Sustaining an Unsustainable Fuel Source: How Lifecycle Greenhouse Gas Limitations Can Improve the Sustainability of the Tar Oil Industry

Brittany DeBord, The George Washington University Law School

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SUSTAINING AN UNSUSTAINABLE FUEL SOURCE: HOW LIFECYCLE GREENHOUSE GAS LIMITATIONS CAN IMPROVE THE SUSTAINABILITY OF THE TAR OIL INDUSTRY

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INTRODUCTION

Reliance on fossil fuels is expected to increase over the next two decades despite aggressive development of renewable and nuclear technologies.\(^1\) As a result of this reliance, the United States requires a fossil fuel market that provides energy security and self-sufficiency.\(^2\) The United States has found energy security in its neighbor to the North. Currently, Canada constitutes twenty percent of American foreign energy supply.\(^3\) Roughly fifty percent of this amount comes from Canada’s tar oil.\(^4\)

The infamous tar oil operations in Alberta have been called “the most destructive project on Earth.”\(^5\) Photos of moonscapes that were once lush boreal forests shock the public conscience and inspire preventative action. Furthermore, the risks associated with oil transport have put the Keystone XL pipeline, which would transport tar oil from Canada to the United States, at the forefront of current environmental issues. Greenhouse gas (“GHG”) emissions, however, are one of the most worrisome, albeit invisible, culprits of tar oil operations. Tar oil extraction creates

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\(^1\) Cameron Jefferies, *Unconventional Bridges Over Troubled Water - Lessons to be Learned from the Canadian Oil Sands as the United States Moves to Develop the Natural Gas of the Marcellus Shale Play*, 33 Energy L.J. 75, 79 (2012) [hereinafter *Unconventional Bridges Over Troubled Water*].

\(^2\) *Unconventional Bridges Over Troubled Water*, supra note 1, at 80.

\(^3\) Id. at 83.

\(^4\) Id.

three times more carbon emissions than conventional oil extraction.\(^6\) Thus, further development of tar oil operations contradicts efforts to mitigate the effects of climate change. Nevertheless, United States policy supports the acquisition of fuels from politically stable countries like Canada.\(^7\) It also supports developing tar oil on domestic soil in order to achieve energy self-sufficiency.\(^8\)

United States acquisition of tar oil from Canada is inevitable, along with the development of domestic tar oil operations. In fact, the first phases of development have begun in Utah, which has the largest supply of tar oil in the nation.\(^9\) However, there is no legislation that specifically addresses the dramatic impacts from GHG emissions of tar oil operations. As the largest consumer of Canadian tar oil\(^10\) and as a nation with a blossoming industry of its own, the United States should assume the responsibility of regulating this fuel.

Since Congress has been slow to pass climate change legislation, an overhaul like the Waxman-Markey bill is unlikely to garner majority support. On the other hand, targeted legislation addressing the effects of a single fuel source, like tar oil, is more likely to pass. In addition, environmentally protective policies in statutes like the Energy Independence and Security Act and treaties like the North American Agreement on Environmental Cooperation encourage legislation that works to mitigate climate change. Restrictions on the lifecycle GHG emissions of tar oil used for transportation fuel would mitigate the climate changing effects of extraction without eliminating the politically important tar oil market.

\(^6\) Id.
Part I of this Note provides factual background about tar oil and its lifecycle GHG emissions. Part II provides legal background of United States policy towards tar sands development and GHG emissions reduction, and instances of lifecycle GHG limitations in the law. Part III discusses two legal solutions to reduce the GHG emissions from tar oil and challenges thereto. First, Congress could amend § 211 of the Clean Air Act to require lifecycle GHG limitations for tar oil. Alternatively, the EPA could regulate the lifecycle GHG emissions of tar oil without congressional authorization through §211(c), which allows the Administrator to regulate fuel that contributes to air pollution and may reasonably be anticipated to endanger the public welfare.11

I. FACTUAL BACKGROUND

A. Tar Oil Facts and Controversy

“Tar sands” are a combination of clay, sand, water, and bitumen, a heavy black viscous oil, which is referred to as “tar oil” in this note.12 Tar oil is extracted either by surface mining or “in situ” extraction.13 Surface mining is used for shallow deposits of tar oil, whereby tar sands are dug up using large hydraulic and electrically-powered shovels.14 The tar oil is subsequently separated from the sand.15 In situ extraction is used for deeper deposits of tar oil.16 In this process, steam or solvent is injected deep into the ground to separate the tar oil from the other

11 42 U.S.C. § 7545(c)(1).
13 Id.
14 Id.
15 Unconventional Bridges Over Troubled Water, supra note 1, at 82.
16 About Tar Sand, supra note 9.
materials, which is then pumped to the surface and refined.\textsuperscript{17} Currently, tar oil is not produced on a significantly commercial level in the United States.\textsuperscript{18} Rather, the Canadian province of Alberta dominates the tar oil industry.\textsuperscript{19} In fact, Canada is the top exporter of crude oil to the United States, a substantial portion of which is tar oil.\textsuperscript{20} Moreover, it has been estimated that thirty-seven percent of American foreign oil supplies are expected to come from Canadian tar oil by 2037.\textsuperscript{21}

Tar oil has received considerable media attention due to the controversy surrounding the primary mode of tar oil transport—pipelines.\textsuperscript{22} Currently, 3.5 million barrels per day of crude oil from Alberta enter the United States via pipeline infrastructure.\textsuperscript{23} The Keystone Pipeline transports almost one quarter of that crude.\textsuperscript{24} Its proposed new segment, Keystone XL, would provide a direct route from Alberta to Nebraska in order to satisfy the demand of refineries in the Midwest and the Gulf Coast.\textsuperscript{25} The Obama administration has delayed approval for the construction of Keystone XL due to concerns that building the pipeline would significantly

\begin{itemize}
\item \textsuperscript{17} Id.
\item \textsuperscript{18} Id.
\item \textsuperscript{19} Id.
\item \textsuperscript{21} Unconventional Bridges Over Troubled Water, supra note 1, at 83.
\item \textsuperscript{22} See DIANA FURCHTGOTT-ROTH, MANHATTAN INST. FOR POLICY RESEARCH, PIPELINES ARE SAFEST FOR TRANSPORTATION OF OIL AND GAS 1-2 (2013), available at http://www.manhattan-institute.org/pdf/ib_23.pdf [hereinafter PIPELINES ARE SAFEST FOR TRANSPORTATION OF OIL AND GAS].
\item \textsuperscript{23} Unconventional Bridges Over Troubled Water, supra note 1, at 83.
\item \textsuperscript{24} TransCanada, KEYSTONE XL PIPELINE, http://keystone-xl.com/home/transcanada/ (last visited Nov. 7, 2013).
\item \textsuperscript{25} The Project, KEYSTONE XL PIPELINE, http://keystone-xl.com/about/the-project/ (last visited Nov. 7, 2013).
\end{itemize}
contribute to increased GHG emissions. However, in January 2014 the State Department released the Final Supplemental Environmental Impact Statement, concluding that Keystone XL would not substantially worsen carbon pollution. The State Department reasoned that increased emissions associated with production and consumption were unlikely, since the approval or denial of Keystone XL is unlikely to significantly impact the rate of extraction of tar oil or the continued demand at refineries in the United States. Environmentalists fear that this report will lead President Obama to determine that the project will serve the national interest and grant the Presidential Permit authorizing its execution.

