Ecological Modernization and Sustainable Development: A Transatlantic Analysis of Environmental Policy at the Federal Level

By:

Jane Culkin
Department of International Affairs, University of Colorado at Boulder

Defended: April 14, 2014

Primary Thesis Advisor:
Dr. Joseph Jupille, Department of Political Science

Defense Committee:
Dr. Joseph Jupille, Department of Political Science
Dr. Michael Zimmerman, Department of Philosophy
Dr. Victoria Hunter, Department of International Affairs

Preface:

The rhetoric of environmental policy has been defined and redefined within the past century. Each generation has shaped environmental policy to fit the needs and desires of that generation's environmental problem or policy goal. From Roosevelt, Muir, and Thoreau's glorification of wildlife leading to the creation of some of the first national parks to Rachel Carson's depiction of environmental degradation leading to the signing of the Clean Water Act and the Clean Air Act in the 1970s, the framing of environmental policy and the rhetoric of that framing has helped shape the type of policy that will be enacted. The nascent nature of environmental policy and environmental discourse makes it fascinating to research, as there is still so much to be constructed within the rhetoric of environment. This framing is collectively redefining the rhetoric of environmental problems, which may have enormous implications for the way in which we decide to face them as the global community. When dealing with the environmental disaster of our time, global climate change, it is important to fully understand how the way in which we discuss climate change will lead to a specific policy outcome. In order to reach the outcome that will best mitigate global climate change, we must decide how to frame the discussion effectively to reach the most beneficial policy goals. In looking at the discourses used globally, within the United States (US), and within the European Union (EU), I hope to gain an understanding of and perhaps advance this definitional process. The discourses chosen by both the US and the EU will most certainly be a part of the greater legal framework for environmental policy at the global level.

Abstract:

Since the 1992 Rio Conference, global environmental discourse has centered on 'sustainable development'. The literature indicates that the US has embraced sustainable development as its dominant national discourse while the EU has instead adopted the discourse of ecological modernization. This apparent pattern contradicts the traditional alignment of the EU and US within the international community. Furthermore, the top down mechanism of ecological modernization appears to be better suited for the federal structure of the US and a bottom up structure of sustainable development appears to be better suited to the EU. The puzzle that this paper attempts to analyze is why these federations appear to differ so greatly and choose contradictory discursive approaches to what would be most beneficial to their federal structure. I propose that Kelemen's theory of regulatory federalism be discussed concretely from an environmental policy perspective insofar as it gives sound reasoning to why these federations have different discourses. This paper conducts a discourse analysis that looks for the lexicon of ecological modernization and sustainable development in energy legislation (1992-2013) from the EU, US, and the two states[1] that contain the highest amounts of renewable energy within their energy sector. The goal of this paper is to see if: the rhetoric of both discourses is truly dominating the federal policy realm, to analyze if both discourses are following the mechanisms[2] of policy movement proposed by the literature and, finally, to determine if the mechanism can be correlated to each federation's level of constraint amongst policy actors as understood by the theory of regulatory federalism. The discourse analysis conducted in this paper concludes that the theory of regulatory federalism should be utilized within the context of environmental policy within federal structures and proposes that there might be a third policy mechanism of independent action by both the state and the federal government that can be utilized within a federal institution with regard to environmental policy movement and discourse.

[1] Though technically Austria is not a state of the EU in the same way that Washington is a state of the US, for the purpose of this paper, I will refer to both Austria and Washington as states. Defining the two as states will allow me to represent the contrast within the federal structure of the EU and US where the EU and US represent the central body of the federal government and Austria and Washington represent the lower level of government within a federal system.

[2] Mechanism for the purpose of this paper will refer to the movement of policy from either the state government to the federal government or from the federal government to the state government.

Introduction:

Since the 1992 Rio Conference, global environmental discourse has centered on the concept of 'sustainable development' (Brandon and Lombardi, 2005, p. 5). The UN defined sustainable development as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 21). Since its initial definition in the Bruntland Report of 1987 sustainable development has maintained its dominance both within academia and the policy realm. Many countries, such as the US, have fully embraced the concept of sustainable development not only as a global discourse but also as their dominant national discourse.

To say that sustainable development has been the only environmental policy discussed within the past half century would be inaccurate. Ecological modernization, though not as prevalent as sustainable development, has gained significant support within the EU.[3] While the EU, like many other multilevel polities, has adopted aspects of sustainable development, as many of its member states were prominent figures of Rio (1992), Kyoto (1997), and Copenhagen (2009), it has not taken this global discourse in the same direct framing when implementing it in federal policy as other nations such as the US. The EU has instead adopted a policy that reflects the discourse of ecological modernization.

This difference in discourse is interesting for three main reasons. Firstly this difference is interesting because the EU has historically tended to align with global

[3] The EU can be treated as a federal institution, with regard to environmental policy. It is often agued that environmental policy and regulation are some of the most concrete examples of European political integration within the EU. National environmental politics have been significantly transformed by EU membership. To that extent, the creation of environmental policy within Europe post-Maastricht—also known as the Treaty of the European Union—cannot be properly understood out of an EU framework of analysis (Baxter, Barry, & Dunphy 2004, p. 148).

discourses unlike the US yet here, however, we observe a reversal of that pattern. Secondly, the EU and the US share many features that should lead to a similarity in discourse. As western, wealthy, capitalist, and industrialized nations with similar federal structures we would expect the utilization of the same discourse yet we observe a distinct discourse in each region. Finally, and perhaps most interestingly, the top-down mechanism of ecological modernization appears to be more suited for the federal structure of the US in which federal governance supersedes state governance. Conversely, we would expect that the EU would have a more bottom-up structure, typical of the discourse of sustainable development, due to each member state's sovereignty in the EU. The literature and federal legislation within the US and the EU each display a different pattern discursively.[4] The puzzle that this paper attempts to analyze is why we observe differing environmental discourses and discursive approaches that contradict the expected and most beneficial discourse to these federations given their federal structure when they should display a similar discourse.

This paper will discuss the importance of understanding discourse when dealing with environmental policy, will conduct a literature review on how the environmental community defines sustainable development and ecological modernization, and will analyze the institutional structure of both the EU and the US as federal governments. This

[4] Discourse and the discursive approach will be defined throughout this paper in the manner in which Karen Litfin defined them in her seminal work *Ozone Discourses*. Litfin defines the discursive approach as an approach to science in policy that emphasizes the rhetorical nature of environmental evidence, argumentation, and persuasion.

paper proposes that while Kelemen's theory of regulatory federalism[5] is used to describe regulatory policy it has yet to be discussed concretely, and should be discussed, from an environmental policy perspective. The discourse of sustainable development might be utilized within the US because, as Kelemen proposes within regulatory policy, the US is more highly constrained at the federal level. This level of constraint, due the large number of veto powers, causes the federal government to be unable to effectively pass legislation down toward the state, which leads to an increased reliance on municipal and state governments to pass legislation in a more bottom up approach.[6] Conversely, the EU is less constrained at the federal level, allowing it to utilize a more top down discourse.

