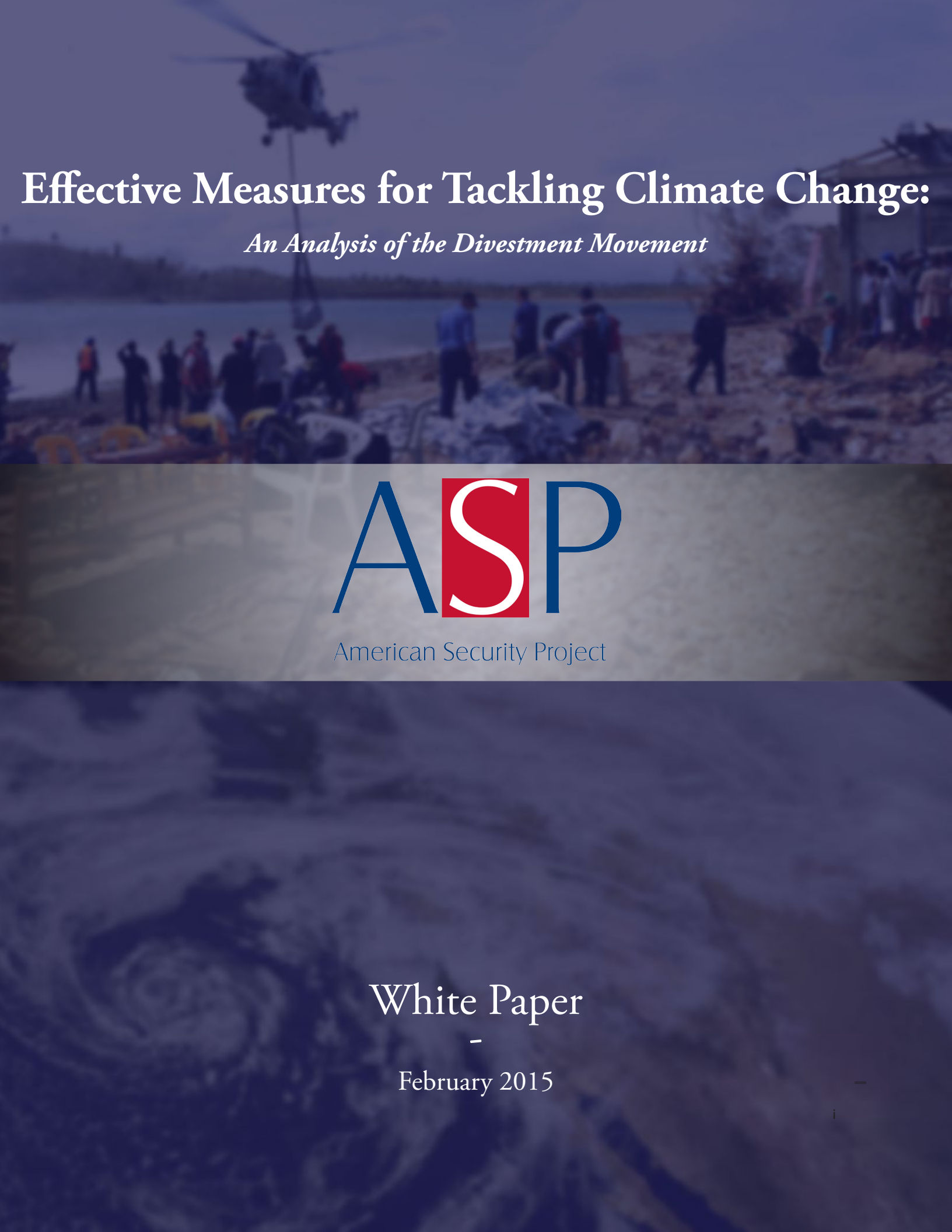
Effective Measures for Tackling Climate Change:

An Analysis of the Divestment Movement



American Security Project

White Paper

-

February 2015

BOARD OF DIRECTORS

The Honorable Gary Hart, Chairman

Senator Hart served the State of Colorado in the U.S. Senate and was a member of the Committee on Armed Services during his tenure.

Norman R. Augustine

Mr. Augustine was Chairman and Principal Officer of the American Red Cross for nine years and Chairman of the Council of the National Academy of Engineering.

The Hon. Donald Beyer

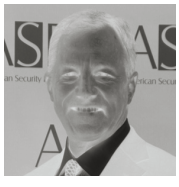
The Hon. Donald Beyer is the former United States Ambassador to to Switzerland and Liechtenstein, as well as a former Lieutenant Governor and President of the Senate of Virginia.

The Hon. Jeffery Bleich

The Hon. Jeffery Bleich heads the Global Practice for Munger, Tolles & Olson. He served as the U.S. Ambassador to Australia from 2009 to 2013. He previously served in the Clinton Administration.

Lieutenant General John Castellaw, USMC (Ret.)

John Castellaw is President of the Crockett Policy Institute (CPI), a non-partisan policy and research organization headquartered in Tennessee.



Brigadier General Stephen A. Cheney, USMC (Ret.)

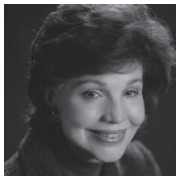
Brigadier General Cheney is the Chief Executive Officer of ASP.

Lieutenant General Daniel Christman, USA (Ret.)

Lieutenant General Christman is Senior Vice President for International Affairs at the United States Chamber of Commerce.

Robert B. Crowe

Robert B. Crowe is a Partner of Nelson Mullins Riley & Scarborough in its Boston and Washington, DC offices. He is co-chair of the firm's Government Relations practice.



Lee Cullum

Lee Cullum, at one time a commentator on the PBS NewsHour and "All Things Considered" on NPR, currently contributes to the Dallas Morning News and hosts "CEO."

Nelson W. Cunningham

Nelson Cunningham is President of McLarty Associates.

Admiral William Fallon, USN (Ret.)

Admiral Fallon has led U.S. and Allied forces and played a leadership role in military and diplomatic matters at the highest levels of the U.S. government.

Raj Fernando

Raj Fernando is CEO and founder of Chopper Trading, a technology based trading firm headquartered in Chicago.

Vice Admiral Lee Gunn, USN (Ret.)

Vice Admiral Gunn is the President of the Institute of Public Research at the CNA Corporation, a non-profit corporation in Virginia.

Lieutenant General Claudia Kennedy, USA (Ret.)

Lieutenant General Kennedy was the first woman to achieve the rank of three-star general in the United States Army.

General Lester L. Lyles, USAF (Ret.)

General Lyles retired from the United States Air Force after a distinguished 35 year career. He is presently Chairman of USAA, a member of the Defense Science Board, and a member of the President's Intelligence Advisory Board.

Dennis Mehiel

Dennis Mehiel is the Principal Shareholder and Chairman of U.S. Corrugated, Inc.