Citizens of the United States need not only be concerned about Keystone XL. Tar oil development is beginning in states like Utah and Kentucky. Utah is the star player in the U.S. tar oil industry, since the majority of the country’s tar oil is concentrated in the Eastern region of the state. U.S. Oil Sands is a Utah-based company that is planning the initial phase of a project

31 See About Tar Sands, supra note 12.
that could eventually produce 20,000 barrels of tar oil per day via in situ extraction. The government and citizens of Utah support the project because production facilities are expected to create 590,000 jobs over the next twenty-five years. Deposits of tar oil are also located in Alaska, Alabama, Southwest Texas, California, Oklahoma, and Missouri, with scattered deposits in other states.

The main criticism of tar oil operations involves the associated environmental destruction. A primary concern is that both processes of tar oil production, surface mining and in situ extraction, contribute dramatically to climate change. Not only does tar oil extraction perpetuate the use of GHG-emitting fossil fuels, but extraction itself also produces large amounts of GHGs. James Hansen, director of NASA Goddard Institute for Space Studies, states that “[i]f we turn to these dirtiest of fuels, instead of finding ways to phase out our addiction to fossil fuels, there is no hope of keeping carbon concentrations below 500 p.p.m.—a level that would, as earth’s history shows, leave our children a climate system that is out of their control.”

Currently, tar oil production requires substantial fossil fuel input, thus producing large amounts of GHG emissions. For tar oil mined from the surface, five units of oil-based energy are

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36 See Id.
obtained for every one unit of energy invested to extract it.\textsuperscript{38} For tar oil extracted in situ, 2.9 units of oil-based energy are obtained for one unit of energy invested.\textsuperscript{39} On the other hand, for conventional oil, twenty-five units of oil-based energy are obtained for one unit of invested energy.\textsuperscript{40} While these ratios reflect the current industry in Canada, emerging technology can transform tar sands into a more sustainable fossil fuel industry. For example, by using solvents instead of steam to loosen bitumen during in situ extraction, emissions from the process can be reduced by up to eighty-five percent.\textsuperscript{41} Emission-reducing technology saves energy, reduces operating costs, and provides value to businesses by reducing environmental risks.\textsuperscript{42}

GHG emissions are but one issue among many associated with tar oil production. Tar oil operations cause forest and wildlife habitat loss, water and fisheries poisoning, increased cancer rates in downstream communities, migratory bird death, and other forms of air pollution.\textsuperscript{43} Extraction processes also pose the threat of oil spills.\textsuperscript{44} Instead of proposing solutions to the myriad of problems associated with the tar oil industry, this note will focus on GHG emissions.

\textsuperscript{39} Id.
\textsuperscript{40} Id.
\textsuperscript{44} In June of 2013, a major spill from a Canada Natural Resources Ltd. facility released 10,000 barrels of bitumen. Ian Austen, \textit{Leak at Oil Sands Project in Alberta Heightens Conservationists’ Concerns}, \textsc{N.Y. Times}, Aug. 8, 2013, at ?, available at
B. Lifecycle GHG Emissions of Tar Oil

One method of analyzing GHG emissions resulting from tar oil operations is lifecycle GHG assessment. Lifecycle assessments identify GHG emissions associated with the entire lifecycle of a fuel.\textsuperscript{45} For example, a “well-to-wheel” analysis includes emissions produced from the extraction of the oil source, transport, refining, distribution to retail markets, and combustion in end-use.\textsuperscript{46} Since more energy is needed to extract tar oil than the energy needed to extract conventional oil, the lifecycle GHG emissions for tar oil are higher than those of conventional oil.

Well-to-wheel analyses of Canadian tar oil operations represent known lifecycle GHG measurements for tar oil, since lifecycle GHG measurements have not yet been conducted on U.S. tar oil operations. In 2012, Cambridge Energy Research Associates (“CERA”) conducted a meta analysis on twelve major studies that analyzed Canadian lifecycle GHG measurements.\textsuperscript{47} CERA analyzed GHG measurements within a tight boundary and a wide boundary. The tight boundary included emissions measurements drawn solely from production facility and refinery processes.\textsuperscript{48} Wide boundary measurements included emissions that occur outside of these processes such as emissions from the production of energy, like natural gas and offsite electricity, used to power extraction facilities.\textsuperscript{49} Analyses within the tight boundary revealed that

\begin{footnotesize}
\textsuperscript{46} Id.
\textsuperscript{48} Id. at 12.
\textsuperscript{49} Id.
\end{footnotesize}
the combined well-to-wheel GHG emissions from refined tar oil are eleven percent higher than the average crude refined in the United States in 2005.\textsuperscript{50} Analyses within the wide boundary revealed that emissions from refined tar oil are fourteen percent higher than the United States crude average.\textsuperscript{51}

Well-to-wheel emissions from in situ extraction operations, measured alone, were eighteen and twenty-three percent higher than the United States crude average within the tight and wide boundaries, respectively.\textsuperscript{52} Emissions from in situ methods are higher than the average tar oil emissions because significant amounts of energy are required to inject steam into the ground,\textsuperscript{53} the favored method of in situ extraction.\textsuperscript{54} The steam must heat the oil in order to decrease its viscosity enough to pump it to the surface, leaving the sand component underground.\textsuperscript{55} High emissions resulting from in situ extraction are particularly problematic for U.S. tar oil operations, since eighty-five percent of the major deposits in the United States would require the in situ process.\textsuperscript{56}

It is important to note that well-to-wheel measurements dilute the difference between the level of emissions produced during tar oil extraction and conventional oil extraction. Emissions released during combustion make up seventy to eighty percent of total emissions, which are the same for all crudes. Thus, lifecycle GHG emissions from refined tar oil could be up to eighty-one

