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Power Play: The President's Role in Shaping Renewable Energy Regulation and Policy

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An Honors Paper for the Department of Government and Legal Studies

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Abstract

With the impacts of climate change becoming more and more apparent every day, finding means of effective action to mitigate its effects become increasingly critical. While localized work can play an important role, federal action is necessary to have the most widespread and effective impact, especially on interconnected issues such as clean energy. Congressional action is the avenue of change at this level, however in an increasingly partisan and divided environment, progress on this front is far short of what is needed.

Looking to the president is logical here, both as a single actor more insulated from partisan fights, but also as head of the branch in charge of implementing the nation's laws. This paper looks to explore what means of influence the president has on the action taken by federal agencies and how such methods can be made more effective. Through a principal-agent framework, the role of regulatory and appointment powers are examined with a variety of historical and contemporary case studies. While only a subset of the powers afforded to a president, the areas explored offer wide latitude for action, in areas that are particularly important for energy development. The paper concludes with some reflections for the future, suggesting how these considerations can be practically applied.

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List of Abbreviations

AEC	Atomic Energy Commission
APA	Administrative Procedure Act
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy (Standards)
CEQ	Council on Environmental Quality
CO2	Carbon Dioxide
CPP	Clean Power Plan
CSC	Civil Service Commission
DAS	Deputy Assistant Secretary
DOC	Department of Commerce
DOE	Department of Energy
DOI	Department of the Interior
EA	Environmental Assessment (NEPA)
EIS	Environmental Impact Statement (NEPA)
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
EOP	Executive Office of the President
FERC	Federal Energy Regulatory Commission
FPC	Federal Power Commission
FPISC	Federal Permitting Improvement Steering Council
GHG	Greenhouse Gas
MOC	Member of Congress
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Protection Act
NOPR	Notice of Proposed Rulemaking
NOx	Nitrogen Oxide (gasses)
NRC	Nuclear Regulatory Commission
OIRA	Office of Information and Regulatory Affairs
OMB	Office of Budget and Management
OPM	Office of Personnel Management
RIF	Reduction in Force
SIP	State Implementation Plan
SOx	Sulphur Oxide (gasses)
TIP	Talent Inventory Program (of the Carter Administration)
TVA	Tennessee Valley Authority
WHEJAC	White House Environmental Justice Advisory Council
WHEJ IAC	White House Environmental Justice Interagency Council

Preface

Growing up in a solar-powered house in the woods of Maine, issues of renewable energy have always been close to home for me, both literally and metaphorically. With climate change threatening to be *the* defining issue of my generation, my interest, concern, and passion for addressing these environmental problems has only grown from there. While the effects are often subtle, they have been present in many facets of life, as I see winters shortening, floods worsening, and ticks furthering their northern incursion. I have spent my time at Bowdoin and beyond looking at these issues from a variety of lenses, learning how to identify these problems and work towards methods of mitigation.

The inspiration for the particular topic of this project stemmed from my time in the White House Council on Environmental Quality during the summer of 2022, following a stint at the US Department of Energy the previous year. Though an honor thesis had never been on my radar, my time in the federal government raised big questions and ideas about the avenues for climate action that existed and forced me to reconsider where I thought such change had to come from.

While I wish I could say this project has answered all my questions and led me to solutions for all the big problems faced today, doing so would be in flagrant disregard for the intricate complexity of both climate change and the US federal government. Nevertheless, this study has greatly deepened my understanding of the issue and illuminated new levers for effective action on this front. My hope is that this paper, while not offering any paradigm shifting revelations, can help the reader to think about climate action from a different angle and perhaps spur action that can be a piece in this infinitely complex puzzle.

1. Intro

On February 2nd, 1977, in just the second week of his presidency, Jimmy Carter sat in the White House library wearing a beige cardigan and delivered the televised address entitled "*Report to the American People on Energy*," better known as his 'sweater speech.' Carter had bundled up to illustrate what he was asking of the American people: to turn their thermostats down to 65º F among other measures, as the nation faced a wide-reaching energy crisis. Along with these requests, he outlined his plan to take executive action including research into new energy technologies, job training, regulation reduction, and the beginnings of the creation of the Department of Energy. While the causes may be quite different, the administration showed it was ready and willing to take action in ways that bear striking resemblance to present-day responses to the existential threat of climate change.

The severity of the climate crisis we are facing today is hard to overstate. From mass displacement caused by sea level rise to the human cost of increased extreme weather, every person on the planet will feel the effects of climate change in one way or another, and most already have whether they know it or not. With the window to keep global temperature rise under 1.5º C effectively closed, drastic action is needed to mitigate some of the worst impacts. The words of this paper will not be wasted in convincing the reader of the existence or gravity of this crisis -- this has been done countless times -- rather it will look towards solutions that can be done expeditiously, knowing both that measures are exponentially more effective the earlier they are implemented, but also that time is simply running out.

In the present day the major inhibitor to real climate action is not understanding or ability, rather the political will to take action. The question addressed here is how, faced with a time in our nation's history filled with partisanship, divisiveness, and scientific denial, can meaningful climate action be taken on a nation-wide level? While there are a multitude of answers to this question ranging from inconsequential to impractical, this paper will look towards a forum and avenue where there is real potential for change in a meaningful area: ways the US executive branch can take action on energy policy. In the footsteps of Carter, these pages that follow will explore the possibility of such actions, tools to be employed for its success, and the real limits that lie in its path, however first it is necessary to review why such action is needed.

Sparking Change

Electricity has become almost synonymous with combating climate change, with it playing key roles in everything from electric vehicles to heat pumps. This is for good reason, as over a quarter of domestic emissions come from electricity generation, a percentage that will only grow as electric transportation grows, residential gas continues to decline, and industry continues electrifying, both as climate adaptations but also from an efficiency standpoint in many cases (US EPA 2016). Put simply, clean electricity is not only an effective way to address a significant amount of CO2 output but is simply necessary to facilitate the green transition of almost all sectors. Thus, ensuring the existence of plentiful renewable energy is pivotal to addressing climate change at all levels.

Shifting to clean energy presents an interesting challenge, driven by the rapid technological innovation in generation, but held back by the inherent necessity of the commodity itself. Unlike plastic straws or trips to the mall, electricity is something that one cannot go without in the current age, but more critically the supply of it must exactly match demand, at every moment. While this may sound like hyperbole, this intricately choreographed balance occurs every day, with plants ramping production, sending electricity over millions of miles of infrastructure, all across the country, perfectly matching demand. Requiring immense coordination and planning, this system has been developed over decades since Edison lit his first lightbulb in 1879, and it's continued functioning is necessary to keep life running as usual.

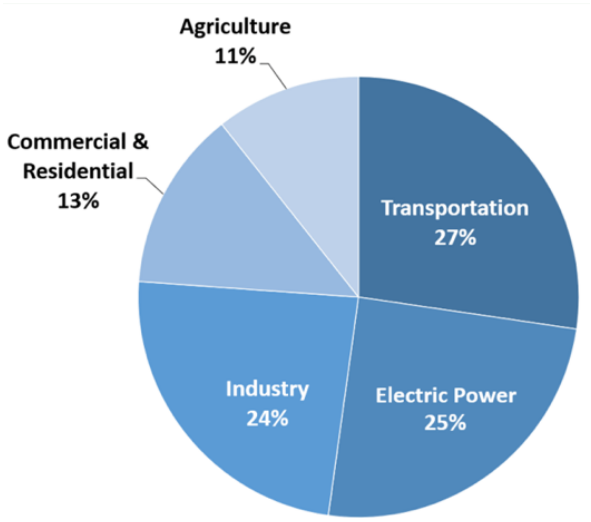

Figure 1-1: Sources of domestic GHG emissions by sector via US EPA

At the same time, there is fast-paced development in the way this energy is produced. From solar, to wind, to geothermal, to tidal, even the most unaware layperson has some idea of the proliferation of renewable technologies in the past decade, technologies that are permeating beyond just those with environmental interests. The fact of the matter is that these methods of

generation have exploded not because of their climate impacts, but because their technological advancements make practical and financial sense. Economically, electricity from renewables such as wind and solar have been cheaper than their fossil fuel counterparts since 2018 as shown in Figure 2, with all these new generation methods seeing steep decreases in prices as the technology develops ("Levelized Cost of Energy and Levelized Cost of Storage 2019" n.d.). This has resulted in over 75% of new generating capacity being solar and wind due to cheaper costs both in immediate generation, but also in long term realized construction and maintenance (Suparna Ray 2020).

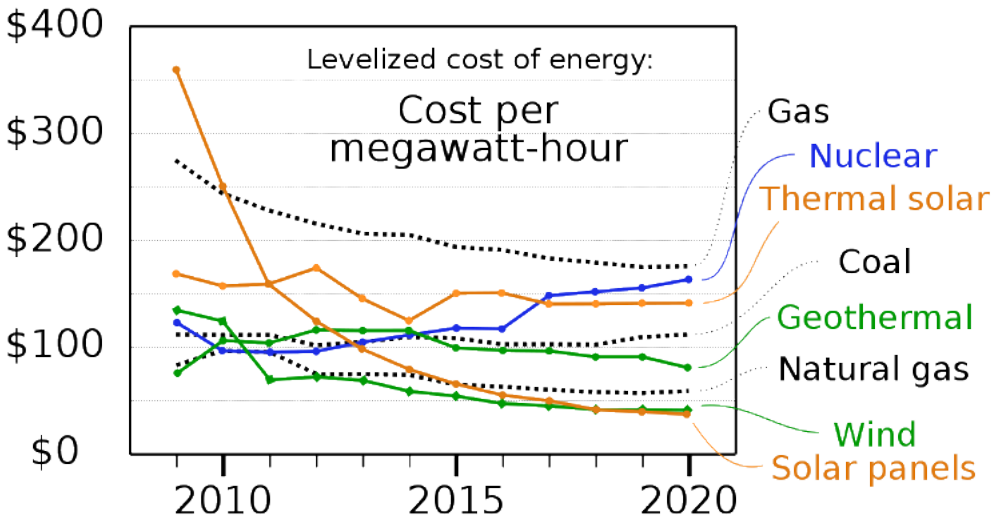

Figure 1-2; Energy costs by generation type via Wikimedia Commons

While such development is certainly laudable, the issue is simply the timeline. The retirement pace of coal generation facilities, in combination with the continued creation of fossil fuel dependent power plants, mainly natural gas these days, means that too much CO2 continues to be pumped out into the atmosphere, while too little clean capacity is added. Simply relying on market forces and planned replacements will bring about a full transition decades later than it is

needed; thus, policy and regulatory action is necessary to expedite this process. Unfortunately doing so is not as simple as just coming up the money to replace every coal plant with an array of solar panels, due to the intricate nature of the electrical grid.

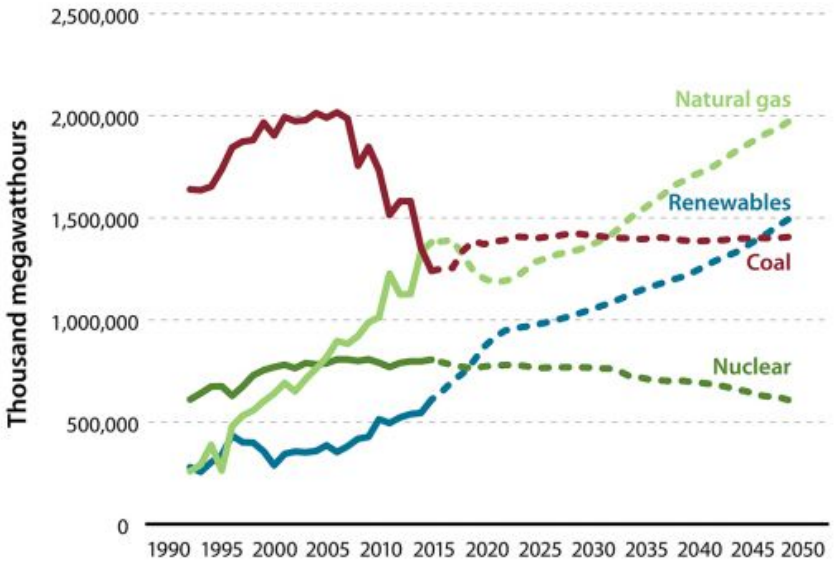

Figure 1-3; Electricity generation source projections via US EIA

Initially, electricity was just seen as a replacement for gas lamps, thus electric customers were charged simply by the number of lightbulbs they had. Generation was on a small scale, with multiple companies in the same small city, and often used co-generation, using steam the steam that turned turbines for heating as well. Though this model worked well early on, as demand and uses increased, companies looked to meter and expand, creating great inefficiency as their infrastructure overlapped, they began to conglomerate into the regional operators seen in the present day.

At this larger scale, it becomes more difficult to match supply to demand and to keep power uniform as grid standardization began to become important in the early 20th century. With this widespread use demand had to be anticipated in order to keep the lights on. These days, grid stability is managed by the large steel turbines that exist in generation facilities using steam, where the great inertial energy of the rotating metal can be used to instantly create the power needed to match demand, while the plant ramps up over a longer period of time to compensate.

In this lies the key challenge of renewables, because most not only are unable to make the small adjustments in demand, but also do not create power on a schedule that lines up with end use whatsoever. It shouldn't be surprising to anyone that wind turbines only produce energy when it's windy, or that solar panels are slightly less effective at night, yet most Americans turn on their lights once the sun has gone down and are less likely to fire up their air conditioners on a nice breezy day. While these may be specific examples, these broad issues with renewable generation are clear, and are a reason many point to a continuing need for fossil fuel generation that can be used to pick up the slack to balance the grid when needed. Though there are exceptions to this rule, such as geothermal energy, or more predictable sources, such as those derived from tidal generation, there still remains an inherent challenge when working towards a fully renewable grid. Fortunately, there are a number of ways to address this without involving coal or natural gas.

The first, and potentially most obvious solution is to store the energy generated by renewables at their peak to be used later when they cannot match demand. In some ways, this is exactly what is being done with initial energy in turbines, though it is a more integrated part of the process there.

Some proposals for energy storage use traditional chemical batteries in large warehouses, while other solutions look to things like pumping water uphill, to use as a physical battery. The issue with all these solutions is that they have major inefficiencies, loosing percentages of the energy stored in them, and are extremely difficult or costly to do on the scale needed to balance the national grid.

Another potential solution is to have an overcapacity of varied generation, so that demand can be met, even when certain technologies are not producing power. This can be paired with measures like time-of-use pricing, which charges more for electricity when less is being produced, incentivizing consumers to match their uses with supply. While overcapacity gives some good flexibility and sets up the grid for more electrification in the future, the obvious downside is the cost of infrastructure that will be unused for all but specific times. More so, this arrangement realistically needs some element of storage such as battery technologies to fill potential gaps when nothing is generating.

The final solution is to use on-demand generation methods that don't require fossil fuels, the far most common of which are nuclear and biomass. While these easily fit with existing infrastructure and in many cases can even directly replace the physical plants, they exist in a grey area in terms of their environmental impact, given the radioactive waste and CO2 they respectively produce. There are many compelling arguments that can be made for or against the use of these technologies, however the fact remains that a realistic transition necessitates some element of on-demand generation, and these present the only options to do so without fossil fuels.

