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Federal Environmental Action and Philosophy under President Trump's direction: The first nine months

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ABSTRACT OF THESIS submitted by:

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President Trump has had a consequential first nine months in office with environmental science and policy stagnation and rollback incentivized to be widespread. The intended poor understanding of the purpose of the EPA and climate science, counter-intuitive cabinet selections, and historically high budget reductions signal the low priority an environmental philosophy has in the Administration. Much of Trump's environmental policy adversaries include those instated during long-time opponent, President Obama's, environmental legacy. Trump majorly rescinded that legacy starting with sweeping environmental policies through his early-term executive orders. The Clean Power Plan and the Paris Agreement are also two major policies stalled by a lack of federal support that dissenters oft claim are irresponsible and erroneous reasons for their withdrawal. This level of anti-environmental agenda cannot solely be justified by economic growth concerns as most signs point to environmental prudence and innovation as a complement, not a substitute, to economic growth especially with primary energy trends and technology cost advantages. Meanwhile, non-federal and international actors will comprise modern environmental effort in leading new industries, jobs, and markets. The US environment is undoubtedly at troublesome risk to Trump's political movement but a broadened, longer term view is one to keep in perspective.

Keywords: President Trump, Environmental policy, US Federal and state policy, Environmental Law

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List of Abbreviations

BLM:	Bureau of Land Management
CAFE:	Corporate Average Fuel Economy
CAIR:	Clean Air Interstate Rule
CO2:	Carbon dioxide
CPP:	Clean Power Plan
DHS:	Department of Homeland Security
DoI:	Department of Interior
EGU:	Electric utility Generating Unit
(e)NGO:	(Environmental) Non-governmental Organization
EO:	Executive Order
EPA:	Environmental Protection Agency
ER:	Environmental Regulation
(I)NDC:	(Intended) Nationally Determined Contribution
IPCC:	Intergovernmental Panel on Climate Change
MIT:	Massachusetts Institute of Technology
NAAQS:	National Ambient Air Quality Standards
NASA:	National Aeronautics and Space Administration
NGCC:	Natural Gas Combined Cycle
NOAA:	National Oceanic and Atmospheric Administration
NPR:	National Public Radio
NRC:	National Resource Council
OMB:	Office of Management and Budget
STEM:	Science, Technology, Engineering, and Mathematics
UN:	United Nations
USDA:	United States Department of Agriculture
USGCRP:	United States Global Change Research Program
VP:	Vice President
WOTUS:	Waters of the United States

1.1.1 Introduction

Covering President Trump's environmental agenda is, at this time, a continuing historical record of ongoing policy implementation and legislation. His nine months of presidency has extensively been covered in international journalism but scholarly analysis of his environmental policy plan and their early implications and how they compare to prior presidential effort is uncommon. Full text, English scholarly articles for the verbatim keywords "President Trump Environment" returns only 18 results on the EBSCO Information Service as of the beginning of this thesis period which increased to 43 within the two-month period and will increase throughout the presidency. My analysis combines Trump's environmental rhetoric to reality through the creation of his cabinet, policy and policy rescindment, first budget, and a look into international cooperation.

1.1.2 Media

One doesn't have to look far to find Trump's opinions on the environment as his Twitter account and public speeches repeat harshness to an environmental agenda. Famously, Trump asserted that "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive" (2012), "It's freezing outside, where the hell is "global warming"??" (2013), "Global warming is a total, and very expensive, hoax!" (2013). This has become a catchphrase for Trump who has tweeted about climate change as a hoax six times and repeated it in rallies. Between November 2011 to October 2015, no fewer than 115 tweets all similar to these three were tweeted to millions (Matthews 2017); they vary in aggression and ad hominem insults – used often for all issues - including "Do you believe this one -Secretary of State John Kerry just stated that the most dangerous weapon of all

today is climate change. Laughable" (2014). In a campaign interview that shocked environmentalists was when asked about cutting departments, his response was "Environmental Protection, what they do is a disgrace. Every week they come out with new regulations." Then, Wallace: "Who's going to protect the environment?" Trump: "We'll be fine with the environment. We can leave a little bit, but you can't destroy businesses." (Trump and Wallace 2015). Trump is a crusader against the environmental movement, seen by the often daily ridicule of 'global warming' and later 'climate change', which he argues was a naming tactic rather than the realization that more is happening than once thought to be consequentially descriptive merely through temperature (Bomberg 2017). Despite fundamental, easily disprovable arguments that must have been explained to him many times: an overt difference between climate versus weather and averages over eons that are not comparable to weekly changes, the tweets receive thousands of hits and attract confirmation biases of other climate skeptics regardless of their accuracy. Even Trump's use of Twitter, which is a quick and casual communication tool, matches with his overall sense of communication – using short delivery, message repetition, and bluntly-put unfiltered stream of consciousness. One wouldn't expect the platform to feature deep logical analysis and many consider that an issue before he speaks in any public forum, others hail it for forgoing diplomacy and communicating modernly. Trump has even stated without social media, especially Twitter, he would not have been elected president as he needed his own form of media because the publications in place unfairly report (Trump and Carlson 2017). But because he is president and his Tweets are often outlandish, they gain media attention and become news-worthy rather than the subject going through an educational review before disseminating it. The entertainment value of his demeanor and message

content substitutes what is happening behind the scenes in his Cabinet. This is the message of American president and whether on social media or more formal communication, it has held the highest opinion; impressionable citizens will take his word as the law of the land.

When someone was skeptical of a scientific finding and understood scientific basics or had access to information, they would research the methodology and conduct their own observations and experiments to come up with a fuller view of the world. However, as Trump is not a scientist, and hasn't shown interest in becoming educated in the subject despite unlimited access to scientific advisors as needed, it shows his removal from natural systems and creates a strong personal, but also national, image for an Anthropocentric worldview in America. He disagrees with consensus findings because the information is understood as a threat to domestic economic protection in the form of international aid outlays, increased regulation, and harm to business development. His analyses are simple towards jobs, the stock market, unemployment etc., which certainly matter but an astute listener with differing values must depend on fact checkers or conduct sound background analysis to make judgements on rescinding environmental regulation's greater impacts. Repeatedly, more concern for the winning and losing aspect of governments and sovereign nations is given, and in general you don't have to scrutinize if someone won or lost, it just is and in so, his voters align with him for being a winner, a fighter, a leader, so they can see America on top. This concept is also used domestically when disfavored agencies regulate against desired progrowth industries, so called 'creating losers'. The role of president has transformed from being a stoic sound of reason, dependable in speaking to all Americans without rampant skepticism of our leader's morals to one where the spoken word is all-

forgivable as so long as it is met with economic growth and national security efforts. His voters were tired of the slow bureaucracy, political correctness and fuzzy social promises like poverty eradication or equality, that have become conceptual by appearing too costly or impractical to implement and were barriers to other issues thought more nationally and personally important. Trump frequently refers to "Drain the Swamp", a Reagan era phrase meaning to go forward with large developments and to ditch the impeding bureaucracy that stands in the way. Its use is no coincidence in the connection between the metaphorical meaning to fix the government's problems to a decidedly positive change incurred to society through an adulteration of the natural environment.

1.2 Methods

This thesis is mainly composed as a literature review of various governmental texts and often, how it is reported in journalism. The thesis intended to include environmental NGOs' educated opinions and behavioral changes in response to the new Administration and were contacted at the beginning of the research period by email. However, very few wanted to partake in the research due to the subject for reasons that they didn't want to appear as finding the Administration to be an environmental adversary. Those that were interested (three), said they were too short-staffed for the thirty-minute interview.

While much of my research is inspired by current news and events, I hoped to remain neutral and ignore bias while judiciously fact checking sources through governmental reports, legal writings, and think tank information to ensure quotes and other scenarios were in proper context. Today's media is highly under-trusted, President Trump and his supporters are, more than ever, attacking media coverage

of his Administration while they too are repeatedly found to spread "untruths" when cross referenced. Defiance of truth is disparaged regardless of political party and has vast consequences. Use of "clickbait" media sensationalism, indeed, worsens this research environment. My report does not over-emphasize quantitative effects of policy as correspondence that comprehensively lacks bias in finding the net benefit or costs to society often has some degree of underlying political position. That being said, quantitative analysis remains crucial to whether policies are passed and are used in this thesis to a limited degree. Public official interviews and public action were a greater cornerstone of my research to directly understand the environmental philosophy of the Administration.

Chapter 2 – Cabinet Selections

2.1 Scott Pruitt and the EPA

Cabinet selections are telling regarding the ideologies expected to carry out broad federal action and where and how to regulate. This paper will focus mostly on EPA Administrator, E. Scott Pruitt, who has acted in numerous counter-environmental actions. This includes suing the EPA 14 times in his past position of Oklahoma Attorney General (Lipton and EDF 2017). He is very supportive of the Trump agenda as seen in the Executive Order 13783 Presidential Executive Order on Promoting Energy Independence and Economic Growth, stating that the EPA has a history of regulatory attack on certain sectors of the economy leading to a division of 'winners' and losers', frequenting that the oil industry has been losing (Pruitt 6 July 17). Pruitt asserts pro-energy (fossil fuel context) and pro-environment are agendas that can be addressed simultaneously and they can, but other pro-environmental activity against pollution, like clean technologies and emissions abatement have been drained so it is unclear how he finds that both can be in balance. The day of signing EO 13783, there were repeated speaker introductions to Zinke, Scott Pruitt, and VP Pence as 'patriots', suggesting the Executive Order was one returning to significant traditional American values (Trump 28 March 2017). EPA website press after signing included What They Are Saying About President Trump's EO on Energy Independence, made of comments so one sided that it questions democracy, priorities, and waters down the insistence that the comment period is prioritized when finding fault with legal cases. The comments exclusively come from WV Senator Moore Caputo, KY Governor Bevin, WV Attorney General Morrissey, American Coalition for Clean Coal Electricity, American Petroleum Institute, American Public Power Association, Electric Co-ops, Energy & Environment Legal Institute, Independent Petroleum

Assoc. of America, Indiana Coal Council, National Mining Assoc., and Ohio Coal Assoc. all on the CPP's economic harms and Obama's regulation predation. The opposition has been deafened and the webpage does not accurately detail what the title assumes to show (EPA News Release 2017). Transparency has been a tenant of the EPA since the mid 1980's where a vow to operate as if in a fishbowl – "communicating with everyone from the environmentalists to those we regulate" (Ruckelshaus 1983) has been repeated in subsequent administrations (Jackson 2009; Bravender 2009). Transparency and integrity are linked, honest transparency reveals gaps in biased judgements as in the News Release.

Instead of finding fault with regulations for being environmentally evidence based or not, Pruitt finds criticisms of most of them when industry finds them disfavoring, and as a lawyer, falls on specific legal arguments or system boundaries instead of arguing about the issue itself. This includes "beyond the fenceline" issues in the CPP's entire electric system influence, if WOTUS pays homage to federalism section of the Clean Water Act, how "systems of emission reductions" can be interpreted as a broadening or narrowing of EPA authority in his reasoning for CPP repeal, and the use of the Transport Rule and CAIR in EME Homer City Generation v. EPA (Roberts 2015; Pruitt 9 October 2017 15; Parenteau 2017). Scott Pruitt has called his stance on if climate change is related to human activity to be 'immaterial' to leading the EPA who instead should focus on enforcing statutes (Dennis and Weigel 2017). The Environmental Defense Fund and The New York Times found that of the 14 times Pruitt has sued the EPA, the regulated oil and gas industry parties at harm were fellow plaintiffs in 13 the cases that have also financially backed his political campaign (Lipton and EDF 2017). Fourteen cases occurred in less than five years, and began with challenging mercury regulation twice, Cross State Air

Pollution, a questioning of the benefits of scrubber installations and challenging the abatement of ozone, limiting pollution during PP shutdowns and malfunctions, limiting regional haze, limiting pollution from new, modified and reconstructed oil and gas facilities twice, that greenhouse gases endanger public health, the CPP four times, and WOTUS (Lipton and EDF 2017). Proving Pruitt has a strict impression of energy influencing legislation, his lens of protecting Oklahoman and mostly fossil fuel industry interests has followed him into a position with a range of responsibilities. Abiding by strict legal definitions of environmental statutes is a differing mindset than traditionally used principles at the EPA, including the precautionary principle. One of many examples is from his nomination questioning:

Q: Senator Booker (D-NJ): A 2014 study by scientists at Lawrence National Laboratory at Berkeley reported that an estimated 10 % of chemicals used in fracking fluid are known to be toxic to humans and aquatic life. Fracking practices commonly are conducted in fringe low-income and working class communities. Since these toxics are known to leach into waterways how will you ensure this is prevented?

A: Scott Pruitt: As was affirmed by Congress in drafting the Lautenberg Act, hazard is only one characteristic of risk and simply stating a chemical substance has toxicity does not mean there is exposure. EPA is tasked with carrying out laws as directed by Congress and if I am confirmed, I will use the authorities vested in me to protect drinking water under the Safe Drinking Water Act (Nomination of Pruitt 2017).