Stuart Piltch

Stuart Piltch is the Co-Founder and Managing Director of Cambridge Advisory Group, an actuarial and benefits consulting firm based in Philadelphia.

Ed Reilly

Edward Reilly is CEO of Americas of FD International Limited, a leading global communications consultancy that is part of FTI Consulting, Inc.

Governor Christine Todd Whitman

Christine Todd Whitman is the President of the Whitman Strategy Group, a consulting firm that specializes in energy and environmental issues.

Climate Security

In this Report:

Interact:

Join our discussion on Twitter with the hashtag #ASPDivestment
Learn more about ASP at @amsecproject
Read more about effective climate change on ASP's website.

IN BRIEF

- Climate change is real and a threat to our national security
- The key objective of the fossil fuel divestment movement is to tackle climate change by reducing carbon emissions.
- The divestment movement in the U.S. is focused primarily on divestiture from universities and colleges with holdings in fossil fuel companies, though many institutions decline.
- Divestment will not cause any meaningful financial impact to fossil fuel companies, but will hurt the universities and colleges dependent on the fossil fuel share dividends.
- Increased visibility on the issue and stigmatization towards fossil fuel companies will not lower national consumption levels of fossil fuels.
- Divestment is not an effective method to tackle climate change via lowering emissions, but investment in next generation energy solutions is.
- Campaigning for effective solutions, like pricing carbon emissions, is a viable means for decreasing emissions and shifting towards a decarbonised economy.
- Investment from the U.S. government in alternative and renewable energy would assist the transition towards more carbon-free energy sources, effectively tackling the effects of climate change.

This report is part of the American Security Project's wider work on the national security implications of climate change; and how the United States can effectively tackle the problem.

Part I Climate Change and National Security : The Challenge

Climate change is real and it is a direct challenge to our national security.

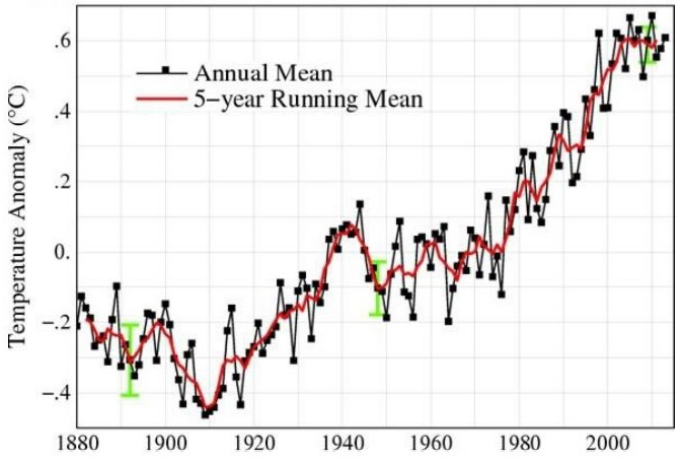
Flooding in Cedar Rapids, IA. USGS Photo

We see the impacts of climate change every day all around the world. A melting Arctic, unprecedented droughts across the world, extreme flooding, and uncontrollable wildfires. In the longer term, rising seas, desertification, and extreme storms will reshape entire societies. These present a greater challenge than just new and different weather patterns: they challenge the world's security architecture to prepare for and adapt to new security challenges.

As both NASA and NOAA continue to research the effects of climate change at a national and global scale, what is revealed from their reports is one unequivocal truth: global climate change is happening and is caused by human activity.[1] Organizations in governments and companies around the world have reached the same conclusion. Climate change has evolved from that of a topic debated in scientific circles to become ubiquitous in policy, media and public discussion across the United States.

Climate Change Is Happening

Geological history proves that the Earth's climate has seldom been static, and it has changed in the past for many reasons. However, the last eight thousand years have been remarkably stable. During that time, humanity grew from small tribes of hunter-gatherers to the 7 billion strong population we see today. Scientists now agree that that era of stability is ending, the earth's temperatures are warming, and it is due to human activity: the emissions from the burning of fossil fuels.



Changes in global surface temperatures since 1880

The main culprit responsible for today's climate change is carbon dioxide (CO2) and other greenhouse gases accumulating in our atmosphere. These greenhouse gases are essential for sustaining life on Earth, since they trap energy from the sun in the form of heat, creating a "greenhouse effect" responsible for keeping the Earth warm. However, much like adding a blanket to your bed, more greenhouse gases will trap more warmth.

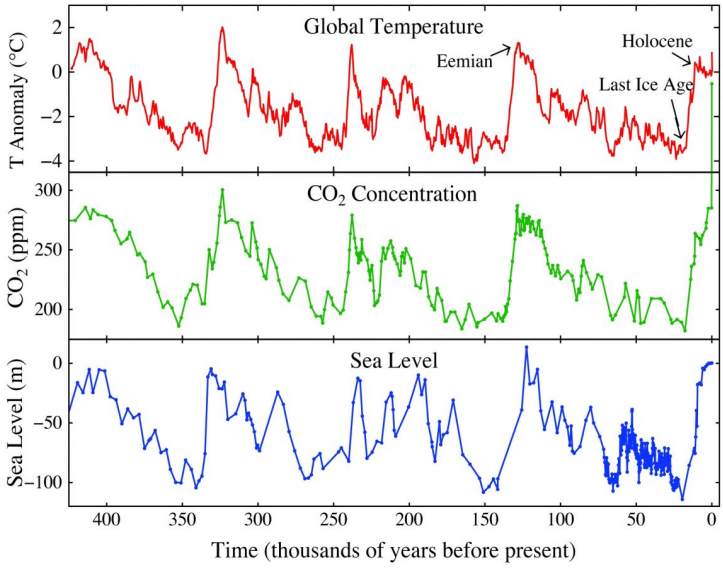
The Science of Climate Change

While research shows that CO2 levels have fluctuated over time, there is compelling evidence that the current trends are unprecedented and exacerbated by human activity.

The global rise in temperature directly correlates with the increased emissions of CO2 stemming from the beginning of the Industrial Revolution where levels were 40% lower.

In the late 1800s, atmospheric CO2 concentrations were at about 285 ppm (parts per million), whereas in August 2014, levels tipped above 400. They have been increasing for the past decade at 2.0 ppm per year.[2]

Today, human activity is responsible for producing nearly 20 billion tons of carbon dioxide each year; a number that has more than quadrupled since the 1950s. The United States is the second largest producer of emissions, following China.



The Effects of Climate Change

As climate change occurs, what we can expect to see is a variety of factors affecting the world at large.

Variability and uncertainty are features of the climate system, so we cannot confidently predict all outcomes. However, there are some generalizations we should expect. There will be unseasonable temperatures that change growing seasons. Weather patterns will become more unpredictable and extreme. Overall, there will be more precipitation, but the distribution will not be even; some areas will see more drought. Melting ice caps will cause an increase in global sea levels. All of this will directly influence food and water availability in some regions. In parts of the world like Asia and Africa, these effects are already apparent, and their impact on the local human population could be staggering.