The lesson here is not to propose what the balance of these should be, rather to show that it is a large and complex problem that cannot be fixed with a big influx of cash or a singular law but is a complex and intricate process that must be tackled from many different angles. Furthermore, it is a challenge that must be addressed on a wide scale, and while changes in individual locations can make large impacts, these are dependent on infrastructure and systems that span the nation. Thus, for action on this front to make a difference it must come from a nation-wide scale, and increasingly it is clear that this action must come from the president.

Why the Executive

Slowly, the severity of climate change is beginning to soak in for Washington, both metaphorically and literally, as the Anacostia and Potomac rivers put parts of our nation's capital underwater during extreme weather events that are becoming noticeably common. Despite an American political scene marked by division, partisanship, and divisiveness, climate action is widely popular, supported by a majority of both parties in the general populous, though such support is notably less in their supposed representatives (Nadeem 2020). Specific solutions like curbing power plant emissions and developing alternative energy sources do even better, with upwards of 80% of Americans in favor of them. However even with clear science and worried constituents, Congress continues to fail at passing effective legislation that matches the scope of the problem, perhaps too sheltered by the elevation provided by Capitol Hill.

While Congress has considered many wide sweeping climate measures, from cap and trade to a national carbon tax, the largest climate bill passed through its chambers was the Inflation Reduction Act of 2022, squeaking by with 50 votes in the Senate. While the bill has many important provisions aimed at energy and efficiency, from tax credits to consumer incentives, it lacks the wide-reaching efficacy of the environmental legislation of the 60s and 70s. Even with widespread popularity among the electorate, representatives have not been able to give it the priority necessary, despite being within reach of the finish line on multiple occasions. While it is easy to assume that climate action can and should come from Congress, the legislative branch that is tasked with creating law, this may not be the most effective option in the current day.

The most obvious issue is the current roadblock for any sort of congressional action, going from a tenuously split Senate last session to opposing control of the two houses in the present day. It is no secret that American politics have become more polarized, and this seeming need for opposition has led to stagnation on issues across the board (Klein 2020). While clean energy policy has a somewhat unique history of bipartisan support, the present day sees many congressional Republicans becoming more opposed to climate action, even as the benefits of what has been done so far fall in their districts disproportionately (Brownstein 2023). As both chambers seem to be slated to have slim majorities, particularly in the Senate with tight races in WV and AZ among other places, the potential for wide sweeping actions doesn't seem to be in the cards for the immediate future.

Exacerbating these issues are the individual representatives whose constituent and financial interests diverge in their own unique ways from the party line. While this has historically been a way to bring consensus across the aisle based on specific projects or unique state conditions, in the present this has seemingly skewed towards obstacles, such as the infamous Joe Manchin whose attachment to the Mountain Valley Pipeline was one of the major stumbling blocks to passage of the IRA. Individual legislators are not only skewed by the individual interests of their states, but are also more easily influenced by lobbyists, such as the oil and gas industry which spent almost $125 million last year blocking such legislation (Mirza and Rowland-Shea 2021).

Both energy and environmental policy are technical and intricate matters, it is often not completely clear how exactly certain measures will be implemented, both to representatives and the represented. This leaves ample room for outside interest groups or internal bureaucrats to influence the direction in ways that the policymakers might not like. While it's easy to say one supports combating climate change, trying to decide if something like biomass gasification is a solution one wants to support is more difficult. Congress-people, forced to be jacks of all trades and thus masters of none, often look to 'experts' when considering policy in this realm, which can be academics or trusted advisors (Culhane, Hall, and Roberts 2021). But with a small staff and many issues to attend to, it often ends up being lobbyists that are readily available and more than happy to help.

This, in combination with the other financial and campaign related, give large energy corporations significant sway over climate and clean energy legislation in a way that seems to dissuade large scale renewable development. When this compounds with the specific interests of

legislators in their home states, and the high state of partisanship that exists over it all, it makes clear why Congress struggles to pass large scale climate action. All that can be made palatable to a broad array of representatives is infrastructure and energy funding that remains vague enough to appeal to a majority. Even such bills, like the recent Bipartisan Infrastructure Law and Infrastructure Investment and Jobs Act pass with slim margins and little bipartisan consensus. Although certainly not freed from all these concerns, the president and executive branch benefit from being more distanced from their influence in many aspects. With personnel in the EOP to agency staff that can research and develop positions, and a nationwide constituency, it is much less likely for specific projects or confusing technical details to have the same paralyzing effect on the executive. There are still limits, such as on the ability to monitor emissions for the Clean Air Act, however the issue of compliance presents different and potentially easier to solve challenges than understanding the rules themselves (Bryner 1995). Though far from a perfect system, still with significant outside influence, public scrutiny, and lacking the ability to pass legislation as even a dysfunctional Congress can, the president is better poised to take clear and effective positions on a clean energy transition and do so in a way that is both meaningful and influential.

While the ability to pass legislation seems to be an important one in making change, it turns out that for transitional energy policy, this is often less of the case. As mentioned previously, energy policy is a field full of technical details and nuanced intricacies that make both formulating positions and writing legislation difficult endeavors for uninformed congress-people. In addition to giving more outside influence, this also means that legislation that is passed is vaguer, both because the writers are less knowledgeable but also because some future effects and conditions

are unknown. Though perhaps frustrating for legislators, this leaves significant leeway for agencies to interpret these rules and thus exert executive influence in a constitutionally protected way.

In fact, a compelling argument for more executive attention on the energy transition is because of the outsized role the federal bureaucracy is already playing in it. The role agencies and commissions play in advising, examining, assessing, and adapting energy distribution in the US is already large, and one that only becomes larger as more question marks are added to the equation. No matter what the goal is, it will be necessary for the White House to become involved in energy policy due to the large technological changes the industry is currently seeing, thus doing so with a clear agenda will allow this to be a point of leverage for the executive.

The sticking point here is that this clear agenda is not necessarily for a purpose of clean energy and climate action, and very well could be counter to this purpose. Though this paper's intention is to point towards positive change, the primary focus will be describing the tools at a president's disposal, keeping in mind that they have the potential to be used in pursuit of a different agenda than the one suggested here. Fortunately, many of these powers will have an inherent predisposition to furthering an environmental agenda due to their forward momentum and bureaucratic predisposition as will be discussed later, however the potential for these actions to begin to reverse course under a less friendly administration is real and must be acknowledged.

A History of Executive Authority

While this congressional inaction has caused many environmental advocates to look to President Biden and the executive as a more responsive path towards climate action, hoping that perhaps progress can be made at the lower elevation of the South Lawn, an obvious question is what a president can actually do. This paper will endeavor to address a subset of particularly relevant presidential powers, discussing their scope and history followed by applicable case studies to help answer the research question: how the executive can expedite and ensure a renewable energy transition. Presidents have claimed varying degrees of control, from Coolidge declining to even use some of the powers afforded to him, to Teddy Roosevelt claiming "*a*nything the president does is considered acceptable unless it is expressly forbidden by the Constitution or laws"(Roosevelt 2012). From its inception, the authority of the of the executive has had a certain amount of ambiguity, as its textually explicit powers are few, and most come through interpretation.

At the nation's inception, the framers of the Constitution were very wary of executive power, understandably so after fighting a revolution against the wide-reaching power of the British monarch. While they were concerned about this influence, they also recognized the need for an executive as outlined in Federalist 70, where Alexander Hamilton argues for the need to have an 'energetic' single executive to serve as a formal head of state that could make swift and important decisions in response to national crises. The need for executive power was also backed by James Madison in Federalist 47 where he lays out the importance of a separation of powers between branches, though noting that these powers are not fully separate, rather interdependent on one another. Madison follows this with Federalist 48 which raises concern about the power

held by the legislative if unfettered, thus he advances the need for the branches to have checks on one another.

From these writings stemmed checks like the veto, but a relatively small list of unilateral powers, focused on those responding to immediate threats, such as diplomatic or military concerns. This was the extent of it, as "Article II is the most loosely drawn chapter of the Constitution. To those who think that a constitution ought to settle everything beforehand it should be a nightmare; by the same token, to those who think that constitution makers ought to leave considerable leeway for the future play of political forces, it should be a vision realized" (Corwin 1957). The founders certainly didn't see this as the full extent of executive power but left just these explicitly enumerated in text.

The expressed and implied power of the president is where the real power to influence policy comes from. Some is rooted in the Constitutional text, such as the oath to "faithfully execute the Office," while other pieces are simply uncontested or assumed roles derived from the thinking of the founders and cemented by its use over time. From the vesting clause situating the president as chief executive, to the 'principal officers' language that implies the existence of the cabinet, to the mandate that he "take Care that the Laws be faithfully executed," many of these references are up to significant interpretation but point to the founders' intentions of the office and remain integral pieces of the executive power that is seen today. While not fully unilateral in any aspect, and still restricted considerably by Congress, these powers have the potential to give the president real teeth over impacting policy.

Finally, there is the inherent influence the president has, simply as a result of holding the office. This can occur legislatively, when the president and their cabinet write, suggest, and lobby for legislation, something that can have large sway, even when the final decision is in Congress's hands. With the president seen as the face of the country, they also hold influence both domestically and abroad through their actions and words, as the stature of the offices lends itself well to symbolic gestures. While this is only 'soft' power, it has real influence, though perhaps less than other means enumerated above.

Presidential power has continued to increase over time, both as Congress affords the office new responsibilities and presidents assume new powers that their successors are unlikely to refuse upon taking office (Marshall 2008). While not a linear trend, this strengthening of the executive has made the role of the presidency more important than ever. This expansion comes questions of what the role of the president is, and if the power to legislate has been given to Congress, is attempting to give the executive greater policy control bordering on an infringement of this constitutional mandate? Scholarship and practice answer this with a clear no, however the rationalizations and limits of this vary quite a bit.

While presidential power has increased over the years, scholarship surrounding its application changed dramatically in the last couple of decades. This has come as a sort of response to the weak constitutional powers that presidents are given, and a need to be strong leaders in practice. The role of the president was seen as more related to the president's personal skills, or as famously put in Richard Neustadt's seminal book *Presidential Power,* "Presidential power is the power to persuade." His school of scholarship believed that presidents were expected to do more

than they were given the power to, and in order to do that they must be able to persuade not just Congress, but within the executive branch itself. Reputation, personality, and prestige play a large role here as the president convinces others of his agenda, while formal powers like the veto play an important, but more backseat role.

This idea of the presidency is firmly refuted by Terry Moe, where he pushes an institutionalized look at the presidency, rather that the personalization that Neustadt suggested. A result of the growing shift to more quantitative analysis, he creates a methodology looking at things like structure, authority, and incentive that works using mechanisms within the federal government. Called rational choice, this looked towards how presidents acted in an institutional setting, and the levers available to them to move forward their agenda.

The present day list of such powers is fairly broad, and all offer different ways to further their agenda. Some of this sits within the executive branch, like managing personnel through appointment and removal powers while others like diplomatic and treaty powers are more externally facing. Powers like the veto and state of the union provide checks on other branches, and regulatory action allows the president to shape legislative action through implementation. Finally, there is a laundry list of things like emergency and soft power that are less clearly defined but have the potential to offer avenues for large influence.

Many of these levers have the potential to be used for energy policy influence, in a variety of different ways. From appointments to emergency powers to regulation to rhetorical influence, there are a plethora of different angles the executive can spur action, however, to understand

where action can be most effective and lasting, a theoretical framework must be used. As a president is just one individual, compelling action through millions of others to carry out his agenda, principal agent theory presents a compelling candidate for this, helping to understand these complex relationships and how they can be leveraged. Like Moe's work with rational choice, this looks at institutionalized relationships, applying a sort of game theory to understand influence and actions, giving a lens to examine how presidential power can best be used.

2. Theory

Basic Principal-Agent Theory

Originally devised by economists in the 70s, and later expanded to political science along with many other fields, principal agent theory looks at the relationship between two parties: a principal, who delegates a task to an agent, and an agent, who performs the task on behalf of the principal. The theory is concerned with how a principal can best achieve their goals through another actor, and the issues that may arise when trying to do so. There are many reasons for such a relationship, whether it be delegating out a large volume of work, enlisting the expertise of an agent, or getting an undesirable task done, but all face similar challenges getting an agent to work effectively and minimizing outside motivations.

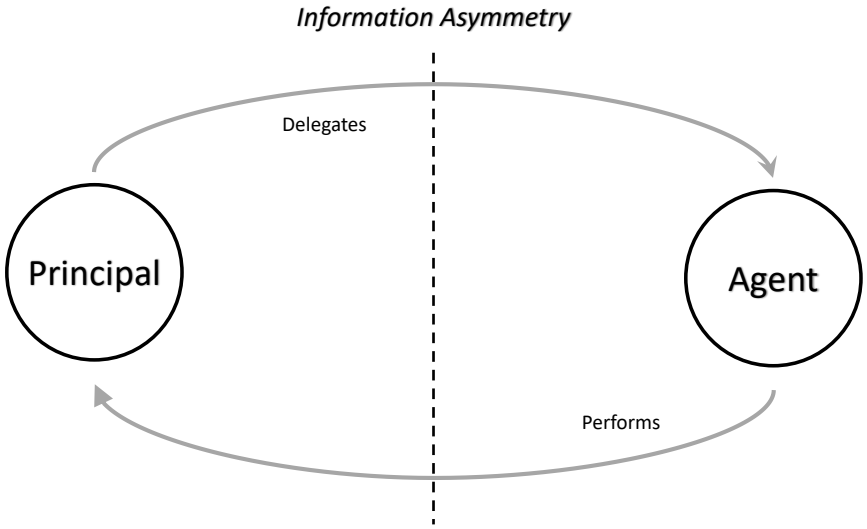

Figure 2-1; Principal-agent relationship

The explanation for this inherent challenge comes from two places: goal divergence and information asymmetry. Goal divergence refers to the idea that the two parties will have differing goals, priorities, and incentives, thus requiring the principal to employ mechanisms that promote obedience and disincentivize non-compliance. This divergence can range from difference in values, to the prioritization of certain tasks, to the sway of other outside influences. Information asymmetry is slightly more complex, referring to the idea that an agent will likely have more knowledge and expertise about the work they are doing, making the instruction by the principal misguided or inefficient. This can be benign miscommunication or intentional misleading; however both are harmful to the principal's goal.

A classic illustrative example of the principal-agent problem is the relationship between a car owner and mechanic. When going to the shop, the owner's goal is to have a working car and spend as little money as possible. On the other hand, the mechanic wants to make as much money as possible while doing the least work they can, thus having significant goal divergence. Information asymmetry is also wide, as the mechanic knows lots about the repair, while the owner often only has vague ideas of what is wrong with the car. Fortunately, there are a variety of ways to reduce this separation. For instance being a regular customer creates multiple interactions so goals are more aligned to fixing the car so the customer will continue to come back, or reducing information asymmetry by consulting an outside source about the car's issues. While the mechanic visit is much simpler than many applications of principal-agent theory, it shows the basic challenges that exist.