Having a clear understanding of the law is essential to heading the EPA which has

complex case law and has industry adversaries challenging EPA's legal boundaries,

however the EPA's mission is to broadly protect human health and the environment

(EPA Mission 2017). The EPA details that this needs to be carried out in varying

ways, laws being one of them. An answer more in line with the current online

purpose would combine the first and second priorities of those listed: "all Americans

are protected from significant risks to human health and the environment where they

live, learn and work; national efforts to reduce environmental risk are based on the

best available scientific information". It is important for Americans to know their EPA Administrator errs on the side of caution to protect human health until qualified science lends more complete information. Science supports the precautionary principle but is less relevant in deciding on legal terms where the definitions around hazards and risks are more arbitrary. Pruitt lacks scientific work experience or education, and while past EPA administrators had various education and experience in diverse fields from engineering to pathology and other government service, the mission of the EPA should not be construed by an administrator's past experience in protecting other matters. The EPA's priorities are not uploaded at the time of writing, over ten months into Trump's presidential term.

Following Hurricane Irma in September, Pruitt stated it was "very, very insensitive to the people of Florida" to discuss the causes and effects of climate change, prolonging the conversation that is never had (Romm 2017; Friedman 2017). His point was that hurricane season has always posed annual risks and its improper to correlate the 2017 hurricane season to global trends, viable, but imprudence will only address the damages as they happen and not demand top building requirements to reduce them in the future. It is not likely that federal support will bolster resiliency to more than what is needed; Trump's Executive Order to Establish Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects revoked Obama's 2015 Order 13690 to "ensure that agencies expand management from the current base flood level to a higher vertical elevation and ... address current and future flood risk" (Obama 2015). That Obama-era EO is rooted in national security protection as advised by the National Security Council to reduce damage to critical areas, general emergencies to coastal

regions and inland flooding, and federal payouts, however opponents say building higher is costlier and it lengthens permitting processes. The EO required models to predict where new flood-prone areas may arise which must pose a large enough development burden for Trump to want to continue it, or it could be a war on science and the stakeholders who would benefit. Obama's EO built on climate science of the last related Flood Risk EO 11988 enacted almost four decades prior, to update 100 and 500-year floodplain averages and flexibly require less than one meter of vertical building change (WEF GCI 2017; Obama EO 13690 2015).

In his Budget, Trump hails that the EPA could potentially provide up to \$1 billion in credit assistance, which could spur \$2 billion in total infrastructure investment. If Trump wants to lift the United States from the ninth rank in infrastructure by the World Economic Forum's 137 country analysis, embracing preparedness building is a way to do so (Budget 2017 18). Instead, incentivizing reduced environmental standards is imprudent; one of Trump's first executive orders was Expediting Environmental Reviews for Approvals for High Priority Infrastructure Projects. The Council on Environmental Quality is to decide within 30 days if a project is high priority, if so the following agencies are to review and approve "as expeditiously as possible" which will compromise the integrity of environmental assessment (Trump EO 13766 2017). Infrastructure is a unifying use of federal government spending that needs to take a long term approach to avoid costly damages; NOAA laments that much urban infrastructure is vulnerable to greater potential damage from extreme events due to insufficient building codes. Between 1980 and before 2017's devastating hurricane season, at least 218 billion dollar hurricanes have occurred with a price of over \$1.2 trillion (NOAA NCEI 2017). Pruitt is continually asked about this issue, from reporters across the political spectrum,

highlighting that Americans care about this conversation and want response to climate change.

Pruitt has written letters supported by Virginia, Montana, Alabama and Alaska to President Obama in protest of the Bureau of Land Management's federal lands regulation against hydraulic fracturing on the basis of states unable to implement their oil and gas goals (Pruitt, Strange et al. 2013). Pruitt, like Trump, greatly supports state autonomy and energy dominance, and small government although environmental pollution is rarely an isolated, single state issue. Pruitt began Oklahoma's first Federalism Unit after becoming Attorney General in 2010 which acted to counter "unwarranted regulation" and federal agency overreach which are principles guiding his EPA leadership (OK OAG 2012?). Americans for Prosperity wrote to the Senate Committee of the Environment and Public Works supporting Pruitt's nomination, hailing him for his stance against draconian overstep by the EPA to reduce state rights in the Clean Power Plan, Clean Water Act and Waters of the US (Gardner 2017). This organization has been critical of the EPA's reach on coal power plants who has questionably used more minor reasoning to direct emissions' regulations: for visibility while ignoring human health. "The EPA is using the Regional Haze Rule to expand their power and place heavy regulatory-burdens on carbonbased energy producers. These aim to raise costs on CO2 emitters, and will result in higher utility prices for households in the EPA regulated areas with no improvement in visibility" (Yeatman 2013). They also concern that haze is not a human health issue but instead an aesthetics issue where states have jurisdiction to decide the degree to which the aesthetics under the benefits of energy generation. Pruitt has also forwarded letters from Devon Energy, an Oklahoman natural gas producer and

important Republican Attorneys General Association donor, to then President Obama and to his preceding EPA Administrator against methane regulation in natural gas production. The letters show almost exact wording from Devon Energy head lobbyer, William Whitsitt, before Pruitt passed them along to the EPA under the basis of methodology of natural gas well emissions being too few to suggest an industry standard. Although Oklahoma does not have a flaring or capture standard for methane emissions, he states it is incorrect to assume they don't voluntarily do so (Pruitt 2011). Pruitt has been supported by oil and gas CEOs including former election campaign partner, billionaire shale developer Harold Hamm (Nomination of Pruitt 2017). In all, it is a disappointment for the EPA's leader to deny the science that has been in consensus for many years and the subject's level of mastery in many technical papers and the 1000 page reports the scientific community has written through the IPCC's documents. In fact, Pruitt has critiqued their use along with USGCRP and NRC reports in Coalition for Responsible Regulation Inc v. EPA 2012, stating that Petitioners disagree with the EPA delegating their judgement by relying on these reports for their climate science (CRPI vs EPA 2012 27). There will always be unknowns but Pruitt speaks on the subject as if all this research has left us with nothing then insists the overarching reports are not the evidence we need. He notes that there is not consensus on climate change and we can see that by the lack of policy and Congressional support (Reuters Staff 2017). Pruitt is interested in holding a televised red team-blue team debate between EPA Climate Scientists to discuss the theory (Reuters Staff 2017). Americans rarely have an opportunity to hear scientists speak on the issue and it could prove an opportunity to debunk myths poorly communicated across mainstream media channels or perpetrate them if robust research isn't given due time. Some question the need for climate science to

be debated as it potentially apportions more weight to the questioning of the theory than current scientific standing.

2.1.1 Back to Basics Plan

His put fourth agenda is a Back to Basics plan including nine bulletpoints supposedly supportive of a joint Environment, Economy and Engagement framework. Seven of the nine bullets literally detail going back (reviewing or delaying) to the very basics of EPA implementation. This EPA is illustrating a backwards mentality in a forward moving, absolutely high polluted environment. Delays are not an innocent statutory tool, they greatly favor industry which is able to extend the status quo and avoid compliance investment. Even without recent bottlenecks, the EPA's budget has made many critical of the EPA's ability to conduct the science necessary to understand risks to human health from chemical exposure. Especially when there are so many chemicals needing longevity studies, only 83 were assessed in the recent ten years while the Blueprint states the EPA will test 1,000 new chemicals under the unchanged goal of protecting consumers from unsafe chemicals (Belton 2016; EPA Budget Blueprint 2017 21). It is no easy task and issues undoubtedly arise such as comparing high dose animal testing to low dose human exposure, the anthropogenic risk level actually incurred by the average American's 90% indoor life, as well as what absorptive levels of risks may be as costs are not weighed in the EPA's Integrated Risk Information System analysis (Belton 2016). However, January's Blueprint may already be outdated as the EPA's word for word description is clear on their motive and it confuses the lines of human health. Surprisingly for the EPA, but unsurprisingly given the above sentiments in Pruitt's confirmation hearing, one of the rescinding bulletpoints states, "EPA is clearing the backlog of new

chemicals that were waiting approval from EPA, so they can go to market, and companies can innovate and create jobs." The only two health and environment Back to Basics initiatives include granting money for Flint's water infrastructure and other vital needs and broadly to "help states achieve high air quality targets, clean up toxic waste sites and improve America's water infrastructure", which sounds potentially more administrative rather than action-oriented (EPA Press 13 April 2017). Pruitt is interested in advancing clean up at Superfund sites and finds enforcement critical to implementing EPA authority (Reuters Staff 2017).

The Back to Basics Agenda events were held and first announced at a coal mine in Pennsylvania, a Missouri power plant then coal-fired Gaston Power Plant in Alabama and industrial farms in Georgia, really the only audiences appropriate for the message (EPA News Releases 6 July and 13 April 2017). It would be difficult to spin this initiative to environmental supporters and local stakeholders that have a more skeptical view of trying to grow the economy through waning, polluting industries and the environment's expense. And in so, Pruitt hasn't reached to these audiences to brag on the Back to Basics plan (Calendar Pruitt 2017).

Currently, the EPA has resorted to employee buyouts to meet budgetary constraints, meaning the administration would rather use taxpayer money to incentivize workers to leave than do their jobs. Buyouts are common in restructuring and downsizing and periodically attract studies by the Government Accountability Office for overuse (GAO 2006; OPM 2017). Interestingly, over \$16 million was spent in 2014 by the EPA to fund 456 early retirements and incentivize people to leave in return for a federally supported shrunken workforce, and it is reported over 1200 will go through this process in September 2017 on even less money set aside, reportedly \$12 million (Dennis 2017). Three-year research reporting on EPA buyouts found that

the EPA's original objective to replace old skillsets, limit administrative jobs, and lower the grade of top work has only been a moderately successful program (Beeson *et al.* 2017). Buyouts, low morale, combined with Trump's third-day-in-office hiring freeze for all nonmilitary federal agencies (that might last longer at the EPA), devalues the workforce and requires more responsibilities per person in light of a significant summer of natural disasters and forthcoming environmental crises (Trump 23 January 2017).

2.1.2 EPA Resignations

Changes in the EPA's operations have left employees in disarray. Michael Cox, a 25 year EPA employee, resigned out of the Administration's new direction and the public-known eagerness to dismantle the agency. Cox stated he was shocked that Pruitt was appointed to the EPA out of dismissing agreed upon climate science and calling the topic a distraction and barrier to work that must be done in the area. Cox defended that job growth runs parallel to environmental regulation and that the Paris Agreement is an economic opportunity. Bitingly, he stands up for the EPA employees who on March 28th, were emailed "Our Big Day Today", a headline to spin the rescindment of Obama-era environmental regulations when Trump signed the famous executive order Promoting Energy Independence and Economic Growth (Cox 2017). It reveals that Pruitt is out of touch with the agency's values as he supports the President's agenda without any sympathy for the thousands of personnel lost, the full time equivalent hours reduced and millions of dollars and years previously spent on research to ensure safety to human health and the American environment. Relatedly, Pruitt rarely applauds the work done at the EPA and fails to give updates on what the large workforce is achieving (Davenport 2017).

Obama's environmental agenda was carried out with the hard work of EPA personnel that watched their work go to nil in support of coal miners and the fossil fuel industry (Southland 2017). Not all is lost in this grim description, in the end, some converge American emissions under Trump to equal Obama's Mid-Century Strategy for Deep Decarbonization which aims to reduce emissions by 80% by 2050 (US MDS 2016). Trump's four or eight year term will delay our emissions dissent to an emissions plateau which has broad implications including a consequential 20 extra gigatons of carbon emissions more than Obama's MCS plan but uncertainty remains great (Rogelj 2016).

Other resignation letters from longtime EPA employees include Elizabeth Southland, a director of science for the Office of Water and Mustafa Ali, Assistant Admin. and one of the founders for the Office of Environmental Justice. Southland highlights the conundrum that state grants are decreasing yet they will be granted the responsibilities originally governed federally. She goes on to say that the new order to dismantle two regulations for every one put in place, when already so many have been rolled back, leads to morally hard choices on deciding what public health threat should proliferate. It's an impossible choice, she mentions new regulations will probably not be made because the ones already existing are too precious and protect too many to suddenly decide they are unimportant. Trump would support this standstill but this is a basic restraint on dynamic science as new health effects are discovered and older policies need replaced.

Mustafa Ali's resignation letter highlighted the economic sense of the Brownsfield grants, given to clean and reuse contaminated properties, through jobs created and investment leverage and has detailed the justice concerns under Flint's water crisis and other urban needs requiring EPA support (Ali 2017). In an interview

with NPR, Ali detailed that he resigned due to the changing values at the EPA, including the proposed budget cuts, and that his division, the Office of Environmental Justice, is on course to be dismantled. He declares the initiative does need its own office due to the 'laser focus' needed in protecting vulnerable communities and that it already has trained professionals that the EPA needs to reach justice goals. Environmental justice makes economic sense, it identifies areas of injustice and looks for opportunities for transformation. The EPA has a slow history within this justice initiative, which is also shared by the in house Office of Civil Rights and Center of Public Integrity, however disbanding the agencies is a move in the wrong direction as citizens need more representation from industry development (Ali NPR 2017). He recommends for Pruitt to engage with vulnerable communities and envision the room for transformation out of environmental injustice. He emphasized in his letter that his 24 years with the EPA taught him "communities speak for themselves" he believes there should be leaders in the unit that prioritize the grassroots' citizenry situation.

Lastly, Trump's Science Envoy, Dan Kamman, who has worked for various federal agencies since 1996, resigned after a lack of condemnation of white supremacists during the summer's rally in Charlottesville, NC as well as for the lack of environmental leadership and international partnership in meeting mutual goals between all countries (Kamman 2017). Not just the EPA but scientific directives across federal bodies have had many more resignations –or even substitutions to industry scientists as in the EPA's Scientific Advisory Committee, reassignments to climate unrelated positions or people refusing to resign but working against their values (Henry 2017; Hand 2017; S. Page 2017; Martin and Meyer 2017).

