until much later, especially if the household making the purchase does not have disposable income. Second, these tax credits are only available to taxpayers having income tax liability,¹⁶⁵ which only amounted to approximately 46% of U.S. households in 2011.¹⁶⁶ This means, 54% of U.S. households cannot benefit from these tax credits.¹⁶⁷ Third, these energy-efficiency tax credits seem to be limited to higher-income taxpayers,¹⁶⁸ which severely hinders the policy goal of encouraging energy-efficiency investments from individuals that cannot normally afford the costs of these investments.¹⁶⁹

Despite their flaws, these tax credits do seem to be encouraging investments in energy-efficiency household technology. But, their potential is not being maximized. These credits do nothing to encourage collective action, and they only incentivize a small portion of the population.

D. A Community-based Tax Credit: A Tax Credit that Drives Individual and Collective Behaviors

This Note’s new proposed tax credit, the CCAT Credit, can repair some of the problems with the current tax credit system while also mobilizing a larger number of participants. The following is a general illustration of how this tax

163. *Id.* at 7-8.

164. *Id.* at 8.

165. These Residential Energy Tax Credits are nonrefundable, meaning that they are not able to increase an individual’s tax refund, but instead can only reduce the amount a taxpayer owes. *See What Is the Difference Between a Refundable and a Nonrefundable Credit*, TURBOTAX, <http://turbotax.intuit.com/tax-tools/tax-tips/Tax-Deductions-and-Credits/What-Is-the-Difference-Between-a-Refundable-and-a-Nonrefundable-Credit-/INF20170.html>, *archived at* <http://perma.cc/H8KB-XP2E> (last visited May 6, 2014). Conversely, if these tax credits were “refundable,” they would not only reduce the amount of taxes owed, but could also be credited in the form of a tax refund to a taxpayer who has a negative tax liability that year. *See* RACHEL JOHNSON ET AL., TAX POLICY CENTER: URBAN INSTITUTE & BROOKINGS INSTITUTE, WHY SOME TAX UNITS PAY NO INCOME TAX 4 (2011), *available at* <http://www.taxpolicycenter.org/UploadedPDF/1001547-Why-No-Income-Tax.pdf>, *archived at* <http://perma.cc/JWP9-A6B4>.

166. CRANDILL-HOLLOCK & SHERLOCK, *supra* note 142, at 8.

167. *Id.*

168. *Id.* at 11 (“In 2009, roughly three-quarters (75.7%) of residential energy tax credits claims were made on tax returns with adjusted gross income (AGI) above \$50,000.”). *Id.* at 9.

169. *Id.* at 8-9.

credit would be implemented.

A state, such as Indiana, would set pollution-reduction goals that apply to consumer behavior.¹⁷⁰ Once the state sets a state-wide goal (e.g. reduced residential electricity by a specified amount of kilowatt hours (kWh)), then the state would apply this goal to communities or neighborhoods throughout the state.¹⁷¹

In order to be eligible for the tax credit, each community or neighborhood must meet the “community” goal (e.g. average household electricity consumption equaling 4500 kWh for the calendar year). If a community meets that goal, then the residents who individually met this goal in their household (e.g. reduced their individual electricity consumption below 4500 kWh) would individually receive the tax credit. Thus, if a neighborhood of 100 households meets the community-wide goal of 4500 kWh per household (on average), but only forty households individually met the goal, then only those 40 households would receive the tax credit.

1. The CCAT Credit Can Modify Individual Behaviors.—The CCAT Credit addresses many of the problems associated with the tax credits identified in the preceding section.¹⁷² It does not require the purchase of energy-efficient technology, which can be expensive. It would be a refundable rather than a nonrefundable credit. And, it would target taxpayers of all income levels.

The first major difference between the CCAT Credit and the current tax credits¹⁷³ is the behavior it seeks to change. Most of the currently available tax credits, both federal¹⁷⁴ and state,¹⁷⁵ incentivize the purchasing of energy-efficient *technology*.¹⁷⁶ The CCAT Credit, however, focuses on pollution and energy reduction *behaviors*, which do not require expensive purchases. This increases its availability to many taxpayers who cannot afford to purchase expensive equipment, but can afford to make simple lifestyle changes that reduce electricity consumption. This means individuals can reduce their electricity consumption by any means—which can be as simple as turning off lights when not in use, replacing incandescent light bulbs with fluorescent or other low-wattage bulbs,

170. So far, this Note has focused almost exclusively on the problem of residential energy consumption, but other pollution-reduction issues could be addressed by this tax credit as well, such as garbage reduction, increased recycling, and even reduced water consumption.