\textsuperscript{50} \textit{Id.} at 15.
\textsuperscript{51} \textit{Id.}
\textsuperscript{52} \textit{Id.}
\textsuperscript{54} \textit{About Tar Sand, supra} note 9.
percent greater than the United States crude average when measured via well-to-tank analysis, excluding ultimate combustion.\(^57\)

II. LEGAL BACKGROUND

A. Statutory Policy: Tar Sands Development and GHG Emissions Reductions

The Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 ("EISA") govern United States energy policy. These acts emphasize the goals of the United States to achieve energy security and self-sufficiency by reducing reliance on imports from unstable foreign countries. The Energy Policy Act, for example, calls for the establishment of the “United States Commission on North American Energy Freedom” for the purpose of making recommendations for a coordinated and comprehensive energy policy between Canada, Mexico, and the United States that will achieve energy self-sufficiency in 2025.\(^58\)

Tar oil can help achieve both these goals because it is primarily obtained from Canada\(^59\) and commercially viable deposits are located in the United States.\(^60\) Thus, it is the specific policy of the United States to develop domestic tar oil resources.\(^61\) This policy has not changed since at least 1980, when the Crude Oil Windfall Profit Tax Act of 1980 ("COWPTA") was created in reaction to the 1973 oil embargo and the need to reduce reliance on politically and economically


\(^{59}\) Unconventional Bridges Over Troubled Water, supra note 1 at 80.

\(^{60}\) Ewart: Oilsands Development and Protests Gather Steam, supra note 30; Chury: U.S. Oilsands Open for Business, supra note 30.

unstable sources of foreign oil. Even though the heart of COWPTA was repealed in 1988, provisions offering tax credits for tar oil production have survived.

The pro-development policy towards a domestic tar oil industry is emphasized throughout the Energy Policy Act. The Act requires the Secretary of the Interior to make land available for leasing for the research and development of tar oil, to create a commercial leasing program for tar oil resources on public lands, and to ensure diligent development of the leases by designating work requirements and milestones. The Act also calls for the establishment of a “Task Force” to develop a program to coordinate and accelerate the commercial development of tar oil resources. The Secretary of the Interior must evaluate the locations of tar oil deposits, assign priority to locations particularly rich in tar oil, and facilitate the exchange of public and private land to consolidate land ownership and mineral interests. The Act requires the Secretary of Energy to identify commercially feasible technology for the development of tar oil. While not required, the Secretary of Energy may provide assistance for each technology in meeting environmental requirements. Though tar oil development must be “conducted in an environmentally sound manner, using practices that minimize impacts,” the Act makes clear that programs to further the development of domestic tar oil operations are top priority.

Despite the policy favoring tar oil development, the Energy Policy Act and EISA also promote energy efficiency and reducing GHG emissions to offset climate change. The Energy

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64 42 U.S.C. § 15927(c)-(f).
65 42 U.S.C. § 15927(h).
66 42 U.S.C. § 15927(m)-(n).
68 42 U.S.C. § 15927(l).
Policy Act requires the Secretary of Energy to research fossil energy with the goal of “improving the efficiency, effectiveness, and environmental performance of fossil energy production, upgrading, conversion, and consumption.”\textsuperscript{70} Furthermore, the purpose of EISA is to increase the production of clean renewable fuels, increase the efficiency of products, buildings, and vehicles, promote research on and deploy GHG capture and storage options, and improve the energy performance of the federal government.\textsuperscript{71} EISA calls for the establishment of the “International Clean Energy Foundation” to serve the long-term foreign policy and energy security goals of reducing global GHG emissions.\textsuperscript{72} EISA also calls for the establishment of the “Office of Climate Change and Environment” within the Department of Transportation to plan, coordinate, and implement reductions in transportation-related energy use and to mitigate the effects of climate change.\textsuperscript{73}

B. Lifecycle GHG Emissions Limitations

i. Lifecycle Requirements of Biofuels

EPA has started to enact GHG emission standards as a result of the Supreme Court decision in \textit{Massachusetts v EPA}, which gave the EPA the authority to regulate GHGs.\textsuperscript{74} One such method of controlling GHG emissions is to impose standards on lifecycle GHG emissions.\textsuperscript{75} For example, concern over the total emissions from biofuels production led Congress to include

\begin{itemize}
\item \textsuperscript{72} Energy Independence and Security Act, 42 U.S.C.A. § 17353 (2007).
\item \textsuperscript{73} Energy Independence and Security Act, 49 U.S.C.A. § 102 (2007).
\item \textsuperscript{74} \textit{Massachusetts v. EPA}, 127 S.Ct. 1438 (2007).
\item \textsuperscript{75} 42 U.S.C. § 7545(o).
\end{itemize}
GHG lifecycle analysis requirements for these fuels by amending § 211 of the Clean Air Act ("CAA") via the EISA.\textsuperscript{76}

The Renewable Fuel Program was originally established by Congress in the Energy Policy Act of 2005 with the purpose of reducing U.S. dependence on foreign oil, encouraging development of an advanced biofuels industry, and reducing GHG emissions from transportation fuel combustion.\textsuperscript{77} The initial program required refiners, importers, and blenders of motor vehicle fuel to include a minimum annual volume of biofuel.\textsuperscript{78} Biofuels were originally perceived as “carbon neutral” because carbon emissions absorbed during plant growth were thought to cancel out emissions produced during combustion.\textsuperscript{79} However, recent scientific evidence suggests that replacing fossil fuels with bioenergy does not by itself reduce carbon emissions, since the “carbon neutral” theory ignores differences in the types of biomass resources, the period of time it takes the resource to regrow, and emissions resulting from the production process, such as land conversion.\textsuperscript{80} Thus, Congress expanded the Renewable Fuel Program in the EISA, implementing lifecycle GHG emissions limitations on biofuels.\textsuperscript{81}

The revised Renewable Fuel Program prevents the hidden GHG emissions associated with biofuels from hindering the ultimate goal of GHG reduction. Renewable fuel\textsuperscript{82} must achieve at least a twenty percent reduction in lifecycle GHG emissions compared to baseline lifecycle