CEU eTD Collection

2.2 Zinke and the Department of the Interior

Department of the Interior Secretary, Ryan Zinke, has addressed in an oil and gas supporting speech, that 30% of his Dol workforce is disloyal to the flag, believed to more generally mean Trump's leadership and his own while he tries to change over to Trump's goals that "he wanted yesterday" - like energy development (Daly 2017). He has voted to approve the Keystone XL Pipeline in 2015 (Ryan Zinke Voting Record 2017) and is a less staunch climate denier, though still a climate denier. He will continue to include climate change research through the US Geological Survey although it originally continued in at least three other agencies. Intentions might still prove dangerous as it is said terms "climate change" and "sea level rise" were washed from a recent report and it will have to take on agency research with their own 13% budget reduction (Grandoni 2017; Siciliano 2017; Dol Budget Authority 2017). Zinke only has a 4% lifetime pro-environmental voting scorecard per the League of Conservation Voters' analysis which creates an annual voting scorecard to track how Congress votes on energy, climate change, public health, public lands and wildlife conservation, and allocates spending for environmental programs (LCV Scorecard 2016; LCV: Zinke 2017). Although he has a record for flip-flopping on the issue, he seems to believe man's impact contributes to climate change but insists there is more balanced scientific debate for man's contribution than reality; his ambivalence is worrying for leading Bureaus of Land Management and Safety and Environmental Enforcement (Zinke Confirmation Hearing 2017). The BLM website now displays two missions, like the rebranding of some other agencies post-Trump: the first, "is to sustain the health, diversity, and productivity of America's public lands for the multiple use and enjoyment of present and future generations." (BLM 2017; Marshall 2017). While the second emphasizes the multiple use concept to adhere to

Trump's Executive Orders and duplicates the rhetoric in name, A Multiple Use Mission for a Greater America, showing Trump's priorities shifting the ideology of the Bureau. The three paragraph second mission begins with Congress requesting the BLM to mandate lands for a variety of uses such as energy development, livestock grazing, recreation, and timber harvesting while ensuring the first mission. "To do this, we manage public lands to maximize opportunities for commercial, recreational, and conservation activities." The objectives are listed in a telling order. A new internal working document BLM Priority Work, mentions land use planning in support of energy and minerals development is a priority; to include energy contract negotiations is one thing but to make it a priority is another. Zinke has stated that there is 'no clean energy', mirroring Trump's stance of eagle killing wind turbines and has stated that wind energy won't power America to the percentages seen by coal in the electricity mix while also refuting aesthetic and fishing industry issues, as if coal doesn't have worse impacts across those same characteristics, e.g. ocean acidification and being less attractive than solar panels (Clarke 2017; Zinke 20 June 2017). And so, he has signed Secretarial Orders 3348-9 overturning the 2016 moratorium on all new coal leases on federal land and ends the program's environmental impacts statement in what he believes to be in support of public interest to reconsider oil and natural gas regulations (Dol Press 2017). The Bureau of Land Management Budget appropriates \$16 million for renewables development as well but mentions "land use planning will focus on areas of high potential for fossil fuel energy development" in 2018 with their climate change program eliminated that was responsible for monitoring air and water (BLM 2017).

Trump's Executive Order 13807 placed on August 15, Establishing Discipline ... for Infrastructure Projects is a further disciplinarian measure to the one placed in

January to expedite environmental assessments, the Dol has arbitrarily restricted EIS to 150 pages, 300 if necessary and approved, and to take no longer than one year which is a major change from today (Grijalva 2017; Doyle 2017). Trump tends to equate analysis with paralysis. In June, he demonstrated this by taking an expensive to publish, 10,000 page environmental assessment for an 18 mile road and publically dropping the hard copy (Trump 9 June 2017). This is in concert with the holdup he envisions environmental work to cause. Thousand paged documents truly need streamlined as that length is useless to most everyone, but the EPA and Dol cannot report comprehensive and consequential information in brief research periods. Optimistically, it can be understood that Trump wants these agencies to provide meaningful (issue: to whom) work, not to lock up their resources in vast reports (written at lawyer prices), especially for economic growth projects where he sees EIS more as formalities as the projects will probably be pushed forward anyway. Pessimistically, the overarching plans, Back to Basics and Multiple Use Lands, and a two for one regulation substitution is construed around backwards action and inaction so the first option may not be able to be assumed.

In Alaska, Obama tried to expand wilderness declaration for conservation purposes limiting drilling next to arctic oceans (Sanders 2015) where Zinke and Republican Alaskan Senators are pushing forward to drill, the issue is highly controversial affecting local ways of life, polar wildlife, seismic and mining disruption, and unknowns about jobs and energy security and oil prices on the supporting side (Page 2017). The BLM expects the ANWR region to lease sales in 2022 leading to enough time for environmental review in their writing (BLM 2017).

Zinke supports downsizing the Bears Ears Monument created by Obama, which is over a million acres that protects Native American land and ancient

dwellings but some want it rescinded for economic development and timber and oil production. Zinke supported Trump's reasoning for insisting Dol review for all national monuments greater than 100,000 acres created since 1996 and believes Congress should have a role in deciding the president's public lands action which is in line with federal overreach principles (Zinke 2017). Congress, mostly Republicans, use rhetoric to criticize Administrations for their federal land grabs that need to be freed and some locals agree because it inhibits motorized activity, fishing, hunting and other outdoor activities and industry and state governments mutually agree because coal may be plentiful underneath. The 1996 review boundary allows for the Grand Staircase in Utah to be reviewed which is strategic for its containment of Utah's largest coal reserve. Like Bears Ears and eight other National Monuments, he recommends the borders be narrowed (Daly 2017). Trump calls the presidential practice under the Antiquities Act abusive and aims to reverse Obama's lawful but unilateral expansion of 34 monuments in his tenure which has never before been seen by a president (Fimrite 2017). National Geographic compares the present situation to Roosevelt's Grand Canyon protection which was originally opposed by miners but is now a symbol of the American landscape. But even today, the comparison may be mishandled. The Canyon has steadily attracted its greatest amount of visitors to six million annually but some Arizonans oppose a new Grand Canyon Watershed National Monument to protect the area against uranium contamination because of greater concerns about federalizing land (NPS 2016; Grand Canyon Trust 2016; Philipsen 2016). Another regulation Trump has ordered to rescind is the Waters of the United States under the Clean Water Act which is highly unpopular between industry and the administration for being a 'power grab' of the nation's waterways and an overreach to include small waterbodies under EPA's

protection. It was controversial and halted by Obama's Congress in 2015. Supporters see it as prudent regulation for water that is eventually drunk by a substantial amount – one third - of Americans as well as wild bird and amphibian habitat protection (Bartels 2017).

Our society is split on who, if anyone, can be trusted with land ownership, even skeptical of our own states when asked if federal or state ownership is better for managing currently federal lands (Western State Survey 2016). In support of public lands, the benefits are there but require local engagement for those most affected to reverse the poor reputation public lands are receiving which should not be so poor as to transition towards trusting private motives unless citizens collectively believe their quality of life is undeveloped and deprived. As most Americans positively view public lands and the symbols they create such as with the Grand Canyon, we should use foresight to develop on land that is readily available as to conserve elsewhere and restrict mining on critically fragile ecosystems (Parker 2017). Zinke reasons that fossil fuel energy independence has many benefits including the substitution from Middle Eastern oil which lacks sound ER leading to some environmental gain through reasonable American regulation (Dol IP 2017). Energy independence has become a bit of an elusive topic in that it has been promised in many administrations but the US has indeed been trending towards independence for many years. Petroleum import dependence is its lowest since 1970, in 2016, before Trump's policies (EIA 2011; EIA FAQ Energy independence 2017). However, if environmental and health concerns are prioritized, it is difficult to see that is so on the ground. There has been a hold on Dol funded research over \$100,000, initiated by Trump then communicated by Dol to the National Academies of Sciences, which includes a West Virginia initiated project to determine

mountaintop removal's health impacts as birth defects and cancer increase in nearby areas which was budgeted for \$1 million (Greshko, Parker et al. 2017).

Zinke has the same criticisms to the Paris Agreement as Trump: it's a bad deal for Americans, China is allowed to increase emissions until 2030, there's an upfront billion dollar costs and lost jobs, all for a lack of real climate solutions (Zinke 2017). Trump has focused on the Chinese increasing aggregate consumption with some commodities like coal and copper that China is the top user of while the US remains over twice China's per person CO2 emissions in metric tons (2014) (World Bank 2017). Zinke states that it is other countries that need to be more like the United States which uses innovation to develop clean technologies regardless of international cooperation. The excuses about China, India, Russia etc. always ignore the context of North-South development where the emissions allowed to developing countries are applicable to countries whose living standards are on par with a past time in America's history and not today. The UN Organs understand this and it has become an ideologically conflicting Party for Trump's America First mindset. It's not just Trump, Ted Cruz mentions an expectation in Secretary of State, Rex Tillerson's role in taking back 'America's exceptionalism' in foreign relations as the "current administration has used the United Nations to try to circumvent the will of Congress and the American people" (Cruz 2017). Through international collaboration, America should take ownership for consuming roughly one-fifth of the world's total primary energy through less than one-twentieth of the global population (EIA 2017). Developing nations', including China and India, NDCs detail billions in annual aid needed to mitigate and adapt to the risks of climate change. India's voluntary goal is to "reduce their emissions intensity of its GDP by 20–25%, over 2005 levels, by 2020, despite having no binding mitigation obligations as per the Convention." (India

NDC). But to transform adaption through every phase of their economy "a preliminary estimate suggests that at least USD 2.5 trillion (at 2014-15 prices) will be required for meeting India's climate change actions between now and 2030." which the NDC details would need significant developed country support. Brooking's suggests that much of this will come from private financing, however they couldn't argue that it would be enough (Muro 2016).

2.3 Perry and Energy

Rick Perry, Secretary of Energy, does not believe man induced CO2 emissions are the main cause of changes to climate, and that natural causes are the more significant driver; he was voted in to be secretary 62-37 of a traditionally less political Department (Perry 2017; Senate Trump Cabinet Nominations 2017; Editorial Board 2016). Rick Perry was briefly on the Board of Directors for Sunoco Logistics Partners and Energy Transfer Partners, the parent company of the Dakota Access Pipeline where he has earned hundreds of thousands between positions as a longstanding Texas Governor and his presidential run.

Obama had called the Keystone XL Pipeline an inflated issue for the uprising on both supporting and opposing sides in a country full of pipelines, suggesting this one's development was a symbol for other issues. He denied its development because it would not benefit Americans in many ways it was proposed to, for example, energy security where he stated that America is supporting itself more on North American oil than imported anyway and a TransCanadian pipeline would be immaterial to the objective (Obama 2015).

Wind energy expanded in Texas under Perry with some cities initiating its development without climate change as a decision characteristic similar to Perry who

was looking for financial sense and contract predictability (Shapiro and Ozug 2017). Some think renewable energy is growing past partisan values as technological costs are decreasing all the time, cheaper in some places with or without subsidies or tax credits, and will continue to drop unlike price trends for commodities. Wind averages cheaper across regional variations without subsidies than NGCCs with a levelized tax credit making it cheaper than all natural gas fired EGUs, advanced nuclear, solar, and hydroelectric plants (Baker 2016; EIA Levelized Cost 2017 7; Lazard 2016). Greater familiarity with science is crucial to the Department of Energy and shouldn't be wrought with close mindedness published in his book Fed Up! calling climate scientists led by a "false prophet of a secular carbon cult" (Editorial Board 2016). Perry will carry out Trump's energy policy which instead of a being a newly inspired plan, is a take back of past events. Trump, despite calling his approach 'all of the above', shows he is not a futurist on energy issues, lacking the dynamism to keep up with energy supply challenges as they approach. Trump's plan is a conglomeration of rescinding Obama's regulation, discouraging nuclear proliferation and making decisions about nuclear waste storage, unleashing fossil fuels country-wide especially on public lands, and supporting pipelines that some argue endanger fragile ecosystems, traditional lands, drinking water and curb renewables development at the expense of ephemeral benefits (Trump Energy Potential 2017).

In interviews, Trump mentioned that solar energy has too long of a payback period and the panels' useful lives are shorter than the time to receive a return on investment, he has also demised wind power for its threat to birds, an argument that feels out of place for how he usually reasons policy (Geiling 2016). In the same interview, solar projects ruled out for being expensive are said to be using outdated pricing and knowledge. Trump should support renewables as there are investors

who may use other metrics to decide on the issue like upfront pricing versus scheduled payments and concerns about its payoff rather than trends in commodity spot prices (Frankfurt School-UNEP 2016). It is a high growth industry, from 2006 to 2016, solar energy generation grew over 5,000% not including residential solar growth; to compare, the also fast growing natural gas energy generation grew at 33% over the same decade (USEER 2017 21). And with that, solar alone without the entire alternative energy jobs in other technologies and energy efficiency, employs almost 375,000 to oil/natural gas/coal at 151,000 employees (USEER 2017 30).