171. If necessary, these communities would be subdivided into smaller sections because collective action is much more difficult to induce in large communities for at least three reasons. OLSON, *supra* note 103, at 48. First, the larger the group, the less benefit each member receives. *Id.* Second, because of the small benefit each member receives, it is unlikely that any one member will pay the cost of providing some of the good. *Id.* And third, large groups are more expensive to start and operate. *Id.*

172. *See supra* Part III.C.2.

173. 26 U.S.C. § 25C (2006); *id.* § 25D.

174. *Id.*

175. DSIRE—DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, *supra* note 148.

176. CRANDILL-HOLLICK & SHERLOCK, *supra* note 142, at 4.

or any of the other no-to-low cost measures which reduce electricity consumption.¹⁷⁷ This provides individuals with much greater flexibility on how they reduce their electricity consumption and their contributions to air pollution.¹⁷⁸

Second, the new tax credit would also be refundable, meaning that a much larger percentage of taxpayers could benefit from it.¹⁷⁹ Currently, only taxpayers with tax liability can benefit from the tax credit, thereby eliminating nearly half of the U.S. households from participation.¹⁸⁰ The use of a refundable tax credit would expand this incentive's availability to a much higher percentage of the population (specifically, it would be available to all individuals that file taxes, regardless of whether they owe income taxes).¹⁸¹ And unless there is evidence that certain households are more responsive to the incentive, then "tax incentives should provide the same [incentive] to all households."¹⁸²

Third, the new tax credit would target taxpayers at all income levels and not just high-income tax payers. As noted previously, in 2009, roughly 75% of the federal residential energy tax credits were claimed by individuals with adjusted gross incomes above \$50,000, even though 66% of tax payers have incomes below this threshold.¹⁸³ Part of the reason that high-income taxpayers take advantage of this current tax credit is because they can more easily afford to make investments in energy-efficient technology.¹⁸⁴ Also, the current tax credits target homeowners,¹⁸⁵ and thus renters are not as likely to take advantage of them.¹⁸⁶ The CCAT Credit does not target high income earners and homeowners. It would be available to all homeowners and renters, and it could be earned by practicing

177. For other low-to-no cost electricity reduction measures, see INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR, IN.GOV, <http://www.in.gov/oucc/2390.htm>, archived at <http://perma.cc/ZJ54-LYDZ> (last visited July 29, 2014).

178. This is akin to the growing use of performance standards over design standards in pollution regulation. See Cary Coglianese, Jennifer Nash & Todd Olmstead, Performance-Based Regulation: Prospects and Limitations in Health, Safety and Environmental Protection 1 (2002) (unpublished manuscript), available at <http://www.hks.harvard.edu/m-rcbg/Events/Papers/RPPREPORT3.pdf>, archived at <http://perma.cc/3EYX-U7UR>. When imposing pollution regulations on certain industries, a federal agency either mandates how the industry will reduce their pollution (design standards) or the agency will only specify the outcome required while giving the entity the opportunity to choose how to reduce their pollution (performance standards). *Id.* at 3-4. The latter gives the entity the flexibility to reduce pollution in the most cost-effective way they can find. *Id.* at 1.

179. Lily L. Batchelder et al., *Efficiency and Tax Incentives: The Case for Refundable Tax Credits*, 59 STAN. L. REV. 23, 29-30 (2006).

180. CRANDILL-HOLLICK & SHERLOCK, *supra* note 142, at 8.

181. Batchelder et al., *supra* note 179, at 29-30.

182. *Id.* at 47.

183. CRANDILL-HOLLICK & SHERLOCK, *supra* note 142, at 9.

184. *Id.* at 11.

185. *Id.* at 9.

186. *Id.* at 7.

non-expensive behaviors.