\textsuperscript{78} Id. at 34.
\textsuperscript{79} Closing The Gap, supra note 76, at 256-257.
\textsuperscript{80} Id. at 257.
\textsuperscript{81} Food v. Fuel, supra note 77, at 34.
\textsuperscript{82} Fuel produced from renewable biomass.
GHG emissions, which are the average lifecycle GHG emissions for transportation fuels sold in 2005.\footnote{42 U.S.C. § 7545(o)(2)(A)(i).} Biomass-based diesel\footnote{Renewable fuel that is biodiesel.} must achieve at least fifty percent less lifecycle GHG emissions than the baseline emissions,\footnote{42 U.S.C. § 7545(o)(1)(D).} advanced biofuel\footnote{Renewable fuel other than ethanol derived from corn starch.} must also achieve at least fifty percent less,\footnote{42 U.S.C. § 7545(o)(1)(B)(i).} and cellulosic biofuel\footnote{Renewable fuel derived from any cellulose, hemicellulose, or lignin.} must achieve at least sixty percent less.\footnote{42 U.S.C. § 7545(o)(1)(E).} The Program requires the Administrator of the EPA to promulgate regulations requiring transportation fuel sold or introduced into commerce in the United States to contain, on average, a certain volume of renewable fuel, biomass-based diesel, advanced biofuel, and cellulosic biofuel. The required volume of these fuels increases on a yearly basis.\footnote{42 U.S.C. § 7545(o)(2)(B)(i)(I).}

The Program allows the Administrator to make modifications to the lifecycle GHG emissions requirements.\footnote{42 U.S.C. § 7545(o)(4)(A).} For the fifty and sixty percent reductions in lifecycle GHGs, the Administrator may only modify the requirements if he believes such limitations would not be commercially feasible.\footnote{42 U.S.C. § 7545(o)(4)(A).} Furthermore, the Administrator may not reduce the sixty percent limitations below fifty percent, the fifty percent limitations below forty percent, and the twenty percent limitations below ten percent.\footnote{42 U.S.C. § 7545(o)(4)(B).} The Administrator must review and revise the regulations establishing the adjusted level after five years.\footnote{42 U.S.C. § 7545(o)(4)(D).}

The Program establishes a credit program whereby any person that refines, blends, or imports gasoline that contains a volume of renewable fuel greater than the volume required

\footnotetext[83]{42 U.S.C. § 7545(o)(2)(A)(i).}
\footnotetext[84]{Renewable fuel that is biodiesel.}
\footnotetext[85]{42 U.S.C. § 7545(o)(1)(D).}
\footnotetext[86]{Renewable fuel other than ethanol derived from corn starch.}
\footnotetext[87]{42 U.S.C. § 7545(o)(1)(B)(i).}
\footnotetext[88]{Renewable fuel derived from any cellulose, hemicellulose, or lignin.}
\footnotetext[89]{42 U.S.C. § 7545(o)(1)(E).}
\footnotetext[90]{42 U.S.C. § 7545(o)(2)(B)(i)(I).}
\footnotetext[91]{42 U.S.C. § 7545(o)(4)(A).}
\footnotetext[92]{42 U.S.C. § 7545(o)(4)(A).}
\footnotetext[93]{42 U.S.C. § 7545(o)(4)(B).}
\footnotetext[94]{42 U.S.C. § 7545(o)(4)(D).}
receives credits.\textsuperscript{95} Credits may be transferred to another person for the purposes of complying with the renewable fuel volume requirements.\textsuperscript{96} The credits are valid for 12 months from the date of generation to show compliance.\textsuperscript{97} Any person that is unable to generate or purchase sufficient credits carries a renewable fuel deficit on the condition that on the following year they achieve compliance and generate additional credits to offset the deficit.\textsuperscript{98}

The Administrator may waive the volume requirements in whole or in part on petition by one or more States or by any person subject to the Program.\textsuperscript{99} The Administrator must make this decision based on one of two possible determinations after public notice and opportunity for comment. One determination is that implementation of a requirement would severely harm the economy or environment of a State, region, or the country.\textsuperscript{100} The other determination is that there is an inadequate domestic supply.\textsuperscript{101}

### ii. Section 526 of EISA

Section 526 of the EISA is the only federal statute that limits tar oil emissions through lifecycle GHG measurements. The provision prohibits federal agencies from entering into contracts for procurement of an alternative or synthetic fuel, including "nonconventional petroleum sources," for mobility-related uses unless the lifecycle GHG emissions associated with the production and combustion of the fuel are less than or equal to lifecycle GHG emissions from the equivalent conventional fuel.\textsuperscript{102}

\begin{itemize}
  \item \textsuperscript{95} 42 U.S.C. § 7545(o)(5)(A).
  \item \textsuperscript{96} 42 U.S.C. § 7545(o)(5)(B).
  \item \textsuperscript{97} 42 U.S.C. § 7545(o)(5)(C).
  \item \textsuperscript{98} 42 U.S.C. § 7545(o)(5)(D).
  \item \textsuperscript{99} 42 U.S.C. § 7545(o)(7)(A).
  \item \textsuperscript{100} 42 U.S.C. § 7545(o)(7)(A)(i).
  \item \textsuperscript{101} 42 U.S.C. § 7545(o)(7)(A)(ii).
  \item \textsuperscript{102} “No Federal agency shall enter into a contract for procurement of an alternative or synthetic fuel, including a fuel produced from nonconventional petroleum sources, for any mobility-
Section 526 has garnered substantial criticism. Critics of the provision argue that the provision will hurt the military, among other federal agencies, by preventing it from using Canadian tar oil and resorting to more expensive alternatives. In fact, the House of Representatives unsuccessfully attempted to introduce a provision into the National Defense Authorization Act (“NDAA”) for 2014 that exempts the Department of Defense from the requirements of § 526. Other criticisms of § 526 assert that the statute puts national and economic security at risk by forcing increased petroleum imports from unstable and dangerous countries. Similarly, opponents argue that the carbon footprint left by Canadian tar oil production should be weighed against the high social and political costs of obtaining oil from volatile countries. Critics also argue that the provision will hurt the U.S. economy, since U.S. refineries have been processing increasingly larger amounts of Canadian tar oil. Finally, critics argue that § 526 would merely divert Canadian tar oil to other countries, like China, and therefore would not remedy emissions problems.

There has also been extensive debate over the definition of “nonconventional petroleum sources.” One of the bill’s authors, Congressman Henry Waxman, has stated that tar oil is related use, other than for research or testing, unless the contract specifies that the lifecycle greenhouse gas emissions associated with the production and combustion of the fuel supplied under the contract must, on an ongoing basis, be less than or equal to such emissions from the equivalent conventional fuel produced from conventional petroleum sources.” 42 U.S.C. § 17142.