There are a variety of strategies to mitigating principal-agent problems, though their applications will vary widely based on the nature of the relationship. Incentivization can help reduce goal divergence by giving agents new motivations that align with the principal, such as giving bonuses after a profitable year. Monitoring can help to reduce information asymmetry by keeping the principal up to date on the agent's actions, helping them to modify their approach and enforce better accountability, while the related strategy of communication can help to clarify intentions, especially when goals are aligned. Finally, reputation brings in a human element, where a relationship between principal and agent can help to reduce divergence and conflict as there is social feedback.

In line with its economics roots, the most straightforward application of principal-agent theory is in hiring an employee to do a task, with clear applications of goal divergence and information asymmetry, however when looking towards political science, the relationship between elected representatives and their constituency is a far more common application. The complexity here is clear, and a prime example of the multiple-principal problem, as every individual, or at least every lobby group and organizing campaign, is a principal for the one agent. Downs & Rock (1984) look at this in the context of foreign policy, with the president's action and public feedback on war. This diverges from typical economics thinking, as the principal's only form of feedback in this case is voting out the president, an action that is not immediate and fairly, which limits influence but makes the president more conscious of public opinion as a metric for this. The public also suffers critically from information asymmetry as they can only see the headline news and none of the classified goings on, leading their view of the president's success to be based mostly on outcomes rather than individual policy choices. What this does is effectively

create an executive that must try to act as a steward of the people, taking actions that may not be in line with public view at the moment, but hope to aim towards a desirable outcome, such as extending a losing war in hope of a surprise victory, as losing would likely mean ousting of the chief executive. It also forces people to look at presidents further than just their stance on current issues, as they have few feedback mechanisms once the election is over.

The principal-agent framework can further be complicated by the multiple-principal problem, when an agent is receiving instructions from several different actors, rather than just the one. While one principal will often have multiple agents, multiple principals make explicit differing motivations and incentives that were identified earlier as a problem. Effectively this compounds existing issues adding another axis of goal divergence from the new principal but gives principals more control as they have at least a general idea of what the conflicting principals are and can change their strategy accordingly. These objectives differ slightly or come into direct conflict, leading at best to inefficiency. While strategies to prevent this issue range greatly depending on the specific scenario, collaboration between principals is a common thread through them all.

Looking at the congressional-bureaucracy relationship more broadly, Mitnick (1980) examines the details of how this relationship can be controlled and shaped. He finds that there are both "*specification costs*" that come from trying to align agent actions with principal preferences, as well as "*policing costs*" in monitoring and ensuring compliance, and thus principals will only assert controls in a way where these costs are in balance with expected benefits. This means that there is an inevitable loss of control by the principal, leading to more bureaucratic shirking:

either producing at too high a cost, or producing less than expected. This is explored further by Weingast & Moran (1983) in relation to the FTC. While Congress has considerably more power as a principal, with many ways to incentivize and deter through legislation and oversight, however legislators are similarly only interested in outcomes, with little concern for the process. This is furthered by McCubbins & Schwartz (1984), who point to the principal-agent relationship representatives are in with their constituents, explaining that if the bureaucrats make constituents happy, then all is well, leading to bureaucrats having this mirror motivation as principals. While studies have shown that principals and agents will not behave according to strict game theory principals in one-off simulations (Miller & Whitford 2002), (Fehr et al. 1997), this is not the case in Congress, as shown by Miller (2005), where longer term relationships and mutual negotiation support more game theory-esque principals.

PAT in the Executive

For the present topic however, the most relevant principal-agent relationship is between the president and federal bureaucracy. The executive falls somewhere between the relationships discussed earlier, more direct than with a representative, but holding distinctly different powers than Congress to inspire actions in line with their agenda. While presidents enjoy a more unified voice that the turmoil that can be Congress, the power they hold over those in their own branch is much less than often assumed. First is the issue that the president is just one person, so they must delegate their authority to others within the EOP, introducing another level of principal-agent interaction. This then has its own issues in relation to the bureaucracy, where lacking the ability to legislate or use oversight measures like Congress, the executive's method of control must

work to align goals and enforce the idea that they are 'playing for the same team,' however there is a hierarchical relationship, giving the president some latitude to fire, rather than just review or defund like Congress.

The executive also finds a significant multiple principal issue when working with the federal bureaucracy, having conflicting goals with Congress and sometimes the court system. Interestingly, this system is not directly conflictual, at least in the PAT sense, where Congress will sometimes even attempt to avoid their own principal-agent issues by declining or delegating action to the executive either to avoid blame (Rottinghaus, 2019) or to gain an upper hand (Bendor, Glazer, & Hammond, 2001). Furthermore, the partisan gridlock discussed in the introduction makes Congress less effective principal when asserting legislative controls, though oversight measures through committee are less affected by this.

Finding methods of control over the bureaucracy is critical for the executive to advance any sort of agenda. While a holding a powerful office, the president cannot issue rules themselves, instead directing the bureaucracy beneath them to do so, and despite being the powerful 'boss,' they are somewhat limited in the ways they can compel action. As they depend so fully on an agent to take any action and thus exert any influence, maintaining control over this relationship is key to presidential power. Using principal-agent tools effectively is a critical piece of this, understanding how to best mitigate the inevitable goal divergence and information asymmetry.

The complexity of asserting bureaucratic control in an environmental context is explored by Wood (1988), who finds considerable limitation to controlling EPA enforcement with significant

goal divergence impeding progress. In a colloquy of Cook & Wood (1989), Brian Cook pushes back on these findings, suggesting that this is more the result of a multiple-principal problem. Wood's response in the same article acknowledges some of the shortcomings in his methods but pointed to the fact that "bureaucrats engaged in strategic manipulation at crucial times to move outputs in unanticipated directions" Cook & Wood (1989). This dialogue makes clear both can be true, that while there is a multiple principal problem, environmental issues especially have agents with a larger degree of goal divergence that can lead to some semi-autonomous actions that utilize other facets of this principal-agent relationship such as information asymmetry.

An interesting addition to this with more of an energy focus is brought by Whitford (2002) in looking at presidential control over the Nuclear Regulatory Commission (NRC). After Reagan attempted to reduce the commission's influence by decentralizing it's decision-making to regional offices, a difference in ideologies was observed between the administration and regulatory actions in this space, showing that this greater autonomy allowed for bureaucrats to act on their differing priorities. Interestingly this attempt at less government oversight as part of 'new federalism' actually led to more intervention, as bureaucrats in the NRC used the greater autonomy given to them to pursue more stringent enforcement based on their own priorities. This study highlights both the importance of bureaucratic structure in principal control, but also the role agent expertise can play in goal divergence.

As referenced earlier, executive control is really a combination of two principal-agent relationships, one between the president and his appointees in the cabinet and beyond, the second between these appointees and the careerist bureaucrats that make up the majority of agencies.

Both of these sets have the potential to experience fairly significant goal divergence and information asymmetry that can greatly impede a president's agenda, but experience distinct challenges based on differing motivations for action. While one could make the argument for even more similar sub-relationships within these, the two outlined provide sufficient complexity in their own right, and the concepts put forward should be applicable to many of these other relationships.

Another added intricacy is the unique nature of environmental issues, and the predisposition bureaucrats in the field tend to have. Both Clinton & Lewis (2008) and Spenkuch et al (2021). have found that there is significant difference in political leanings throughout agencies, thus influencing the goals and tendencies of respective bureaucrats. Measuring agency ideology through statistical analysis of outside expert opinion results in the chart show in Figure 5. While the average careerist tends to lean Democratic, there is significant difference across agencies. DOE and EPA for instance tend to lean liberal, whereas Treasury and Homeland Security are more conservative. Some agencies like DOE or DOI end up more in the middle, likely because of differences in subsets of the agency.

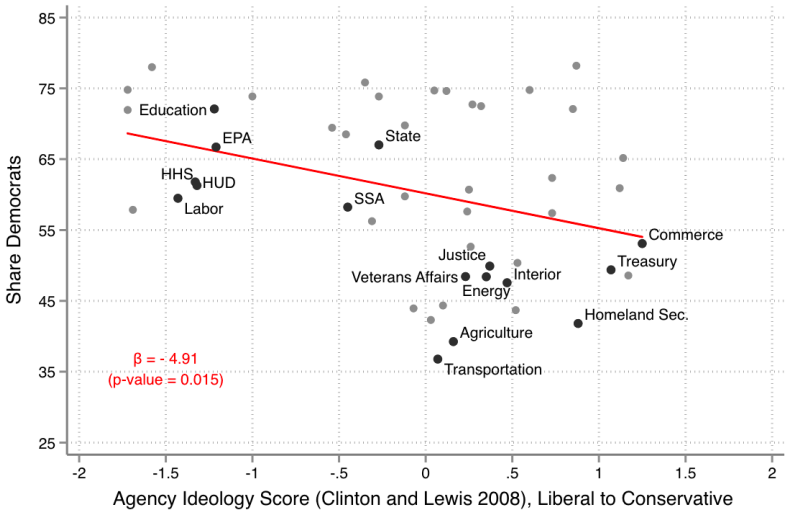

Figure 2-2; Ideology of federal agencies via Spenkuch et al. (2021)

These differences in bureaucratic ideologies present an important piece for thinking about these environmentally specific problems, as bureaucrats stick around for much longer than a president's term. While policies may be completely reversed between administrations, bureaucratic leanings will vary much more slowly, and will continue to influence change in that direction. This means that for the agencies most involved with clean energy like DOE and EPA, the inertia of work will continue towards this and hold against backsliding, something seen in the EPA under Trump, where despite a mass exodus of employees, bureaucratic direction remained the same, and impeded the success of some attempted rollbacks (Dennis, Eilperin, and Tran 2018).

Specific Models

The basis for better understanding these relationships comes from the paper "Principal-Agent Models: An Expansion" by (Waterman & Meier 1998), which explores the governmental application of principal-agent theory, with specific insights into this bureaucratic relationship.

Using situational matrices, they help to visualize these different relationships, and the result of this in a political context. Below is an adaptation of their table discussing goal divergence with discussion to contextualize the model. While their paper includes several further matrices, only one is included here.

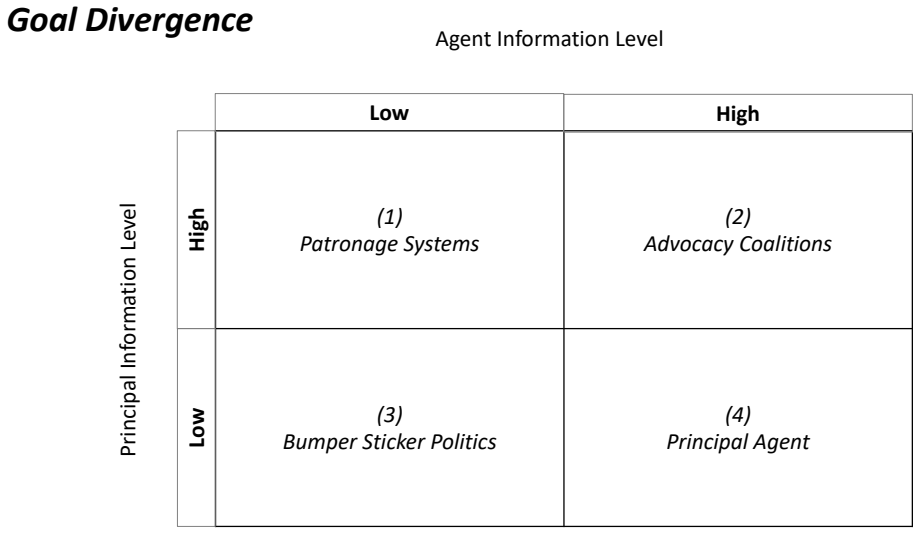

Figure 2-3; Generic divergence model, adapted from Waterman & Meier 1998

When goals between principal and agent diverge, the two are in conflict. How this plays out depends on information asymmetry which becomes a key factor in control. In a case like (1) where principals have more information than agents, they hold more control, leaving bureaucrats to play much more of a simply administrative role in carrying out work, serving the principal like a patron. If both have significant information such as in (2), there is lots of conflict as both sides have information to fuel their agendas, and bureaucrats cannot claim expertise in pushing forward their priorities. Conversely, if neither has much information, the result is situation (3), the least nuanced scenario, where all knowledge is discounted and the playing field is leveled,

leading to unsubstantive arguments. The classic situation is (4), where the agent has the information advantage and bureaucrats do have the ability to claim technological expertise and shirk the principal's agenda.

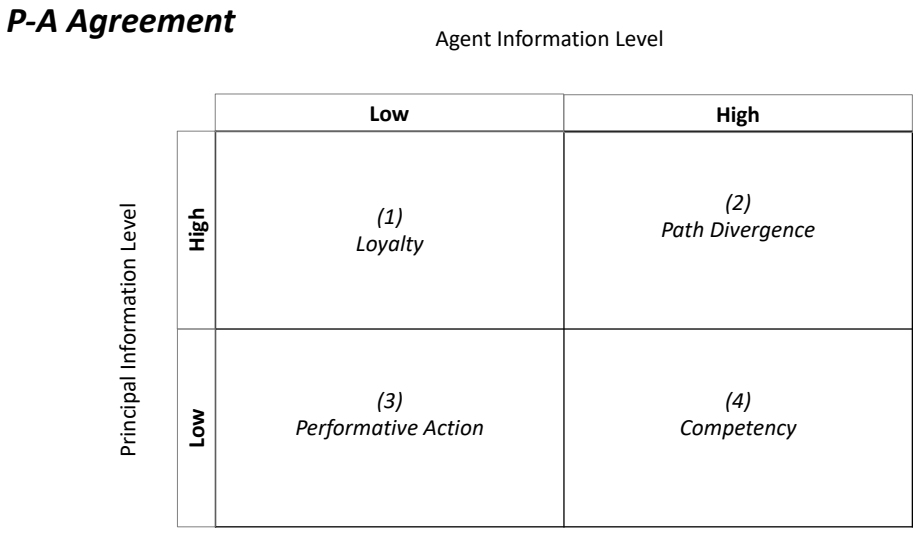

Figure 2-4; President-Appointee agreement

Using Waterman & Meier's inspiration, new matrices can be created to describe the president (P) and appointee (A) relationships, and subsequently the latter with the bureaucracy (B). Beginning with president-appointee agreement, the same information disparities can be considered. When the president has much more information than the appointee such as in (1), the result will be loyalty politics, as the appointee attempts to carry out the president's agenda, blindly following and acting as ordered. This is in contrast to (2), where while the goal may be shared, the means to that end may be quite different, leaving the potential for the president to lose control on specific issues, something that can be particularly harmful to coordination across agencies as paths diverge. Scenario (3) presents an ineffective situation, where neither party has clear action,

thus most thrusts of action are directed towards creating a performative public image rather than doing meaningful work. Finally, (4) presents a common scenario where presidents must trust the expertise of their appointees to push an agenda, losing significant control but with the potential for more efficient work with competent agents.