Where the United States is concerned, climate change poses three core national security threats: global instability, military infrastructure and homeland security.

Global Instability

There is a robust academic debate about the link between climate change and conflict. ASP finds that climate change alone is unlikely to be a primary cause of any single conflict, but it is an important underlying cause. With the onset of global instability assisted by climate change, more stress will be placed on civilian and military institutions internationally, further burdening the U.S. military.

A changing climate will increase vulnerability by exacerbating tensions related to water scarcity and food shortages, natural resource competition, underdevelopment and overpopulation. It is termed by the military as an "accelerant of instability" or a "threat multiplier" because the effects of climate change serve to make already existing threats that much more dangerous.

Because the U.S. is a global power with strategic interests around the world, these impacts require the attention of security planners in Washington. It is unfortunate that the most immediate impacts of climate change will occur in the regions of the world that are already unstable and vulnerable. Where those overlap with American strategic interests, like in the Middle East or East Asia, it will reshape American foreign and security policy. Climate change will also cause an increase in frequency of disaster relief responses by the U.S. military; extreme events like super typhoons now are global disasters.

Some of the best examples of what planners mean by a "threat multiplier" come from the conflicts during the Arab Spring. Extreme heat and wildfires in Russia and Eastern Europe in 2010 led to a spike in the price of grain on world markets – which brought people in the Middle East into the streets to protest. Drought, too, gravely affected the region, more social and economic pressure fed into the continued erosion of civilian and governmental relations.[3]

Military Infrastructure

In addition to the destabilizing threats to our strategic defenses abroad, at a national level the United States' military infrastructure will also face costly changes. Climate change poses a direct threat critical infrastructure, the lives of citizens, the economy, and energy security.

Military bases located near our coastlines, as all of the Navy's bases are, will put them in danger as sea levels rise and storms become more dangerous. In order to protect them from rising seas, this would cost the United States millions of dollars to protect these bases from potential dangers.

The North Dakota National Guard Responds to a flooding emergency. ND Air National Guard photo

It is relevant to note that several United States military bases are stationed in arid regions abroad, like Afghanistan and Iraq, where water is already a scarce resource. Heightened effects of climate change would make it more difficult to access water locally, and thus increase stressed on the U.S. military due to importation demands.

Homeland Security

Twenty three states have a coastline with either the Atlantic or Pacific Ocean. Although coastal counties account for only 17% of U.S. land area, 50% of the U.S. population (excluding Alaska) lives in that small area. This puts pressure on coastal ecosystems and places millions of people in danger of extreme weather.[4]

By 2020, 14.9 million more people are expected to move to the coast. This coastal development could further decrease coastal areas' abilities to withstand flooding and drought as well as make coastal regions more vulnerable to erosion.[5]

Furthermore, the effects of climate change may destroy or temporarily debilitate critical energy infrastructure, physical infrastructure such as roads, airports and bridges and virtual infrastructure through the loss of electricity. Increased disruptions from extreme weather events may also weaken physical infrastructure, causing damage to highways and bridges or decreased water flow to dams that serve as large sources of energy for entire regions. These damages will not only be costly to our nation's economy, they will also make us less secure as a nation.

As the effects of climate change stress internal systems and infrastructures, this will further call upon the response of the military to protect and provide order when unrest might arise due to low supply of food, water, healthcare or energy. Some states might need further military assistance during state of emergencies following catastrophic climate-induced natural disasters.

In regards to agriculture, the U.S. is the world's largest producer of corn in the world, supplying much of the world with grains for livestock and food. Agriculture is intertwined not only with food security but with the livelihoods of millions of farmers and food producers. These are threatened by droughts and extreme weather. Droughts specifically have dire implications for food and financial security in the United States, as higher food prices put pressure on consumers' wallets. With a larger portion of consumer spending dedicated to food, expenditure on other goods and services weaken causing a slowdown across economic sectors.

Solving the Problem

As the general public is becoming increasingly aware of the climate change issue, it has begun to combat it through organized efforts, like the formation of NGOs and climate awareness demonstrations in major cities. Seeing that the major component of climate change is carbon dioxide, a common byproduct of fossil fuel emissions, the public is actively placing blame on fossil fuel companies since they produced the largest amount of carbon dioxide emissions.

In an effort to disrupt the companies' efforts and further stigmatize them, this global movement conceived the notion of encouraging certain organizations and institutions to divest in fossil fuel companies. The intended outcome from divestment in fossil fuel producers would lead to a shift in the energy market, thus leading to renewed interest in renewable energies and decreased carbon emissions.

The majority of these divestment campaigns are aimed at universities and their respective investments with fossil fuel companies. Although some of these campaigns have witnessed success in places abroad, like in the United Kingdom and Australia, the majority of academic institutions in the United States still oppose the measure to divest. These coalitions, either student-led or backed by larger campaigns, have taken up the cause with these university heads, demanding that this action be taken in order to mitigate the impact of climate change.

This report will focus on how effective fossil fuel divestment campaigns in the United States would be in combating the effects of global climate change.

Climate change is a key issue for the United States in regards to national security risks and intergovernmental relations. It is a serious issue that deserves a serious response. This paper will also explore various solutions that aim to mitigate and eventually reverse the effects of our current accelerating climate change.

Part II The Origin and Objective of the Divestment Movement

Divestment from fossil fuel companies has become a widespread topic of discussion across the United States as more institutions are pressured by their stakeholders to withdraw funding from fossil fuel companies on this measure.

While divestment is seen as a viable solution for reducing carbon emissions from energy producers, it is merely a false hope.

In order to properly evaluate the efficacy of this movement thus far, it is important to provide an overview of its origins and its objectives on a national level, as well as provide an analysis of the United States' energy sector at large.

The Origin of the Divestment Movement

Divestment is not a new concept to political or social advocacy. Historically, divestment was a tool used by activists to fight apartheid in South Africa and in the U.S. to fight against large tobacco companies.

The movement to divest from fossil fuels is a rebranded attempt at recapturing the perceived public success from the previous divestment movements of the 1980s and 90s.

To date, some foundations, academic institutions, and religious groups around the world have pledged to divest their shares in fossil fuel companies.[6] These milestones for the movement abroad have certainly invoked a domestic divestment movement. But the effectiveness in the overall goal to tackle climate change is not clear.

Currently, the U.S. divestment movement is mostly focused on investment from universities.[7] The overwhelming majority of the institutions that have joined the divestment movement are small liberal arts colleges. Following the divestment within many of these colleges, the debate has now made a foray into the larger, more prestigious institutions, like Harvard University, where millions are currently invested in fossil fuel companies.

A fossil fuel divestment rally. Image source: Quinn Dombrowski/Flickr

No matter how small or large the institution, the mission remains the same: to tackle climate change by encouraging stakeholders to divest in fossil fuel companies, thus supporting the path towards a low-emission economy.