This theory could demonstrate why these federations have different discourses that appear to contradict their ideal policy movement within their federal structure. Sustainable development is better suited for a highly constrained federal government because it requires a bottom up approach for environmental action (Vogel, 1995, p. vii-xiii). Ecological modernization is better suited for less constrained federal governments because it requires a more top down approach.

---

[5] Kelemen's theory, as will be discussed later in this paper, states that higher fragmentation at the federal level leads to a more constrained federal government that can no longer pass effective policy on to its member states.

[6] The bottom up and top down approach that will be discussed significantly within this paper refers to the mechanism of policy movement within a federal institution. The top down approach indicates legislation that is being passed from the federal government to the state and municipal government. Conversely, the bottom up approach refers to the movement of policy from the municipal level to the state level and ultimately to the federal level of government. This mechanism of legislation is key, as will be seen later within this paper, to the discussion of both determining levels of constraint at the federal level and in understanding how the discourses of sustainable development and ecological modernization move and are adapted at varying levels of a federal institution.

Once I have discussed the breadth of the literature, I will describe my methodology, state my hypothesis, and display the results of my lexical analysis of the sustainable development and the ecological modernization discourse. The goal of this study is to find the prevalence of each discourse within each case study's environmental energy legislation. Specifically, I gathered all energy legislation[7] from 1992 to present within the EU and the US federal legislative bodies and also within the two most efficient energy using[8] states, Washington and Austria, to see if there was a prevalence of the two discourses within the legislation. The goal of this discourse analysis will be to look for a lexical pattern of ecological modernization and sustainable development within each piece of legislation[9] to see if: 1. The rhetoric of both discourses is truly dominating the federal policy realm in both case studies: 2. To analyze if both discourses follow the mechanism as indicated by the literature—the bottom up approach of sustainable development versus the top down

[7] Energy legislation included legislation that dealt with energy tax breaks, rebates, increasing energy efficiency with water, utility, and domestic and commercial buildings. This energy legislation also included all renewable energy reforms, legislation on alternative fueled vehicles, net metering, nuclear energy, cogeneration, biomass, and biofuels.

[8] Most efficient energy using states in the context of this paper will refer to the highest percentage of renewable energy usage within the overall electricity consumption of the state. The two chosen states, Washington and Austria, displayed the highest percentage of renewables within their total electrical use based upon the US 2010 Energy Information Administration (EIA) state data and EU 2011 Eurostat data which can both be found in Appendix 1 in Figures 14 and 15.

[9] All legislation from the EU, US, Washington State, and Austria were gathered by year so that a correlation could be made regarding the effect that one cases' legislation in a given year had on another cases' legislation in the following year. Collecting the data in this manner allowed for this study to not only test frequency but also mechanism of policy movement within each of these federal institutions.

approach of ecological modernization—and, if so, if the mechanism can be correlated to each federation's level of constraint amongst policy actors at the federal level.

Literature Review:

Defining the Importance of Discourse in Environmental Policy:

Karen Litfin (1994) defines discourse as a set of linguistic practices and rhetorical strategies that are embedded in a network of social relations. Discourses are as important as the state, power regimes, and epistemic communities when discussing environmental policy, for the discourse is an important determinant of societal practice and ultimately creates the possible list of policy options, as determined by the knowledge brokers (p. 195).[10] While this paper will focus on the policy makers and their use of rhetoric in passing legislation, it is important to note the usage of knowledge brokers when discussing environmental discourse because they are the actors who take the complex science of environmental systems and translate it in a manner that can be utilized by the policy makers. The scientists who often discover the environmental problems need the assistance of an intermediary knowledge broker to translate what the science is displaying to words that a policy maker will be able to use. This is an important transition to make when discussing environmental policy and displays how environmental policy is different from other types of policy. Environmental policy is often created based upon scientific study that might not be able to be understood by all policy makers and thus the knowledge broker is important in being able to translate the ideas from one type of rhetoric to

[10] For the purpose of this paper knowledge brokers will be referring to the intermediaries between the original researchers, the producers of knowledge, and the policy makers, the consumers of knowledge (Litfin, 1994, p. 3).

another. If the knowledge broker focuses on efficiency, he or she will transfer the efficiency message to the policy maker who will then focus on efficiency in their legislation. This will cause the policies that are enacted to benefit the usage of more efficient buildings, cars, businesses, etc. The rhetoric and discourse of environmental policy are therefore very important because the words that are used to describe environmental problems will also be used to describe environmental solutions. Conversely if certain words, such as environmental equality, are not used then it is unlikely that there will be a policy that invokes this type of message. Different knowledge brokers will also use different terms depending on the institutional level they are working in. This can have large implications on the types of policies that will be passed at the state and federal level and can affect the movement of policy between the state and federal levels of government.

Hajer (1995) also argues that discussing discourse analysis within environmental policy is essential, for

> it aims to understand why a particular understanding of the environmental problem at some point gains dominance and is seen is seen as authoritative while other understandings are discredited…discourse is defined as a specific ensemble of ideas, concepts and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities(p. 43-45).

Litfin (1995) states that knowledge brokers "exploit the discursive nature of science and politics, framing the available knowledge in ways that promote certain policies"(p. 188).

(Litfin, 1994) Environmental discourses are not just the physical phenomena; they are informational phenomena as well. New information is incorporated into previously

existing discursive practices, or else it is employed by knowledge brokers to empower counter discourses (p. 48).

Litfin (1994) discusses knowledge as something that, once established, is free for all agents to take and manipulate as they will. This is especially true for the environmental problem of our time, climate change. There is no unique solution to the problem, there are a lot of unknowns, and the facts are constantly changing and evolving leading to both a gap in knowledge and an influx in information that leaves 'knowledge' much more open to interpretation than what Litfin discusses when analyzing the Montreal Protocol (p. 2). Hajer (1995) makes this point when discussing the importance of who has the ability to create the knowledge that is brought to and understood by the policy makers and also by the general public.

> Rules, distinctions or legitimate modes of expression only have meaning to the extent that they are taken up…this has interesting consequences for the research of policy and policy making. It becomes imperative to examine the idea of reality or of status quo as something that is upheld by key actors through discourse (p. 55).