105 Continental Cap-And-Trade, supra note 103, at 441.
106 Id. at 443.
107 Id. at 442-43.
108 Id. at 439.
109 Id. at 441.
included in this definition. In addition, other statutes, including the Energy Policy Act of 2005, define tar oil as an unconventional fuel. However, through its interpretation of § 526, the Defense Logistics Agency Energy (“DLA Energy”), the energy support center of the Department of Defense, justified contracts for the purchase of petroleum that included Canadian tar oil. The agency claimed that it did not “enter into a contract for procurement of an alternative fuel” because it entered into contracts for the purchase of “commercially available fuels, consistent with acquisition policy.” Furthermore, DLA Energy argued that refined tar oil mixed with conventional crude is not substantial and that the contracts do not target any particular source of crude oil, much less refined tar oil. DLA Energy asserted that it is almost impossible to purchase fuel containing no tar oil, and therefore attempting to exclude tar oil from purchases of refined products would increase costs and compromise readiness.

Sierra Club subsequently challenged DLA Energy’s decision, claiming that the agency violated § 526 by entering into contracts for the purchase of fuels containing tar oil, which is synthetic, or alternatively, a nonconventional fuel source. However, the District Court for the Eastern District of Virginia found that the Sierra Club members did not have standing to sue as individuals, and did not address the substantive issue. The Court concluded that the Plaintiffs did not suffer an injury in fact because they did not sufficiently allege that they have or will

10 Continental Cap-And-Trade, supra note 100, at 440.
11 “United States oil shale, tar sands, and other unconventional fuels are strategically important domestic resources…” 42 U.S.C. § 15927(b)(1).
13 Id.
14 Id. at 8.
15 Id. at 8-9.
17 Id., at *3-4.
suffer climate change-related injuries from pipeline transmission or refining of Canadian tar oil, “let alone DLA Energy’s purchasing contracts for fuel that may contain [Canadian tar oil].”\textsuperscript{118} Similarly, the Court concluded that the plaintiffs did not suffer procedural injuries because DLA Energy’s action would not violate a requisite “separate concrete interest,” but rather a “generalized grievance,” since every citizen suffers from climate change.\textsuperscript{119} Not only does this case demonstrate the standing issues associated with climate-related claims,\textsuperscript{120} but it also suggests that § 526 is largely ineffective without government enforcement and clarification of the statute.

iii. The Waxman-Markey Bill, California and the EU

Lifecycle GHG requirements have also appeared in other noteworthy pieces of legislation. A draft version of the Waxman-Markey bill, for example, sought to maintain the average 2005 lifecycle GHG emissions levels of transportation fuels annually until 2022, and impose a five and ten percent reduction in levels in 2023 and 2030, respectively.\textsuperscript{121} These Low Carbon Fuel Standards (“LCFS’s”) would apply to “refineries, blenders, and importers, as appropriate, and to such other transportation fuel providers as determined by the Administrator.”\textsuperscript{122} However, the LCFS provision of the bill was dropped between the release of the draft bill in March and the House vote in June, where the Waxman-Markey bill was passed

\begin{itemize}
\item \textsuperscript{118} \textit{Id.}, at *3.
\item \textsuperscript{119} \textit{Id.} at *4, *7.
\item \textsuperscript{120} Climate-related claims are particularly difficult. Since every citizen is affected by climate change, climate-related claims will invariably pose a “generalized grievance.” Further, “courts have been reluctant to confer standing in climate-related claims, fearing a flood of litigation.” Thus, it has been suggested that courts replace the traditional standing doctrine and develop a standard “to govern the degree to which a challenged action must increase the risk of harm that flows from a defendant’s action for a plaintiff to be deemed to have suffered an injury.” No such standard, however, has been implemented yet. Shepard Daniel, \textit{Sierra Club v. U.S. Defense Energy Support Center: Standing in the Way}, 39 ECOLOGY L.Q. 619, 623 (2012).
\item \textsuperscript{121} Waxman-Markey Bill, 111\textsuperscript{th} Con. § 822(b) (Mar.13, 2009) (discussion draft).
\item \textsuperscript{122} \textit{Id.}
\end{itemize}
by a narrow margin. The primary mechanism in the remainder of the bill for reducing GHG emissions was a cap and trade system in which all covered industries would be limited and required to possess permits for their emissions.

During the period from March to June, Chairmen Waxman and Senator Markey engaged in political compromise to appease the moderate Democrats who represented districts with carbon-intensive industries. By June, sufficient “horse-trading” had occurred that the bill passed with eight votes from Republicans and all but four Democratic votes. Along with the elimination of the LCFS provision, other changes in the bill included emissions allowances for coal generators as well as allowances for “energy-intensive, trade exposed entities,” such as steel and aluminum manufacturers.

The bill did not successfully pass in the Senate. One of the key criticisms of the bill was that its regulations would have an overly negative impact on the U.S. economy. Opponents argued that the bill would increase the cost of energy, which would reduce real economic output, thereby reducing purchasing power and aggregate demand for goods and services. The Department of Energy’s Energy Information Administration (EIA) predicted that the dampening effects of the bill on the GDP would range from -0.2 percent to -1.3 percent. The EIA further argued that the bill would not only reduce domestic refining drastically, but also that any

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125 *Id.* at 11075, 11069.
126 *Id.* at 11077.
127 *Id.* at 11070.
128 *Id.* at 11070-11071.
emissions reduced domestically would be offset by relocation of refinery operations overseas.\textsuperscript{129} Finally, opponents argued that the bill would have a negative impact on domestic jobs and drive industries away from the U.S. to countries with more lenient standards.\textsuperscript{130}

Despite failed federal efforts, California has a working law implementing lifecycle GHG limitations as part of its Global Warming Solutions Act.\textsuperscript{131} California’s LCFS provisions establish carbon intensity ratings for transportation fuels based on their lifecycle GHG emissions, and seek to reduce the carbon intensity of all fuels by ten percent by 2020.\textsuperscript{132} The Ninth Circuit has upheld the LCFS program against claims that the provision violates the Dormant Commerce Clause and frustrates the clear objectives of the EISA to foster energy independence and national security.\textsuperscript{133} At least thirteen other states have proposed similar LCFS programs.\textsuperscript{134}

In 2009, the European Union (“EU”) also approved legislation, named the Fuel Quality Directive, which aims to cut GHGs from transportation fuel based on the lifecycle GHG intensity of fuels.\textsuperscript{135} The law is in limbo, however, due to ongoing trade deals with the United States and Canada.\textsuperscript{136} In addition to the tar oil deposits in Canada, the United States contains unconventional fuel source deposits that could be exported to the EU, which would be disrupted