The Objectives of the Divestment Movement

Overall, the divestment movement's main objective is to tackle global climate change by reducing emissions, thus stopping the accumulation of greenhouse gases in the atmosphere.[7] The movement plans to complete this objective by disrupting fossil fuel companies in ways that reduce future emissions. Divestment is that disruption.

The stated tactics of the divestment movement are as follows:[9]

- to send a message to fossil fuel companies industry that fossil fuel dependency is fleeting,
- to stigmatize these companies against future investments and mergers,
- to encourage public opinion in favor of renewable energy sources.

The impetus of the divestment movement is to set a positive example for other institutions to follow. The more support the movement gains to end fossil fuel emissions from others following their lead, the more it lessens the effects of human-caused climate change.

By recruiting other institutions to the cause, the movement believes this demonstrates the growing trend that fossil fuel investments are no longer as stable. Additionally, the action might communicate the changing sentiment towards fossil fuel, a potential allusion to its inevitable obsoletion.

Furthermore, the movement wants to further increase stigma so that it might dissuade any future investment or mergers with these fossil fuel companies, directly hurting their financial forecast and ultimately their continued extraction of fossil fuels.

Parallel to moving institutions and public approval away from the fossil fuel companies, the divestment movement hopes to assist in gravitating towards more renewable and cleaner energy sources, a progressive step towards combating climate change.

While the tactics seem sound on paper, proponents of divestment lack the fundamental knowledge of how the energy sector operates in the U.S. Their actions, even if institutions divest, will fail to cease continued carbon emissions, as they are perpetuated by a large public demand.

The United States Energy Sector and Climate Change

The energy sector in every nation is vital to its success. It provides infrastructure, jobs, tax revenue, and can help give a favorable balance of trade. The United States is the second largest energy consumer in terms of total use, just below China.[10] It is also the second largest primary energy producer in the world, also behind China.[11]

As of 2013 roughly 80% of U.S. domestic energy is produced via the burning of fossil fuels, whereas almost 20% of production is shared by nuclear (8.27%) and renewable (9.30%) energy sources. The U.S. is also one of the largest producers of crude oil and natural gas.[12]

Fossil fuel power plant in Arizona. Image source: Alan Stark/Flickr

All of this activity has an effect. A 2012 report from the EPA suggests that carbon dioxide accounted for 82% of all U.S. greenhouse gas emissions from human activity (increasing 5% from 1990 to 2012). 38% of CO2 emissions stem directly from electricity production in the nation, followed by transportation with 32% of all CO2 emissions.[13]

The U.S. energy sector is economically important. It represents 8% of the American economy and provides more than 9.8 million jobs. About $85 million is generated daily from tax revenue, and the energy sector has over $2 trillion invested in capital projects in all forms of energy, including renewables.[14]

Ever since the world's diplomats determined that global average temperatures should not exceed 2° Celsius above pre-industrial levels at the Copenhagen climate conference of 2009, a level confirmed by most scientists, that has been the guidepost for avoiding the most catastrophic and radical effects of climate change.

The Intergovernmental Panel on Climate Change (IPCC) has estimated that in order to have a likely chance (66%) to stay below the threshold of 2°Celsius, no more than roughly 1,000 gigatons of carbon dioxide can be released from now until the end of 2100. At current rates, that budget would be used up in 25 years.[15] The impending concern for fossil fuel companies is that there is likely far more carbon emissions embedded in the yet-to-be burned coal, gas and oil still underground, since the IPCC's claims are based off of current estimations.

The Universities' Response to Divestment Pressures

In the United States, the response to divestment has not been as favorable as abroad. In 2014, nearly 100 faculty members of Harvard University claimed a "failure of leadership" regarding climate change, since the university has decided not to divest its $79.5 million worth of fossil fuel company holdings from its nearly $33 billion total endowment. Harvard's President Drew Faust, stated in 2013 that an "endowment is a resource, not an instrument to impel political or social change."[16]

According to the Board of Managers at Swarthmore College, divestment in fossil fuels would not have much political impact, but rather would threaten the college's $20 million in annual returns.[17]

> ***"Such a reduction in resources would affect critical college priorities, including financial aid, faculty and staff salaries, and support for academic programs."***
>
> -Clayton Spencer,
> President of Bates College

There exists support for divestment on American university and college campuses, typically in the form of student-led groups and faculty members. However, the response from the institution heads shows apprehension on the political disruption divestment would have, as well as the financial burden the institutions would have to take on themselves.

Part III Effectiveness: How Divestment Fails to Address Climate Change

In the United States, the movement towards divestment has pressured some institutions, but it has yet to accomplish their goals of reducing carbon emissions. The divestment movement is falling short of success in the U.S. for reasons integral to its core mission.

While the moral argument for reducing emissions and fighting climate change is strong, the divestment movement is ineffective in stopping climate change because it cannot lower the demand of fossil fuels. Furthermore, divesting will have an adverse effect for those enlisting with the movement, namely the universities.

The movement's failure at achieving its mission can be broken down into several reasons that will be discussed in this section:

I. Past divestment movements had different parameters of success
II. Divesting will not financially affect the oil and gas companies
III. Divestment will cost the universities
IV. The oil and gas companies are resilient to stigma
V. The United States relies on fossil fuels for energy
VI. The Opportunity Cost of Divestment

I. The Past Divestment Movements Had Different Parameters of Success

Because it draws inspiration from previous divestment movements, it is important to understand that oil and gas divestment does not work in a similar fashion.

Divestment movements in the past were successful due to their ability to provide insight into the issue, like the tobacco divestment movement did for smoking and health concerns. Like its predecessors fossil fuel divestment is highly unlikely to financially disrupt the energy industry.

While the tobacco industry at its peak was a strong contender for local divestment movements of the 1990s, the oil and energy companies of today have a much larger presence in the U.S. economy and on national infrastructure in general.

The objectives of the previous movements were more public relations focused than today's movement. Exposing the social inequality in South Africa in the 1980s increased visibility of the issue to a larger global audience and it added stigma to companies willing to invest while injustice continued. The same goes for the tobacco divestment efforts that enlightened many about the health concerns of tobacco consumption.

II. Divesting Will Not Financially Affect the Fossil Fuel Companies

In regards to the past divestment movements, neither caused any noticeable devaluation to the industries or businesses they targeted. Furthermore, they were deemed successful not only due to the divestment movements' efforts, but to external factors that contributed to the overall success.

The divestment movement believes it is possible to financially suppress these energy companies, but their expectations are not economically viable, and cannot exist without external intervention.

One of the biggest declarations from the divestment movement is that divesting will harm the share prices, profits and valuations of fossil fuel companies. The movement believes this financial stress will drive these companies to invest in alternative energy and halt production as their shares drop.

The Carbon Bubble

While the effectiveness of the divestment movement in actually meeting the challenges of a changing climate is doubtful, there is a kernel of truth in the message the movement brings. If the values of fossil fuel companies were indeed based on reserves that they could never use, then there really would be a "carbon bubble."