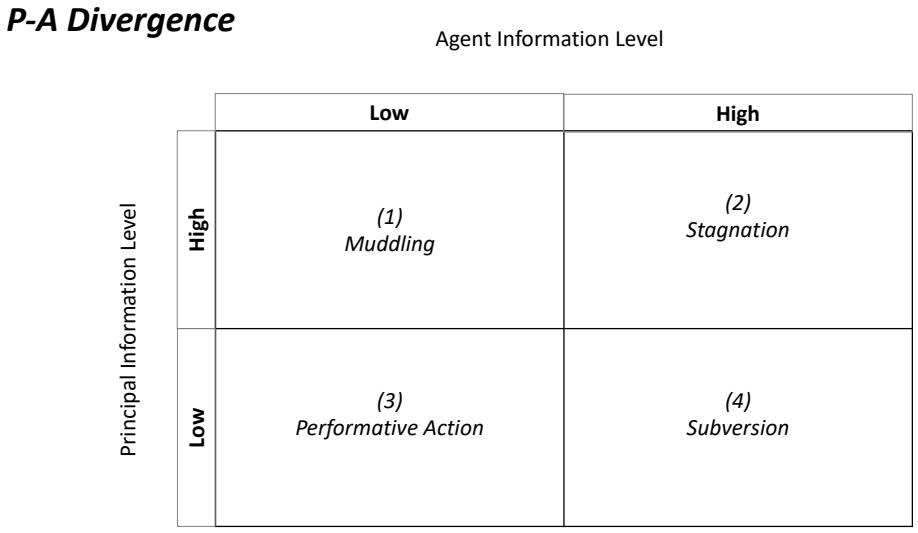

Figure 2-5; President-Appointee divergence

While P-A agreement is much more common, as appointees are chosen by the president thus will likely be in line with their policies, P-A divergence is possible for many reasons such as politically chosen cabinet picks or for commissions with longer term appointments. Starting with (1), high executive information means that the only way for appointees to counter is simply by being as ineffective as possible, muddling along and trying to get as little done as possible. Case (2) provides a similar result, as both parties work to counter one another, however increased agent information means this can be done more tactfully and they have more opportunity to push their own agenda. A similar situation occurs in (3) but with no teeth, making any action on either

side performative, something that is easier to do without the other's assent, leading to back and forth. In the end, (4) provides the only real direction, where under the veil of expertise agents may push forward their agenda, subverting the president's wishes.

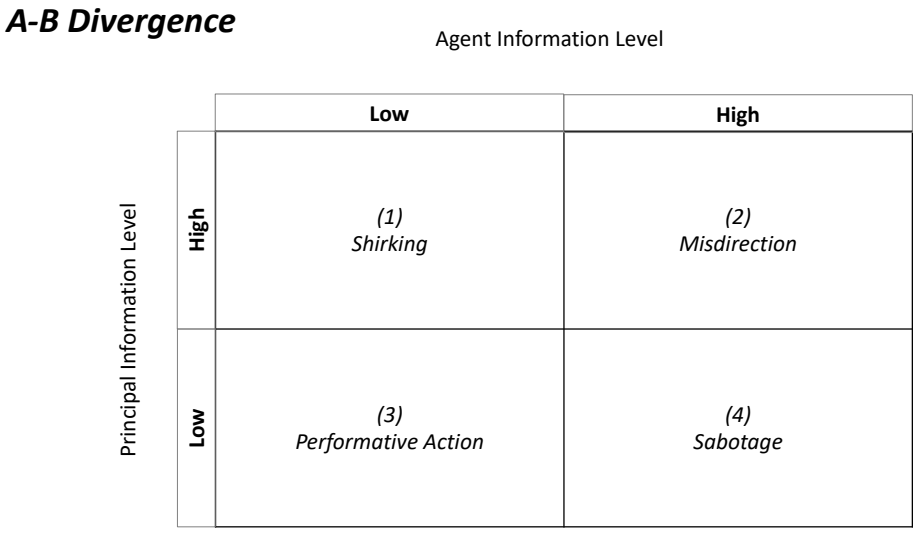

Figure 2-6; Appointee-Bureaucrat divergence

Moving to the Appointee (A) and Bureaucrat (B) relationship, there are a number of similarities, but as the latter is not chosen by the former, there is more potential for divergence.[1] While the agent has less autonomy than in the P-A case of disagreement, they are the ones doing the actual work, leaving room to push their own agendas as their action is directly seen in implementation. Beginning with (1), bureaucrats without information only have the ability to try and avoid doing the work directed, either slowing things down or wasting resources. When they gain information in (2), there then becomes an ability to direct their ordered efforts in ways that further their own

[1] As agreement shares many of the same characteristics, with path divergence and coordination hinderance being the notable effects as with P-A agreement, this matrix has been omitted.

agenda, though only in small ways as there is a knowledgeable principal. Again, with little information all around, efforts become mostly performative, though bureaucrats have less agency to do so than in the P-A case, making it so little is done. Case (4) just becomes an amplification of (2), where bureaucrats can work not just to misdirect, but to even undermine the desires of the principal, such as was seen in the previously mentioned Trump EPA.

This complexity can compound when concepts from the two charts are combined. Disagreement between both the president and appointee as well as between the appointee and bureaucracy could lead bureaucrats aligned with the president, or more likely to three different agendas, though both situations will likely be quite unproductive as information asymmetry abounds. With very different feedback mechanisms, the ability to push back on these constraints will differ drastically, and ultimately the only positive effect can be had where the 'rubber hits the road' at the bureaucratic level. Further, thinking about groups of bureaucrats (and to a lesser extent appointees) as monoliths ignores how views may differ by office or even individual, and how this can impact the principal-agent relationship. This can add further principal-agent relationships to the model as discussed earlier, or just add complexity to how the existing ones are evaluated. Finally, and perhaps most importantly, information asymmetry and goal divergence are not all or nothing binaries as the charts insinuate, and the differing extents of each can impact how the relationship functions. Despite all this potential for complication, this theoretical framework provides an outline of the challenges faced by the executive in propagating an agenda and a basis for further discussions of the intricacies.

While environmental focus of this topic serves to help simplify some aspects of this relationship, as general agreement or divergence is often clearly delineated, there can still be lots of intricacy in the specific approaches. At first this delineation seems like a boon, as environmental agencies like the EPA trend liberal, meaning that no matter the president and appointees, some force will be going in a positive direction, however the issue comes with the fact that true climate work spans much if not all of the federal alphabet soup, and agencies like DOE and DOT that must play significant roles fall more towards the middle of the political spectrum, as seen in Figure 2-2. Even for the most goal aligned actors, there also exists a problem of path divergence that has been seen in the status quo, where despite agreeing on the problem to be solved, ideas for solutions can be quite dissimilar.

Relation to Powers

While these models provide a useful way to frame inter-executive interactions, their real utility comes from their application in real examples, something that will be explored through the rest of this work. As the singular chief executive, all of the president's work involves some sort of principal-agent relationship, thus to take effective action they must deal with the goal divergence every actor they work with has and find ways to mitigate the information asymmetry that exist. Whether this is intentional, by a holdover from a previous administration, or simply incidental by one of the president's closest advisors, the priorities of other actors will never be perfectly instep, thus it is up to the president to find ways to help find alignment. This can be as simple as talking during a cabinet meeting or can resort to compelling action through the many tools at the chief executive's disposal.

Solving these principal-agent challenges can be done through two trends that already exist within the presidency, politization and centralization. Politization refers to the idea that decision-making has shifted towards ideological beliefs from objective analysis, often as more appointed agency actors have partisan leans. This movement has been a way to reduce goal divergence,whether intentional or not, as politization brings elements of loyalty and belief that can help align priorities. On the other hand, centralization is the trend of presidents to try and concentrate decision-making authority closer to their control, changing agency structure and creating mechanisms that give them more say in the process. In the same way, this development lines up with reducing information asymmetry, as the closer authority is held the less opportunity there is for things to become disconnected.

Using the models outlined can help to contextualize different presidential powers and the ways they can help to address these principal-agent challenges, but also the ways they depend themselves on this relationship. In the same fashion that so many actions can be linked directly or indirectly to an environmental impact, many the powers and potential powers enjoyed by a president could in some way be used to both promote a clean energy transition in the US and strengthen the principal-agent relationship, however it is necessary to narrow this focus for the sake of brevity. Two powers stand out as means to harness politization and centralization: appointments and regulation. Appointments allow a direct reach into the agencies where goal divergence exists and are a method to increase the associated politization. Regulation presents a more nuanced challenge with multiple tools falling underneath this umbrella, but generally give ways for presidents to reduce information asymmetry and centralize control closer to their desk.

In this vein, the third chapter focuses on appointments, looking at the role the executive plays in deciding what individuals are using these tools, and what sort of control can be exerted over them. This is a natural follow-up to the previous chapter and adds an important layer of intricacy to the previously discussed tools, with more of a focus on how goals can be aligned, though information asymmetry plays a role as well. Through case studies of the Carter and Reagan Environmental Protection Agency (EPA) and Federal Energy Regulatory Commission (FERC), different strategies of appointment and removal are discussed.

Following close behind is a chapter on regulation and ways the executive can assert policy control. With potential to have major impacts on information asymmetry while also some ability to reduce goal divergence, this looks at the role of various executive tools like regulatory review to do so. Case studies of the National Environmental Policy Act (NEPA) and Clean Air Act show how such principles can be applied to climate topics, and expand upon this regulatory toolbox.

The final chapter will look to draw conclusions regarding the powers discussed, thinking about their effect and challenges in a broader executive environment. Bringing in additional powers not fully discussed, it will reflect on current events and the relevance of this paper to those changes. Using these ideas there will be some policy reflections, looking at how powers can work in combination, and what potential pitfalls there are to avoid. While a full analysis of power application would take many more pages than this paper is allotted, the discussion here should serve to guide thought on the topic, and perhaps provoke more work.

3. Appointments

The Role of Appointments

Appointments, the power of the president to choose the personnel working under them, are truly the basis on which all other powers rest, as any sort of policy is influenced by those implementing it. The influence of the president's appointment power has garnered recent attention surrounding supreme court nominees, as it turned to a conservative majority and decides cases surrounding the environment, reproductive rights, and other important issues. These current events have brought attention to the selection and confirmation processes that often fall by the wayside, and the general public now has many comments on the rules, regulations, and norms surrounding it all. While the nomination of just two justices has undoubtably had an outsized impact on the country, this is just the tip of the proverbial iceberg of appointments. "Presidents and department heads make few choices that are more important than those concerning the type of people that serve with them … hundreds of personnel selections add up to a cumulative action of choice that may be at least as important as the electorate's single act of choice for president every four years" (Heclo 1977). Appointees both give the executive reach into the agency's work, putting eyes and ears all over the federal bureaucracy to begin to combat information asymmetry, but more importantly reduce goal divergence as it puts individuals at least theoretically in line with the president at the head of bureaucratic work.

These days the president is given the responsibility of nominating over 4,000 individuals for a wide variety of roles across the federal bureaucracy, truly a daunting task to be done by one individual("Presidentially Appointed Positions" 2021). While few presidents actually fill all of these roles, such positions give executive influence wide reach into agencies, departments, and

commissions across the federal bureaucracy. Despite seeming like an army of federal employees at the president's disposal, this number is not what gives the power of appointment its punch. Presidential selections represent only 0.2% of the federal workforce overall and much less than this in many of the larger agencies, seemingly an insignificant drop in the bucket (Lewis 2008). Despite their meager numbers, appointees sit on the highest rungs at these organizations and hold the greatest control, not just as the cabinet secretaries that we're most familiar with, but also Assistant Secretaries, DASs, and all the rest of the federal alphabet soup. Controlling not just the upper echelons but also these inferior positions make it so the administration has control of not just the face and general direction of the agency, but further influence into specific departments and hires. This gives the president legal lieutenants spread throughout bureaucratic work, that theoretically share his agenda.

Such a deep reach is unique to the US, where nations like France and the UK have a tenth as many appointments. Thus, with presidential power comes the American hallmark of sharp politization, where nominees are seen as ways to extend the control of the president and their party. While George Washington claimed to fill the relatively small federal bureaucracy based on merit, it took less than a decade for these ideals to go out the window when many of these positions were changed by Jefferson (Nelson 1982). As the national government grew with the rapidly expanding nation, there became more and more positions available to be filled, and thus a higher degree of control to be held. While Andrew Jackson is often associated with the quote 'to the victor goes the spoils,' meaning that the election winner should have full latitude to replace any of their subordinates, such a 'spoils system has really been around since the early days of the

country, though Jackson did take it to a new level with well over a thousand replacements (Freidel and Sidey 1999).

This expansion of positions continued to skyrocket as the nation reached for the Pacific Coast, went through the Civil War, and rapidly industrialized, and may have continued unchecked if not for the assassination of President Garfield by a disgruntled job seeker and the resulting passage of the Pendleton act in 1889. From this act came the creation of the federal civil service, turning many positions from spoilage appointments to merit-based employment based on exams, drastically reducing the number appointments and hires a president had control over (Corwin 1957).Despite this setback, presidents still retained a significant number of positions to fill and continue to expand this, going from hundreds in the early 20th century to thousands presently.

Though there have been some small reductions, such as when the USPS became a quasi-corporation and removed the ability for direct appointments, relying instead on an appointed board to make decisions for the agency, the rest of the federal government has experience an opposite trend (A. Lee Fritschler 2020). As presidents look to exert control over the bureaucracy, more and more permanent 'careerists' have been replaced by appointees chosen by the president (Mackenzie 2001). While it seems to be great for presidential control one wonders about the influence it may have on the continued functioning of agencies carrying out critical and continuing work over administrations.

This begs the larger question of what really the role is of appointees, and how does this fit into the control that presidents should have over the federal bureaucracy? Political scholar Terry Moe

(2009) argues that since presidents are held responsible for the actions of the government as a whole, it is only natural for them to try to centralize power and gain better control over it all. Extending appointments in a political nature is a natural extension of this drive, as one of the most fundamental ways to influence policy direction. Writer David Lewis (2008) agrees with this notion, seeing the role of appointees as interpreting the often vague mandates of Congress, where there is natural room left for the agenda of the agency to be shaped by the president. While scholarship on the topic is in no way this unanimous, recent administrations seem to have embraced the idea of presidential control, differing in the way they think best to execute it.

Though it is often an easy choice for a president to feel emboldened to take control, after winning the mandate of an election, the dissonance often comes when deciding who exactly gets this control. While the distinction between president and party is usually not wide, appointments become one such place of division, as the two may have differing loyalties, favors owed, and specific priorities. Such conflict has seen significant intricacies through different presidential dynamics, though there has been a clear progression from the party interest to more presidential control. Much has shifted from the creation of the Plum Book in 1952, as the Republican party looked for appointed jobs they could fill after Eisenhower's election ended 20 years of democratic incumbency (Rein 2021). Although the direction itself was given by the president, the party leadership was largely responsible for its purpose and direction, as had been the case for previous decades. This trend began its shift when Nixon entered office and created a 30 person Presidential Personnel Office (PPO) to find and recruit appointees for his administration (Patterson and Pfiffner 2001). While previous administrations had begun to have a designee to

fill these jobs, this was a notable increase, and was accompanied with a focus on loyalty to the president, an important concept that will be discussed in subsequent sections.