So far, Trump has been concerned with the socioeconomic losses of those employed by the fossil fuels industry (Trump EO 13783 2017). While areas of high unemployment are further burdened by industry losses, a macroeconomic view focuses on the national switch from jobs in fossil fuel supporting industries to renewables, at a recent rate benefitting renewables' employment by more than a 1:1 substitution. Coal mining and hydraulic fracturing are concentrated in Wyoming, West Virginia, Pennsylvania, North Dakota, and Texas while environmental jobs do not necessarily have a geographic concentration but are connected to high-tech firms (USEER 2017). However, a mention of natural gas production as a critical driver for what has happened to coal production is not emphasized Trump's War on Coal press conferences but is crucial as the US is the world's largest petroleum and natural gas producer (Doman 2016). One domestic product threatened by another domestic product is not worth highlighting when there is an angle to attribute the loss to partisan values, regulation. But he mentions establishing new markets for liquid natural gas to Central and Eastern Europe and Asia as a priority to Trump's policy (Trump 22 June 2017). He has represented coalminers, where his elective support in Wyoming was the highest in the nation by percentage voter and West Virginia, which

was second highest by percentage vote against Hillary Clinton and won all 55 counties (Bump 2017; NYT Presidential Results 2017). Pennsylvania, which rurally and officially elected Trump, was previously known as a major coal producing state but now has more of a reputation for hydraulic fracturing. This could potentially be the future for coal country, which shares the Marcellus Share with PA, with its vast natural gas reserves as the present support for coal may fizzle out after this administration (EIA WV 2017). The sentiment in 'coal country' is that it's a profession shared through familial generations and despite the risks and dangers involved, miners feel their rights entrenched as environmentalists and dissenting politicians prevent them from making a living. It is a relevant observation that West Virginia has held the lowest share of persons with bachelor's degrees from 1970-2000 officially with less official present day reports repeating those findings, it is also the state with the largest population degrowth rate (US Census 2000; Bernardo 2017; US Census Table 6 2016). Appalachia needs to diversify its job market, renewables could have been one method. Unfortunately, WV was the first state to repeal its renewables portfolio which is today operating at 5% of their energy mix but was slated to require large power generators to include 25% of their energy as renewables, and unique to the state, advanced fossil fuel technology to meet the RPS requirement (EIA WV 2017). If for nothing else Trump has mentioned in press conferences that America's coal reserves will last for the next 100 years and aims to become an energy exporter to the rest of the world (Trump 29 June 2017). Many analyses construe different predictions of this figure (EIA Coal Explained 2017). This may benefit energy-poor nations which enjoy a better quality of life and life expectancy from energy availability as its affordability and gains to their nation's wealth pays for necessary health and development needs. EIA predicts the US would be a net energy exporter by 2026

with CPP implementation through excess natural gas and coal, sooner than without it (EIA AEO 2017).

Natural gas is expected to become the dominant electricity generator as the United States is the world's greatest producer and fifth largest for its proven reserves (Davis et al. 2016). An in-depth review of emissions and pollutants per energy is outside the scope of this thesis but we will view coal's abatement to natural gas as environmentally preferable as a bridge fuel which is supported across many research avenues. It is expected that natural gas' emissions are less than cleaner coal's until a breakeven of 6.1% product leakage of natural gas over 100 years, whereas it currently is estimated between 2 and 4 percent leakage. Carbon dioxide emissions for coal and the mostly methane emitting natural gas require short term and long term global warming potential analysis due to differing heat holding capacities and atmospheric half-lives; it is found that natural gas is favorable to coal for both time frames (Hausfather 2014). Natural gas comes with its critics including three states that have banned hydraulic fracturing, New York, Vermont and Maryland due to their analysis of environmental and public health harms (Finkel and Law 2016). The undisclosed chemical slurry used in hydrologic fracturing may be environmentally hazardous (Higginbotham 2010).

America had increasingly exported petroleum and crude oil during Obama's administration and that should increase since export deregulation in December 2015. America's minimum crude oil production was at 5 million barrels/day in 2008 to nearly double today (Davis *et al.* 2016). Jobs in hydraulic fracturing and the renewables industry far outnumber those in coal (USEER 2017 29) but the analysis is not just a number's game. The coal industry is one that has historically paid very well for those without developed skills, leaving few other options for miners once a

job is lost. This goes back to how unemployment is especially devastating across narrow economic regions. There is heavy scholarly coverage that coal jobs won't be brought back despite Trump's efforts because of modern advancements, however those who worked in the industry believe concerted effort could bring a resurgence of their livelihoods (MSHA 2016). During this overall decline, there hasn't been an annual absolute or relative decrease as large since the 1940's as the past year; coal consumption has decreased almost 40% since 2005 (EIA STEO 2017). Although it is said that regulation is not responsible for the lion's share of job loss within the coal industry and miners must adapt to new human capital and labor markets, many are too young to retire but furthering education may be too expensive. In principle, loss of mining is not entirely different from other industries entering the maturity stage and there has been a long lead up in the industry to discourage employment dependence in coal mining. Local and state support will be necessary for transitioning miners but the industry has too many negative externalities and substitutes to undo years of environmental regulation for its protection (Muller *et al.* 2011).

Perry proposes that the changing electricity sector is prematurely closing coal and nuclear plants which needs compensation to adjust for the energy security they provide which is not captured in the market, especially short term. He uses the reasoning that "The increased importance of system resilience to overall grid reliability may require adjustments to market mechanisms that enable better valuation." unlike what other forms of energy, namely renewables, may provide (DoE 2017). The question of valuation, like other market intervention, is controversial. If this proposal goes through there should be the same sort of support for the social cost of carbon, methane and nitrous oxide which are used in cost benefit analysis in emissions of CO2 and although said to be reasonably secure through legislation, has
review requirements, its technical documents withdrawn and its research agency, the Interagency Working Group on Social Cost of Greenhouse Gases (IWG) disbanded for no longer representing government policy (Trump EO 13783 2017; Malakoff *et al.* 2016).

2.4 Other Cabinet Members

Trump's pick for top diplomat, Secretary of State Rex Tillerson, began working for ExxonMobil in 1975 which inspired his nomination through skilled international negotiation and supposed transfer of global business leadership to leading international relations. His nomination documents say "he assumed command" of ExxonMobil, "one of the world's most respected companies", in 2006, and had strong business relations with Russia, donned with the Russian Order of Friendship, which is viewed as strategic for the complex present US-Russia relations despite previous sanction violations with the country (OFAC 2017; Nomination as SoS 2017).

ExxonMobil must safeguard oil reserves to remain in business as they aim to remain in oil and gas. Their 2040 estimations of the global energy mix are somewhat conservative for changing energy mixes with renewables making up about the same share as they do today, albeit assumed for two billion more people and growing global middle class. ExxonMobil wrote the White House in support of the Paris Agreement for the economic sense natural gas makes and for ensuring the global playing field is equal (Trelenberg 2017). Shell, the world's second largest oil and gas company, CEO supports the Paris Agreement and agrees that the oil industry has a role to play in abating fossil fuels. Shell says it is able to operate under the government regulation imposed but the unpredictability imposed in failing to act on climate governance and how that may change makes for a difficult business context

(Shapiro and van Beurden 2017). A difficulty in doing a thesis topic like this is that individual interviews, companies, states talk about having great care for the environment which creates a positive image for that individual player while the overall industry or trade associations do not act, leading to a win-win for the individual through PR and cheaper implementation.

Trump has also named a climate denier to head NASA, Republican (OK) Jim Bridenstine, who lacks science or engineering experience and is only relevant for being the director of the Tulsa Air and Space Museum for two years and supporting moon, Mars and deep space exploration (Chang 2017). The move is criticized by scientists and Floridian Congressmen close to the Space Coast saying the role should be going to a professional and not a politician. If only those same people voted and held the same beliefs for other scientific positions. Other cabinet members have varying opinions on the subject, some Americans might agree with the attitude of Reince Priebus while others think it is terribly brash, but it does reflect modern day media exposure of various threats. No longer Trump's Chief of Staff, Priebus suggested that perhaps the concept of human induced climate change is not unreasonable and that planet protection is an attractive idea to all but there are caveats by saying "Look, I think we all care about our planet, but melting icebergs aren't beheading Christians in the Middle East." (Lavelle 2017). The imminent risk, a more brash sense of injustice, and universality certainly is debatable in that thinking, but a clear enemy gives a larger sense of urgency at the expense of greater rationality. There are threats that appear riskier to Americans due to the emotive response and the ability to see and influence what that threat is despite not actually being risky.

None of the men in environmentally significant advisory positions dissent much from Trump's opinions. They have formed their own consensus so that their opinions are not an island among themselves against the public and scientific community that defends climate change. It has also been easier for Trump to be more consequential with a Republican Majority Senate with executive officials chosen in support of his aggressive America First ideology, leading to an underrepresentation of other interests.

Chapter 3 - Executive Orders and Initiatives

3.1 Obama

President Obama created a climate legacy framed in national security, economical, and morally obligatory reasons to appeal to American values (OMB and CEA 2016; Bricker 2012). The Climate Action Plan sought to reduce carbon emissions in an increasing effort, to strengthen States to brace for climate impacts, and to lead international efforts in collaboration for reducing greenhouse gas emissions (Outka 2016). Its goal was to reduce greenhouse gas emissions by 17% percent of 2005 levels before 2020, in part through the exploration of natural gas. Clean energy has created at least 17,000 Dol supported jobs in investment projects from 2009-2013 (Obama 2013). The spirit of the document is in American leadership of environmental developments through efforts created at home. It had one similarity to Trump's plan in highlighting the importance of strong infrastructure, which is needed as the American Society of Civil Engineers gave the US a D+ in its 2017 Infrastructure Report Card. America's infrastructure ranks poorly from its aging structures, lack of investment for maintenance and the lack of capacity growth for growing use and population and it is mentioned that investment should be double what Trump is planning which is actually a reduced investment to what it was previously (ASCE 2017).

A now archived version of the Obama Administration White House website was dedicated to debunking myths on climate change, which all three reasons envelop the premise used by the Trump administration for why environmental regulation does not work: that it hurts the economy and costs jobs, raises energy bills, and that it wages a war on coal (Zichal 2013). These myths will require systematic effort to debunk as they remained many of the causes of gridlock by

Congress in creating Obama's climate legacy to today. From inauguration to late August, the Environmental Defense Fund requested EPA publically divulge removed and modified webpages. There were over 1,900 climate related educational links covering effects to special groups and state by state effects, including many others lost in the website transition to the new Administration (Stein 2017).

February, Natural Resources Conservation Service, a USDA unit, exchanged emails inquiring what appropriate language has replaced 'carbon emissions and climate change' to more accurately align with Administration priorities. Bianca Moebius-Clune, Director of the Soil Health Division, said to avoid "Climate Change" and use "Weather Extremes", "Climate Change Adaptation" to "Resilience to Weather Events", "Reduce Greenhouse Gases" or "Sequester Carbon" to "Build Soil Organic Matter or nutrient use efficiency". She mentions the modeling won't change – "just how we talk about it", diminishing scientific integrity by refusing to use the common terminology for the idea to be politically correct (Moebius-Clune and NRCS 2017). Either by removing or covering up the science, it loses its ground as a central mission of America's national laboratories, the mission becomes reactionary, dismissing the need for scientific inquiry and shifting focus to costs incurred. We must rely on snapshots of the EPA's website during the Obama era to learn about climate change as an issue and educational tool for website-goers.

There are several environmental executive orders (EOs) throughout history, and many written by Obama that experts say are weaved to create difficulty from Trump to rescind all of them. However, a look at Trump's March 2017 EO seems to do just that. Obama's most written about EOs include ones from 2009 and 2013. Obama's October 5, 2009 Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance) which set to reduce emissions

across federal agencies through specific goals and measurable targets. It made it so the Interagency Climate Change Adaptation Task Force led by the Council on Environmental Quality and the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration (NOAA) were involved in tribe, local and state stakeholders for coordination in adding resiliency (Obama 2009). It is a twenty section change of protocols from energy, water, agency buildings, carbon accounting and sequestration, car fleet etc. to set an example to others.

His 2013 Executive Order "Preparing the United States for the Impacts of Climate Change" required agencies to assess how they would be impacted by the risks of climate change in regards to their ability to accomplish missions, operations, and programs (Obama 2013). It required the heads of "Departments of Defense, the Interior, and Agriculture, the Environmental Protection Agency, NOAA, the Federal Emergency Management Agency, the Army Corps of Engineers, and other agencies as recommended by the Council" to "...work with the Chair of Council of Environmental Quality and the Director of the Office of Management and Budget (OMB)" to collaborate on appropriations for the nation's defenses to climate change post Hurricane Sandy as Obama was concerned about the rise of extreme events. Thirty agencies designed a plan to divert grants and technical expertise, as well as how to better facilitate between agencies to disaster stricken areas. It served to protect America's carbon sinks, foster climate resilience lands and waters, restore infrastructure to modern use, and better manage natural resources (Council on Climate Preparedness 2014 14). The Executive Order had broad intentions to remove barriers to climate investment and to reform existing policies that may, even unintentionally, impact the environment. It resulted in an inventory of the state of natural ecosystems across the country through partnerships in hopes of informing

marginalized populations that will have drastically less time to adapt to climate change than other members of society (Council on Climate Preparedness 2014 58).