At first glance, the mathematics seems simple. If, indeed, the world can only afford to emit around 1000 gigatons (Gt) more of carbon dioxide (as the best science from the IPCC indicates is true) in this century, and the IEA estimates that there are 2,860 Gt of carbon dioxide in proven reserves, then that implies that over 2/3 of proven reserves cannot be exploited. And, because the market value of fossil fuel companies is based on their proven reserves, that means they are overvalued if the world is going to effectively deal with climate change.

Unfortunately, it is not as simple as this calculation appears for two reasons. First, there is not internationally agreed upon standard for proven reserves. However, when looking at the accounting values of publicly traded companies (the most relevant for the carbon bubble argument), we see that their value is overwhelming based upon what reserves they expect to monetize within 10-15 years. And, that number is far less than the reserves estimated by the IEA.

Second, the vast majority of the IEA's estimated reserves are in coal, not oil or gas. This makes sense, as coal is both plentiful and highly polluting. However, countries around the world are putting increasing pressure on reducing pollution – perhaps causing reduced growth in demand for coal. Therefore, it may be financially advisable for an investor to withdraw funds from coal companies, as their reserves are the most likely to become "stranded assets."

In truth, the stock market valuation of coal companies vs oil and gas companies may indicate that the markets already understand that coal companies will never be able to monetize the vast global coal reserves. On the New York Stock Exchange, the market capitalization of the entire coal sector is $5 billion, while Oil & Gas (and related) companies are valued at $414.5 billion (as of early February, 2015).

So, if the carbon bubble is a real threat, then it has already burst for the companies most likely to be harmed by it. This is a problem worth following closely, but is not an immediate threat to the financial sector.

The evidence shows that this is not true: only 5% of university funds (roughly $22 billion) are invested in fossil fuel companies. This means the companies will barely notice an impact; even a 100% divestiture from U.S. universities would have a minuscule impact.[18]

If you look at the top 13 energy companies in the world (measured by the reserves they own), you will notice that they are all government owned. In fact, 75% of all crude oil production in the world comes from state-owned companies.[19]

The breadth of the industry is clearly massive, and its ties to state governance only make it more complicated.

Another misconception of the divestment movement is due to their misunderstanding of how the stock market functions. If a university decides to divest their shares in the fossil fuel companies, they are not affecting the amount of money invested in fossil fuel companies, but rather changing ownership of these shares. The action would be mostly invisible to the overall share of the company.

Collectively, the fossil fuel companies plan to maintain and increase production (until government regulations to the contrary are implemented); therefore investor confidence remains intact.

If a university were to divest, another neutral investor will purchase the shares due to the opportunity in lower cost. This new investor could be looking to increase their holding of fossil fuel companies in their portfolio, and the short-term discount from the wave of divestment would make the acquisition all the more appealing.

> ***"Divestment from fossil fuels will neither impact the finances nor change the behavior of affected companies."***
>
> -Connie Kanter,
> CFO of Seattle University

Moreover, this investor might have less concern for the environment or climate change than the previous shareholder, thus diminishing the influence in energy companies to push for capital projects focused on renewable technology.

In the end, the universities that do pursue divestment are relinquishing their investor influence to others who might not care as strongly about the concerns of climate change and carbon emissions. The shares themselves are so quickly exchanged that little to no value is lost in the transaction; the energy companies feel no financial impact, and oil demand remains the same.

In reality, it is the universities that divest who will be feeling the financial brunt of the action, their only return being a slight peace of mind rather than wisely distributing the returns towards progress and innovation.

III. Divestment Will Cost the Universities

While some proponents of divestment argue that divesting will not hurt university endowments, many of the top American universities have expressed that a large percentage of returned interests helps sustain programs, scholarships and research.[20]

In the United States university endowments can range anywhere from small amounts to hundreds of millions to tens of billions of dollars. That money is invested to ensure long term returns.

The shares of energy firms have been mostly stable over the long term, with high growth and high dividends. They have been an important part of a university endowment.

It should be stated again that a complete divestiture from all universities and colleges in the United States would have a negligible impact for the oil and gas companies' valuation.[21]

With divestment from universities posing no fiscal harm to fossil fuel companies, universities run the risk of losing funds used for integral systems of the institution. The returns from an endowment are invested towards scholarships, research funding, campus infrastructure, and other university programs. Divesting from energy could lower this income and therefore force the institution to reevaluate their budget.

> ***"...the cost to Wellesley would be high and the economic impact on fossil fuels companies inconsequential."***
>
> -H. Kim Bottomly,
> President of Wellesley College

An important casualty of university and college divestment is the loss of shareholder influence. A university or college possessing shares in an energy company has the ability to vote on the future of these corporations and to propose changes in the composition of the board and strategic plans. Rather than relinquishing their influence by taking a "moral stance" on emissions and the environment, these institutions can remain shareholders to push for alternative energy solutions, reduced emissions, and more carbon-efficient systems.

There is no guarantee that the succeeding investor will have a carbon-conscious agenda.

The thing that the divestment movement seems to forget is that American universities and colleges operate similarly to businesses. If the movement desires to create increased stigma towards the fossil fuel companies through the help of the universities and colleges, they must work within the parameters of these institutions to achieve success.

IV. The Fossil Fuel Companies Are Resilient to "Stigma"

Divestment would have as much of an effect on the coffers of oil companies as it would on the overall market demand for oil. While the divestment movement champions to remove investor interest in these companies, demand for fossil fuels is unaffected.

Despite minimal financial impact, the movement is intent on stigmatizing the fossil fuel companies to the point where future investment interest seems unlikely.

Fossil fuel companies are already among the least popular companies in the United States.[22] Ever since the Trust Busters and the Progressive era in the early 1900s, Americans have distrusted Standard Oil and its successors. Recently, following multiple environmental incidents and human rights violations, these corporations have grown even more disliked, yet demand for oil and gas continues to grow.

Until there are alternate means of generating energy at a large enough scale for base-load energy supporting an expanding economy and population, the demand for oil and gas will not subside. The United States is simply too reliant on fossil fuels, and for that, it will take a more thought-out transition to more carbon-free systems.

V. The United States relies is too reliant on fossil fuels for energy

The US economy could not do without fossil fuel energy as it accounts for almost 80% of total energy consumption.

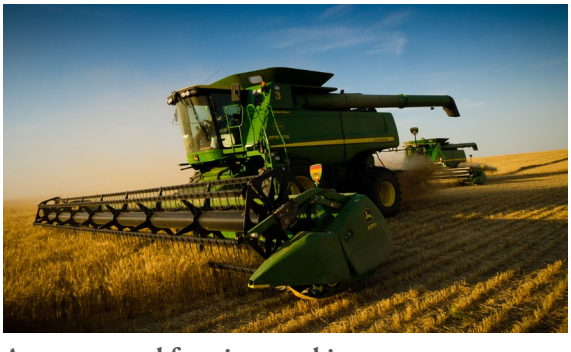
In terms of overall consumption of energy, as of 2013 the transportation sector accounted for 27.01% and the industrial sector 31.48% of total consumption. The commercial (17.93%) and residential (21.62%) sectors roughly made up the remaining 40%.[23] These respective sectors are not mutually exclusive with renewable energy sources, and it is a matter of further integrating them with more emission-free means of energy sources.