The analysis of discursive practices can be an important means for discussing the environment at the global, federal, and state level. The rhetoric that institutions have in their environmental legislation plays a large role in determining what effect the policy will have on the public, which must follow the guidelines and regulations of the legislation. This rhetoric can be very different depending on what institutional level it is in and can be further complicated by how an individual federation's policy moves from the state government to the federal government or vice-versa. Discourse analyses are important in

understanding how these institutions interact with each other and with environmental problems.

To Litfin (1994), the discursive approach is most beneficial in answering "how" and "what" questions but it is much less helpful in making sweeping generalizations or in offering precise predictions. It should not be assumed that by studying the discourse itself, the solution to the environmental problem should somehow become clear. Rather, the study of discourse can offer a lens in which to view how different institutions see environmental policy and how that lens can shape policy movement. In conducting this discourse analysis of ecological modernization and sustainable development, my goal is not to suggest that one is more effective in creating beneficial environmental legislation and the other less so. As Litfin (1994) states "discourses do not solve environmental problems, they merely offer alternative interpretive lenses that lend themselves to certain policy issues"(p. 194). In this sense discourse analyses help in understanding where environmental policies come from, what actors are involved, and what rhetoric is being prescribed to the environmental policy issue at hand. This initial understanding of the goals of the prominent actors and the constraints of the institutions they work within can lead to a better understanding of the issue and perhaps more effective environmental results.

In order to understand how the two environmental discourses that this paper analyzes came to fruition, it is first important to understand how environmental discourse has been shaped since the beginning of the 20th century.

The Historical Analysis of Changing Environmental Discourse:

Environmental discourse can be traced through three main waves within the US and around the world.

First Wave:

The first wave began at the beginning of the 20th century and was focused in industrializing nations predominantly concerned with the degradation of natural landscapes. The main actors of this initial wave were well-educated segments of society concerned with rapid industrialization and urbanization within western countries and the subsequent loss of natural landscapes due to that development. This first wave continued until the early 1960s, with most environmental reforms initiated and triggered by private initiatives to be taken over by the state after a considerable amount of time (Mol, 2001, p. 48).

Second Wave:

The second wave, unlike the first, encompassed a much larger swath of the still predominantly western population and incorporated broad social reforms into discursive practices that went far beyond the scope of the first wave. While it called for a fundamental reorganization of the social order for an ecologically sound society it was only marginally successful in creating institutional change within society (p. 50). The second wave, brought on by and deeply intertwined with the civil rights movement and other social rights movements during the 1960s, demanded cleaner water and cleaner air eventually leading to the creation of the Environmental Protection Agency and the passage of the Clean Water Act and the Clean Air Act. This wave changed the way in which the environment was viewed by the larger public and demanded that a certain standard of environmental quality

be upheld within different communities. This change in environmental discourse has been highly correlated to a series of very public examples of environmental degradation, such as those noted in Rachel Carson's *Silent Spring* and in the very public burning of the oil filled Cuyahoga River in Ohio, that caused a public outcry for change.

Third Wave:

The third and current wave of environmental discourse began with the Bruntland Report in 1987 and is based much more heavily on dealing with global environmental problems (Mol, 2001, p. 52). For the purpose of this paper, I will begin my analysis of ecological modernization and sustainable development with the third wave of environmental discourse. Both ecological modernization and sustainable development are defined and solidified as environmental discourses during this time. Some critique this wave and the second wave for failing to create either institutional change or societal change with regard to environmental problems. Contrary to the second, this wave does host a number of diplomatic international environmental successes, the hole in the ozone layer being just one example, that brought environmental issues to the forefront of international policy. The definition of many of these environmental problems as both globally impactful and anthropogenic in nature caused a variety of classes in both western and developing countries to become environmentally active (p. 52).

For the purpose of this paper, I will focus on legislation signed within the third wave as it had important implications for redefining environmental discourse at an international level and in defining sustainable development and ecological modernization. I will further confine my analysis of these two discourses by focusing on only energy policy legislation after the 1992 Rio Conference, for two main reasons. Firstly, the Rio Conference further

defined sustainable development and secondly, picking a date after the 1992 signing of the Maastricht Treaty allows me to better define both the EU and US as federal entities.

Defining Sustainable Development and Ecological Modernization:

Sustainable development and ecological modernization are distinct in terms of their values, institutional approach, and implementation mechanisms. I will first define the discourses individually and will then analyze ways in which they are similar and ways in which they differ.

Sustainable Development:

Sustainable development was widely accepted as the international environmental discourse in 1992 though it has never fully been defined and is often construed as being overly vague and a political buzzword to discuss environmental policy. This is not to say that many environmental thinkers have not conceived a definition of sustainable development, but rather that there is some debate as to how far reaching the discourse of sustainable development is and how one can actually model and monitor sustainable development. The Bruntland Report (1987) first defined sustainable development as,

> [the] ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs…not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities…meeting essential needs requires not only a new era of economic growth for nations in which the majority are poor but an assurance that those poor get their fair share of resources required

> to sustain that growth…sustainable global development requires that those who are more affluent adopt lifestyles within the planets ecological means…sustainable development can only be pursued if population size and growth are in harmony with the changing productive potential of the ecosystem…sustainable development is not a fixed state of harmony but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are made consistent with future as well as present needs.

Szarka (2012) argues that sustainable development, given its expansive goals, is poorly addressed by available assessment techniques due in part to the complexity of dealing with so many different types of institutional structures and associated stakeholder interests (p. 87-109). Bohringer and Loschel further this sentiment arguing that sustainable development incorporates a normative equity dimension that is "so hopelessly subjective that it cannot be analyzed scientifically" (Gerlagh, R., & Schleicher, S.P, 2009, p. 46).

Others argue, however, that its broad scope is what makes it an ideal environmental discourse for the international community as well as the state and local community.

> While sustainability might be a global idea, thinking globally is irrational. It is possible to study things of global significance and to consider global significance to consider global solutions…on the other hand, acting locally is a proven means of effecting change. Perhaps for this reason sustainable development gained momentum and filtered into local governments (Bandon & Lombardi, 2005).

Furthermore, it is not just sustainable development that has this problem of ambiguity but many environmental discourses. Kjellén (2008) contends that the dilemma for environmental policy is often the size and scope of the environmental problem. Often the costs of the policy are felt much earlier than the benefits.

Thus it is arguably impossible to have a single environmental discourse that can solve all environmental problems. Litfin (1994) discusses this in her analysis of environmental discursive practices. A dominant discourse is often chosen and when this occurs, the others are subjugated. This does not mean that these other discourses are not heard but rather that "counter discourses are always intertwined with the hegemony they oppose…and stand in necessary relation on conflicted intimacy"(p. 38).

Sustainable development is an extremely fluid discourse, which allows the international community as well as individual states to mold their own version of sustainable development into their environmental rhetoric. This flexibility makes it well adapted for both domestic policy as well as international diplomacy. "Its fluidity is ultimately what makes it so well received and also what makes it rather susceptible to ambiguities"(Gerlagh, R., & Schleicher, S.P, 2009, p. 46).