3.2 Trump

Trump's March 28th Executive Order 13783 for Promoting Energy Independence

and Economic Growth sought to undo many of Obama's regulations that were

thought to impede developments for energy independence with the vast amount of

resources at home. This included a review on his Clean Power Plan carried out by

the EPA. Unlike Obama's order for agencies to review their existing regulations for

protocols that would increase emissions or inhibit the growth of renewables, Trump

supports a review of regulations for those that impede domestic production of oil,

coal, nuclear energy, and natural gas. The Executive Order comes with a

rescindment of the following:

- Executive Order 13653 Preparing the United States for the Impacts of Climate Change (2013)
- The Presidential Memorandum of June 25, 2013, Power Sector Carbon Pollution Standards
- The Presidential Memorandum of November 3, 2015, Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment
- The Presidential Memorandum of September 21, 2016, Climate Change and National Security
- The Report of the Executive Office of the President of June 2013, The President's Climate Action Plan
- The Report of the Executive Office of the President of March 2014, Climate Action Plan Strategy to Reduce Methane Emissions
- The Interagency Working Group on Social Cost of Greenhouse Gases (IWG), is to be disbanded, and the following documents issued by the IWG shall be withdrawn as no longer representative of governmental policy
- As well as the requirements for agencies to terminate activities related to any Obama's above executive orders

The reports, executive orders and memorandums all have climate as a commonality,

and although there is a history of current presidents overturning the past

administration's executive orders, especially of a different partisanship, this is an

extreme level of rollback of a single issue. Trump has used stalling, delaying and reviewing environmental protection as a common strategy which benefits corporations and energy suppliers from current investment. Across agencies, this has been done but Environmental and Energy categorized regulations make up the majority compared with Healthcare & Food & Education, Transportation, Worker Safety, Consumer Protection & Finance, Agriculture and lastly, Immigration (McQuaid 2017). From his first day in office to mid-July, 16 regulations were delayed, some indefinitely. Some of those include a reconsideration of emission standards on the oil and gas sector, postponement of effluent limitations of steam electric power generating sources, and delayed indefinitely the civil penalties to exceeding CAFE standards (McQuaid 2017). While some of those may be expensive, ExxonMobil predicts US average new car fuel economy to be lowest compared to Japan, the EU, importantly, both China and India separately, and the rest of the world, in decreasing order but added fuel efficiency is the cheapest method of eliminating a ton of CO2 (ExxonMobil 2017). I say this with reservation as ExxonMobil is under a class action trial for a discontinuity in message between climate change supporting findings since the early 1970's to the intentional hiding and watering down of their findings to the public, with approval from Tillerson in some later cases (Supran and Oreskes 2017, Attorney General of the State of New York v. PWC and ExxonMobil 2017).

Neither Trump nor Pruitt has shown support for any airborne toxin emitted and is eager to rescind carbon dioxide, methane, mercury and ozone standards in place. A letter to Pruitt in March from 11 Republican Attorney Generals and Governors request the Methane Rule be withdrawn as there is no specific methane endangerment finding, twice calling the Obama-era regulations onerous (Paxton *et al.* 2017). Pruitt wrote a letter and issued a stay or "halt" for emissions standards on

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new and modified oil and gas sources on April 18th on behalf of petitioners American Petroleum Institute, Texas Oil and Gas Association, Oklahoma Independent Petroleum Association and GPA Midstream Association (Pruitt 18 April 2017). The day after Pruitt's letter, the GPA Midstream Assoc. CEO created a news statement applauding the reconsideration of the methane rule which will allow them "to defer several thousands of dollars...on development of monitoring plans, purchase of monitoring equipment, and conducting initial monitoring surveys" while mentioning nothing about their commitment to protecting human health (GPA Midstream Comments 2017). After, Pruitt was found unauthorized to offer a stay to the methane rule for reasoning that industry groups didn't have long enough to object to provisions, costs were not considered strongly enough and an engineer's sign of approval was missing on parts. This was dismissed for being "arbitrary and capricious" and needed replacement if this form of the methane rule were to be rescinded (Clean Air Council et al. v. Pruitt and the EPA 2017). It is highly guestionable for an agency's administrator to try to push back so much of its own regulation, and further waters down rhetoric Trump has for claiming to uphold the current statues already in place. Likewise, Pruitt rejected a bid to ban for chlorpyrifos, annually sprayed in the amounts of 5 million pounds on corn, soybeans and other produce but has been banned by the EPA for household use since 2000. Pruitt's statement on the matter was in favor of farmer independence, "By reversing the previous Administration's steps to ban one of the most widely used pesticides in the world, we are returning to using sound science in decision-making – rather than predetermined results." (Pruitt 29 March 2017). But the results aren't predetermined; in 2015, Obama proposed to restrict all pesticide use on food much in support the growing body of research against chlorpyrifos, much done by the EPA in 2014, 2015,

and 2016 with increasing evidence of its risk, that determined it was harmful to children's development (Britton et al. 2016). The American Academy for Pediatrics wrote an alarming letter disparaging Pruitt's decision for being imprudent on exposure linked to "neurobehavioral and cognitive defects like lower IQs, autism, and attention deficit disorders." (Stein and Cook 2017). The EPA website states it will review the insecticide again until 2022 while also providing competing information finding that exposed water is unsafe and further concentration exposure could be researched but for now it is in use. Dow Chemicals, the producer of chlorpyrifos, has great political influence with one of the largest lobbying budgets and whose CEO was a part of the small group that stood with Trump in the signing of a pesticide regulation rescinding executive order (Kroh 2017). Dow was barred for five years in India, ending in 2015, for bribing officials to use their brand of chlorpyrifos while they tried to find new markets when the US teetered on its regulation (Rosenfeld and Feng 2011). At least since the early 1990's, the company has been criticized for its use of advertising, responses to poisoning, and insistence that the chemical is acceptable for human and environmental use (Schneiderman 2003).

Chapter 4 - Budget

Trump's priorities as found on the White House website include a restructure of America's energy plan, investment in the US Military against terrorist threats, domestic job creation, a \$1 trillion infrastructure investment, among others. The stronghold of Trump's message is American job creation and protection along with economic growth in a few choice sectors supported by contractionary spending except for the cases of the Departments of Defense, Homeland Security, and Veteran's Affairs (FY18). The New York Times compiled budgets, adjusted for inflation, since the Carter Administration through datasets on the White House Office of Management and Budget, Congressional Budget Office and the Center on Budget and Policy Priorities. This simple analysis looks at the numerical, although adjusted, spending which obviously keeps the historical narrative of environmental and economic needs at that time out of context. For example, the 2009 stimulus package created a spending bubble for what otherwise would appear as dramatic increases from the previous budget (Aisch and Parlapiano 2017).

The overall discretionary spending under Trump is only 1% lower than the 2017 FY's and about 27% of the total budget although volatility between programs reflect more crippling cuts (Trump and Mulvaney 2017). The 2018 Fiscal Year reflects Agriculture decreasing 21%, as well as decreases in Commerce 16%, Health and Human Services 18%, Education 14% among eight other agencies (Trump and Mulvaney 2017 50). The EPA represents the largest cut at 31% of its prior year's budget which has had a relatively stable budget around \$8 billion albeit a less stable workforce in recent years (EPA Budget and Spending 2017). This year's amount equals \$5.7 billion or about \$18 per American per year and is a drop in the bucket of the \$462 billion proposed nondefense discretionary budget (Trump and Mulvaney

2017). Trump's Blueprint also doesn't hide a 3,200 estimated fewer positions there while no other agencies' budget summary details their employment cuts and instead focuses on what the agency will still be able to accomplish under said budget cut (Trump and Mulvaney 2017 41). Many agencies haven't seen these budgetary changes in decades including the EPA now operating at its lowest budget in its almost fifty-year history (Aisch and Parlapiano 2017). The EPA already had the lowest budget of any major department in Obama's last budgetary year of 2017 and now Trump's 2018 (OMB Outlays by Agency 2016). Resultantly, the EPA will not be able to continue many programs that retrofit diesel engine exhausts, support jobs in various geographic areas like the Puget Sound and improve living conditions in Alaska. The EPA's Office of Research and Development, responsible for most of agency's scientific research, will now receive \$250 million, down from \$488 million (Lehmann and Holden 2017).

The Budget is predatory towards the social programs treasured by Americans, far many than only environmental ones. There are also few cuts for more proeconomic agencies in an effort to decrease the deficit without raising taxes and gouge federal spending. For instance, the Economic Development Administration and the Manufacturing Extension Project are being leaned out or given responsibility to a non-federal body for the reason of duplicate programs. Although, like Executive Orders across presidencies, the names provided for workforces, memoranda, etc. all sound societally beneficial but require further analysis on what the department will set to achieve. Rhetoric again can be shown throughout the budgetary document to be self-aggrandizing, Trump's actions are successes and Obama's are hard failures like many at-odds politicians, however his reality show rhetoric takes place of diplomacy which confuses the lines of truth or the scale of the impact an event has.

Trump's Defense budget, which sees the greatest increase, does not remain much higher than Obama's, from \$601 billion (2017) to \$639 billion, which will be spent to rebuild "President Obama's military depletion" (FY 2017 Summary Tables 120 and Trump and Mulvaney 2017 15).

Changes in income statements do not represent how agencies can absorb cuts, meaning contracts can potentially survive some level of budget cuts through creative tax codes, more efficient spending, and in kind donations. Profligate spending is undoubtedly rampant with taxpayer funds, with detailed analysis, an accountant can surely find fraudulent or wasteful spending in all federal agencies. Inefficient examples including FEMA's purposed melting of \$9 million of ice after the 2008 hurricanes periodically attract attention to remind us about the fleeting nature of money and a certain lack of prudence for taxpayer money given the quantities available for the taking (DHS OIG 2009). Of course in the aggregate, resiliency and preparedness spending will be a combination of under and over spending and for this example, it is better to have been prepared for food safety disasters than without, but profligate spending is rarely so innocuous. Today's media sensation is about exorbitant administrative travel costs. Pruitt is under hot water for racking \$60,000 in travel costs over a limited time but is less in sight to the exposé released at the same time of HHS Secretary's \$400,000 in travel when others in the Department flew commercial (Grassley 2017). Unfortunately, politicians may be quick to criticize agency missions as decentral to American needs and preach for a balance budget while driving up operating expenses. Inefficient spending may be a fraction of the absolute budget, but it goes relatively unpunished. And so, perhaps it is reasonable given a misalignment of fiscal reality and desires and the nonlegally binding nature of a presidential budget, that an agency's increase or decrease in

budget symbolizes America's priorities for the ethos and economic reputation (since that is top issue amongst most Americans) of that agency. Especially as the reliability of how the budget is expected to be spent may not actually adhere. To compare the last US Government Budget written by President Obama there is a stark difference to Trump's imbalance of positioning in oversimplifying complex issues to appeal to the emotions through Patriotism without much mention for other issues than those mentioned in the Introduction. Mention of climate change's threats makes Obama's second page of the 180 page Budget document as well as a commitment to STEM education and takes a medium to long term approach in how to fulfill highly skilled employment (OMB and Obama 2016). The only time "climate" comes up in Trump and Mick Mulvaney's, the Director of the Office of Management and Budget, Budget Blueprint is in places where he says he is completely defunding UN projects for Climate and energy programs. The word doesn't come up once in the Budget of the US Government for FY18. The language of Obama's document does not ignore our incomplete understanding of climate change and directs relevant administration to continue research for resilience of various risks instead of devaluing the concept completely (Obama EO 2013). This mindset is important as governmental finances can promote as much bias as statistics can, which has added to the issue of unreliable information and a mistrusted reporting environment. Meaning, budgets give incomplete information and the intentions behind them are needed. Obama's last budgetary plan marked the 'tens of millions saved on energy bills' by the promotion of clean energy. While the Trump plan highlights a \$100 million savings from "discontinues funding for the Clean Power Plan, international climate change programs, climate change research and partnership programs, and related efforts" (Blueprint 2017 47). Biases like these rationalize Trump, Zinke, and

Pruitt's arguments for the Paris Agreement only amounting to a .2 degrees C change once fully implemented, quoting a study by MIT which MIT later reported was a misused figure. Moreover, it demonstrates how leaders find it suitable that minority studies can block consensus findings to their advantage and it is a puzzling use of science (MIT 2017). The same leaders are unmoved by a narrative that most scientists agree in humans' role in climate change, instead, some turning that message into a "scientific cult". This requires a narrative change towards debunking today's myths by climate scientists if they want to influence current political officials although it still might not matter. Climate change outlier and Princeton retired physics professor, Will Happer, has become a repeated scientific voice by Fox News, with reporters lauding his descriptions in support of their bias, that now is a time of low carbon presence in the atmosphere and that the climate has always changed (Giambia 2017). His scientific beliefs are greatly disagreed upon by Scientist Bill Nye as well as the 97% scientific community who finds fundamental issues with his beliefs of carbon dioxide emissions for being nonpolluting, including the rate at which they are rising (CNN Nye, Happer 2017). Happer has spoken with the president and was believed to have been in the running for Scientific Advisor (Grant 2017).

Environmental regulation can be monetized by the benefits or costs incurred depending on political agenda and it is up to institutions to protect their analysis from misuse by media, although the media should be held to objectively report. Through Trump's Budget Blueprint and repeated disdain of the EPA, an elimination of Federal investment in State and Local environmental activities outside of the EPA's statutory requirements is to be expected to severely limit the level of EPA influence they had enjoyed through history and especially under Obama's support. Trump's twin goals of bringing back manufacturing jobs to the US and environmental deregulation will

reverse two large reasons the US has enjoyed a more moderate level of pollution than it would have otherwise. The remaining reason believed to be a factor of why wealth and pollution can be inversely related - for example, national emissions in aggregate have decreased 70% with GDP increasing over 200% since 1970 - is one Trump may be able to benefit on its coattails from; as productivity increases (politically favorable), emissions decrease per unit in economies of scale (EPA 2017; Shapiro and Walker 2015).