Within the industrial sector, you have various systems of manufacturing, production, agriculture, etc. that heavily use fossil fuels to power their technologies. Take agriculture, for instance: the technologies used to effectively support such a massive industry - combines, tractors, water pumps - require fossil fuels to function. While agriculture is beginning to see innovation in its use of energy sources, if the US were to rapidly shift to a decarbonized economy, the toll would be massive on the agricultural industry forced to quickly meet new energy requirements.

What is base load power?

Base load power is the minimum amount of power needed to supply customers with an uninterrupted supply of energy, without interruption. Currently, we rely upon power plants fueled by coal, natural gas, hydropower, and nuclear fission.

The residential sector is also learning to adapt quickly with new energy codes and the installation of technologies like solar panels. While the transition has also begun in the residential sector, currently most homes receive energy generated by fossil fuel plants. Energy aside, amenities like water heaters, heating and gas stoves will need to adjust to more energy-efficient models to accommodate the potential unavailability of fossil fuels.



A gas powered farming combine.
Image source: dizmangphotography/Flickr.

A decarbonized economy will have obvious effects on transportation. Airlines, railways, shipping routes and public transportation are all heavily based on a fossil fuel economy. While some examples of hydrogen or electric powered public transit systems do exist, the regional and municipal transportation infrastructures will need to transform in order to reduce greenhouse gas emissions. At the consumer level, there has been evidence of a trend towards electric and low-emission vehicles, but its adoption is not yet large enough to have any significant effect on lowering emissions on roadways.

The transportation industry is largely invested in the shipping business, which utilizes an array of transport, like planes, trains, trucks and ships to efficiently deliver goods. Each method of shipping has its own signature carbon footprint, and collectively the shipping industry worldwide contributes to about 3.5% - 4% of total climate change emissions.[24]

Divestment does not take into account the restrictive factors that prevent a speedy and efficient transition to a renewable and emission-neutral economy. Granted, an almost complete shift to renewable and efficient energy systems across these industries is possible within the next four decades, but the quickness needs to be more urgent.

The fact still remains that fossil fuels remain the lifeblood of the American economy until alternative means can match the demand for efficient industrial and residential systems.

VI. Opportunity Cost of Divestment

The organizations advocating divestment put a lot of their resources into promoting divestiture within academic institutions. Their cause has become so fervent to their core values that pivoting focus would hurt their credibility as an organization.

It is clear that divestment is not an effective solution for combating climate change, and there are many opportunity costs that have come from the divestment movement in regards to combating climate change.

Alternative measures that could have been a more effective focus than divestment include voter education, support for more carbon-free energy systems, and rallying for government intervention.

> ***"...my continuing fear is that this proposal would have a significant impact on the ability to balance the risks and rewards within the endowment by cutting out a substantial portion of the economy."***
>
> -David Daigle, Board of Trustees
> Member of University of Vermont

Shifting focus towards encouraging citizens to vote could lead to the election of more environmentally-cognizant politicians and more support for policies and legislation that work to address climate change. If organizations educated American voters as to which politicians and policies would support effective climate change measures (as well as actually getting U.S. citizens to the booths), we could see a significant reduction in carbon emissions due to policy changes implemented through the democratic process.

Another approach could be to build political support for alternative energy solutions with low to zero carbon-emissions. Since renewable energy only accounts for about 10% of all energy produced in the United States, rallying support from a public angle for these alternative systems could prove effective.

By creating campaigns around renewable energy, governmental support could arise in renewable energy's favor.

The subsequent removal of subsidies from oil and gas companies would lead to the provision of more financial and political support for the emerging carbon-free energy sector.

More public encouragement for government intervention against climate change cannot be carried out by itself; such a task would require an organized movement with the intention of shifting public opinion towards eliminating carbon emission via pricing carbon, mandatory efficiency standards, and so forth.

By advocating these policies, oil and gas companies would witness a measurable impact to their bottom line as more regulations and efficiency standards are put into place. This would undoubtedly affect their practices, leading to less emissions, ultimately alleviating the potential effects of climate change.

Conclusion

On paper, oil and gas divestment sounds like a commendable effort, but its poor methodology renders it ineffective and hurts its academic allies in the long run.

The irony of the divestment movement is that it does not serve as a viable option for slowing down the effects of human-caused climate change.

The movement has sculpted itself around previous successful divestment movements, but the challenges it faces with oil and gas are not of the same. Providing insight into the issue is certainly more helpful than it is harmful, but further exposure and stigma on fossil fuel companies does not lessen the demand for fossil fuels.

The public is relatively aware of the dangers of carbon dioxide emissions, yet it continues to expel them.

The solution does not rest with the institutions and organizations threatening to divest their shares in oil and gas companies. Should the divestment movement be successful and thus coerce all universities and colleges to divest all their fossil fuel energy holdings, the financial impact would not be noticeable, and public demand would not falter.

In the long run, it is the academic institutions that will inherit the financial burden as millions of dollars from fossil fuel share dividends no longer help sustain these institutions' integral endowments.

On a national level, fossil fuels are largely ingrained in the fabric of the American economy. Industries like agriculture and transportation are heavily reliant on oil and gas to function, which in turn power the nation's economy. While the notion of shifting these industries towards more carbon-free alternatives is sound, the scale of which renewable energies must reach in order to support a transfer from fossil fuels is currently not adequate.

A complete decarbonization of the American economy would have massive ramifications that would extend decades. Renewable energy producers in their current state are an addition, not a substitute.

The path the United States and organizations bent on an emission-less economy must take is not that of divestment, but rather that of investment. Divestment in fossil fuels is ineffective at influencing oil and gas companies, but also allows for external investors not concerned about climate change to attain additional shares.

Part IV Alternative Solutions for Combating Emissions and Climate Change

The United States can expect to see many threats to national security via domestic and international instability as caused by the effects of climate change. It is a serious issue that demands serious and effective solutions, not ones that are lavish PR campaigns that only exhibit the problem and pay no attention to real outcomes.

In order to begin tackling the impending troubles of climate change, we must invest in viable solutions that help to reduce carbon emissions as well as lead the U.S. to a more competitive, environmentally friendly economy.

This high demand for action relies on many different elements in order to be successful: government, corporate, market-based initiatives and regulatory action.

> ***"Divestiture would convey only a nebulous statement … without speaking to the technological and policy actions needed to reduce the harm …***
>
> -Christina H. Paxson,
> President of Brown University

This section will address practical means of alleviating the effects of climate change through empowering university innovation, implementing carbon pricing, government incentives and the exploration of next generation energy technology.