These differences have the potential to significantly increase the availability of tax credits to individuals for acting in environmentally-favorable ways. This monetary incentive should help eliminate some of the barriers to changing individual consumer behaviors. However, the tax credit must still be able to induce changes in group behavior.

2. *The CCAT Credit Should Induce Collective Action in Communities.*— Collective action problems with regards to energy conservation and pollution are commonly called “social dilemmas.”¹⁸⁷ Social dilemmas are extensively studied in laboratory and field research, primarily because they pose the biggest obstacle to solving this country’s “most pressing environmental problems.”¹⁸⁸ When studying social dilemmas, researchers tend to focus on the effect of a particular variable on group behavior, such as the effects of communication, trust between group members, monetary incentives, and an individual’s perceived contribution to the group.¹⁸⁹ Through these studies, researchers have been able to isolate variables that can have a strong effect on cooperative group behavior, one of those being “group incentives.”¹⁹⁰

The CCAT Credit is essentially a group incentive. Group incentives tie individual financial incentives to group goals.¹⁹¹ Several studies show that group incentives can result in moderate reductions in electricity consumption.¹⁹² In one study conducted by Penn State University, several dorms participated in a contest to determine which dorm could reduce its electricity consumption the most.¹⁹³ The winning dorm was awarded \$90 to spend as the residents wished.¹⁹⁴ Compared to control dorms not involved in the contest, the competing dorms reduced their electricity consumption by 4% to 14%.¹⁹⁵

In another study conducted by Slavin, Wodarski, and Blackburn (1981), residents at a private apartment complex in Baltimore, Maryland, were invited to participate in an energy conservation program, which rewarded residents with financial incentives for reducing their electricity consumption below predicted consumption levels by each building in the apartment complex.¹⁹⁶ Electricity consumption was measured every two weeks, and residents earned payments between \$1.44 and \$1.78 for reductions in their electricity consumption.¹⁹⁷ This group incentive resulted in an average reduction of energy consumption by 6%

187. Charles D. Samuelson, *Energy Conservation: A Social Dilemma Approach*, 5 SOC. BEHAV. 207, 207 (1990).

188. *See id.*

189. *Id.* at 212-16.

190. *Id.* at 216.

191. *Id.*

192. *Id.* at 216-18.

193. *Id.* at 216.

194. *Id.* at 217.

195. *Id.*

196. *Id.*

197. *Id.*

to 7% in the participating apartment buildings.¹⁹⁸

These studies suggest that group incentives are potentially valuable tools in curbing energy consumption, and, consequently, pollution production. However, the results also do not show that these types of incentives are miracle pills for cleaning this country's polluted air. These studies have helped isolate some of the important factors that increase the effectiveness of group incentives.¹⁹⁹ One primary factor is the power of social incentives.²⁰⁰ Social incentives include face-to-face interaction, social commendation for energy savings, high levels of trust between group members, knowledge about the program, discussions with other group members or neighbors about the program, highly visible announcements and flyers, and regular feedback on energy savings.²⁰¹

Thus, it is not simply the financial incentive that induces collective action. Equally important is the power of social incentives.²⁰² If this CCAT Credit is designed to provide ample financial incentives for group performance while maximizing the effects of social incentives, then it could have a moderate-to-significant impact on energy conservation in small communities.

IV. THE COMMUNITY CLEAN AIR TAX CREDIT: EXTRA DETAILS

The purpose of this Note is to layout the basic idea of a community-based tax credit. It is also meant to provide just one example of how it could be implemented to reduce pollution—in this case, as a way to reduce residential electricity demand. In no way does it address all of the complex issues that would arise if it was enacted. Nonetheless, this section will address several issues that naturally arise when a tax program is implicated, such as the method of funding and ways to increase the program's effectiveness.

A. The Funding of the CCAT Credit

In a different era, before talks of the deficit and national debt occupied households across the country, there likely would have been less opposition to this type of tax credit. But today's economic struggles require state and national leaders to act responsibly with taxpayer dollars. This makes funding the CCAT Credit much more difficult. The exact terms for how to generate income for this solution are beyond the scope of this Note, but one possible solution is the implementation of a new tax.