A leaked memorandum from the Chief Financial Officer of the EPA, David Bloom, outlined how the EPA's budget will be affected which is now reported in the EPA's Budget Blueprint. Incoming funds would include \$2.3 billion for Clean Water State Revolving Funds, \$20 million for Water Infrastructure, and \$75 million for Brownfields grants. But is it enough to fulfill Trump's emphasis on how Americans will continue to have clean air and water as these are not reflected in the budget; Water Quality Research is defunded, drinking water programs receive only a 4% increase, research for safe water and the overall Clean Air Program each drop by over \$30 million (EPA 2017). It is yet to be determined how the Blueprint, in his words, 'will eliminate Federal investment in State and Local environmental activities outside statutory requirements' but provide the 'clean air and clean water for all of our citizens' detailed in his executive order with a simplified mission of the EPA. Simply, greater than just money flows, policy is creating the same questions; a rejection of the Clean Power Plan signifies a lack of concern for clean water and air.

Eliminated programs include Environmental Education, Regional Science and Technology, Science Policy and Biotechnology, Environmental Justice, and defunds the Clean Air Allowance Trading Program and Child and Sensitive Populations agency coordination by \$2m each. Half of the Categorical Grants Budget would be

eliminated from \$1.08 billion to \$597 million including those for Beach Protection, Nonpoint Sources, Pollution Prevention, Radon, and Lead programs to be made as state responsibilities. A report compiling how states are supposed to operate more programs on a nearly fixed budget would be a helpful appendix for the reader to know how the responsibilities will be transferred to states. Half of eliminated programs are reasoned by intentions to increase state leadership and more than 50 EPA programs will be defunded and therefore eliminated (Trump and Mulvaney 2017). If done correctly with focus, a reduction of programs could prove that within the EPA if everything is prioritized, nothing is prioritized but the budget rhetoric forgets that and lacks a strategy as to what the EPA will do, rather than all that it is detailed it won't do. Trump's budget mentions an increase to state and local grant outlays by 2.4% of 2017's budget which will mostly be spent on healthcare; States depend on federal outlays in varying degrees from Mississippi whose fiscal situation depends 41% on grants to North Dakota at 17% while environmental expenditures per state vary tremendously too from \$13 million (Oklahoma) to \$9 billion (California) (Leiseca 2016; State Budget Websites 2016). Individual states already operate in different ways through requiring or not requiring a balanced budget, having a budget at all (Illinois recently for two years), cash flows coming and going as populations shift and age, and other socioeconomic needs. Most states are running insolvent on cash unable to robustly fund their pension and short or long term liabilities leaving little room for picking up federal expectations (Norcross and Gonzalez 2015).

It's not just at the EPA or the Department of the Interior that have contributed to climate research, but other agencies such as Agriculture, NOAA, Transportation, the Weather Service, Small Business Association and FEMA will have to reduce mitigation spending under budget cuts. It is well known that preventative spending

saves four times what they would have to spend after disaster strikes (FEMA 2008). August 2017's Hurricane Harvey has been estimated to be one of the most expensive American natural disasters and could be a substantive drain of discretionary funds. After Irma and Maria too, Trump mentioned in Puerto Rico how the event relief, basic supplies, and clean up shocked the Budget which is a lesson on how a 3.4 million person island can require great emergency management spending. The EPA alone spent over \$400 million sampling air and hazardous waste, collecting asbestos fibers, infrastructure assessment and demolition safety, among other environmental health assessment related to Hurricane Katrina (GAO 2007). Since Katrina, the federal government has picked up a greater share of rebuilding costs through aid packages. This leads to taxpayer expenditures that are usually in some part balanced by cuts to other social programs to avoid unpopular debt ceiling increases. The Budget Blueprint states FEMA's Pre-Disaster Mitigation Grant Program will be reduced or eliminated by over half a billion dollars for reason that it may duplicate other work done by the same department. Homeland Security (Trump 2017). However a hurricane season can quickly sweep these agencies out of budget leading to IOUs or slowdowns during relief as fund appropriation wait approval. Since 2011, there have been at least eight, billion-dollar natural disaster events to strike the US annually from freezes to wildfires and droughts to flooding, more on average than the period from 1980-2007 (NOAA 2017). Fifteen have occurred from 2017's start through September, a record setting pace (NOAA NCEI 2017). FEMA funding is expected to be around \$15.5 billion for fiscal year 2018 which equals a 3% decrease from 2017, luckily as some recent hurricane seasons can draw over \$100 billion, FEMA's Disaster Recover Fund is often replenished at times of need (Kruzel 2017).

Leadership within the Department of Homeland Security has been rearranged after the White House Chief of Staff, Reince Priebus, was replaced by enacted Secretary of Homeland Security for six months, John Kelly. Kelly has a long military history, uncommon to the past Chiefs of Staff over four decades and because the position is president appointed without Senate confirmation, it shows Trump's affinity for strong borders (Gramlich 2017). For now, the position for DHS has an acting Secretary. Homeland Security's allocation for Science and Technology is to decline almost by a fifth (DHS 2017). The Science and Technology Program there turns its attention to cybersecurity and keeping up to date with explosive technologies that could be used against America. The 2015 Strategic Plan which was estimated to carry the directive to 2019, prioritized Resiliency collaboration with FEMA for modelling natural disaster risks as they increase. They also have laboratories for Chemical Security Analysis and Biodefense Analysis which aim to contain contamination and terrorism which should appeal to the agenda. The report even states these programs are not duplicative and should be prioritized through federal support, even before the Administration used that language was turned to be a main reason for program defunding in general (SP 2015-2019 2015 20). Resilience has been a term in DHS's vocabulary for a long time but climate change has been substituted for terms like resilience to catastrophic natural disasters and an ability to adapt to changing conditions. The agency had once partnered with the Department of Defense to call climate change a national security issue (DHS CAP 2013). The DoD Secretary, James Mattis, has issued a couple statements realizing the relationship between climate change and national security including new oceanic routes to the multi-continent interested Arctic region, rising sea levels and also increased migration from burgeoning threats (Saez 2017). As General of the US

Marines and Commander of the US Joint Forces Command, he signed off in the forward of a document including climate change and natural disasters as impacting trends to the Joint Forces (Joint Operating Environment 2010). The current FEMA leadership is commended, with an administrator that has proper experience with FEMA and Alabama and Georgia's disaster units that earned him a 95-4 confirmation, it shows that mobilization and action does not have to be political in nature with mitigation as a potentially bipartisan issue (DHS Brock Long 2017).

Chapter 5 – The Clean Power Plan and State responsibility

5.1 Energy trends

The 2016 US electricity generation mix for 2016 was 33% natural gas, 30% coal, 20% nuclear, and 15% renewables (EIA 18 April 2017). Power plants that burn fossil fuels, and geothermal power plants, account for nearly one third to 40% of total U.S. energy-related carbon dioxide emissions (Obama CAP 2013; EIA Elec. Explained 2016). American dependence on fossil fuels has made for a lengthy energy transition; eighty percent of energy consumption from fossil fuels has been the American norm for 100 years. For electricity its less, at about 65% but is slated to reduce to 53% by 2040 (Mobilla 2017; USEER 2017 21). Total energy CO2 emissions peaked in 2005-2006 and have presently declined by 13% and are trended to further decrease although predictions are volatile from oil prices, economic growth, and level of automation and technology (Lindstrom 2017). Some analysts say there could be an optimistic view in the trends of America's falling emissions with or without the CPP. The Plan itself says many States are already making the transition to take advantage of falling prices which is supported by energy reports and market trends. Some making the investment today also see the downsides of renewables as remote, less predictable and more expensive than other sources (EIA 2017). The CPP aspires to reduce 2030's emissions by 32% of 2005's when at 2016's end, carbon dioxide emissions by the energy sector were already 24.6% lower than 2005 levels leading to very plausible achievement of the CPP in ten years (EIA Monthly Energy Review 2017). Though, the EIA's 2017 Annual Energy Outlook is written in the context of regulations prior to October 2016 meaning both Trump and Obama's policies are out of context and need to be analyzed to see if they are impactful enough to sway overall trends to the energy mix. The EIA's

analysis is mandated for neutrality though they have self-professed their pessimistic renewables view which has brought media attention (Wind and Solar Data and Projections from EIA 2016; Roberts 2016). Objective CPP studies are difficult to find with many pro-business analyses finding net losses and vice versa for proenvironment (Holden *et al.* 2017).

5.2 Opposition to the CPP

Obama's EPA was often criticized by the Right as overstepping their boundaries and costing businesses too much in compliance. This has led to litigation over what the EPA has jurisdiction over and in a force to limit what that may be, its past activities have been labeled as 'coercive federalism' that will be no more in Trump's EPA (Pruitt 2017). With the Clean Power Plan, the DC Circuit has been looking over sections of the Clean Air Act including Hazardous Air Pollutants and Standards of Performance for Stationary Sources to see if the EPA is overreaching or disincentivizing coal-powered plants and restructuring the energy sector. It is an act some industries think is too oppressive, and Trump whose executive order to review the Clean Power Plan was on the basis to remove barriers that "unduly burden the development of U.S. energy resources beyond what is necessary to protect the public interest or otherwise comply with the law" (Review of the Clean Power Plan 2017). The CPP was first legally challenged in 2014, a year before implementation and criticized for being premature, which led to three other challenges in an attempt to block it, only the last wasn't rejected by Courts (Murray Energy Co. v. EPA 2014, State of OK and OK Department of Environmental Quality v. McCarthy and EPA 2015, Murray Energy Co. v. EPA 2015, State of WV et al. v. EPA et al. 2015). Where Pruitt acted as Plaintiff, the CPP was argued to be a 'bogus' use of authority,

irrespective of constitutional given federal powers, and an enormous waste of governmental resources. It was argued that the CPP would require many power plants to shut down and state by state action is not legal in already established national emissions by the Clean Air Act for the same emitting source (EME Homer *City v. EPA* 2014). In 2016, the Supreme Court ordered a stay on the Clean Power Plan to review its legality and one year later in a letter by Pruitt, the State governors were informed that no spending is expected to meet accordance with the CPP during the supposed 18-month halt that began the past February (Pruitt 30 March 2017). West Virginia et al. v. EPA et al. is a 26 state and 100 party case against the Clean Power Plan with 18 states and also many cities, scientists, and environmental NGOs on the supporting side of the EPA as intervenors (EDF 2017). Challengers say it requires too significant changes to too much of the economy on grounds outside the EPA's expertise. More specifically, that carbon emissions from power plants are already regulated from the Clean Air Act, leading to double regulation of the plants most affected: fossil fuel-fired electric steam generating units and NGCC units. Unlike the addition of scrubbers to power plants to remove sulfur dioxide, carbon dioxide does not currently have a cost effective removal process and requires energy substitutions (NAS 2015). While the Plan did allow the state to adopt a strategy of their own and not follow the 'building blocks' plan necessarily, the EPA had the authority to prescribe a plan to the state that would meet the NAAQS if theirs is found unsatisfactory; a federal plan sample was uploaded along with the CPP. Therefore, the issues were mostly related to state authority and energy shifts, the CAA, and constitutional powers. It is important how the courts will see this case: under the standard *Chevron* doctrine which is a broad analysis deferring the agency decision to the "agency's interpretation of an ambiguous statute if the agency's

interpretation is reasonable" where some in the court want "clear congressional" authorization" because the CPP is so consequential. A 2017 document written by legislative attorneys states that the EPA is not intruding on FERC power by the Federal Power Act because it fails to regulate on electricity as it is sold (Tsang and Wyatt 2017) even if it will indirectly do so through limiting pollution. It is striking how different one agency's message becomes during an administration change: the EPA at first rebuked the Supreme Court's decision claiming the CPP is based on "strong legal and technical foundations" allowing states time to adjust and that "the CAA clearly delegates to EPA authority to fill gaps in the Act concerning the appropriate amount of pollution reduction that should be obtained from long-regulated major pollution sources" (Tsang and Wyatt 2017; Earnest 2016). But today, the EPA has proposed to repeal the CPP, as it "appears inconsistent with the CAA" and is said to provide its first replacement fall 2017 (EPA Press 10 Oct. 2017). The web address, epa.gov/cleanpowerplan, now redirects to the activities done in support of and the benefits to be reaped by Trump's Energy Independence Executive Order, as if the Clean Power Plan wouldn't have provided any benefit as they aren't written on the EPA's website. Not only that but the redirected page does not link to the Clean Power Plan itself, nor a summary, so readers can be informed on its contents.

The CPP could be the next evolution to the CAA which was written to evolve with time and many Public Health Officials praise the EPA and CAA for having benefits far outweighing the costs of its regulation. The Clean Air Act alone outweighs its costs by a factor of 30:1 (EPA Office of Air and Radiation 2011). The risks avoided by clean air and water adds extra years of life to citizens and delays morbidity, while the monetary and social costs assumed are from the worst case scenario to lend a conservative assessment. These costs can often be

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sensationalized in media leading to many thinking that the EPA does more harm than good (Bartik 2015). The co-benefits alone from the Clean Power Plan were found to be \$29 billion for mortality, infections, and hospital admissions reductions with 95% confidence or about \$17 billion more than the costs. This is on top of all the climate related benefits including ocean acidification that aren't formally monetized here, but amount to many more billion (Buonocore et al. 2016). Driscoll et al. found that carbon standards to curb global climate change provide immediate local and regional health benefits. This is supported by the Buonocore study that found the southwest, coalmining regions, and northeast to have the highest health co-benefits from the CPP. The CPP should be carried out stringently and flexibly with demandside energy efficiency towards compliance for the greatest health benefit (Driscoll et al. 2015). An increasing tenet of economics is to promote value of non-monetary costs and benefits for a complete analysis of society's impact from policy implementation. Although the academic discipline of economics is becoming more wholesome, it is stymied by the Administration's opportune decision to retain traditional accounting valuation to undermine the CPP, Paris Agreement and others.