Does this mean that in a few decades we'll see the entire federal workforce replaced every four years, as presidents look to expand their power using appointments? Even if the civil service somehow disappeared overnight, the answer to this would still be a resounding no. While appointees may be great at giving the president power to shape the agenda of agencies, it turns out that they're not nearly as good at doing the agencies work as those who have been there for decades. Even though some elements of their work are viewed very differently by the two parties and are highly politicized, the vast majority of agency efforts are ongoing efforts that everyone would like to keep running smoothly, something changing staff and politization can get in the way of. Though no president in their right mind will eliminate appointees all together, nor do they have the legal ability to, there are natural limits to the number that makes sense for a president that wants to maintain control while also promulgating effective policy.

Choosing the Candidates

The process of finding candidates to fill thousands of important positions, most over a relatively quick presidential transition, turns out to be quite a monumental task and is one that has been approached in a variety of different ways. While it may appear to simply be a hiring process, there are actually two procedures occurring simultaneously in a sort of awkward dance, one finding people for positions that need to be filled, another finding positions for people in a patronage system. Whether it's campaign staffers, primary rivals, or 'old friends,' there are

numerous people who have been promised a job as a political favor, regardless of their qualification as a candidate for the job otherwise. “Personnel is policy, and the White House officials recognize that in order to get control of policy, you need people who are loyal to the president and qualified for the job to which they have been appointed. In practice, evaluations of competence can be colored by ideology and the immediate need to fill literally thousands of jobs” (Lewis 2008). In fact, according to Lewis’ analysis, this sort of patronage system is often the limiting one, as there are more people needing to be placed for patronage than those needed for effective control of the bureaucracy.

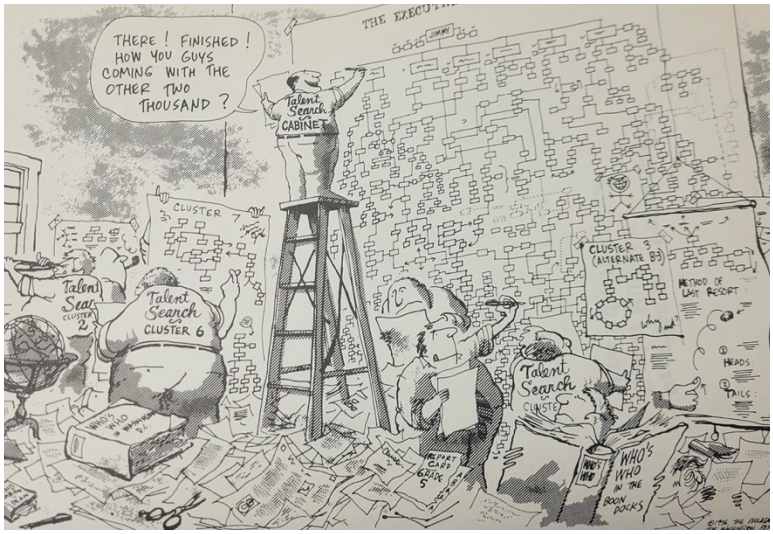

Figure 3-1; The Search for Candidates via The Philadelphia Inquirer

Adams and Kavanagh-Baran (1979) put a high value on competence, saying that for a president to effectively fulfill the mandate given to them by the people it is necessary for the president to surround themselves with the most knowledgeable people, though they note that political experience can be a valuable competency when working in a government environment. Macy, Adams, and Walter (1983) agree with the value of competency but find that the downsides of a

career in public service dissuade many from even considering such a position. From long hours and comparably low pay, combined with ethics reporting and political concerns make it so many who are at the top of their fields are more interested in more straightforward and higher paying private sector positions.

While Lewis (2008) agrees with the harm that politization does to a president's effectiveness, he explains that presidents are forced to continue such strategies because of the patronage system, and the political environment they must navigate to get elected. Working on similar principals Weko (1995) points to the explosion of appointment positions and creation of the PPO as contributing factors to this, as both president and party leadership became more disconnected from the process, while at the same time the number of positions to be filled rapidly expanded. These ideas are complicated by Mackenzie (1981) who questions how one can define the concept of 'competence' and 'success,' saying these will always depend on who is evaluating this. Because of this, he asserts that since government is politicized, appointees will inherently be as well.

While strategies of how to recruit the top talent has varied widely over time by administration, they have all involved significant planning and personnel to sift through all the decisions that must be made. Many emphasize the virtuous patriotism that working in public service carries, a technique made famous by President Ford as his administration struggled to attract candidates following the Watergate scandal, while another surefire tactic is giving the nominee a call from the president himself. Nevertheless, the specific strategies pursued by an administration are what

determines both the tone and effectiveness of their appointments, which in turn determines the policy that they can advance through the bureaucracy.

The fundamental tension in appointments lies between loyalty and competency, either recruiting through the patronage system outlined above, or trying to attract top talent, by whatever metric that is judged. Such a struggle connects critically to goal divergence, where a loyal agent will have interests much more aligned with a principal but may not possess the requisite skills to effectively execute, while a competent agent will have the ability to get lots done, but their priorities will be their own rather than the president's. Finding some balance between the two is likely the best path for an obedient yet effective agent, though the way this plays out is greatly influenced by the area in which they are working.

EPA Appointment Strategies Under Carter and Reagan

When thinking about the different strategies presidents can take with appointments, especially through and environmental lens, Presidents Carter and Reagan's nominees for positions at the EPA presents great examples for comparison. As often is the case in political science, there is no perfect formula for choosing appointment candidates, nor are there metrics to quantify what this would even mean, so lessons must be learned by looking at failures and counterexamples in conjunction with strategies that appear to be effective in holding presidential control. While the two presidents differed in many ways, importantly on their views on how environmental issues should be handled, they both campaigned on bureaucratic reform and looked to exert strong executive control on agency action. Nevertheless, they pursued very different strategies in their acquisition of nominees, making it a case ripe for comparison.

On November 2nd, 1976, Jimmy Carter was elected president of the United States, running on environmental protection and bureaucratic reform among other issues, and at this point his search for appointees was already several months deep. Carter was the first president to formally look at this part of the transition before he had even won the election, however this practice would be continued by his successors, and was part of an ongoing trend of escalating attention surrounding presidential appointments. Carter's Talent Inventory Program (TIP) continued the Nixon-era tradition of using recruiters to start searching out candidates, and this early start simply took it to the next level. The overall goal of the program was to create a "cabinet government," where he chose key upper-level officials and allow them to choose their own staff, with the hope that an early start would let them find the best candidates early on. Carter wanted to move away from direct presidential control of all decisions and let agency heads determine the direction of the agencies. He believed that good policy would be made by looking to the experience and expertise of his top appointees, "[ensuring] that the best person in the country is chosen for each position" (Adams and Kavanagh-Baran 1979). These plans even included prioritizing women and minorities that were often excluded in these appointment positions.

While this all may seem like quite a noble idea, giving the power to those who know better, in execution it was distanced from this idealized version. Carter knew that it wouldn't be an easy process, saying that "the handling of personnel appointments, trying to get the right person in the right position at the right time is a very difficult question," however this knowledge and the pre-planning that resulted from it ended up just adding more difficulty in the end. As the presidential

transition began, the work of the TIP began to come into conflict with campaign officials as they pushed for different priorities and candidates, adding carnage to an already complicated process. Furthering the difficulties was Carter's goals of bureaucratic reform, manifested in a transition from the Civil Service Commission (CSC) to the Office of Personnel Management (OPM).

Despite these attempts at reforms, the processes agencies used to select candidates varied greatly, with some using new systems to do in depth research to find high quality candidates, while others reverted to 'old boy' politics. This decentralization led to a lethargic process of selection, meaning it was well into the administration before some important positions were filled. Contributing to these issues was Carter's growing disinterest in the process, which put much of the burden on lower aides who had less of an impetus to make these appointments happen.

The EPA was no exception to these trends and experienced some of its own intricacies to add to it all. As a relatively new agency, there was not yet a tradition of bringing the administrator into the cabinet, though many did recognize the important role that the agency was and would continue to play, as well as its political relevance surrounding many of these decisions. The EPA also represented a challenge with the President's "why not the best" campaign slogan, as it was necessary to have a concrete policy position to pick out who would be best at executing, something Carter didn't fully have as he attempted to balance the popularity of regulations coming out of the Silent Spring era with the economic concerns resulting from those rules (Adams and Kavanagh-Baran 1979).

This conflict was manifested in the selection of Douglas Costle as EPA administrator, a compromise between the two sides, but favorite of neither. No stranger to DC, Costle had been instrumental in the EPA's creation, almost chosen to be its first assistant administrator before being passed over because of his ties to the Democratic party and had served a tenure at the Nixon's Council on Environmental Quality (CEQ) before making waves as administrator of the Connecticut Department of Environmental Protection. Apart from his clear familiarity with the EPA, Costle's selling point was his history of working with industry on environmental issues, something Carter hoped would strike a balance between economic and regulatory concerns (Carter 1977). While Costle was clearly an experienced candidate, his middle-of-the-road nature felt further from the 'best of the best' appointees that had been promised. Many environmentalists certainly felt this way, saying that Costle's past showed him bowing to businesses and openly criticized his selection. Further selections for the agency by Costle and others followed this similar approach, balanced candidates with clear credentials and environmental backgrounds.

After campaigning on environmental protection and being the first Democratic president since the creation of the agency, Carter's EPA fell short of many expectations (Percival 2001). While the agency grew significantly during presidency and saw key actions such as the beginning of the Superfund program and amendments to the Clean Air Act, the encyclopedia entry for this period constitutes less than a paragraph, indicative of the relative action taken during this period (Smith n.d.). To be fair there were many constraints at this time, such as the political climate of the time against new regulation, but some of the lack of bold action on environmental issues clearly stems from the lack of a bold pick to lead the agency, and the direction he would take it in.

Reagan took a markedly different approach, looking to increase executive power while reducing the size of the bureaucracy, consolidating this power in the process. Like Carter, he began his talent search before he had even won the election, however he learned from many of his predecessors' missteps in quickening this process. With a goal of having a fast, efficient, and most importantly consistent process, Reagan looked to replace and reduce bureaucrats while maintaining strong control over the process himself, rather then delegating out too much authority.

Interestingly, his strategy also revolved around finding the 'best of the best,' however in his case best simply meant loyalty to the administration. Rather than delegating work to secretaries and needing to find those with the background to go in their own direction, the Reagan administration looked to find those they could have leverage over so that policy could be consistently controlled from the top down. This is not to say that qualifications were completely overlooked, however Reagan Aide Lyn Nofziger once famously said "As far as I'm concerned, anyone who supported Reagan is competent" (Pfiffner 1996). Looking to loyalty ensured that the administration would continue to have agencies under their thumb and wouldn't have to deal with administrators taking off on their own agenda and undermining the president's wishes. Many of the decisions for posts were given the final sign off by the president himself in comparison to other administrations who left most lower decisions to staff, indicating the importance of selections for loyalty (Nathan 1990).

Reagan also recognized the importance of speed in appointments, as the real work could only begin once there was a staff there to do the work. Apart from having a consistent process, the administration also realized that not all jobs could be immediately filled and identified a set of key positions to be prioritized in the early days of the administration. While they encountered considerable difficulty with new rules and regulations surrounding appointments that ended up delaying the perfect execution of this plan, things went much smoother than for Carter.

Though Reagan may have had a strong environmental record as a governor, his pick of Anne Gorsuch as head of the EPA was fully representative of his changed role as president, making claims such as "trees cause more pollution than automobiles do"(Shabecoff 1989). [2] Gorsuch had little relevant experience, previously working as a lawyer before serving in the Colorado legislature, then heading intergovernmental affairs on Reagan's transition team, likely her ticket in (Dennis and Mooney 2021). As a strong loyalist, her focus was on gaining control and downsizing the EPA in line with Reagans 'New Federalism' devolution, something she made abundantly clear during her first speech at the agency. As the administration aimed to reduce federal oversight through regulation and cut costs, the EPA became a prime target for such efforts due to what they saw as 'excessive' regulation (Whitford 2002). The administration believed environmental agencies were filled with partisan Democrats who cared personally about the issues they were working on, a claim that was likely true, and wanted to reduce this as much as possible.

[2] Ann Gorsuch also is referred to as Ann Buford after her divorce and remarriage in 1982-83.

As the EPA had only 3% of managers appointed, simply nominating loyalists would not be enough and would increase not decrease the bureaucracy, so other strategies had to be pursued (Lewis 2008). The simplest tactic employed was replacing careerists with appointees where the law allowed, a tactic employed liberally, to the point where the administration was investigated in 1987 by Congress for 'packing' the top ranks with appointees (Shabecoff 1989). More widely, the administration simply used reductions in force (RIFs) to reduce the number of careerists, with dramatic cases like at CEQ where there was an over 70% reduction, with many of those remaining being replaced by appointees.

In cases where congressional acts limited firings or replacements, Gorsuch led the charge in finding unique ways around these limitations. Her reorganizations used tricks such as putting unfirable careerists under the jurisdiction of an appointee or putting them in charge of a completely different and less important department. Some employees would find themselves transferred across the country or doing completely unrelated work, stymieing any efforts they may have been contributing to. Reagan and Gorsuch also worked to entrench employees with similar views, often those working in the industries they were regulating, as careerists, hoping to shift the agency to the right in a way that could last to future administrations.

Things changed course however after Gorsuch was forced to resign after a scandal surrounding her misappropriation of Superfund money and contempt of Congress when she refused to produce records surrounding it, after which she was replaced by a return the EPA's first administrator William Ruckelshaus who was brought back by Reagan in an attempt to restore Congress and the public's confidence in the agency. While Ruckelshaus didn't bring massive

change to the overall direction of the agency, he fired a good number of top officials, replacing them with more competent environmental veterans, and restored at least some trust in the mission of the agency. After his retirement during Reagan's second term, he was replaced by Lee Thomas, who's tenure at the agency had little of note.[3]

While the strategies employed by Carter and Reagan were for very different ends, they show some notable similarities in the ways the power of appointment can be used. On one side Carter delegated responsibility, expanded departments, and saw incremental, though not remarkable progress as a result. On the other is Reagan, who quickly gained control over the agency and pushed his policy, though in a way that lost public and congressional trust and found itself slowly backtracking towards competence and away from loyalism. With a multitude of complicating factors, it is impossible to say one is definitely more effective overall, but there are a clear number of lessons to be taken away on how presidents can influence environmental policy.

Competence is clearly an important factor in appointees for a pro-environmental president, however no matter how competent they may be, numbers must remain limited. Whether a president is looking to hold direct control or delegate to administrators, keeping the number of appointees small both allows presidents to exert more control, but also leaves room for careerists who have more experience with the job, and don't suffer from the short tenures that many appointees have which make it difficult for them to sustain long term collaborations. This is backed up by an analysis by Lewis that finds that lower numbers of appointees are significantly

[3] While the Montreal Protocol was signed by the US during his tenure, his involvement seems to have been minimal.

better for scientific agencies like NASA and the EPA, and that their "politization would fundamentally hurt the scientific mission of the agency" (Lewis 2008).