Ecological Modernization:

Wright (2010) defines ecological modernization as a modernist and technocratic approach to environmental problems, an approach which assumes that there is a "techno-institutional fix" for present problems. It operates through the facilitation of greater governmental intervention, through stronger regulation while maintaining current market approaches that will "fix" market failures and will lead to both economic growth and environmental protection (p. 399).

Szarka (2012) furthers this logic by arguing that the ecological modernization theory holds that not only is economic growth and environmental protection compatible in the international community but that the two are mutually reinforcing (p. 87-109).

> Pathways to the reduction of economic costs include "dematerialization" with lower rates of usage of physical resources and the decoupling of energy and material inputs from growth leading to greater resource productivity and reduced energy usage (p. 87-109).

Ecological modernization focuses on the development of cleaner technologies and the implementation of a market for green goods and services. Szarka (2012) argues that as a discourse, it has favored new environmental policy instruments such as voluntary agreements, eco-audit and management systems and latterly emissions trading, and that it is generally considered to have greater market conformity and effectiveness at a lower cost (p. 87-109). Here the expression 'lower cost' refers to the overall lower cost of changing market policies, not to be correlated with the terms inexpensive or 'cheap' because ecological modernization is neither. The market approach of ecological modernization causes the discourse to pattern towards a more decentralized and consensual style of national governing with a more top down hierarchical command. So while the policies are regulated at the federal level, the guidelines for said policy are flexible in implementation practice making it easier for states to regulate in a manner is which is cost effective to them while still reaching the larger regulatory goal (Mol, 2001, p. 62).

Due to ecological modernization's acceptance of the market and push for technological advancement in a relatively business-as-usual manner, some within the environmental community dismiss it as being simply a means for politicians and

businessmen to claim market practices as environmentally sound when in fact they are far from being such. Langhelle (2000) argues that the ideology of ecological modernization challenges the fundamental assumption of conventional wisdom in a manner in which it makes "environmental protection no longer a burden upon the economy but rather as a potential source for future growth." Hajer, in order to attempt to address this problem, labels both a hard and soft ecological modernization, one that calls for a strong regulation of the market, the hard, and one that calls for marginal regulation of the market, the soft (Langhelle, 2000)

Key Elements of Sustainable Development and Ecological Modernization		
	Sustainable Development	Ecological Modernization
Normative Values		
	Economic and environmental benefits can be mutually generated	Economic and environmental benefits can be mutually generated
	Strong precautionary principle	Weak precautionary principle
	Focus on the wise use of resources to meet present and future needs	Strong belief in technological innovation
	Equity has high importance	Equity has low importance
	Intergernerational and intragenerational equity is fundamental	Economization of the environment
Institutional Approach		
	Management that addresses social, environmental, and economic aspects of development	Environmental Management
	Process and outcome are critical	Process Focused
Implementation Mechanism		
	Bottom up	Top down
	Local to national to international legislation	National to domestic level of policymaking

Table 1: Comparative table of the discourses sustainable development and ecological modernization[11]

[11] The concepts within this table were adapted from J. Wright and P. Kurian's analysis of ecological modernization and sustainable development (Wright & Kurian 2010, p. 402).

Analysis of the Discourses and Federal Policy Structures:

Often sustainable development and ecological modernization are conflated due to their similarities in market-based action and similar goals. Yet when analyzed discursively, it becomes very apparent that the two are not the same and can lead to different types of policy movement that can ultimately create distinctive types of legislation with differing policy goals.

In terms of their normative values, both believe that economic and environmental benefits can be simultaneously generated and acknowledge the interdependence of economy and ecology (Wright & Kurian 2010, p. 402). While this is true, Dryzek notes that "ecological modernization implies a partnership in which governments, moderate environmentalists and scientists cooperate in restructuring the capitalist political economy along more environmentally defensible lines whereas sustainable development is directed towards both the national and global institutional levels"(Langhelle, 2000).

Sustainable development as a discourse also offers a strong precautionary principle[12], which causes the assumption of economic and environmental benefits being mutually exclusive to be much more constrained than within the discursive practice of ecological modernization. Ecological modernization relies much more heavily in the power of technological innovation than the sustainable development discourse. Thus it can also be said that, in contrast, ecological modernization has a very weak precautionary principle.

[12] Precautionary principle within this paper will utilize the definition described by Kriebel et al which defined precautionary principle as a guideline in environmental decision making in which actors take "preventative action in the face of uncertainty, shift the burden of proof to the proponents of an activity, and explore a wide range of alternatives to possible harmful activities." Precautionary principle often also includes increased public participation in decision-making (Kriebel et. al. 2001, p. 871).

Each discourse is also seen quite differently from an institutional perspective. Whereas ecological modernization is a process focused almost solely on environmental management, sustainable development is seen as being an adaptive and integrated environmental management structure that also addresses social, environmental, and economic aspects of development (Wright & Kurian 2010, p. 402). Langhelle (2000) argues that sustainable development demands more than ecological modernization and calls for more of a structural change in societal roles and importance. While this can be seen as a fault of ecological modernization, it can also be interpreted as a benefit of the discourse in many respects as it allows for a more streamlined implementation mechanism.

Ecological modernization is often heralded as an effective discourse because of its transparent regulation outline for responsibilities and rules regarding environmental action. This creates a voluntary and cooperative discourse, which encourages national and domestic level policy makers as well as government and industry policy workers to find industry solutions. Conversely, sustainable development focuses on an implementation mechanism of cooperation rather than completion (Wright & Kurian 2010, p. 402). While some view this as a benefit of the discourse, others see it as ultimately being too vague to form the basis of cohesive policy and too difficult to model to find best practices (Szarka 2012, p. 87-109).

Now that I have defined the different discourses to be discussed in the context of the federal policies of the US and the EU, it is important to discuss how federal policy structures are formed and in what way they impact discourses at the federal level and state level.

Federal Policy Structures: A look at Federalism and the way in which it is discussed:

The goal of this analysis it to look at how the sustainable development and ecological modernization discourses behave in federal institutions. Many scholars do not find the EU to be a true federal state because it does not contain a constitution. While the EU does not have as strong a federal structure as the US, it has been defined by many federal scholars—Kelemen, Benson, Jordan, Derlitch, Kramner, Scheurzx, Krane, Posner, Rabe, Jones—as containing a federal like structure with a collective of states that "retain exclusive powers or tasks in some areas whilst voluntarily submitting themselves to joint control"(Benson & Jordan, 2014). Thus, the same influences that impact other federal structures could also have an impact on the EU. This makes it a worthwhile area of study when discussing how different types of institutions impact the rhetoric of the policy they pass. It should also be noted that the manner in which traditional scholars have viewed federalism has changed in recent decades. Benson and Jordan (2014) note, "in recent times federalism has evolved into both a political practice—means for organizing power sharing in multilevel systems of governance and a theoretical approach that seeks both to explain integration and to specify its end point in more normative terms."