It is unclear if many electric generating units have moved forward with the Clean Power Plan, as different reporters take aims at whether the Plan will easily be disassembled or require a lengthy legal process. States were supposed to submit plans seven months after it was stayed but between the Plan's creation and stay, States may have built a plan with the recommendations and expertise of Obama's EPA (CPP 2015).

Post review, on October 9th, a Pruitt-written draft of the formal proposal for the CPP's future was released. It stated that the EPA is proposing to repeal the CPP in its entirety for exceeding EPA's statutory authority. In a sentence likely to be

opposed, the CPP "is not in the interests of the EPA, or in accord with its mission of environmental protection consistent with the rule of law... receiving or passing judgement on state plans" (EPA Repeal 2017).

In research of the 27 states challenging the CPP in WV v. EPA (26 legally, one as opposing amicus curiae), all 27 could meet the EPA's requirements without making further investments in the Plan than what are already state planned for or by taking advantage of the incremental action plan by continuing to build renewables at the rate of recent past or engaging in interstate trading. Three scenarios were analyzed and all 27 states will meet compliance at least through the first period, or until 2024 with the entire Plan timeline suggested to be reasonable (Bradley 2015). The level of opposition at times is difficult to understand given the EPA's lack of approach for CPP compliance - leaving it for states to decide compliance mechanisms without mandating that states build more renewable energy plants or other specifics (Roberts 2015). Even in West Virginia's Fossil Fuel Opportunities Update from Fall 2017, it is projected that coal production and employment have plateaued and will decline steadily for the next couple decades. West Virginia is finding opportunities in natural gas, "If these natural gas plants [five plants slated to open by 2021] move forward as expected, they would replace more than threequarters of the coal-fired capacity retired since 2012" (Bowden and Christiadi 2017). The West Virginian Department of Commerce report states that West Virginia may be impacted by the CPP as new coal power plants will probably not be built in the near future but the report qualifies this by saying the impact will not be devastating because of the substitution to natural gas. With some debate, it could have been plausible for Obama to not have been at odds with the coal industry, appeasing coal miners, and to have waited its maturation out to reach his climate goals, which

experts agree is not a far off event. The process of reducing coal has extended past his presidential term anyway so he still could have created the climate legacy he wanted without emboldening a strong War on Industry mentality for opponents. The creation of an enemy force has strong effects outside a few policies, voters will and had taken solace in Trump's representation of energy providers and statements on 'job-killing regulation'. It has led to a 'rebranding' of the EPA, in less callous terms, that began before Pruitt came in office, it was his positioning in striking against Obama's movement that sparked Trump's interest when looking for someone to disband the agency (Mooney and Rein 2017). With Pruitt's lack of related experience to heading the EPA outside legal and constitutional understanding, Trump could have nominated him for any federal position as he would have been equally qualified or disqualified to run. It shows a commitment to wanting the EPA to be dismantled the most, out of the many federal programs Trump opposes.

5.3 Delegating responsibilities

Sovacool declares that it is not surprising that the American public is not overly sympathetic to energy developments as many do not understand the upstream supply chain before it is available for consumption. Energy is a consumer good phenomenon unlike many in the following ways: it goes from a dirty product to perceived as clean in everyday uses, the public has a generally poor understanding of greenhouse gases, how global warming is measured, and the importance of the difference between weather and climate trends (Sovacool 2009). People who have not experienced long periods without on-demand energy availability leads to users taking electricity, science and technology for granted. Trump, while often disparaged with low approval ratings, also represents many American values through history,

including what Sovacool would agree are, hostilities towards the environment for being at odds with growing consumerism and economic growth which has been an American narrative since industrialization. This longstanding history of values explains why windmills are a symbol of cultural pride in Denmark but are chided as inefficient in America (2009).

Pew Research found that 58% of Republicans find environmental laws and regulations cost too many jobs and hurt the economy, a growing share, while 17% of Democrats agree. It hasn't always been like that, in the early 1990's Republicans and Democrats answered that with a much smaller gap along with for the question about if the country should do whatever it takes to protect the environment (2017). The two most important values to Americans involve reducing terrorism and improving the economy, which changes in priority to involve the environment depending on age and political party. Those that agree with environmentalism as an important priority do not proportionately make changes to their routines to act upon the priority they believe others should make. Therefore, it is a question of who should take on the priority of environmental protection when it is enough of a public concern but with many competing priorities. Allocating responsibilities to the states is plausible for point sources of pollution or conservation. However many recall state responsibilities unable to reduce mercury or other nonpoint traveling pollutants as jurisdiction complicates abatement across state lines. The airborne mercury emissions from fossil fuel power plants influenced the EPA to legislate through the Mercury and Air Toxics Standards (MATS) in 2011 to prevent cancer, IQ loss, neurological damage, heart disease, lung disease and premature death especially in vulnerable populations (EPA 2011). Mercury is a known human health risk only alike to carbon dioxide in this way beginning in 2009 when it was officially considered

hazardous to human health by means of climate change with over 200 pages of technicalities of why it should be regulated (EPA 2009). Trump issued an order in April 2017 for the EPA to review the rule, one that is expected to be dismissed as new findings would have to show mercury is not hazardous. It is possible that meeting the current agenda may take precedent over human health in the EPA's reasoning to include the sentence: "The CAA Complements EPA's inherent authority to reconsider prior rulemakings by providing the Agency with broad authority to prescribe regulations as necessary to carry out the Administrator's authorized functions under the statute." (Gelber 2017). Pruitt and others had previously sued on the legality of MATS under reasoning similar to the case law mentioned in the 2012 case, that 1987 and 1975 studies found that ambient mercury is not significantly increased by EGUs, therefore finding the benefits of the regulation heavily outweighed by costs (Murray Energy Co v. EPA 2016; Worth 2015). Many studies now refute this and the EPA website on MATS still highlights the billions in health benefits attributable to regulating mercury but a serious dedication to leanness may require reanalysis to follow Trump's order.

Like mercury, carbon dioxide stocks will no doubt impair health due to temperature related deaths, waterborne disease, extreme events, and vector borne illness but it is still cast down by many who don't want to believe so (Crimmins *et al.* 2016). However, in 2007 it was ruled that carbon dioxide and four other greenhouse gases are indeed air pollutants hazardous to health that need mandating by the EPA starting in 2009, despite political insistence that the scientific link between climate change and emissions were not strong enough to suggest relation (*Massachusetts v. EPA* 2007). EPA's administrative ruling of this under the Endangerment Finding and the Cause or Contribute Finding that CO2 emission harms public health and welfare

of future generations is not repeated in medical sources which view the chemical as mostly a simple asphyxiation only harmful in much higher concentration than what is current in the atmosphere or in toxic, confined work spaces (NLM 2017). A harmonization is needed between the EPA's previous scientific findings on the health impacts of carbon dioxide to the medical community's support of these findings. This is more divided than lead, mercury, and other toxins which are more medically conclusive.

The Mercury and Air Toxics Standards (MATS) regulation prevented 90 percent of mercury emitted into the air by power plants but was challenged by states and the National Mining Association (EPA MATS 2017). The EPA has a history with the Supreme Court in justifying their regulations on a cost-benefit basis and to what extent it should do so in public-health and environmentally sensitive situations as valuating life may be improper and was legally not required for EGUs after White Stallion Energy Center v. EPA (HLR 2015; Worth 2015). Before MATS went to the Supreme Court in 2012, in 1998, when challenged, the EPA found through the National Emissions Standards for Hazardous Air Pollutants that power plant regulation of mercury, and the added externality of other air pollutants, to be 'appropriate and necessary'. This legal language is intentionally broad and some argue that its vagueness can be swayed by the Supreme Court from being a politically-independent court to more partisan with some societal issues judged in 5-4 outcomes following ideological lines. Similar to today's Republican Senate majority, the Supreme Court has a 5-4 Republican to Democrat split which was enacted after the stalling of Obama's Democratic-leaning Justice pick by Republicans who believed the next president would be Republican (Dhlouy and Natter 2017). This was also the Supreme Court outcome for Michigan v. EPA (2015) which was a significant

environmental regulation case finding that the EPA needed to factor compliance costs to its analysis of power plant regulation (HLR 2015). The EPA does do financial analysis for the benefits of certain tonnage of a pollutant abated but in the case of power plant emission, ancillary benefits were questioned for being in the benefits analysis such as when mercury is regulated, other hazards are abated too and necessary for the benefits to outweigh the costs (EPA RIA 2017; EPA 2004). Both costs and benefits are difficult to gather in environmental circumstances where *Michigan* broadened the definition of costs, which are typically more easily calculable but affect a large number of industries and individuals. While benefits are amorphous or not as easily given an accounting amount for, and when reported, are targeted as quantifiably disagreeable (Clarke *et al.* 1998).

Like MATS, the major EPA policies adhere to transboundary issues, air and water and insecticides, and homogenize protocols for in situ hazardous pollution from solid waste. Classical economics and thinking suggests that any increase in price such as from environmental compliance will shift consumer preference to more competitively priced goods. Similar to the game theory dilemma present in Trump's argument for why America's abatement responsibilities do not hold up in face of other polluters China and India, other US states may identify a blame to other states not abating themselves. A game theory phenomenon that stifles all players' environmental action will lead to inaction so that some states can win over industry through attractive taxes or lax regulations as they do already. However, businesses would not prefer to have differing state environmental regulations in all the states they serve in and a race to the bottom in regulation does not have strong evidence. This concept of individual states racing to the bottom as questionable to seemingly untrue was communicated by a Professor of Environmental Economics at the

University of Central Florida with one year experience at the EPA's National Center for Environmental Economics. Brookings also found in many cases environmental regulation is not an increasing factor for location scouting decisions because there are relatively small changes from state to state, although capital costs for pollution reduction in the coal industry have historically been high (Graham 1998).

It is suggested that overall effects on unemployment should not be a substantial factor in the evaluation of environmental policy (Hafstead and Williams 2016) as it is not obvious that pollution abatement costs should be a major determinant of employment levels (Belova et al. 2015). The relationship between the EPA's reach and effects on business are widely studied. Morgenstern et al. (2002) found no economically or statistically significant loss to jobs due to labor substitutions and an inelastic demand for labor and services. In the long run, national unemployment remains a stable level (Bartik 2015). Becker et al. found environmental regulation's impact on market entry and exit to be the most affected business decision for small business while existing businesses effectively aren't at a cost disadvantage (2013). It is often argued that small businesses are disproportionately disadvantaged by regulation if related to requirements on capital intensive facilities remaining to be built, at least in the short run. The researchers mention a facet also supported by Trump through 'bring back American jobs' rhetoric, that much of the public discussion is about impacts on existing businesses, not potential businesses (2013). However the opposite, where stricter regulation fuels innovation is also said to be well researched after Michael Porter created his Porter Hypothesis in 1995 and has been revisited often over the past twenty years to find that innovation outcompetes regulation in market-based and performance ER (Peuckert 2014; Ambec et al. 2010). These methods are imperfect to

environmentalists who tout a license to pollute but with strong science requiring lengthy legal and technical procedures, it may be the best compromise (Biello 2010). The relationship between business innovation and environmental regulation can and has been measured by trends in research and development and newly filed patents but proves to be a difficult hypothesis to test from all avenues in the macroeconomy. Despite this, Trump's view of the EPA before and throughout his campaign has been that it inhibits economic growth and is wasteful although there are more credible and complex reasons companies might move abroad and bring previously American jobs with them. Market forces aid the several variables influencing which services and companies that shift their labor economy overseas much more than ER will. To improperly blame ER for other government generated loopholes related to having the second highest global corporate tax rate such as corporate inversions (McWeeney 2016). Obviously, Trump has gone after this as well by seeking to lower the corporate tax rate to 15% but his claim that the EPA is an agency worth dismembering bolsters the increasing partisanship the environmental movement and resultantly, the EPA is damaged from.

It is common to see the financially conservative Republican party assume environmental regulation to be expensive and burdensome to businesses that take on heavy compliance costs or face financial penalties. Trump's Budgetary Blueprint opens with a word on regulation including a decree that every new regulation must be met with a termination of two and that bringing a regulation to implementation must be costless, or aptly "be no greater than \$0" (Blueprint 2017 15). At the beginning of his presidency, he also alleged to remove 75% of government regulations or more mostly in a signal to the business environment as it would prove difficult to implement (Arnold 2017).