Nevertheless, Gorsuch showed that at least initially that loyalty can be a powerful tool for advancing administration priorities. This in combination with some of the failures caused by Carter's dependence on full competency make clear that some element of loyalty and linkage to the broader presidential goals is necessary for effective action. While the value of competency is still large, it becomes even more effective on an administration scale when there is a measure of control involved as well. Finding this balance is certainly not a one-size-fits-all situation, rather it must depend on the specific presidential position.

Further, it is clear that focused planning and quick action are necessary to make sure appointees can be of maximum effectiveness. Delays have only lengthened in the present day, with confirmation, "a process that took 56 days on average during Ronald Reagan's administration, extended to 117 days under President Donald Trump" (Pike 2021). With pressing issues like climate change already occurring on a time crunch, and new developments almost daily, it is critical for a president to start building these structures as soon as possible.

Trump and the FERC

Looking towards modern environmental and specifically energy policy, the Federal Energy Regulatory Commission (FERC) and its appointments come to center stage. Though it has gained notoriety in recent years, few know much more about the commission than its name,

despite the outsized role it is playing in the development of renewable energy in the US. From permitting large new oil pipelines to pushing forward the development of offshore wind, the FERC plays a big role in both sides of the transition, something that can prove to be a boon or bust for environmental efforts, depending on where its priorities lie.

Established in 1920 by Congress as the Federal Power Commission (FPC), the initial charge of the group was simply to coordinate federal hydropower development. This was extended in 1938 by the Natural Gas Act to include interstate natural gas pipelines and sales among other things. After the creation of the Department of Energy in 1977, it seemed only natural to include the FPC, however many were concerned with maintaining its independence, so it was left as an independent organization within the larger DOE structure and renamed to the FERC. While there have been a number of shifts in the role and function of the commission since then, its purview has largely remained the same.

The commission is made up of five presidentially appointed and Senate confirmed commissioners, where no more than three can be of the same party. They serve five-year terms, with a chair that can be chosen by the current president. As it holds the power to raise revenue through regulation fees, it is self-funding and thus truly independent, subject only to judicial review. One of the larger of such agencies, it has fairly broad mandates and powers to prevent against the manipulation of energy markets, push projects through bureaucratic hurdles with powers like eminent domain, as well as overseeing new development of energy generation and storage.

While it is certainly no secret now the politicized role the FERC holds on the fundamental shape of the US energy industry today as it makes the front page of major papers like the New York Times and Wall Street Journal, this is a relatively new development. There has always been lots of contentious issues surround the commission, from the extent of their jurisdiction to barriers of permitting, but these challenges have all been issue based, rather than the current question of the fundamental direction that the energy industry will take. Just under a decade ago, as Obama started his second term, scholars were writing about how the president could use his influence to push clean energy using this avenue. However, this was never a strategy he really embraced, perhaps preoccupied pursuing other avenues such as the Clean Power Plan (CPP)

Despite Obama not moving on this in a strong way, his successor took action in his own quintessential style. At the beginning of his term, Donald Trump appointed three commissioners to the FERC including Neil Chatterjee as chair. Formerly Mitch McConnell's 'coal guy' and an active Republican, Chatterjee maintained a relatively balanced tenure on the commission, garnering flak from both parties for everything from gas pipelines to rooftop solar, until he was abruptly replaced by Trump in November 2020 (Willson 2021). In the weeks leading up to the change, Chatterjee had opened the door for regional utilities to put a price on carbon emissions, as well as issuing a policy statement endorsing a larger scale carbon tax nationwide. Additionally, many speculated that his continued running of diversity trainings, which Trump had banned, may have been a factor (Grandoni and Mufson 2020).

The blatant politization of this move represented a likely inevitable shift for the commission as it becomes further embroiled in the national climate and energy fight. Such controversies are set to

only increase as the issue increases in relevance and more difficult decisions come across the commissions plate. While the idea of an independent and nonpartisan group is very appealing, it is clear that in the present day and with the fundamental issues that are being faced, this is not a realistic dream.

Like the earlier case, many of the lessons must unfortunately be learned from counterexamples, as the nation waits for bold, large-scale action on climate. First, it is clear that presidents must acknowledge and fully embrace the politicized nature of the FERC, as pretending that it can continue to function as a neutral, independent commission will only serve to embolden the influence of their opposition (Skibell 2020). While this may lead to significant swings between administration, as big as this can be with five-year terms, it seems to be the new reality barring congressional action on the topic. Similarly, to before, it is necessary to make expedient appointments, as even with a party majority everything is halted until all five are Senate confirmed. With the lasting term of the commission, competence and foresight should be emphasized in appointees rather than loyalty or the like. Finally, the president must exercise their influence with the commission, both the strict albeit limited power to choose the chair, but also their sway to push the energy industry in a direction that is good for the electorate and the environment through the bully pulpit.

Conclusions

The power of appointment is one of the strongest tools presidents have to influence policy, especially at the beginning of their term, and is one that lays the foundation that many of their future efforts will build upon. When looking through the lens of clean energy, there is a plethora of important appointments, from obvious ones in DOE and the FERC, to somewhat related in EPA and the Nuclear Regulatory Commission, to seemingly distant roles in the Department of Commerce and Tennessee Valley Authority. In fact, most any position will likely have at least some connection to climate as it is a whole of government challenge, though the degree of this importance may vary.

While there is no clear guidebook to a successful strategy, there are lots of mistakes to be learned from, and this is fortunate to be an area where the nature of the issue can help to sidestep some of the challenges. Many of those most knowledgeable about renewable energy development are passionate about it on a personal level, as they care about the impacts it can have on climate change. This yields many benefits in the face of the appointment challenges outlined earlier, both that they are more likely to accept downsides of government employment, but also that they are working towards the same means, removing issues of infighting or personal agenda setting. A president with a strong environmental agenda, as they would do themselves well to have with its current widespread popularity, must use their appointment power in a strong and intentional way to create agencies that can help to propagate further development and regulation necessary to begin to address these issues. Clean energy represents a perfect avenue to start, with its outsized impact, generally clear goal, and large amount of quickly available solutions.

The challenge becomes balancing this environmental zeal with obedience to the president and their agenda. When thinking about goal divergence, this refers not only to differences in wide policy, but also in specific approaches and actions, things that can change from day to day. Thus, an appointee that is fully committed to a clean energy transition may experience significant goal divergence on an issue like biomass or may simply want to take their own approach in day-to day operations that diverges from the administration. Not only does this harm the specific agenda that is trying to be advanced, but also can be extremely detrimental to coordination and messaging efforts, something that is critical in a political environment, but may be of less import to an insulated agency actor.

As discussed earlier, loyalty can be a solution to this goal divergence, but brings in concerns about effectiveness outside of the principal-agent problem. Striking this balance is a difficult challenge and will depend upon the specific presidential tone and strategy for what will successful. In general, it is likely better to tend towards competency as seen from the Carter and Reagan examples, as progress will be made, even if such progress is not directly coordinated to a specific agenda. Nevertheless, while appointments are a critical base for presidential influence, they are in fact just the base, and real action only comes when they can be harnessed to take action while serving in their position.

4. Regulation

The Presidential Role

For an elementary school civics student, the role of a president in the federal government is fairly clear: Congress makes the laws, courts settle disputes about the laws, and the executive carries out the laws, with all the branches having different checks and balances on each other. Though on a basic level this is true, the full answer has much more intricacy and controversy. As discussed in the introduction, these powers extend beyond what is explicitly stated in the Constitution, though the extent of this is the subject of much debate. Though there are many important powers, this chapter focuses specifically on the president's influence over the bureaucracy's interpretation and execution of congressional mandates and creation the rules that govern this country.

One traditional and perhaps more straightforward role the president can play is as a legislative actor, helping to push legislation through Congress, guide the national discourse, and shape the American position. As a notable public figure, often the de facto leader of their party, and popular with the American people to win the national election, presidents had considerable sway in working with Congress to take bills over the line. The voice of the president carries far, virtually guaranteed primetime coverage to the ears of Americans across the country, who in turn can bend the ears of their respective representatives. Often however, this influence comes less from trust in their opinion, rather from their ability to bring attention and paint a narrative on issues (Canes-Wrone 2001).

This legislative role of the president has been long well known, with James Madison writing his concerns about it in *Federalist 49,* however the role is codified in the Constitution with legislative interaction through the State of the Union and veto power. While this has developed over the years with things like the 'rhetorical presidency' of FDR's fireside chats, such an effect can still be seen in the present era with examples like Reagan's speech on the 1981 income tax reduction that flipped the house vote. Nevertheless, this concept is likely to feel more foreign to the modern reader, and Congresses of the past decade have certainly shown an inertial resistance or even full opposition to presidential direction.

The hallmark of 21st century politics seems to be partisan gridlock, which makes it feel as though it would be the perfect opportunity for executive influence to push through razor-slim margins. Though Vice-President Kamala Harris spent plenty of time on the Hill for this purpose in 2021-22, her tie-breaking was procedural not rhetorical. With divisive partisanship and declining presidential popularity, the role of the legislative president is fading, even becoming counterproductive as epitomized in President Biden's quotable line to Senator Mitch McConnell "I said I'd campaign for him or against him, whichever would help him the most" (Biden 2023).

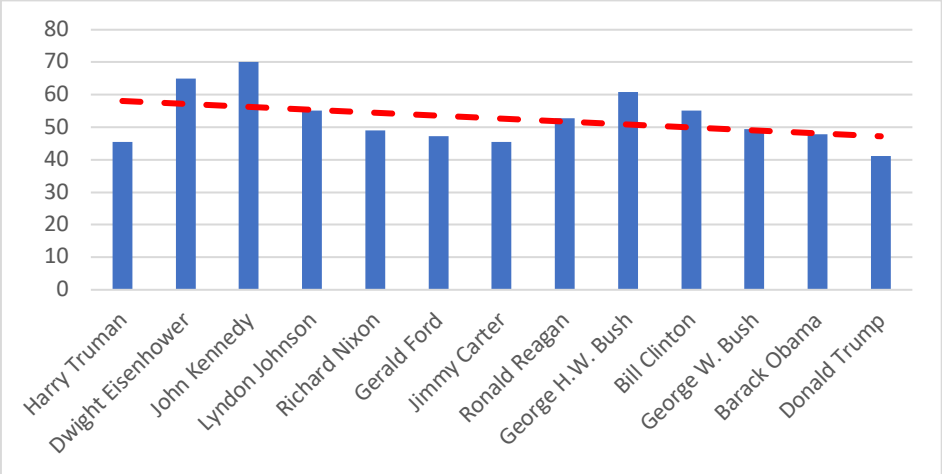

Figure 4-1; Presidential Popularity via Gallup

Bureaucracy

While most people think of law being made via a bill on Capitol Hill *à la* Schoolhouse Rock, the majority of rulemaking is actually done by agencies within the federal bureaucracy (Potter 2019). The Administrative Procedure Act (APA) gives agencies authority to "implement, interpret, or prescribe law or policy that has general or particular and future effect." (Potter 2019) Regulations are the result of this, rules created by federal agencies in the process of implementing congressional acts, holding the force of law uniformly across the country. Many of these regulations promulgated by agencies are large policy changes, and while the authority for these regulations does come from congressional action at some point, it is the result of broad language intended to be interpreted and executed. This is not to say that Congress does not have clear intentions, but in creating all the nation's laws legislators have neither the time nor the expertise to detail the exact actions, instead delegating to specialists in the federal bureaucracy. Thus, regulations are needed as a vehicle to sort out these details, rules created by the bureaucracy as the implement these general congressional directives.

The term bureaucracy often comes with a negative connotation, evoking the image of doing never-ending paperwork in line at the DMV, however the importance of the multitude of administrators who turn the squabbling of legislators into tangible action, cannot be overstated. For the federal government, this nebulous idea of bureaucracy can be found in the Executive Branch, where the 15 major agencies along with a variety smaller corporations, offices, and commissions that implement congressional directives, as shown in the figure below. Beginning with just three departments: War, State, and Treasury, with all positions hired by President Washington, this has changed dramatically over the years.

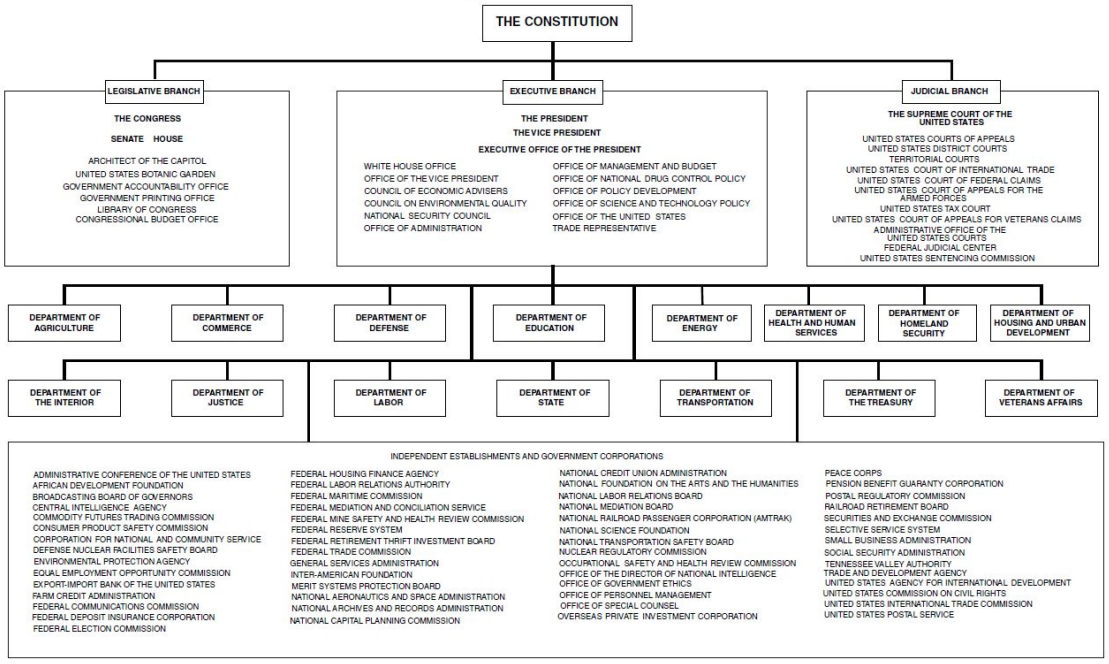

Figure 4-2: The Federal bureaucracy organizational chart via Houston Community College

As the size of the executive branch has exploded, presidential control has become less direct, greatly increasing information asymmetry while also leaving a real potential for goal divergence. From the 1883 Pendleton Act establishing the civil service of merit-based hires to the expansion of independent agencies and commissions, the executive became further and further from its supposed subordinates. Meanwhile, the amount of work being done has only increased. Concern about this grew to the point where a 1957 report found that "top political executives – the President and Cabinet Secretaries – preside over agencies which they never own and only rarely command. Their managerial authority is constantly challenged by powerful legislative committees, well-organized interest groups, entrenched bureau chiefs with narrow program mandates, and the career civil service" (President's Task Force on Governmental Organization 1967), p. 6.