Many federal scholars have begun to broaden the research and scope of how federal theories can be used to shape environmental policy within countries around the world.

> Federalism is necessary; 1. To address the spillover effects that cross state boundaries; 2. To prevent economic forces at the state level from initiating a "race to the bottom," in environmental regulation ; 3. To promote business efficiencies through uniform national standards; 4. To respond to national interests in the

development of natural resources through a federal licensing system. (Spence, 2012, p. 431)

Kelemen, Benson and Jordan argue that analyzing environmental policy is incomplete without discussing policy making in multilevel systems because it would fail to analyze the cooperative game that is getting played out between the coalitions of actors at the different levels (Benson & Jordan, 2011). Environmental problems are trans-boundary in nature and involve a varying level of policy approaches that must be felt from the local community to the federal level of government. Analyzing the functional allocation of decision-making powers within a multilevel political system might provide insight into how different countries could deal with the collective action problems[13] of our global environmental systems. O'Neill asserts that "cooperation is endowed with a particularly strong syncretic quality in the sense that is can potentially link the supranational and intergovernmental aspects of integration"(2011).

While this paper asserts that Kelemen's theory of regulatory federalism should be applied more directly to the way in which environmental policies are both discussed and passed at the state and federal level, many federal scholars have also focused on cooperative federalism and boomerang federalism to describe the patterns in environmental policy movements from the state to the federal government and vice-versa. For the purpose of this paper, as it is examining federal policy within the US and the EU, I

[13] Collective action problems refer the classic dilemma in which multiple individuals benefit from a certain action but the associated cost to making that action feasible to each individual is too high to solve by themselves and thus each member of the collective fails to do anything and effectively free rides off all other individuals further increasing the problem. This ideology is often correlated with environmental problems for they are often trans-boundary in nature and affect more than just one individual.

will consider briefly two counter theories to Kelemen's theory of regulatory federalism that have surfaced when discussing US federal environmental policy and EU federal environmental policy respectively.

Within the past decade there has been a renaissance of federal theory within the lens of US environmental policy. Fisher proposes the theory of boomerang federalism to describe the policy mechanism of environmental policy within the US. The boomerang approach is "the process through which local efforts mobilize initiatives at the national level that then provide support for the local initiatives themselves"(Fisher, 2013, p. 770). Lutsey and Sperling refer to this phenomenon as "America's bottom up climate change mitigation policy" in which climate change action is occurring at the state and municipal level rather than at the federal level. It is important to note that this is the key mechanism of the discourse of sustainable development, which will be described more fully in the following section (p. 771).

The boomerang theory discusses how policy intervention that is driven by subnational actors can serve as a "conduit of innovation between the local and federal level"(p. 772). Fisher contends that boomerang federalism can explain how in the face of a policy void, such as the one that is currently occurring at the federal level within the US, "local action can scale up the national policies and federal efforts can then contribute to local initiatives already underway" (p. 772). While Fisher's analysis of different policy legislation from the 2000s and its bottom up mechanism from the municipal level to the federal level is very useful in helping display this upward mobility pattern, his analysis fails to explain why there is a void in the federal government's environmental policy. What

Fisher does display is an analysis of the way that vertical policy integration has worked in the US through the 2000s from the municipal to state to federal level of government.

While Fisher's analysis displays the pattern of the United States environmental policy in recent decades, it does not discuss the pattern in policy within other federal entities such as the EU. Benson and Jordan describe a different policy approach that they believe to be relevant when describing European integration: the theory of cooperative federalism. Whereas both Kelemen and Fisher discuss how increasing agency interaction at the federal level can cause a void in legislation at the federal level, Benson and Jordan (2011) argue that "cooperative federalism demonstrates how differential patterns of talk allocation have emerged from a series of interlinked 'cooperative' dynamics which are intern shaped by broader federal structures." So while the outcome between Kelemen's theory and cooperative federalism might overlap, the way in which these authors reach the outcome is very different. Instead of focusing on levels of constraint, as Kelemen has, Benson and Jordan focus on the existence of multiple levels of governance that interact to develop joint solutions to mutual problems. They find that lower levels will participate in federal level decision making either through informal negotiations with federal actors or in a formal bicameral structure. The nature of this cooperation is constitutionally bound in theory but in practice is subject to informal processes (Benson & Jordan, 2011).

There are three types of actors within cooperative federalism; the national domestic political arenas, the national governments, and the federal entity which, for the purpose of Benson and Jordan in their analysis, is the EU. These actors must work within the

constraints of their institutions, both formal and informal.[14] This interaction is seen as a shared decision-making process in which EU member states cooperate with the European Commission (Benson & Jordan, 2011). What is different between this policy making process and the boomerang theory which Fisher describes is that, at least within the context of the EU, the Commission seeks to enlarge its powers through increasing the profile of the EU often at the expense of national autonomy.

> Although a system of council governance still dominates, the shift towards a bicameral parliament decision-making structure through the expansion of co-decision to the European Parliament has increased its influence in multilevel games. National governments are no longer free to allocate tasks as they wish; they must also cooperate with Parliament (Benson & Jordan, 2011).

This is significantly different from Fisher's theory for, within the boomerang theory, it is the federal government's inability to act that leads to a bottom up approach in policymaking. The legislative process that Fisher found to be dominant within the US federal structure was a push for legislation from a governor or group of governors to the federal government and then from the federal government back to the states in the form of grants that could be utilized for the continuation of the projects that had been proposed initially by the governors. Fisher's main example is the path of the Energy Efficiency and Conservation Block (EECB) grant programs from its initial proposal by the US conference of Mayors to its authorization as part of the Energy Independence and Security Act of 2007 and finally through its process to get funding leading up to its eventual inclusion into the 2009 federal budget (Fisher, 2012, p.703). Fisher found more evidence of the federal

[14] This discussion of institutional constraint has already been mentioned within this paper in the context of developing an environmental discourse amongst varying agency actors.

government waiting for states to push policy forward than to push policy down to the states. Even when the EECB grants did become part of 2009 federal budget, the financing and approval of the grants was largely left up to the jurisdiction of the states. This comparison is not meant to imply that the states of the EU do not still have considerable power over the actions of the Commission and the Parliament but merely to display that an incredibly bonded federal system like the US is currently displaying a pattern of recognizing increased sovereignty in the lower level of government at least with regard to environmental policy. This pattern could be impacting the movement of policy within the federal government, which could also be impacting the framing of legislation and thus the discourse that is being used at each level of government.