A Solution: Don't Divest… Invest

We see that divestment from oil and gas companies from universities has negligible effect on the energy companies, while it is detrimental to the endowments of larger academic institutions. While the pressure remains from student groups and external advocacy organizations to divest, there exists an alternative where universities can have an effective impact on climate change without losing income: invest in innovation.

The returns from fossil fuel holdings generate a significant portion of the accumulating endowment.
Perhaps a logical solution would be to put these funds towards new and innovative science that will address climate change. If a university should decide not to divest their oil and gas shares, their response could be to divert the dividends from energy holdings towards investment in scientific research developing sustainable energy solutions or other measures to combat climate change.

Carbon Pricing

One method that deserves much exploration is the concept of pricing carbon emissions.

Past efforts to price carbon emissions have been met with unpopular reception, and morphed into a massive partisan debate. Carbon pricing has already been adopted in several U.S. states and its results are already promising.

If we consider the hazardous effects CO2 has on the environment and its contribution to climate change, CO2 has been rightly labeled as a pollutant by the Supreme Court in a 2007 decision. This has allowed Congress and the Administration to begin the process of regulating its emissions. A better approach would be to either charge a fee or sell a permit that places a value on those emissions. In so doing, this gives businesses the incentive to reduce emissions. This is an inherently conservative approach that has been enacted before for pollutants such as mercury, arsenic and others.

Currently there is no economic cost for emitting carbon dioxide; vehicles and factories release tons of CO2 and do not pay the price of their economic and social impact. If a price were to be attached to CO2 as a pollutant, the rate of emissions would fall. Consumers would drive less as a form of conservation, or would upgrade to more fuel efficient or electric cars; industries would practice more efficient means of production to reduce overhead; businesses would reduce energy usage.

Putting a price on carbon could lead to a next generation of power generation with an emphasis on energy efficiency. Energy efficiency systems could would help to reduce energy and carbon intensity globally, thus lowering the demand on fossil fuels – and lowering energy company valuations and share prices.

Such negative externalities on fossil fuels could make alternative and renewable energies more competitive and thus contribute to a decrease in consumption.

Government Investment and Next Generation Energies

No one solution to climate change is going to be the complete solution to the issue. The market alone will not solve it, as societal and environmental objectives typically require intervention in the form of government.

In regards to subsidization, the U.S. government could act to eliminate all fossil fuel subsidies, and slowly transfer those subsidies to more renewable energy systems. Roughly $1.9 trillion dollars worldwide is put in fossil fuel subsidies. A removal of these subsidies would make a massive impact on fossil fuel companies, thus furthering the agenda towards carbon-free energy.[25]

A solar farm in Long Island, NY.
Photo source: Brookhaven National Lab

Additionally, natural gas can work well with renewable energy. While renewable energy is not able to support base-load power demand, modern, combined cycle gas turbines, which can quickly and efficiently "ramp" power up and down, can work to smooth the variable energy produced by wind and solar. In this way, natural gas is already working in tandem with renewable energy production.[26]

Realistically we must continue to work with pre-existing institutions and mechanisms, since it is best to have people on all fronts to create such a prominent movement, and these movements can shift regulations.

Report Summary

When looking at the actual impact the oil and gas divestment movement is having, it poses little threat to the financial interests of the oil and energy companies. In fact, the efforts of the movement are adversely affecting the universities who actually enlist with the initiative, costing them money which could have been invested in more progressive means.

The divestment movement, with initial goals of disruption and inciting change, is leaning towards failure. The only substantial outcome is the concerned parties "feeling good" about their discontinued affiliation with oil production, and thus indirectly, climate change.

To reach an actionable solution for climate change in the United States, we must evaluate alternative means to reduce carbon emissions, rather than putting our faith in ineffective solutions. Through implementing carbon pricing and alleviating fossil fuel demand via next generation energy sources, a more carbon-free future is certainly attainable.

Divestment in oil companies cannot ultimately provide a solution for climate change, as our demand in oil will remain high without alternative means in which to invest.

In providing incentives positioned to ease demand on fossil fuel production, such as pricing carbon and investing in renewable energy, the United States could see a shift towards lesser emissions as the free market and investor confidence adjust.

Quotes on Divestment

"We should, moreover, be very wary of steps intended to instrumentalize our endowment in ways that would appear to position the University as a political actor rather than an academic institution. Conceiving of the endowment not as an economic resource, but as a tool to inject the University into the political process or as a lever to exert economic pressure for social purposes, can entail serious risks to the independence of the academic enterprise. The endowment is a resource, not an instrument to impel social or political change."

-Drew Faust, President of Harvard University, 2013

"Such a reduction in resources would affect critical college priorities, including financial aid, faculty and staff salaries, and support for academic programs."

-Clayton Spencer, President of Bates College, January 21, 2014

"To divest of the College's direct private investments in oil and gas partnerships within the next five years would force the College to take, at minimum, an estimated $10 million loss on these investments."

-Cheryl R. Holland, Board of Trustees Member, August 2013

"Divestiture would convey only a nebulous statement … without speaking to the technological and policy actions needed to reduce the harm … [which are] actions where Brown can make real and important contributions through teaching and research."

-Christina H. Paxson, President of Brown University, October 27, 2013

"Because of the endowment income's importance to our operating budget, we invest in asset classes that we believe will earn returns robust enough to keep up with both our annual withdrawals and with inflation. Energy is expected to be one of highest returning asset classes going forward and is a good hedge against inflation."

-David J. Skorton, President of Cornell University, April 15, 2013

"Divestment from fossil fuels will neither impact the finances nor change the behavior of affected companies. We believe there are more effective ways to address climate change. For these reasons, we are not prepared to move forward on a feasibility study of divestment from fossil fuel companies."

-Connie Kanter, CFO of Seattle University, February 21, 2014

"The result of that examination was conclusive: the cost to Wellesley would be high and the economic impact on fossil fuels companies inconsequential."

-H. Kim Bottomly, President of Wellesley College, March 7, 2014

"Our primary responsibility is to protect the endowment and my continuing fear is that this proposal would have a significant impact on the ability to balance the risks and rewards within the endowment by cutting out a substantial portion of the economy."

-David Daigle, Board of Trustees Member of University of Vermont, December 18, 2013

"Another significant concern we have with divestment as a tactic is the fact that funds comprising Tulane's endowment are given to the university with the understanding that they will be managed with the aim of attaining appropriate returns on investment, apart from any political considerations or ideological positions."

-Scott Cowen, President of Tulane University, April 23, 2014

"As we have disclosed earlier, we believe that such a modification of investment policy is likely to have a negative effect on our investment returns, thus impacting our ability to support financial aid, faculty, curriculum, and student programs. By our calculation, divestment could risk a loss of approximately $10-15 million a year in endowment income."