\textsuperscript{129} Id. at 11071.
\textsuperscript{130} Id.
\textsuperscript{131} Continental Cap-And-Trade, supra note 103, at 438.
\textsuperscript{133} Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070, 1070 (9\textsuperscript{th} Cir., 2012).
\textsuperscript{134} Continental Cap-And-Trade, supra note 103, at 438-38.
by the Fuel Quality Directive.\textsuperscript{137} It has been asserted that Europe is desperate to find new trade opportunities, and that EU officials have been instructed to give way on any issue crucial to getting a deal through.\textsuperscript{138} Nevertheless, more than fifty top scientists from Europe and the U.S. have urged the European Commission president to continue with a plan to label tar oil as more polluting than other forms of oil due its high lifecycle emissions.\textsuperscript{139}

PART III: SOLUTION

A. The Need For A Tailored Federal Solution

Addressing the lifecycle GHG emissions of tar oil as a unique source of GHG pollution is the most realistic and appropriate solution, given the congressional climate and the legislative history of attempts at lifecycle GHG regulation. It is likely that congressional action is necessary to address this problem through an amendment of § 211 of the CAA. However, EPA may also be authorized by the current form of §211 to regulate lifecycle GHG emissions of tar oil. Regardless of its source, regulation tailored specifically to tar oil would effectively reduce GHG emissions due to its distinctively high lifecycle emissions levels.

Regulating lifecycle GHG emissions of tar oil individually is consistent with the current legal mechanisms of addressing climate change. Federal climate change policy is neither

\textsuperscript{137} Ros Donald, \textit{Carbon Briefing: Who Killed the EU’s Transport Fuel Standards?}, \textsc{The Carbon Brief} (Jan 30, 2014, 1:00 PM), http://www.carbonbrief.org/blog/2014/01/who-killed-the-fuel-quality-directive/.

\textsuperscript{138} Id.

It has been described as “a hodgepodge of relatively new mechanisms, like emissions trading and carbon taxes, alongside more traditional legal structures, like command-and-control regulation and litigation.”\textsuperscript{141} Thus, lifecycle GHG limitations specifically on tar oil are more likely to succeed.

Introducing a bill to implement lifecycle GHG emissions on all fuels, or even on a more limited range of fuels such as transportation or unconventional fuels, is less likely to garner congressional support since Congress does not want to “put up with the heat” of moving a major environmental bill.\textsuperscript{142} Indeed, the current method of ad hoc lawmaking used by Congress to push environmentally-related agendas is through appropriations riders.\textsuperscript{143} By holding congressional appropriations hostage, Congress is able to attach “incidental provisions that otherwise might lack the political momentum (or even majority support) necessary for passage.”\textsuperscript{144} Pieces of legislation may also be the product of “amendments being passed between the House and Senate as a means of resolving the differences between their respective bills.”\textsuperscript{145} This is how the Renewable Fuel Program was passed, which is why it lacks written legislative history detailing why certain policies were adopted and others excluded.\textsuperscript{146}

The greater likelihood of success of narrower climate change legislation is reflected in the legislative background of this note. The failure of the Waxman-Markey bill illustrates the unwillingness of Congress to implement blanket lifecycle emissions requirements on all

\textsuperscript{141} Id. at *1.
\textsuperscript{142} See id. at 629.
\textsuperscript{143} Id. at 632, 635.
\textsuperscript{144} Id. at 635.
\textsuperscript{146} Id.
transportation fuels. The far reach of Waxman-Markey led opponents to estimate relatively dramatic economic impacts, which, among other reasons, destroyed prospects of the bill passing.\textsuperscript{147} Moreover, opponents of the bill pointed out that it required “the wholesale remaking of the entire energy sector over the course of the next four decades” and that the bill’s emissions reduction targets were “sheer unreality.”\textsuperscript{148}

Meanwhile, § 526 of the EISA was passed by Congress, albeit with strong and continuous opposition. Section 526 is much narrower than the Waxman-Markey LCFS provision because the lifecycle GHG requirements are tailored to a particular fuel source, nonconventional fuels, and because the requirements apply only to federal agencies. Thus, successful passage of lifecycle GHG requirements occurs when provisions are tailored to a particular fuel source and when they apply to a specific market. The market need not be particularly small, however, since the Department of Defense is the single largest consumer of energy in the United States.\textsuperscript{149} Accordingly, it is not unrealistic for Congress to implement legislation that tailors lifecycle GHG emissions requirements to tar oil and applies only to the transportation fuel market.

Section 526 is also illustrative of the need for more instructive legislation. The unclear language of the statute allows for a less protective, if not unenforceable, mandate.\textsuperscript{150} On the other hand, the Renewable Fuel Program establishes specific guidelines for the Administrator of the

\textsuperscript{147} See Comprehensive Federal Legislation, supra note 123, at 11071.
\textsuperscript{150} See infra pp. 17-18.
EPA to use to enforce the lifecycle GHG emission and volume requirements of renewable fuels.\textsuperscript{151}

Additionally, federal legislation addressing the GHG emissions of tar oil is necessary because leaving states to regulate the GHG effects of tar oil production will lead to externalities on other states. While states like California seek to reduce emissions by implementing their own LCFS provisions, other states are likely unwilling to implement expensive programs to mitigate GHG emissions, especially those states that accept Canadian tar oil from pipelines. Furthermore, states that anticipate development through tar sands operations, like Utah, may approach the industry with less caution towards emissions.\textsuperscript{152} Lenient GHG policy in such states would run counter to national policies of tackling climate change and reducing GHG emissions, and would put the welfare of the public and future generations at risk.\textsuperscript{153}

B. Solution One: Amendment of § 211 of the CAA

Section 211 of the CAA should be amended to specifically address the high levels of lifecycle GHG emissions of tar oil. The motives for implementing a lifecycle GHG program for tar oil are similar to the justifications for the Renewable Fuel Program. The Renewable Fuel Program was implemented to foster the development of biofuels, specifically cellulosic biomass, which is a young industry in need of technological breakthroughs and the support of the federal government.\textsuperscript{154} The tar oil program would be implemented to foster a cleaner tar oil industry, a

\textsuperscript{151} See infra pp. 13-15.
similarly young industry pursuing technological breakthroughs to reduce emissions from extraction, the development of which should be incentivized by the federal government. Moreover, just as the Renewable Fuel Program was implemented to reduce GHG emissions from the transportation sector, so would a tar oil program.\textsuperscript{155}

Modeling a tar oil program after the Renewable Fuel Program would also help to avert the implementation problems associated with § 526 of the EISA. By specifically mandating the EPA to carry out lifecycle GHG regulations, government enforcement would be more certain. Furthermore, since the tar oil program would be implemented primarily to mitigate climate change effects of GHG emissions, citizen suits would likely be unsuccessful, as demonstrated in \textit{Sierra Club v. Def. Energy Support Ctr}. Therefore, the legislation should allow for citizen suits that do not require a separate concrete interest for procedural harms.