A new tax could serve a dual purpose: raising revenue for the CCAT Credit and further altering consumer behavior. The revenue gained could be used to pay for the CCAT Credit program. The precise taxing method is beyond the scope of this Note, but some possible ideas include: a sales tax on certain consumer products that produce significant amounts of pollution, either as a result of their

198. *Id.*

199. *Id.* at 218.

200. *Id.*

201. *See id.* at 216-18.

202. *Id.* at 218.

production²⁰³ or during consumer-use of the product; a localized tax that targets the communities that produce the most pollution; a small, general sales tax on all consumer products; or simply a tax on the most egregious polluting entities. Again, identifying the precise method of taxation is not the goal of this Note.

Nonetheless, a tax targeted at consumers could help alter behavior by forcing consumers to internalize the costs of pollution—costs that they encourage when they participate in the market as consumers and users.²⁰⁴ It would do so by first making consumers pay for their fair share of pollution when they purchase certain products on the market. It would also spark intense public reaction, leading to increased awareness of the tax and the CCAT Credit program, possibly leading to higher participation in the program.

This immense public reaction is not necessarily a bad thing. Throughout this country's history, taxes have provoked rapid and powerful reactions from the public.²⁰⁵ This could substantially increase public awareness of the pollution problem in this country, and drive home the fact that individual behavior drives pollution. Society might begin to more fully understand the social costs of their behaviors because individuals would actually start paying for it.

The effectiveness of this tax, and more importantly, the corresponding CCAT credit, depends heavily on the public's awareness of the program. For example, a recent study²⁰⁶ on gasoline taxes and consumer behavior found that an increase in the gasoline tax had a stronger effect on reducing gasoline consumption and new vehicle purchases than an equivalent increase in the gasoline price due to fluctuating oil prices.²⁰⁷ Although this might seem odd (because consumers only see the final price of the gasoline at the pump, not the composition of the price), this study suggests that this is partially due to the public's awareness of the increased gasoline tax.²⁰⁸ Similarly, the success of a new state pollution tax would likely hinge on the public's awareness of the tax and the opportunity to earn a CCAT Credit for behaving in environmentally-friendly ways.

203. While it might seem like a politically unfeasible and unworkable idea, such a tax has been proposed. See Kimmel, *supra* note 86, at 507 (proposing an “Environmental Impact Index” which informs consumers how much pollution is produced in the production of a product and then charges a higher sales tax for products that resulted in more pollution during their production).

204. *Id.* at 545. “The consumer is an appropriate target of environmental enhancement legislation because consumer behavior greatly influences production decisions.” *Id.* at 527.

205. For example, the colonial reaction to the British-imposed Stamp Act, leading up to the American Revolutionary war, “was swift and, on occasion, riotous.” Pauline Maier, *Chronicle of the Revolution: The Stamp Act Riots & Tar and Feathering*, PBS.ORG, http://www.pbs.org/ktca/liberty/popup_stampact.html, archived at <http://perma.cc/K4U3-V3LU> (last visited July 29, 2014).

206. See Erich Muehlegger et al., *Gasoline Taxes and Consumer Behavior* (Nat'l Bureau of Econ. Research, Working Paper No. 17891, 2011) (arguing that gasoline tax increases are associated with larger reductions in gasoline consumption than proportionate increases in the tax-exclusive gasoline price), available at http://economics.stanford.edu/files/muehlegger3_15.pdf, archived at <http://perma.cc/BQ5F-HSNV>.

207. *Id.* at 17.

208. See *id.*

Furthermore, the tax could help induce stronger collective action. As Mancur Olson noted, there must be a sanction or incentive, distinct from the good being sought, in order to stimulate individuals to act in a group-oriented way.²⁰⁹ The CCAT Credit serves as the incentive, but the state pollution sales tax could serve as the sanction, the combination of which could increase the effectiveness of this new CCAT Credit. It would provide an even stronger financial reason for individuals to alter their behaviors.