The Administration would support the thinking found in Adelman's 2014 research "that continued federal regulation is not warranted when emissions from industrial sources reach a level that is sufficiently low", which can be argued that it is in current times with improving airborne emissions in "both in relative and absolute terms". And also, "Once industrial sources account for a minor share of overall emissions...states should decide how to allocate emissions between sources in their jurisdiction". Urban and local authorities do tend to be more practical and less political in addressing their needs. The City of Miami Beach has been in headlines lately as an urban center in a Red state, geographically far from decision making in Tallahassee. The City and its Mayor Phillip Levine have been highly prudent in creating public works projects for sea level rise albeit a challenging force in persuading the state government to invest in this way (The Economist 2017). The issue with states acquiring environmental responsibility is they may not feel compelled to carry through an environmental agenda either, as in the case of Florida. There will be states that see the lack of federal support as an opportunity for competitive advantage or see the larger federal program as the model for which they should follow suit. Localities and urban areas must have sufficient resources to carry initiatives without state or federal support but problems could arise, such as state owned infrastructure failing in environmentally minded urban areas. States are supposed to oversee the daily operations of federal statutes though some say incentives for doing so are weak. However, Trump and Pruitt are highly supportive of this shift of federal power. It is often argued that the EPA was first created when states had the sovereignty to impose environmental protection until a federal body had to improve air and water quality by enacting a regulatory floor that the states could grow on top of. Before the EPA, states received federal support for air and

water quality but industrial wastewater was pervasive and air pollution had no supporting remedies in many cities (Origin of EPA 1992).

Much of what Trump is trying to roll back within the EPA is due to decades of a higher environmental quality Americans have enjoyed in part because of the EPA, but history will repeat itself if heavily rescinded. Carbon dioxide's effects to many at this time are similar to the once perplexing smog-causing automobile in the 1940s in Los Angeles, where critics pointed to a lack of scientific consensus and had a commitment to finding multivariate reasons for smog (Andreen 2012). The time taken to further prove causality to the dissenters protecting the automobile industry further exacerbated air quality. Climate change is treated in the same way with the same sentiments for disbelief used for minimizing effort at home. In all, the practice of state versus federal responsibility has had its times in history where state government and federal government have been effective for carrying out and enforcing environmental regulation. However, the EPA has been unable to implement much new legislation without states eager to delay the regulation making for bottlenecks in implementing a federal system.

Chapter 6 - Conclusion

While America is facing various societal problems with limited resources, tradeoffs must be made to reflect the majority of American voters' priorities and wellbeing for all. Perhaps various goals are not substitutes for one another and environmental advancement is not the enemy of economic recovery. While President Trump did not run on a single party platform, his use of catch phrases and repeated messages for a limited number of issues resonated with the change white working class Americans felt would better represent them. This type of focused message delivery worked in the same way when finding fault of his opponent, Hillary Clinton and her unauthorized emails sent on a private server; whereas Trump criticized by media from many policy promises and behavioral angles that each resonated less with undecided voters. The campaign season and general election can be analyzed to no end to understand the trends of American values and how the common aggravations with the status quo led to consoling in Donald Trump. Neither candidate ran on an environmental platform because to the majority of Americans, other issues are paramount in the short term. While Obama is remembered for having a vast environmental agenda, it may not align with major, common American values as pollers favored the 'environment' and 'global warming' by less than one percent and most preferring economic progression when asked "What would you say is the one most important problem you would like to see Obama and the Congress deal with next year?" in 2008 which is understandable post-recession, however the trend in mindset has lasted (Bricker 2012). National security, energy independence, and economic growth are environmental advocacy frames appealing to a larger range of the American population with clear opportunities for using an environmental agenda as a tool (Bricker 2012). Hillary Clinton's environmental agenda focused on
biodiversity, climate change mentioned in rallies of bluer states and renewable energy development (Clinton 2017). Her website does point to a message conflict of where she plays the middle ground to appeal to stakeholders from coal miners to environmentally minded millennials. More moderate speech did not make for a candidate winner in the 2016 election and Bricker's observation for an across-priority win-win for stakeholders might remain too incredulous to those with opposing long held beliefs. In reality and throughout this thesis, it should be possible to protect both interests to even a high degree but Trump's zero-sum game spoke to voters to aggregate a majority of electoral votes.

Trump is uninterested in climate science and furthermore has challenged regulations that belittle the scientific method and peer review research. The EPA website for Yosemite acknowledges the uncertainty involved in calculating the benefits and requires many inputs from population trends, human health studies and economic conditions to draw a figure comparable to more numeric costs. Twice reviewed by the National Research Council, the EPA's methodology has proven robust from the law of large numbers but may not properly reflect the uncertainty for the effects of climate change and how to use discount rates to reflect social costs (EPA SAB 2016). Trump takes solace in the measurable and certain, with system boundaries neatly within America's borders. Uncertainty is a cornerstone of science that American and International climate scientists and ecologists have dedicated objective study to understanding.

The federal government used to fund fundamental science to support objective understanding without a specific process or product to justify it and has been decreasing since the 1960s. Most agencies are gouging their scientific research including deep cuts at the National Institute of Health, NASA, NOAA and

the Department of Energy which certainly puts public health at a disadvantage (Science News Staff 2017). Science support for the US Fish and Wildlife Service is completely eliminated. The Office of Science within the Department of Energy has been cut 17% and mostly cuts climate change related research. The National Science Foundation has received a requested budget cut to which it hasn't been cut almost ever in its history (NSF Requests and Appropriations by Account: FY 1951 -FY 2017). It is a much supported foundation as the source of 24 percent of all federally supported American basic research conducted. Students will also need to find other fellowship positions as the Graduate Research Fellowship Program is expected to halve the number of fellows from 2011 results (NSF Budget Request to Congress FY2018 2017 9). Their research grants have gone to better materials understanding as is the case in joint replacement surgery, less nitrogen-dependent crops, robots to remove ingested batteries, and better computer chips. Programs heavily reduced in funds were Innovations at the Nexus of Food, Energy, and Water Systems as well as Risk and Resilience and Understanding the Brain. This will lead to greater impact from natural disasters and sends shockwaves globally that Americans aren't acting on a natural curiosity, requiring other researchers to pick up on our studies. The world is worse off from a lack of American research in these fields unless gaps are filled by global ingenuity. Jobs and economic growth cannot be the sole motivator of Trump's policies. While he is said to operate under a 'exascale super-competing' agenda, there are obvious fields not being prioritized to plant the US into the opportunities of tomorrow, as say countries like Germany have successfully grown manufacturing and machinery with advanced green employment (Perry Confirmation Hearing 2017).

6.1 Paris Agreement

Similar papers are concluding in the optimism that parties other than the federal government can be expected to lead the environmental movement which is comforting but in all too early to tell. The Paris Agreement is a dependable signal for this as it is a 195 country ratified accord within the United Nations Framework Convention on Climate Change to initiate the common goal of keeping global average temperatures from rising more than 1.5 (small island state supported) to 2 (the target) degrees Celsius above pre-industrial levels. Also the other two bullets of Paris' goals include adaptation and resilience planning and to develop in low greenhouse gas conditions that should not impede food supplies and lastly, to flow finances in the direction of that work (UNFCCC 2015 Annex 2). Developed countries are to lead the abatement effort and to transfer resources to developing countries planning their mitigation and adaptive strategies (UNFCCC 2015 2). Trump's argument is that America is on the way to abating their emissions through market forces without needing international agreements or the Clean Power Plan, which was the significant domestic agenda to meet our target. The US and Syria are the only two countries to not support the Paris Agreement (Nicaragua was another late supporter not originally signed at the deadline of the other Parties but has changed course, and Trump cannot formally extricate itself until November 2020, allowing Trump time to change his mind if he wanted to). Trump's decision has been cast down by world leaders and powerful industry leaders; guite the opposite of his explanation to the American people that by signing Paris, the US became the world's laughing stock (Trump Remarks 1 June 2017). As a voluntary agreement under Obama, the US had agreed with its first Nationally Determined Contribution, "to achieve an economy-wide target of reducing greenhouse gas emissions by 26-28

per cent below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%" (USNDC 2015). The global renewable economy is now a federally missed opportunity.

To meet their goals, China will need to build new green power infrastructure equal the entire size of the U.S. electric grid. Scientific American states that China has already begun that work and is on track to have a widely implemented price on carbon this year. China has pledged \$3.1 billion in aid to climate-vulnerable countries, when \$3 billion was the U.N. Green Climate Fund pledge that the United States says is a bad deal (Holden *et al.* 2017). India has a detailed plan to green their transportation sector, energize their grid through solid waste, and achieve 100 smart cities among other initiatives. China's NDC covers a vast amount of green victories already achieved. When Trump states China will be able to keep polluting until 2030, as he reasoned in his press statement for America's intent to withdraw from the Paris Agreement, it really is worse than reading between the lines and ignores China's intent. Their document details future years that are expected to be major fractions of emissions of a 2005 baseline, increases expected for renewables and added forestry cover among many others. For example, by 2014 China decreased CO2 emissions per unit of GDP by 34% of 2005 levels which is expected to be 45% by 2020. From reading China's NDC, it is clear they are really ramping up their effort, comprehensively, to reduce the pollution problems that have tangibly impeded life in their urban areas. It is unfortunate that China's effort is misunderstood by the many Americans hearing a not just simplified, but outright wrong message. Trump's oversimplified message doesn't take into account that many of these developing nations will pay the price of America's emissions to no fault of their own and international aid is the humane calling to the injustice paid to

the world. Greenpeace has said China is "virtually certain to overachieve its 2020 climate targets" where clean energy use and a shift from polluting industries continues moving their peak emissions earlier. China has been praised for their renewables initiative for many years, in 2010 Washington Representative, Jay Inslee said,

"I am told, somewhere in the range of \$40 billion, the Chinese are investing in zero CO2 sources of energy while we are still seeking fossil fuels, and that is troublesome. China is investing \$12 billion an hour in renewable energy. They plan on having 30 gigawatts of wind in the next two decades. They just announced the largest photovoltaic solar energy plant in the world in construction in western China."

It is also well known that despite great efforts, what has already been done will increase temperatures over the thresholds we will probably see by mid and late century, to perhaps a median 2.6-3.1 degrees by 2100 despite current NDCs, including the US's (NAS 2015; Rogelj et al. 2016). As the second largest emitter relies on market forces and lax federal policy, it worsens the outlook meta-analyses suggest. But the Paris Agreement moreso stood as a symbolic act to unify countries against a preventable humanitarian and climate crisis and to take quantifiable reductions to not influence unchecked greenhouse gas emissions. International compromise and deals that don't serve the present needs of Americans are quick for dismissal by President Trump, whereas China states it will take on 'international commitments to match its national commitments'. Unfortunately, many Americans have trouble seeing why the issue is important and have too guickly assumed Trump's argument of what the Paris Agreement stands for without allowing scientists and other experts to voice their concerns, and lastly to be humble enough to realize they could have been born in a more vulnerable country less able to absorb consequences as they happen. China, on the other hand, opens a pathway for what

they term South-South Cooperation for Climate Change which is a financial and expertise transfer to island states and African Parties (China NDC 2015). Perhaps it's different for China as the top most polluting countries to hide the responsibilities to the rest of the planet. However, China doesn't retreat from the need to abate by, for example, proposing that much of their pollution is in creating American sold goods so that it is America who's responsible for greater abatement, which would be a Trump-like approach to lessen global responsibility.

The Agreement is encouraging developing countries to pave the way for renewables investment due to increasing demand for electricity and shorter implementation time to build renewable power generators over fossil fuel infrastructure. The US should have the same rationale for developing green technologies and energy that developing countries do. For less wealthy nations to be investing many more billions than the US is, it is a signal that the noncompetitive expenses and returns framed by Americans have less explainable ground. State coalitions are also coming forward in response to Trump's withdrawal from the Paris Agreement. "Governors from New York, California, and Washington are heading a nonbinding US Climate Alliance to maintain the original Climate Power Plan within their states and 10 others" (US Climate Alliance 2017).

State environmental leadership has long been led by California and New York who are not backing down in the face of federal stagnation. Both states require their greenhouse gas emissions to be 40% of 1990 levels by 2030 and to increase renewables share of electricity to 50% by 2030 (NY Energy Plan 2015; Annual Outlook 2017 16). Progress is promising, California has reached 29% renewables today mostly through wind, solar, and geothermal (CA Energy Com. 2017). With their own car fleet certification standards, cap and trade program, water scarcity minded

water savings, LEED certification numbers, and many other programs, California is doing what it can to balance its priorities and the world is watching for success. Both states are already the two leading states for per capita carbon emissions leading to marginal difficulties in abating diminishing returns (2014) (EIA 17 January 2017). We can hope there is truth to the difficulty in rescinding environmental regulation as states commit to legally opposing non-environmental agendas and collaborating with eNGOs as has been in methane emissions in new oil and gas wells and in California and six others suing on the issue of chlorpyrifos (Friedman 2017). Through collective action and the many in progress and created local, state, and regional frameworks, industry innovation, and continued international effort, there is a future for decarbonization. The federal government will eventually turn around. It can only be a government conundrum for much longer while the world's greatest polluters, both foreign and domestic, take a scientific position. A last look at ExxonMobil's position states clearly that "Increasing carbon emissions in the atmosphere are having a warming effect. There is a broad scientific and policy consensus that action must be taken to further quantify and assess the risks." (ExxonMobil Climate Position 2017) and has addressed and released their findings that they have known about climate change since the 1970's through scientific analysis (ExxonMobil Climate Change Perspective Media Docs 2017).

American federal leadership is in the minority of its own opinion due to a historical ideal of American greatness. To date, 52 environmental rollbacks have been achieved through Trump: 25 rules overturned, 19 rollbacks in progress, and eight in limbo while three ERs were reinstated after successful legal actions (Popvich and Albeck-Ripka 6 October 2017). This paper could not go over every one but it is clear Trump's presidential term is not about environmental progress, long term

opportunities, future generations or the climate welfare of our and other nations. We will remain hopeful that America's other woes be prioritized in this time, allow other players to act responsibly and hope for the next presidential term to restore sense to the world of science and policy.

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