The report was part of a broader reaction during the 20th century, where after post-New Deal spike in federal government size, presidents realized they needed to exert more control over the branch in order to push forward their agenda. One major result of this time was the creation of the Executive Office of the President through the Reorganization Act of 1939, centralizing the so called 'managerial' agencies ranging from the Civil Service Administration to the Bureau of the Budget (now known as Office of Budget and Management or OMB). This consolidation afforded the executive increased power due to the centralization as a result of this office being under executive control, as goal divergence was reduced.

The Administrative Presidency

Etymologically the role of the executive is to execute laws, however etymologists rarely offer advice on how to get bureaucrats to listen to you. While all the federal agencies sit under the president in an organizational chart, the reality is that this principal-agent relationship is far more complex than a boss and their subordinates. The Constitution vests this "executive power" in the president, mandating that they "take care that the laws be faithfully executed," however provides little direction or mechanism to do so. Only relatively recently have scholars really began to extend this to look at the direct action presidents can take in relation to the rulemaking processes going on beneath them (Cooper 2014).

This is taken to a peak by proponents of unitary executive theory, who posit that "anything less than complete control over administration by the president risks and obfuscation of responsibility [to the people]"(Skowronek, Dearborn, and King 2022). Though this goes further than many

would, there is an understanding that the president holds some sort of power over the bureaucracy to ensure this execution, based in court cases like *Chevron v. NRDC* which established the principle of agency interpretation sans explicit congressional direction. This in fact is necessary since "purely as a practical matter, the chief executive is in a much better place than a large group of people in a legislative body or courts to give cohesive policy direction and guidance to the work of large public bureaucracies" (Nathan 1990).

Perhaps the most famous tool for presidential control is the Executive Order, direct order from the president to agency actors. Going from scribbles in the margins of papers to formal documents listed in the Federal Register, they give the president control equal to the force of law over agency actions, with wide latitude for change that can be made (Cooper 2014). This can be incredibly powerful as history has shown from the Emancipation Proclamation to the New Deal and allow for prompt unilateral action. Along with Presidential Proclamations and Memoranda give the president different degrees influence over the bureaucracy and beyond. Nevertheless, as EOs are issued within the executive, thus their power is just to clarify and further law, and does not have the influence of regulation, nor can it force this to be done.

With such unilateral measure, why are EOs not a primary vehicle for presidential influence? In the principal-agent relationship presidents hold, overuse of top-down unilateral action can break trust as it undermines agency officials and create poor implementation that makes for future headaches (Cooper 2014). As they lack the planning and detail associated with acts of Congress, information asymmetry is increased and goal divergence, or even just goal drift, can occur. The unilateral nature of EOs both makes the White House the direct lightning rod if things are not

well received but are also limited in quantity as each one must come directly through the president, limiting the number and detail of what can be promulgated. Finally, executive orders are one of the most easily reversable methods of presidential influence, as they can be unilaterally rescinded just as they were created, as any goal alignment they create is temporary. While they remain a useful tool for implementation and reactive action, creating an aligned agent in the bureaucracy is more effective for continued and wide reaching presidential influence, as they hold the power of regulation.

A lesser known but more influential tool at the president's disposal is regulatory review, the process through which the president evaluates proposed regulation before they are put into force. Beginning with the passage of the APA during the FDR presidency, this was a method of reducing information asymmetry, initially just through requiring agencies to inform about rules they were considering promulgating through Notice of Proposed Rulemakings (NOPRs). This was furthered through the creation of the Office of Management and Budget (OMB) by the Nixon administration, which centralized this review in the EOP. Modern regulatory review began with Reagan's executive order in the 1980s that established the Office of Information and Regulatory Affairs (OIRA), which sits within the OMB and institutionalizes this review process for every 'significant' rule (Potter 2019).

The OIRA review process requires agencies submit to them proposed rulemaking before it is seen by others, so they can perform cost-benefit analysis on its economic, social, and environmental impacts, screen for overlap with other agencies work, and ensure that the rule is not too 'burdensome.'(Copeland, n.d.) While these explicit goals already offer significant

presidential control, OIRA is understood to screen rules for their alignment with presidential priorities as well, giving direct influence to the process. Much concern came with OIRAs creation, raising worries about the power this gave to an administration, and the wide reach it had to all agency work, and these criticisms remain in the present day. Nevertheless, while the process has been updated and revised by every administration since Reagan, some form of centralized review in OIRA has stuck around and been a powerful tool for presidential influence.

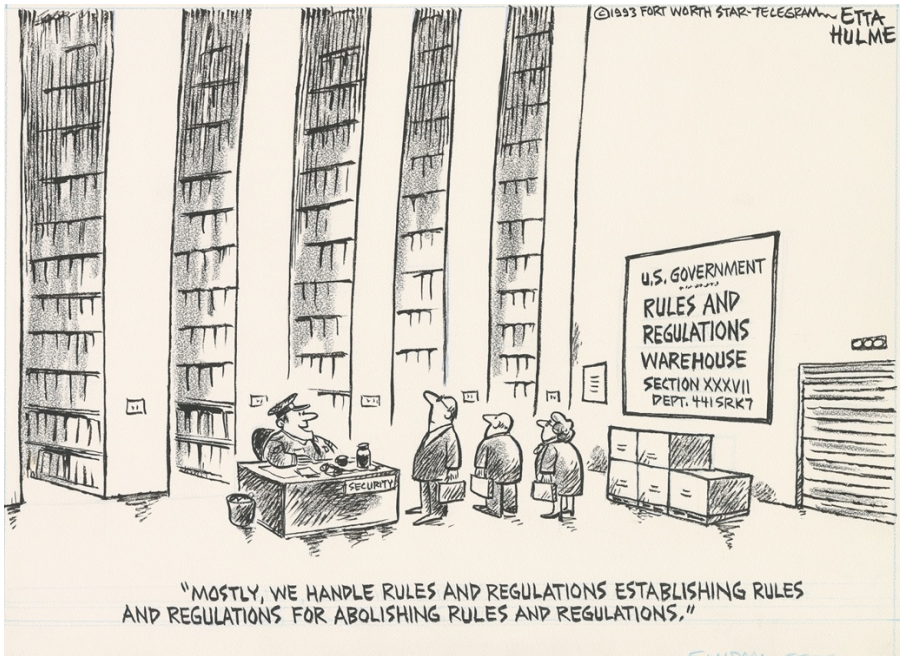

Figure 4-3; The Federal rulemaking process

Though the power of OIRA may seem to be in its ability to let the president strike down rules, its real value in this context comes from how it reduces information asymmetry. The ability to influence regulation in this regard only allows for negative feedback mechanisms of sending the rule back to the agency, which has only a weak effect on goal divergence in agents. As agencies must send OIRA proposed rules before they are seen by anyone else, even Congress, this greatly reduces the unknowns about their work, combined with things like the requirement to publish

planned future actions. With this information the executive can use its levers of things like budget or appointment to react, as agencies cannot hide what they are working on.

Though OIRA has historically been hated by environmentalists, that too is shifting as the process of regulatory review is harnessed for climate purposes. New changes from EO 12866 modify the federal discount rate for how future impacts of things like carbon emissions are calculated, factors in global impacts, and considers equity impacts, all integral pieces of the value of this work (Dhanesha and Pontecorvo 2023). What this does is change the cost-benefit calculus done by OIRA, helping to better value the true importance of climate actions in its calculations. While such a shift may seem somewhat niche, it has impacts on every proposed rule that goes through their doors.

NEPA and CEQ

In addition to the general administrative powers at their disposal, the president has also been afforded additional tools through legislation to help ameliorate information asymmetry. One such tool that is extremely relevant to the topic at hand is the National Environmental Policy Act, or NEPA as it is better known. Despite being a landmark piece of environmental legislation, it received relatively little fanfare to its passage in 1969. It was created as part of the broader response to concerns around environmental concerns raised by things like Rachel Carson's pivotal work *Silent Spring,* and its debate occupies just a handful of pages in the congressional record and was passed without even a roll call vote. The message here was clear, despite some disagreement over specific approach, Congress believed that environmental concerns should be integrated into all federal decision-making.

This legislation contained three key pieces: first it declared a national policy for the environment, then it provided instruction and procedure for agencies to implement this, finally creating supervisory mechanism in the president's Council on Environmental Quality (CEQ). The mandate here was broad, with the text saying:

"the Federal Government [must] use all practicable means, consist [sic] with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may –

1. *fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;*
2. *assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;*
3. *attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;*
4. *preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;*
5. *achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and*
6. *enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources" (Jackson 1969).*

Despite the breadth of this bill, what it is best known for is the requirement for Environmental Assessments (EAs) potentially followed by Environmental Impact Statements (EISs) to be completed by federal agencies for any major action undertaken.

It is worth noting how influential NEPA was, despite being just a few sheets of paper, compared to the hundreds seen with similar legislation today. The act was the beginning of a slew environmental bills that would pass through Congress over the next decade, and has arguably been the most replicated piece of legislation internationally to date (Liroff 1976). While reactions ranged from support and admiration to disgust at the potential plethora of new regulatory hurdles, most would agree it had "modify[ed] fundamentally the basis of Executive decision-making on matters effecting quality of the environment," thus its relevance for study here (Caldwell 2000).

Part of the reason for its short length was the fact that much had been left up to interpretation by the newly created CEQ. After the bill's writers realization that "some form of external policing mechanism was needed; the mission-oriented agencies could not be trusted to consider seriously the environmental consequences of their actions," CEQ was placed in the EOP as a reaction to this principal-agent problem that arose (Liroff 1976). Executive action on this front began almost immediately to develop a process for draft assessments, comment periods, and cost benefit analysis.

In addition to assuring NEPA implementation, CEQ also fulfills an important role as the president's advisor on environmental issues. Though not a cabinet-level position and receiving less press coverage than things like the EPA, CEQ plays an important role in advancing the executive climate agenda, primarily through collaborative work. This role can vary significantly by administration, as CEQ derives most of its influence from its affiliation with the president in an asymmetrical principal-agent relationship. However, if used effectively this office can be a powerful tool in reducing information asymmetry and helping to coordinate action across the government.

For a president concerned with climate action, the addition of a cadre of environmental policy advisors at their disposal adds significant capability and expertise to advancing their agenda. Not can CEQ work on coordination between agencies to make work more collaborative and efficient, but they also have the ability to compel information and some action from them through NEPA powers. The advisory value of CEQ can be significant, giving the president dedicated staff working on environmental issues, with unique capabilities to help inform. Biden has shown how CEQ can be used in pursuit of an agenda, furthering environmental justice priorities through the creation of the White House Environmental Justice Interagency Council (WHEJIC) and White House Environmental Justice Interagency Council (WHEJAC), as well as the Environmental Justice Screening Tool and Justice40 initiative which require EJ concerns to be factored into decision-making across the federal bureaucracy.

The passage of NEPA was also followed by several concurrent effects that helped to strengthen its effectiveness. First was the foundation of groups like the Natural Resources Defense Counsel and Environmental Defense Fund who had legal backing to go after agency actions, based on NEPA noncompliance (Alm 1988). The plethora of court cases that followed fundamentally changed many bureaucratic processes, such as *Calvert Cliffs' Coordinating Committee, Inc. v. Atomic Energy Commission* which stopped the latter's licensing process for the better part of a year.

Despite these victories on top of the fundamental shift that NEPA brought, these acronyms are likely unfamiliar to many readers. But this is likely a sign of its success. After its initial flurry of suits, it was quickly overshadowed both in media and in court by the subsequent legislation of the decade such as the establishment of the EPA and passage of the Clean Air and Water Acts. But more importantly, the NEPA process has become so well engrained in agency work that it often represents just another bureaucratic hurdle receiving little outside attention, with its name usually followed by a complaint about paperwork delays.

This regulatory burden is what has brought NEPA back to headlines in the present day, when President Trump railed against "mountains and mountains of red tape" in a speech at an Atlanta airport (Friedman 2020). Though certainly not known as the most pro-environment president, he touched on an issue that had been frustrating oil barons and solar developers alike: the lengthy permitting review process. As the first major update in 50 years, many of these changes were welcome, such as limiting the length of an environmental review to 2 years, rather than the 4.5 year and increased categorical exemptions that would benefit infrastructure projects, both clean and dirty (Koncelik 2023). However these all came with concerns about decreased public

comment periods, environmental justice issues, and perhaps most importantly an end to counting indirect or not "reasonably foreseeable" impacts (Friedman 2020).

As soon as this was announced, then Democratic-nominee Joseph Biden announced his intention to roll back these changes, instead investing in infrastructure and clean energy. In the weeks following his inauguration, President Biden signed an executive order to review NEPA changes, and the next year CEQ released new 'Phase 1' guidance, walking back major pieces of the changes, most notably the return to cumulative impact accounting, bringing back the indirect impacts of projects, such as GHG emissions (Minott and Fishman 2022). While the 'Phase 2' guidance expected to be released any day now, it is already clear that the administration is looking for how reduce project permitting delays, while maintaining a robust process through things like enhancing the Obama era Federal Permitting Improvement Steering Council (FPISC).

Herein lies the challenge with using NEPA for clean energy development. On one hand it is a paradigm shifting piece of legislation, forcing environmental thought into federal decision-making, incredibly valuable from a climate perspective in areas like externalized GHG emissions. However, with the pace of clean energy development necessary to come close to meeting this country's climate goals, 7 year permitting delays cannot exist. To successfully thread this gap, an administration must find ways to simplify and speed up the process, without critically harming the thoroughness of assessments and ability of the public to comment on their process.

Clean Air Act and Regulations

The Clean Air Act (CAA) followed on NEPA's heels as the first major environmental regulatory statute. Originally passed in 1963, the first text focused mainly on research, with no regulatory authority, thus garnered little attention. This changed with the 1970 amendments which added much of what the act is known for today, creating a regulatory scheme to limit emissions of ozone forming compounds.

Coming along with the passage of the clean air act was President Nixon's executive order creating the EPA. While he initially had little interest in environmental policy and had even opposed NEPA as it was developed by his political enemies Henry Jackson and Edmund Muskie, he soon realized the widespread support it received and embraced it for the impact it would have on his reelection campaign (Shanley 1992). Nixon's EPA went to work on implementing the CAA, creating the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, ozone, and lead, along with a requirement for states to develop State Implementation Plans (SIPs) for how they would reduce them (Congressional Research Service 2022).

The next two decades saw no major changes to the CAA but did have some notable developments in its implementation. Carter expanded the focus of regulation, adding benzene and vinyl chloride to the list while also improving lead and mercury programs (US EPA 2015). As would be expected under someone who once said that trees cause pollution, Reagan did little to further, even trying to weaken EPA authority as addressed in the following chapter (Shabecoff 1989). 1990 brought around the next big advancement of the act under the tenure of George

H.W. Bush, which extended EPA authority under the CAA. From expanding the list of covered pollutants, to adding ozone requirements in conjunction with the Montreal Protocol, to a first-of-its-kind cap and trade program to reduce SOx and NOx gases that caused acid rain (Congressional Research Service 2022).