However, implementing a new tax on individuals for air pollution would face several obstacles, namely public opposition.²¹⁰ “General public opposition to taxes in the United States creates an almost insurmountable barrier to the enactment of new environmental taxes.”²¹¹ However, strong public opposition does not always stop new legislation.²¹²

The CCAT Credit, along with a corresponding tax that funds the Credit, have the potential to result in significant improvements to the quality of air in the United States, but they could simultaneously weaken the personal and psychological incentives to clean the environment.²¹³ Economists call this the “crowding out” effect, where extrinsic motivators (e.g., financial incentives) erode intrinsic motivators (e.g. environmental ethics or social norms), thereby reducing the individuals effort towards a group goal.²¹⁴ By providing monetary incentives for reducing air pollution, the purpose for many might no longer be to reduce pollution, but rather to earn money through a tax credit. The ultimate goal would be to change the mindset of the American public such that individuals behave in more environmentally-favorable ways because they care about the environmental, human health, and social implications of continued air pollution. While this may be the ultimate goal, it might be unreachable in the near future.

B. Additional Ways to Increase the Effectiveness of the CCAT Credit

This Note has focused on the potential ability of this new tax credit to incentivize individual and collective behaviors, specifically in regards to reducing electricity consumption. Encouraging environmentally-favorable *individual* and *collective* behaviors is its primary purpose. But, it could also be expanded to

209. OLSON, *supra* note 103, at 48.

210. Babcock, *supra* note 82, at 172.

211. *Id.*

212. For example, Congress and President Obama signed the Patient Protection and Affordable Care Act into law in 2010, despite 56% of Americans opposing the law. See Patricia Zengerle, *Most Americans Oppose Health Law but Like Provisions*, REUTERS (June 24, 2012) (providing data collected in 2012, two years after the law was passed), <http://www.reuters.com/article/2012/06/24/us-usa-campaign-healthcare-idUSBRE85N01M20120624>, archived at <http://perma.cc/3MNQ-HB4P>.

213. See Nuno Teles, *Motivations and Incentives: From the “Crowding-out Effect” to “Peer-production”* 2-3 (2007) (unpublished manuscript), available at <http://www.dime-eu.org/files/active/0/Motivations-and-Incentives.pdf>, archived at <http://perma.cc/PK4V-WTAW>.

214. *Id.*

include other actors and to encourage other types of behavior.

As presented, the CCAT Credit financially benefits individual community members, but it provides no financial incentive to the community itself. If the community itself (i.e. the city, the town, or the local municipality) was also rewarded for having its community members collectively act to reduce their pollution contributions, then it could help activate and coordinate community action.

Conversely, if every community member were to receive a tax credit for environmentally-favorable actions performed by the local municipality, then communities as a whole would likely collectively encourage their elected leaders to make those environmentally-favorable changes. For example, a state could promise to pay each resident of a community a small tax credit for every high traffic intersection the city, town, or municipality converted into a round-about. Or, it could provide a tax credit to everyone if the municipality significantly improves traffic flow by making its traffic signals more efficient. This could invoke more political collective action, allowing individuals to further influence and affect environmental decision-making at the local government level.

CONCLUSION

Despite this country's efforts to reduce pollution, it has not gone far enough in protecting the environment and the health of its citizens. The focus thus far has been on the producers of pollution, while consumers have escaped responsibility. But, the consumer is increasingly contributing to the pollution problem in this country. The next step must be to address the consumer-pollution problem.

Any solution must address two enormous obstacles: modifying individual behavior and inducing collective action. An ideal solution must encourage both. Tax credits have long been used to alter individual behaviors by incentivizing socially-favorable behaviors.²¹⁵ Specifically, residential energy-efficiency tax credits have been used to reduce energy demand and pollution by incentivizing the purchase of high-efficiency residential technology.²¹⁶ Unfortunately, these tax credits are not fulfilling their potential.

A community-based tax credit can be used to further incentivize environmentally-favorable behaviors at both the individual and community level. By selectively rewarding individuals in communities that have collectively reduced their air pollution contributions, the CCAT Credit serves as one of the theoretical solutions to collective action—a selective incentive, separate from the public good being sought. It not only requires individuals to act, but it requires them to act as a group. Without both, no one can earn the tax credit.

215. Goldberg, *supra* note 137, at 305.

216. Nadel, *supra* note 152, at 4.

For decades, this country has focused its pollution reduction efforts on federal regulations targeted at pollution emitters. This is an opportunity to give more responsibility and control to individuals, families, and communities. These are the groups that suffer the greatest consequences of air pollution. These are the groups that can make the greatest difference. We must incentivize them to do so.