The manner in which these theories are discussed and the analyses conducted display the pattern in which ecological modernization and sustainable development are predicted to surface both within the US as well as within the EU. Fisher discusses the bottom up trend indicative of the discourse of sustainable development and correlates that pattern to the void in policy at the federal level within the US. Benson and Jordan note the top down mechanism or policy movement indicative of the discourse of ecological modernization with the EU and correlate that pattern to a strengthened centralized top down approach to environmental policy regulation. What I will now discuss is whether these theories, though they display the tends within each case study, could be better discussed in terms of level of constraint from the federal level that Kelemen proposes in his theory.

While environmental policy within the EU displays a strong top down approach, the institutional strength of the EU is highly dependent on the policy area being discussed and

is based on the subsidiarity rule.[15] The EU can only act where "competences are conferred to it by member states under the founding treaties."[16] Benson and Jordan thus state when and if, according to cooperative theory, legislation will come from the EU or the state will depend on if the problem is trans-boundary or not. If the issue is strongly trans-boundary based the incentive to "agree to harmonized approaches to prevent spillovers will be greater and task flexibility will be less"(Benson & Jordan, 2011). If, however, there is a weak trans-boundary indication there will be few transfers of power in legislation to the EU (Benson & Jordan, 2011). This portion of the cooperative theory goes hand in hand with the theory of regulatory federalism as Kelemen states "EU task allocation invariably starts with political demands for cooperation which could stem from a trans-boundary nature of a particular issue"(Kelemen, 2004). Though Kelemen's analysis of regulatory federal structures does not focus on environmental policy too heavily, he does note that the same drivers that are constraining and inhibiting vertical integration of policy from the federal government to the state and municipal level could exist within other sectors as well (Benson & Jordan, 2011).

This brief analysis displays three different interpretations in approaching federalism within the EU and the US. While Fisher, Benson and Jordan discuss key aspects of the importance of the federal structure in determining the key agents of environmental policy and the mechanism of policy movement in a given federal structure, both the theory of boomerang federalism and cooperative federalism are limited. Each theory very specifically applies to the case selections that the authors have chosen and fails to discuss a

[15] Subsidiarity is the principle that tasks should reside with lower levels of governance unless reallocating them to a higher level is more effective or efficient. (European Union, 1992)

broader framework for understanding why both the EU and the US would have such varying discourses and policy mechanisms at the federal level. It is for this reason that Kelemen's theory of regulatory federalism, which offers a combination of both theories, might be better suited to discuss the mechanisms and constraints of environmental legislation at the federal level and how it influences the discourse of environmental policy.

In the analysis of the role that federal structures play in creating environmental policy, it is important to define how these policy structures relate to and define environmental discourse. Kelemen (2004) argues, "the similarity in the EU and US regulatory styles is grounded in the similarities of their fragmented federal institutional structures" (p. 22). While they are similar in comparison to a broad swath of other countries around the world, what has been observed, as both Fisher, Benson, and Jordan have displayed within their case studies is a difference in policy mechanism. When their environmental policies are compared, the US and EU display a different discourse and structure. The US, according to the literature, follows the international discourse of sustainable development, a discourse that goes beyond the market to deal with socioeconomic and cultural factors relating to the environment. The EU, however, follows ecological modernization, a market based and industry-oriented discourse. If fragmentation is the independent variable, as Kelemen proposes, then the reason for this change in discourse is that, much like with regulatory policy, the US is more fragmented than the EU. This increased fragmentation, defined by its large number of veto players at the horizontal federal level, leads to an increase in constrain of state discretion from federal environmental regulators (p. 15).[17]

[17] Horizontal and vertical levels can be defined simply by looking at what policy makers are apart of a certain legislative process and where they are within the federal government. The horizontal level refers to the movement of policy between federal policy makers. The

The theory of regulatory federalism makes two basic claims: 1. The vertical division of authority between central and state governments produces a similar politics of competence in all federal systems: 2. Federal governments take on a large role in policymaking while state governments control most of the implementation. The differences in horizontal fragmentation of power within the structure of the federal government explain differences in the politics of discretion.

> This fragmentation of power at the federal level encourages an adversarial litigious approach to regulation that reduces the discretion of states in implementing federal statutes (p. 2).

Essentially what Kelemen proposes is that, at least with regard to regulatory federalism, high fragmentation found within the EU and the US should lead to an increase in veto powers at the federal level, which would lead to a more highly constrained state discretion of accepting that legislation (p. 55). In this sense fragmentation is the variable of power within the federal government. Kelemen states that as the number of veto players increases, the fragmentation of power increases (p. 15).

Kelemen's theory, as was discussed previously, has yet to be discussed and analyzed from the perspective of environmental policy. If it is true that discursive practice can only be utilized as a lens with which to view policy action, and if it is also true that these different transatlantic federal structures are functioning in high fragmentation similar to each other, then the level of constraint that these federations have could be playing a large role in this change in discourse and in policy movement within the institutional structure of a federal system. It is possible that the reason why we view this difference in discourse

---

vertical level refers to the movement of policy from the policy makers of the federal government to the policy makers of the state government.

within the EU and the US is that the US is more highly constrained at the federal level. This level of constraint leads to an increase in veto powers and thus an inability to pass policy from the federal level to the state level. As a result, often environmental legislation that is passed within the US comes from the bottom up approach of sustainable development. The EU, however, is less constrained at the federal level, which allows it to pass legislation from the federal level to the state level in the top down approach of ecological modernization. I will conduct a discourse analysis of ecological modernization and sustainable development to determine if the discourses correlate to the movement of environmental policy that is displayed at the federal level of the EU and the US and at the state level of Austria and Washington.

Methodology

I will now describe how I will conduct this analysis. Within my initial study of both ecological modernization and sustainable development, I have noticed a distinct set of words that appear to pertain to each discourse. While some words found within each respective lexicon are similar, as both sustainable development and ecological modernization do overlap with regard to certain policies, I have been able to define a distinct set of words that I plan to use to test the prevalence of each discourse within each federal institution. It is by using this lexicon that I plan to correlate the rhetoric of discourse to the policy papers found at the federal level as well as the state level.