The modern era of the CAA came with the 2007 *Massachusetts v. EPA* case. After years of environmental groups pushing for carbon dioxide and other global warming related gasses to be controlled as 'air pollutants,' this cased forced the Bush EPA to do so, despite resistance. Not only did this extend EPA jurisdiction, but it allowed for the regulation of GHGs for the first time in American history, giving the executive powerful new authority in combatting climate change. With this legal backing, the EPA identified six GHGs that "endangered the public welfare": carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Congressional Research Service 2022).

From this authority came a new era of regulation, beginning with strengthening CAFE standards in 2009 and introducing new methane leakage rules in 2014. The biggest use however was with Obama's 2015 Clean Power Plan (CPP) which set carbon pollution limits on electricity generating facilities beginning in 2022. With projections saying it would reduce the electricity emissions by a third before 2030 and potentially even more with further rulemaking, this represented a big step forward in American climate action.

Unfortunately, the Clean Power Plan was controversial, and would be challenged by another case in the Supreme Court, *West Virginia v. EPA.* There were many fears as to what this case would

result in, overturning *Massachusetts* or even *Chevron*, and while the outcome was in favor of the plaintiff, but with far less drastic consequences than predicted. The court struck down the Clean Power Plan but affirmed the EPA's jurisdiction over both GHGs generally and power plant emissions, just not in the way that the CPP did (Hurley, Volcovici, and Hurley 2022).

Going forward, the EPA is now tasked with developing rules for existing and future power plant emissions that do not require generation shifting, set to be released this month. As the Biden administration still eyes a decarbonized electricity sector by 2035, this setback must be overcome. Part of this was addressed in the IRA, where CO2 and other GHGs were officially added as pollutants, and EPA authority over renewables was extended with billions in funding for green banks, environmental justice, and more.

The Clean Air Act is undoubtably an essential tool in pushing forward clean energy, however the uncertainty and politicization that surrounds it makes clear that there is still more change to come. Despite the inevitability of further court challenges, the mandate of the EPA to regulate GHGs has been affirmed time and time again, so the challenge becomes one of working within the newly set lines, while pushing the bounds of what this legislation can do. Additionally, the Clean Air Act is an example of the ways existing legislation can be extended in purpose as new challenges arise. This ability of interpretation allows the executive significant influence and is an avenue for that has the potential to be explored further with other legislation.

Another important consideration to make is though there are many tools to be used here, the focus must be brought back to presidential influence. "While the [EPA] Administrator is

mentioned 2,474 times in the Clean Air Act, the President is mentioned only seventy times," showing where the authority of this legislation lies (Ahlers 2014). In this environmentally focused principal-agent relationship, it is tempting to think that goal divergence will be minimal, as the EPA has historically shown a commitment to environmental standards despite the administration, there is significant room for disagreement within the field itself. From conservation to environmental justice, renewable development often comes into contact with other environmental concerns in ways that raise difficult questions. Differing priorities in this regard have the potential to impede efforts, raise tensions, and ultimately bring down both sides.

Conclusions

Both NEPA and the Clean Air Act are powerful environmental tools that add to the existing arsenal of presidential influence. Though neither grants unilateral control, both provide powerful mechanisms that if used intentionally, can significantly strengthen a clean energy agenda. NEPA and the resulting CEQ provide a powerful check on agency behavior, giving EOP a direct view and influence into agencies through the environmental review process via information provided by the EAs and EISs. It also creates a staff at the president's disposal that can lead broader coordination, helping to align goals somewhat and greatly reduce information asymmetry.

On the other side of things, the Clean Air Act provides a strong vehicle for executive climate action, though the challenge is both managing the agents the implement such changes, and responding to significant multiple-principal problem that exists here with legislative and judicial influence. As discussed earlier, the inherent goal alignment that often will exist within EPA helps to mitigate these issues, and can help ensure progress even in unfriendly administrations,

however this still presents challenges in advancing specific coordinated approaches. While the Clean Air Act is almost guaranteed to play a large role in the future of clean energy, it's success in this is fully dependent on mitigating the principal-agent challenges outlined.

In general, regulatory power presents a strong and underutilized avenue for presidential influence over climate and energy issues. The sheer number of staff available in the federal government to do this sort of work is staggering, thus the challenge is how to manage this principal-agent relationship in order to leverage this in pursuit of an administration's agenda. Harnessing the power of OIRA and regulatory review can be a powerful method reduce information asymmetry, letting the EOP coordinate and direct action across the branch as effectively as possible. While each of these tools has only limited effectiveness by itself, when used together, they have the potential to have significant power.

5. Policy Reflections

Current Events

With powers enumerated and examined, this discussion leads back to some fundamental questions. How can climate change be mitigated? By reducing GHG emissions, in this case specifically from electricity production. How can generation emissions be reduced? By incentivizing renewables, disincentivizing fossil fuels, and creating the infrastructure to make the change reliable and usable. Through the lens of this paper, the question is specified further, in both how a president can exert control in these areas by working to ameliorate the principal-agent challenges outlined in Chapter 2, but also how can they make this change meaningful and lasting.

The current state of presidential influence over these topics is bright. Climate advocates have had a rocky history with regulatory action from the regulation of GHGs after *Massachusetts v EPA* to the fall of the Clean Power Plan after *West Virginia v EPA.* However, in the present day such action is poised and necessary, for progress on this front. New EPA rulemaking once again seeks to regulate GHGs from power plants, now backed by the verdict of *West Virginia,* and setting a new higher baseline determined by the Inflation Reduction Act passed last summer. As this new era of GHG regulation is ushered in, such efforts can only grow in the coming years.

Similar advances have occurred through the regulatory review process, where the changes to Circular A4 brought about by EO 12866 have treated environmental concerns more seriously in cost-benefit analysis. This in addition to measures like the EJ Screening Tool extended the reach of such concerns to all agencies, beginning the all of government approach to challenges that

require solutions with a similar scope. Such a recognition that climate adaption must come not just from environmental agencies but throughout all of federal work is a welcome and necessary development to combatting these issues.

Other avenues are less bright, such as that of FERC. While it has seemingly made it through its turbulent Trump years in one piece, it still presents a difficult piece to the puzzle of renewable generation's future. Whether the commissioners want their deliberations to be politicized or not, its wide power over projects on both sides of the energy transition makes its work inherently contentious. From gas pipelines to expanded transmission, FERC's days of making important decisions are just beginning, and the makeup of the commission, as well as the priorities of its members will have a marked impact on that future.

Proposals

As discussed in the introduction, one of the big challenges with an energy transition is creating a grid that can handle such a fundamental change. From modulating different generation methods, to dealing with new locations of such facilities, to simply handling the increased demand for power as electrification proliferates, there are significant infrastructure changes necessary to even be able to accommodate such a change. Many strides have been made in this area, from the cost of photovoltaics rapidly dropping to the proliferation of demand pricing, however there is still a need for development. This brings the first policy recommendation:

1. **Invest in research and development**

Although seemingly a fairly basic policy option, it is both a meaningful and achievable strategy. This is not simply throwing money at the wall, but also involves directing funding in a way that aligns with broader informed strategy and capitalizes on goal alignments. Any specific recommendations here would have to vary as understanding changes, but there is clearly lots of potential with things like energy storage technologies as a critical piece that is costly or inefficient in the status quo.

The president is also perfectly poised to push forward such investments, in a number of different ways. R&D is often a politically palatable topic, leaving some role for a legislative president, such as shown by Biden's role in the recent passage of the Bipartisan Infrastructure Law (BIL), thus it holds the potential for more widespread support and greater opportunity for action. The implementation of the plethora of bills that include vaguely defined research funding allows ample room a president to leverage the bureaucracy to direct this in ways that fit with the president's agenda. Executive orders and memos can help to do this and go further in combination with budgetary powers to direct funding to specific programs like the National Energy Technology Lab (NETL).

Another advantage of this strategy is its lasting value. Science denialism may be alive and well, but research cannot be undone, thus even if a subsequent administration tries to fully reverse course, they can only stagnate here. Furthermore, removing such funding is likely to be low

priority and unpopular, while such work remains within institutional memory, such as seen with Reagan's EPA. While such lasting development has clear value, it is only part of the puzzle, as these technologies must not just be researched, but also implemented as quickly as possible. From this comes the second policy recommendation:

2. **Balance Regulatory Burdens**

Recent controversy surrounding NEPA, and the FERC have shown the weight of permitting and regulation in American infrastructure development. The solution to this is not removing requirements en masse, rather to find the difficult balance with removing burdensome obstacles, while holding up environmental protections and community involvement. While the two are inherently conflictual at some level, as ensuring these things takes time, finding ways to make the process clear, streamline decisions, and reduce inefficiencies can help to keep such delays at a minimum.

The president has significant control in this area, with the challenge just how to best use this rulemaking authority. All dependent on their ability to control and direct agency actors through the tools previously outlined, presidents have the ability to change these hurdles, with some ability to delineate between clean and dirty projects as information asymmetry is reduced. Part of this will include efforts like the FPISC to help determine where lines should be drawn and provide direction to these efforts. This can include not just fast-tracking of preferred projects, but also using new cost-benefit accounting measures to make sure the full climate impacts of actions are better weighed.

Finding a regulatory balance requires a strong hold on information asymmetry both to find the delineating line between removing burdensome barriers and reenforcing environmental protections and to ensure work is done effectively. The threat for goal divergence here is great as well, as even the best permitting reform will bolster fossil fuel projects along with everything else, so it is critical for the executive to find ways to disincentivize the use of fossil fuels, both generally as well as specifically for electricity generation. Unfortunately, the most effective strategies for this, like a carbon tax or cap-and trade scheme, are legislative, and despite enjoying large popularity are not measures that are likely to be pushed across the line through presidential influence. Thus, administrative measures must be use, leading to policy recommendation number three:

3. **Form Cohesive Strategy**

While this may sound horribly generic, having a coordinated agenda for climate issues is critical to getting effective work done. As something that is intricately tied with most day-to-day actions, a whole of government approach is necessary to make sure maximum progress is being made, and work is not duplicating or conflicting. Much of this comes from appointments, learning from the lessons outlined in the corresponding chapter, but also includes messaging, influence, and the general application of administrative power. Having a cohesive strategy helps to reduce accidental goal divergence when things are explicitly clear, and similarly reduces information asymmetry from principal to agent so this goal alignment can be used more effectively.

This process has started with the Biden administration's appointment of a 'climate czar' to coordinate policy and setting targets for a clean grid by 2035 and net zero by 2050 among other things (Kerry 2021). Doing this effectively necessitates going further, to include similar principals in the work of every agency so that different efforts can build on one another. While most agencies have climate thinking somewhere in their structure, both making this something that is an overarching consideration in any action and something that is intentionally collaborative strengthens this work immensely.

In an extremely variable political and environmental scene the opportunity and energy for action can come and go incredible quickly. Whether this is weather events raising the national profile and opening the door for other powers to be used or a political shift in congress that allows for work to be done, the past decade has shown the speed at which these opportunities can present themselves and then disappear again. To effectively seize these opportunities it is necessary to have a cohesive agenda and staff who understand it so that planned action can take place while this window is open.

Presidential action in this area will have to vary greatly based on the administration's climate, scientific understanding of the time, and desired approach, but several general strategies can be put forward. Developing and disseminating a clear plan is necessary, as this will not only set a clear line, but allow outside actors to further this mission as well. Appointments should value competency and belief in this agenda, though personal loyalty will play more of a role in agencies where the mission strays further from climate related topics. Agency reorganization or even just renaming, such as the transition of the DOE Office of Fossil Energy (FE) to Fossil

Energy and Carbon Management (FECM) (Wilcox and Shuchi Talati n.d.). While this coordination and messaging is good, finding ways to put power behind this brings changes into reality, thus the fourth recommendation:

4. **Find new sources of authority**

As explored in (Wallach 2013) and (Rudalevige 2015), part of presidential policy influence is through the interpretation of existing laws. While the majority of this occurs in the years after the law's passage, there is many a case of 'teaching laws new tricks,' or finding different interpretations to solve current problems. The Clean Air Act is a prime example of this, with GHGs fitting perfectly into the legislations goal. While not all interpretations are as successful, such as EO 11574 which applied the Refuse Act on water pollution and eventually was overturned by the courts, even these temporary changes can have lasting net-positive effects (Shanley 1992).

The history of executive power is filled with changes, interpretations, and challenges, so with only the vague language of Article II to go off of it seems quite plausible that presidential power will further evolve in the coming decades. Whether this is more shifts in regulatory review, further use of reorganization and office creation, or the interpretation of some law that we cannot yet imagine, one can imagine many avanues for this to come from. Though it may be hard to believe, incentivizing renewables is perhaps the easiest part of this puzzle. As it becomes clear that clean energy is not only environmentally better, but also often cheaper and more convenient, all that is needed is to make this information know, leading to the final recommendation:

5. **Use the bully pulpit**

Perhaps the easiest power a president has is the ability to amplify a message. Requiring no regulatory coordination, no political wheeling and dealing, just a camera and microphone can bring the presidents voice to millions. As they incentivize renewable energy, as well as doing all the other steps outlined above, this platform can serve to build momentum, make symbolic commitments, and attract outside allies. This goes beyond just words spoken, where actions, like putting solar panels on the White House, can show these values and send an even stronger message.

Messaging can also extend beyond 1600 Pennsylvania, carried through appointees to agencies, commissions, and the international stage. Although they perhaps have less stature than the president himself, using these conduits can both allow messages to reach a broader audience, but also give an air of expertise, especially on specific issues. Of course, doing this effectively is a test of principal-agent theory to convince these appointees not just to take action but publicly attach their own name to agenda items.

Conclusion

While these strategies have varying degrees of lasting value, in general they are harder to reverse than to move forward. With the wide support environmental issues hold in the present day, the momentum for change will last beyond a standard setting administration, and although time may

be lost, at least some amount of work will continue by bureaucrats dedicated to the cause. If a true all of government approach to climate is taken, it will make it significantly more time-intensive to undo, increasing the lasting value. Finally, the significant co-benefits of climate action and clean energy in particular make it difficult to truly go back on, often the most an unfriendly administration can do is stagnate, which in itself is harmful when the clock is ticking, but better than the alternative.

The reality is that ultimately congressional action on climate is essential to fully addressing climate change at a national scale. While rhetorical or regulatory action can have notably positive effects, it realistically lacks the ability to make the overarching change necessary to fully address the problem. Fortunately, for an energy transition much more of this falls in the lap of the president, and while congressional action would indubitably expedite this, the executive can still have significant impacts.

Every day GHGs continue to be emitted en masse, finding any way to reduce this number will make a significant difference for the future of the planet. As the nation waits for a Congress that has the gumption to address one of the biggest issues of the century, finding any way to mitigate effects in the interim will have a several-fold impact down the road. And once that day arrives, it will be the job of the executive to effectively implement that legislation, navigating the principal-agent challenges with the tools identified here.

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