-Gil Kemp, Swarthmore College Board of Managers, September 11, 2013

Further Reading

Climate Security Report:

Part One: Climate Change and Security

Part Two: Climate Change and Global Security

Part Three: Climate Change and the Homeland

The Global Security Defense Index on Climate Change

Pay Now Pay Later

Ten Key Facts - Climate Change

Climate Change, The Arab Spring and Food Prices

Military Basing and Climate Change

American Security: The Impacts of Climate Change

Protecting the Homeland - The Rising Costs of Inaction on Climate Change

References

1. American Security Project. "Climate Security Report: Part One: Climate Change & Security." November 1, 2014. http://www.americansecurityproject.org/csr-part-one-climate-change-security/

2. Board on Atmospheric Sciences and Climate. "Chapter 6: Challenges in the Climate System." In: America's Climate Choices: Panel on Advancing the Science of Climate. (Washington, DC: The National Academies Press, 2010): 186. Accessed January 21, 2015. http://nap.edu/catalog.php?record_id=12782

3. Caitlin E. Werrell and Francesco Femia. "The Arab Spring and Climate Change: A Climate and Security Correlations Series." Center for American Progress. February 2013. pg. 3. Accessed February 2, 2015. http://cdn.americanprogress.org/wp-content/uploads/2013/02/ClimateChangeArabSpring_intro.pdf

4. American Security Project. "Climate Security Report: Part Three: Climate Change & The Homeland." November 1, 2014. pg. 45. http://www.americansecurityproject.org/csr-part-three-climate-change-the-homeland/

5. American Security Project. "Climate Security Report: Part Three: Climate Change & The Homeland." November 1, 2014. pg. 45. http://www.americansecurityproject.org/csr-part-three-climate-change-the-homeland/

6. "Divestment Commitments." Fossil Free. Accessed January 21, 2015. http://gofossilfree.org/commitments/

7. Bryan Walsh. "The Frontier for Climate Activism: College Investments." TIME. December 11, 2012. Accessed on February 6, 2015. http://science.time.com/2012/12/11/the-next-frontier-for-climate-activism-college-endowments/

8. Joanna Poncavage. "Fossil Fuel Divestment: A Growing Movement." Mother Earth News. December 2014/January 2015. Accessed February 6, 2015. http://www.motherearthnews.com/renewable-energy/fossil-fuel-divestment-zmgz14djzsto.aspx

9. Kristen Domonell. "Divestment Debate." University Business. June 2013. Accessed January 21, 2015.

10. "Global Energy Statistical Yearbook 2014." Enerdata. https://yearbook.enerdata.net/

11. "International Energy Statistics." United States Energy Information Administration. http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=44&pid=44&aid=1

12. "2013 United States Energy Flow." United States Energy Information Administration. http://www.eia.gov/todayinenergy/images/2014.06.02/main.png

13. "Carbon Dioxide Emissions." United States Environmental Protection Agency. Accessed on January 30, 2015. http://www.epa.gov/climatechange/ghgemissions/gases/co2.html

14. Prof. Detlef R. Hallermann. "Divestment a diversion from solutions on climate." Austin American-Statesman. January 21, 2015. Accessed on January 21, 2015.

15. Thomas F. Stocker, Dahe Qin. "Climate Change 2013: The Physical Science Basis." Intergovernmental Panel on Climate Change (IPCC). 2013. Accessed on February 6, 2015. http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf

16. Drew Faust. "Fossil Fuel Divestment Statement." Harvard University. October 3, 2013. Accessed on January 21, 2015. http://www.harvard.edu/president/fossil-fuels

17. Andrew Karas. "Swarthmore Pegs Cost of Divestment at $200 Million Over 10 Years." Daily Gazette. May 9, 2013. Accessed February 6, 2013. http://daily.swarthmore.edu/2013/05/09/college-pegs-cost-of-divestment-at-200-million-over-10-years/

18. Prof. Detlef R. Hallermann. "Divestment a diversion from solutions on climate." Austin American-Statesman. January 21, 2015. Accessed on January 21, 2015.

19. Ian Bremmer. "The Long Shadow of the Visible Hand Government-owned firms control most of the world's oil reserves: Why the power of the state is back." The Wall Street Journal. May 22, 2010. Accessed January 21, 2015. http://www.wsj.com/articles/SB10001424052748704852004575258541875590852

20. Dr. Roger Meiners. "Fossil Fuel Divestment is a Diversion from Real Solutions." Breaking Energy. December 16, 2014. Accessed on January 21, 2015. www.breakingenergy.com/2014/12/16/editorial-fossil-fuel-divestment-is-a-diversion-from-real-solutions/

21. Kristen Domonell. "Divestment Debate: Making the Case for and against Stripping Endowments of Fossil Fuel Investments." University Business 16, no. 6 (2013). Accessed on January 21, 2015.

22. Jeffrey M. Jones. "U.S. Images of Banking, Real Estate Making a Comeback." Gallup. August 23, 2013. Accessed February 3, 2015. http://www.gallup.com/poll/164093/images-banking-real-estate-making-comeback.aspx

23. "2013 United States Energy Flow." United States Energy Information Administration. http://www.eia.gov/todayinenergy/images/2014.06.02/main.png

24. John Vidal. "Health risks of shipping pollution have been 'underestimated'." The Guardian. April 7, 2009. Accessed on January 31. 2015. http://www.theguardian.com/environment/2009/apr/09/shipping-pollution

25. David P. Knight. "Divestment from fossil fuels: A critical appraisal." December 12, 2014. Accessed January 21, 2015.

26. Ed Dodge. "Renewables and Natural Gas are Partners, Not Opponents." Breaking Energy. December 10, 2013. Accessed on February 6, 2015. http://breakingenergy.com/2013/12/10/renewables-and-natural-gas-are-partners-not-opponents/

The American Security Project (ASP) is a nonpartisan organization created to educate the American public and the world about the changing nature of national security in the 21st Century.

Gone are the days when a nation's security could be measured by bombers and battleships. Security in this new era requires harnessing all of America's strengths: the force of our diplomacy; the might of our military; the vigor and competitiveness of our economy; and the power of our ideals.

We believe that America must lead in the pursuit of our common goals and shared security. We must confront international challenges with our partners and with all the tools at our disposal and address emerging problems before they become security crises. And to do this we must forge a bipartisan consensus here at home.

ASP brings together prominent American business leaders, former members of Congress, retired military flag officers, and prominent former government officials. ASP conducts research on a broad range of issues and engages and empowers the American public by taking its findings directly to them via events, traditional & new media, meetings, and publications.

We live in a time when the threats to our security are as complex and diverse as terrorism, nuclear proliferation, climate change, energy challenges, and our economic wellbeing. Partisan bickering and age old solutions simply won't solve our problems. America – and the world – needs an honest dialogue about security that is as robust as it is realistic.

ASP exists to promote that dialogue, to forge that consensus, and to spur constructive action so that America meets the challenges to its security while seizing the opportunities that abound.

ASP

American Security Project

www.americansecurityproject.org