A statutory program modeled after the Renewable Fuel Program would effectively limit emissions from tar oil operations. This program should limit the lifecycle GHG emissions of tar oil to the baseline lifecycle GHG emissions level. The baseline level should be the average lifecycle GHG emissions for transportation fuels sold in a more recent year than 2005, the year used in the Renewable Fuel Program. The baseline level should be re-evaluated every five years to reflect changes in lifecycle GHG emissions of transportation fuels.

A credit program should be implemented to enforce emissions requirements yet maintain flexibility. Where the Renewable Fuel Program grants credits for achieving renewable fuel volumes greater than the required quantities, this program should enable any person that refines, blends, or imports transportation fuel that contains tar oil with lifecycle GHG emissions below the baseline level to receive credits that are tradable to another person for the purposes of

\textsuperscript{155} \textit{Id.}
complying with the requirements. The logistics of this credit program should be modeled from the Renewable Fuel Program. A credit generated should be valid to show compliance for twelve months as of the date of generation. For any person unable to generate sufficient credits, they should carry a deficit into the following year wherein they must achieve compliance with the emissions goals for that year and generate or purchase more credits to offset their deficit.

Unlike the Renewable Fuel Program, there should not be a required volume of tar oil in transportation fuel. The renewable fuel volume requirement was established in part to foster GHG emissions reductions. Conversely, GHG emissions would increase if a certain volume of tar oil were required in transportation fuel.

Provisions that allow for modification of the lifecycle GHG limitations should resemble the modification provisions of the Renewable Fuel Program. The Administrator should make modifications to the lifecycle GHG limitations on tar oil when she determines such limitations are not commercially feasible. Furthermore, the Administrator should be able to waive the emissions limitations in whole or in part on petition by one or more States or by any person subject to the program. The Administrator should base her decision on whether the limitation would severely harm the economy or environment of a State, region, or the country. Unlike the Renewable Fuel Program, the Administrator should not base her decision on whether there is an

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inadequate supply of complying tar oil, since applicable parties would not be subject to volume requirements.\footnote{See 42 U.S.C. § 7545(o)(7)(A)(ii).}

C. Challenge to Solution One: Impermissible Expropriation Under NAFTA

Challenges to the proposed legislation may invoke Chapter 11 of the North American Free Trade Agreement (“NAFTA”). NAFTA was established to liberalize trade and ensure secure energy supplies between the U.S., Canada, and Mexico.\footnote{Id.} Chapter 11 covers claims by investors against a host Party\footnote{A “Party” refers to one of the three participating countries: U.S., Canada, or Mexico.} to the treaty.\footnote{Border Petrol, supra note 43, at 505.} Article 1110 provides remedies against Party governments when state action, including regulatory action, expropriates an investment of an investor of another Party, or when that action constitutes a measure equivalent to expropriation.\footnote{Continental Cap-And-Trade, supra note 103, at 423.} An investment can be an enterprise, a variety of interests in an enterprise, or tangible or intangible property acquired for business purposes.\footnote{North America Free Trade Agreement, U.S.-Can.-Mex., art. 1139 (Dec. 17, 1992), available at http://www.ustr.gov/trade-agreements/free-trade-agreements/north-american-free-trade-agreement-nafta.}

Expropriation occurs when a government action results in a compensable taking of an investment.\footnote{Lucien J. Dhooge, The North American Free Trade Agreement and The Environment: The Lessons of Metalclad Corporation v. United Mexican States, 10 MINN. J. GLOBAL TRADE 209, 253 (2001).} A regulation constitutes expropriation when it interferes with the use of property that deprives the owner, in whole or in part, the reasonably-to-be-expected economic benefit of the property.\footnote{Id.} Thus, a challenge might come from Canadian entities that have invested in business and/or property within the United States for the purposes of receiving imported tar
An investor’s access to a country’s market may also constitute an intangible property interest. Therefore, Canadian businesses may be able to challenge the proposed legislation based solely on burdensome restrictions on importing tar oil into the U.S. market. However, an investment has not been expropriated when the investor continues to export or import substantial quantitates of product, even though regulatory regime has contributed to reduced profits.

The extent to which a regulation must interfere with investment to be considered expropriation remains unclear. In 1999, U.S.-based Ethyl Corporation claimed the Canadian government expropriated its business by banning the gasoline additive MMT. The business of Ethyl Canada, Ethyl’s subsidiary, was wholly lost, since its business consisted of importing MMT into Canada. The case was settled before a NAFTA tribunal could rule on whether the government’s actions amounted to expropriation. However, in 2002, a NAFTA tribunal did uphold an expropriation claim by S.D. Meyers, Inc., alleging “that its United States business of importing and treating Canadian toxic waste was harmed by a Canadian ban on export of PCB wastes.”

170 TransCanada Corporation, for example is the sole owner of the Keystone Pipeline system, which delivers tar oil to refineries within the United States. Transcanada Becomes Sole Owner Of Keystone Pipeline System, PIPELINE AND GAS JOURNAL, http://www.pipelineandgasjournal.com/transcanada-becomes-sole-owner-keystone-pipeline-system (last visited Mar. 3, 2014).
175 Id. at 55.
176 Canada’s Role in the United States’ Oil and Gas Supply, supra note 49, at n. 142.
Should expropriation claims be made against the United States due to restrictions implemented by the proposed legislation, they would likely fail. Limitations on lifecycle GHG emissions would not prevent access to the United States market to such an extent as to constitute a compensable taking. The aforementioned expropriation claims involved the Canadian government banning a certain export or import. The proposed legislation would not equate to a ban, since the Canadian tar oil industry could seek technology to limit the GHG emissions during extraction.

The proposed legislation is also encouraged by the North American Agreement on Environmental Cooperation (“NAAEC”), which supplements NAFTA for the purposes of strengthening and enforcing the development of environmental laws.\textsuperscript{177} NAAEC recognizes the right of the each participating government “to establish its own levels of domestic environmental protection and environmental development policies and priorities, and to adopt or modify accordingly its environmental laws and regulations, each [government] shall ensure that its laws and regulations provide for high levels of environmental protection and shall strive to continue to improve those laws and regulations.”\textsuperscript{178}

D. Solution Two: Direct EPA Regulation Of Tar Oil

Bypassing the congressional decision-making processes may be a possible alternative for regulating lifecycle GHG emissions of tar oil. Since the authority for EPA to regulate these emissions on its own is questionable, this is not the preferred solution. However, § 211 could be

\textsuperscript{177} Border Petrol, supra note 43, at 502.
interpreted to grant the Administrator the authority to regulate any fuel if it might reasonably be anticipated to endanger public welfare.\footnote{See 42 U.S.C. § 7545(c)(1).}

Section 211(c) of the CAA gives the Administrator of the EPA the authority to regulate any fuel if, in the judgment of the Administrator, that fuel contributes to air pollution that may reasonably be anticipated to endanger the public welfare.\footnote{42 U.S.C. § 7545(c)(1).} Tar oil would contribute to air pollution and endanger public welfare, since its extraction and production processes would contribute to climate change at a faster rate than that of conventional fuel.