The lexicon is found below:[18][19]

Terms for Sustainable Development	
Sustainability	*Sustainable; sustained; sustainably; maintain; support; supportable*
Preservation	*Protect; maintain; preserved; conserve; safeguard; rehabilitate; restore; restoring; preserving; preserve*
Equitable	*Equitability; equitableness; equitably; equal; fair*
Ecosystem	*Environment; Environmental*
Global	*Globally; universal; inclusion; collective*
Precautionary principle	*Precaution; safeguard; precautions; caution; preventive; precaution; precautious*
Responsibility	*Responsibility; responsibilities; accountability; accountable; responsibleness;*
Municipal	*Municipality*
Generation	*Generational; generationally; generations*
Local	*Locally*
Conservation	*Conservational; conservancy; preservation; save; saving; defense; steward; stewardship; protection; care*
Community	*Commonwealth; Society; Communities*
Development	*Developing; developmental; betterment; progress; progression; improvement; enhancement; enhancing; enhance; developmentally*
Education	*Educated; educating; educational; educationally*
Collaborative	*Collaboration; collaboratively; collaborator; collaborate; collaborating; cooperate*
Youth	*Children; next generation*

[18] In order to ensure that each one of these words was found within the document, all variations of each of these words was also tested. All variations tested are displayed in the second column of the table.

[19] Austrian legislation was also tested using these words translated into German via Google Translate. All translated words appear in the translated table in the order of the English tables so that a comparison can be made between the two.

Terms for Sustainable Development	
Nachhaltigkeit	*Nachhaltige; nachhaltig; anhaltend; halten; pflegen; unterstützung; unterstützen; erträglich*
Erhaltung	*Bewahrung; konservierung; schutz; wahrung; rettung; schützen; behüten; bewahren; schonen; sichern; halten; verfechten; verwalten; verteidigen; sparen; rehabilitieren; sanieren; wiederherstellen; restaurieren; wiederherstellung; ausbessern; erhaltung*
Gerecht(unparteiisch)	*Fair; equitability; billigkeit; gleich; gleichwertig; gleichkommen*
Ökosystem	*Umwelt; Umgebung; Umwelt-; ökologisch*
Global (weltweit)	*Universal-; durchgängig; aufnahme; einbeziehung; einschluss; zurechnung*
Vorsorgeprinzip	*Vorsorge; vorsichtsmaßnahme; vorsicht; vorbeugend; präventiv*
Verantwortung	*Verantwortlichkeit; zuständigkeit; pflicht; verpflichtung; mündigkeit; rechenschaftspflicht; verantwortungsbewusst; beantwortbar; zuverlässig; verantwortlich; haftbar; verpflichtet; genötigt*
Stadt-	*Kommunal; städtisch*
Generation	*Erzeugung; generationen*
Lokal	*örtlich; am Ort*
Erhaltung	*Naturschutz; umweltschutz; erhaltung; sparen; retten; konservieren; rettung; verteidigung; steward; vogt; verwaltung; verwalteramt; schutz; vorsicht*
Gemeinde	*Gemeinwesen; gesellschaft; verein; gemeinschaften*
Entwicklung	*Weiterentwicklung; wachstum; fortschritt; progress; fortschreiten; verbesserung; erhöhung; erweiterung; verbessern; entwicklungs*
Bildung	*Gebildet; erziehung; pädagogisch; erzieherisch*
Kollaborieren	*Mitarbeiten; kollaborativ; mitarbeiter; kollaborieren; zusammenarbeiten; kooperieren; mitmachen*
Jugend	*Jugendliche; kinder; der nächsten Generation*

Terms for Ecological Modernization	
Growth	*Growing; increase; increasing; grow; expanding; expand; growingly*
Utilization of Resources	*Utilizable; utilization; utilizer; harness; use; reuse; resource*
Economy	*Economies; economizing; economic; economize*
Management	*Managing; manage; control; regulation; stewardship*
Efficiency	*Efficiencies; efficient; effectiveness; productive; productiveness; capacity*
Green Technology	*Revitalize; environmental; technologies; technical; technological; technology*
Development	*Developing; developmental; betterment; progress; progression; improvement; enhancement; enhancing; enhance; developmentally*
Effective	*Productive; proficient; useful; practical; realizable; usable*
Green Energy	*Green; energy*
Progress	*Advance; progressive; progression*
Advancement	*Advance; Advancing; improve; improving; improvement; raise*

Terms for Ecological Modernization	
Wachstum	*Zuwachs; wucherung; erhöhen; zunahme; ausbau; zunehmend; rentabel*
Nutzung der Ressourcen	*Nutzbar; ausnutzen; Baum Energie; Baum; verwenden; wiederverwendung; ressource*
Wirtschaft	*Ökonomisierung; einschränkung; sparsamkeit; betriebswirtschaftlich*
Management	*Verwaltung; verwalten; managen; kontrolle; regulierung; verordnung; vorschriftsmäßig; verwalteramt*
Leistungsfähigkeit	*Wirkungsgrade; effizient; wirksamkeit; effektivität; produktiv; ergiebig; ergiebigkeit; kapazität*
grüne Technologie	*neu beleben; regenerieren; Umwelt-; ökologisch; technologien; technic; methode*
Entwicklung	*Weiterentwicklung; wachstum; fortschritt; progress; fortschreiten; verbesserung; erhöhung; erweiterung; verbessern; entwicklungs*
Wirksam	*Effektiv; tüchtig; nützlich; zweckmäßig; realisierbar; lebensfähig; nutzbar; brauchbar*
grüne Energie	*Frisch; energie*
Fortschritt	*progress; voranbringen; vorantreiben; fortschreiten; weiterentwicklung;*
Förderung	*Vorwärtskommen; fortschreitend; verbessern; bessern; aufwerten; steigern*

Justification of Word Choice:

In order to conduct this type of expansive research through legislative websites utilizing enough documents to identify a correlation to the discourses, I have created a code within the processor Python. Python is a powerful programming language that is used in a wide variety of large database reports because it has the ability to open documents within a search engine and crawl through the sources looking for the distinct words or groupings of words that it has been programmed to search. When looking at various search engines, I found Python to be the best option for it is relatively easy to understand and does not require a distinct set up for each document search. The goal of this analysis is to test the lexicon to determine if the discourses are displayed within each federal structure and to be able to document the mechanism of policy movement within each federal structure.

In order to track policy movement within the each federation, I have chosen the states with the highest percentage of renewable energy utilization out of overall energy consumption.[20] This analysis was based upon 2011 statistical reports from EURO-Stat and 2010 statistical reports from EIA for the EU and US respectively (See figure 14 and 15 of Appendix One). The data displayed that in a given year, Austria and Washington had the highest renewable energy utilization within the EU and US. I have selected and downloaded all of the energy[21] legislation from 1992 to 2013 within each state and have conducted a

[20] For the purpose of this paper the highest percentage of renewable energy utilization out of overall electricity consumption per state will now be referred to as renewable energy utilization.

[21]As has previously been noted, energy legislation included all legislation that dealt with energy tax breaks, rebates, increasing energy efficiency with water, utility, and domestic and commercial buildings. This energy legislation also included all renewable energy reforms, legislation on alternative fueled vehicles, net metering, nuclear energy, cogeneration, biomass, and biofuels.

search of each document tracking the lexicon for both sustainable development and ecological modernization.