Section 211(c) only allows the Administrator to control fuels after consideration of all relevant medical and scientific evidence, and consideration of other technical or economically feasible means of achieving the standards under § 202 of the CAA.\footnote{42 U.S.C. § 7547(c)(2)(A).} First, scientific evidence suggests that tar oil is particularly destructive in relation to conventional fuel due to the GHG emissions released during the extraction and production stages.\footnote{See infra pp. 8-9.} Second, § 202 imposes emissions standards for vehicles and engines.\footnote{42 U.S.C. § 7521.} Therefore, § 202 mechanisms would be ineffective, since the primary emissions at issue occur before tar oil is used in a vehicle.

Finally, the statute only allows the Administrator to control fuels after considering scientific and economic data.\footnote{42 U.S.C. § 7547(c)(2)(A).} Solvent technology that can significantly reduce emissions from tar oil extraction exists.\footnote{See infra pp. 7.} This technology is already being implemented by extraction companies to produce tar oil on a commercial scale.\footnote{A Different Kind of Oil Sands, CENOVUS ENERGY, 6 (December 2013), http://www.cenovus.com/invest/docs/2013/corporate-update.pdf.} Moreover, it is expected to improve
project economics by increasing growth capital and reducing non-fuel operating costs.\textsuperscript{187} Thus, GHG limitations are scientifically and economically attainable.\textsuperscript{188}

**E. Challenge To Solution Two: Lack of Authority**

A challenge to the proposed regulation may be that EPA lacks the congressionally mandated authority to impose lifecycle GHG requirements on tar oil. EPA could justify its authority under § 211 by arguing for deference to its interpretation pursuant to *Chevron v. NRDC*.\textsuperscript{189} Under *Chevron*, the court must ask (1) whether Congress has directly spoken to the precise question at issue and (2) if not, whether the agency’s answer is based on a permissible construction of the statute.\textsuperscript{190} The court looks to the statutory language to answer the first question, and the legislative history and policy arguments to answer the second.\textsuperscript{191}

To address the first question, the EPA could argue that Congress has not spoken to the precise question at issue, which is whether the EPA may regulate the lifecycle GHG emissions of tar oil. Indeed, the language of the provision is vague because it allows the Administrator to control “any fuel or fuel additive” that “in his judgment” contributes to air pollution and may endanger public welfare.\textsuperscript{192} Congress’s broad grant of authority seems to “enlarge, rather than confine the scope of the agency’s power to regulate particular sources in order to effectuate the policies of the act.”\textsuperscript{193}

To satisfy the second part of the *Chevron* test, the EPA could argue that their interpretation is permissible by citing the legislative history of § 211(c) and policy arguments in

\textsuperscript{187} *Id.* at 12.

\textsuperscript{188} *GHG Emissions, Oil Sands Today*, http://www.oilsandstoday.ca/topics/ghgemissions/Pages/default.aspx (last visited Jan. 16, 2014).


\textsuperscript{190} *Chevron*, 467 U.S. at 842-43.

\textsuperscript{191} *Id.* at 859-66.

\textsuperscript{192} 42 U.S.C. § 7545(c)(1).

\textsuperscript{193} See *Chevron*, 467 U.S. at 842-43.
favor of interpreting § 211(c) as allowing the proposed regulation. According to the Senate report, the “two basic reasons” for this provision are (1) “the combustion or evaporation of such fuel from any engine may produce an emission that is a direct endangerment to public health,” and (2) “the fuel may have an adverse affect on the general welfare or on an emission control system or device.”\(^{194}\) Since the purpose of the proposed regulation would be to counteract the “adverse affect on general welfare” created by fuel produced from tar oil, it is consistent with the purpose of the statute.\(^{195}\)

However, the Senate report also states that “the concern is with the effect from the actual emissions from the tailpipe,”\(^{196}\) as opposed to emissions produced from fuel production. EPA’s regulation of fuel additives has been devoted chiefly to lead,\(^{197}\) which causes serious health concerns when released during combustion and which causes damage to the catalytic converters in cars.\(^{198}\) Nevertheless, other than regulations on lead, EPA has made little effort to control health or welfare affects of fuels under § 211(c).\(^{199}\) Thus, there are few prior interpretations of the statute to use as a point of reference.\(^{200}\)

The interpretation of § 211(c) is reasonable because such regulation would protect the public from the harmful effects of air pollution from GHGs. Since the vague language of the statute represents a gap left open by Congress, the challenge to the proposed regulation should

\(^{197}\) Registration and Regulation of Fuel Additives, 1 Envtl. L. (West) § 3:32 (2013).
\(^{199}\) Arnold W. Reitze, Jr., The Regulation Of Fuels And Fuel Additives Under Section 211 Of The Clean Air Act, 29 TULSA L.J. 485, 498 (1994).
\(^{200}\) Arnold W. Reitze, Jr., The Regulation Of Fuels And Fuel Additives Under Section 211 Of The Clean Air Act, 29 TULSA L.J. 485, 498 (1994).
fail under *Chevron.*\(^{201}\)

CONCLUSION

Although tar oil contributes to climate change, it also provides a desirable route to both energy security and self-sufficiency. However, to avoid contributing to the changing climate more than necessary, the United States must also seek to mitigate the GHG emissions of tar oil. Climate change mitigation efforts are consistent with the U.S. policies found in the EISA and the NAAEC. Legislation that limits the GHG emissions produced during the lifecycle of tar oil would encourage a cleaner industry without eliminating the market for tar oil, especially when such legislation allows flexibility through a credit system. Furthermore, limitations on emissions for one particularly unsustainable industry are more likely to garner congressional support than sweeping climate change legislation like the Waxman-Markey bill. Such limitations would effectively address climate change, since seventy percent of oil in the United States is used for transportation,\(^{202}\) an increasing proportion of which will come from tar oil.\(^{203}\) The proposed solutions would ensure that environmental security for future generations will not be ignored in the pursuit of energy independence.

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\(^{201}\) *See Chevron*, 467 U.S. at 866.
\(^{203}\) *See Unconventional Bridges Over Troubled Water, supra* note 1, at 83.