In addition to the state legislation, I have also gathered the major energy laws from both the EU and the US since 1992. Within the EU, I have focused predominantly on the 3rd through 6th EU Framework Programmes and the Energy related Directives since Maastricht. Within the US I focused predominantly on the DOE Energy Policy Acts from 1992 and 2005 and their related amendments from 2007 and 2012, Executive Order 13423, and the 2009 American Reinvestment and Recovery Act. I have taken this legislation and have also tested both of my lexicons to search for a rhetorical pattern. [22]

The purpose of this analysis is not only to see if the discourses can be found within the specified regions but also to determine if this discursive pattern can be correlated to a mechanistic pattern of policy movement through a federal institution. In order to test if this is also occurring, I have compared the discourses of Austria and Washington with one another, Washington with both the US and EU legislation, and Austria with both EU and US legislation. In doing this I plan to see if there is an increased correlation in the frequency of terms between each federal government and its state counterpart depending on the legislation passed in the previous year in one to the following year in the other. This increased frequency could display the mechanistic approach of the legislation as it either trickles down from the federal government or is pushed up from the state government.

[22] See Appendix Two for a complete list of all of the legislative documents utilized.

Hypotheses:

H1: There is a top down correlation from the federal government to the state government regarding its energy legislation.

H1a: There is a top down correlation from the EU to Austria regarding its energy legislation. [23]

HIb: There is a top down correlation from the US to Washington State regarding its energy legislation.[24]

H2: There is a bottom up correlation from the state government to the federal government regarding its energy legislation.

H2a: There is a bottom up correlation from Austria to the EU regarding its energy legislation. [25]

H2b: There is a bottom up correlation from Washington State to the US regarding its energy legislation.[26]

[23] If there is an increase in the correlation of EU and Austrian rhetoric, determined by the differing lexicons, directly after the passage of EU legislation than I would presume a top down legislative approach.

[24] If there is an increase in correlation of Washington State and US rhetoric directly after the passage of a US energy bill, then I would presume a top down legislative approach.

[25] If there is an increase in the correlation of the EU and Austrian rhetoric directly after the passage of an Austrian energy bill then I would presume a bottom up legislative approach.

[26] If there is an increase in correlation of US and Washington rhetoric directly after the passage of a Washington State energy bill then I would presume a bottom up legislative approach.

H0: There is no correlation between the state government and the federal government regarding the passage energy legislation.

H0a: Both Austria and the EU are not dependent on each other to in terms of energy policy. [27]

H0b: Both Washington State and the US are not dependent on each other in terms of energy policy. [28]

Hypothesis:

I believe, based upon my initial research of both the EU and US as federal structures and my study of the discourses in my literature review, that both H1a and H2b will be found to be most accurate with my findings. Therefore, I will reject H0a, H0b, H2a, and H1b and will find that the bottom up approach correlated with the sustainable development discourse and the top down approach of ecological modernization will be found within the US and EU respectively.

Plan for Lexical Analysis:

Website Selection for United States Legislation:

To find Washington State legislation, I have used the Washington State Energy Office website (e.g., "Washington State Energy Office,"n.d.) and have downloaded and collected all of the legislation relating to energy from 1992 until 2013. For the United States legislation I

[27] If I see no change or no significant change, then I would presume that the two legislative bodies are not sufficiently correlated, meaning that Austria has an independent energy policy process in relation to the EU.

[28] If I see no change or significant change, then I would presume that the two legislative bodies are not sufficiently correlated, meaning that Washington State has an independent energy policy process in relation to the US.

have used the DOE Website (e.g., “Department of Energy,”n.d.).

Constraints:

The Washington website proved to be very efficient and effective in searching for and finding environmental legislation. While it did contain all legislation from 1992 until 2013, it only offered legislative bill numbers from 1999 until 2013. In order to obtain legislation from the remaining decade, I had to use key word searches with the website finder. While I utilized multiple sets of word and the same set of words for each year within the search engine, it is possible that I could have missed legislation within a given year, which would make my results less accurate. The DOE website was also relatively easy to use though it was more difficult to gather PDF versions of the older legislation which had predominantly been scanned into the database. Python does not read photocopied material very well especially when it comes to the type of discourse analysis that I am conducting in which word frequency is tremendously important. This was thus a constraint.

Website Selection for EU Legislation:

I used European Legal Services (EUROLEX)(e.g. “European Union Legal Services Network,” n.d.) Network to find EU legislation and utilized the Austrian legislature’s website to find Austrian legislation though I also relied on EUROLEX for some of my Austrian legislation (e.g. “Volltextsuche Im Parlament,”n.d.).

Constraints:

The EU, while it was easier to search for legislation at the federal level, was much more difficult to search for legislation at the state level and hosted many constraints. As each state is still a sovereign entity, they do not host joint legislative sites with other EU

members. While some of the state legislation is found within reports done by the EU and can be found on the EUROLEX website, I was concerned that using only the EU website for Austrian legislation would bias my report. The EU does not display the complete sets of energy legislation for Austria and often only show the initiatives that Austria has taken in light of a recent passage of a Directive or an EU Framework Programme. Since my research is testing whether the EU policy process follows the bottom up or top down approach of sustainable development or ecological modernization, I felt that using only legislation presented in that form would be limiting to the validity of my results and would almost ensure that my analysis would concluded the top down approach of ecological modernization.

Additionally there was a language barrier of German within the legislation. Most of the legislation was not found in English and thus I have had to create a lexicon in German as well to make sure that I could utilize the Austrian legislation. For the purpose of this thesis, I used Google translate to change my lexicon into German. While Google translate is not always the most reliable source, the words in both the ecological modernization and sustainable development lexicon are relatively simplistic and concise such that I believe they can accurately be translated.

General Constraints of the Project:

This project, in discussing two very large federal institutions use of two distinct discourses over a 21-year span of time, runs the risk of becoming unmanageable with too many factors and variables confusing the research and data. In order to make this thesis as complementary to the current literature as possible, I have attempted to limit the goals of my research by limiting my case studies both in terms of time as well as in legislation type.

This thesis will only focus on energy legislation within both the EU and the US which, though it will constrain my ability to apply the theory of regulatory federalism to all federal environmental legislation and though it will limit my ability to make a definitive statement with regard to either discourse, it will provide a beneficial case study which can then be applied to the broader theory and discourse analysis.

Roosa (2005) notes that energy is a key concept of sustainable development as no sector of human activity impacts the environment more pervasively than the production and use of energy (p. 14). Ecological modernization too focuses heavily on the use of energy efficient market based practices for dealing with environmental problems (Szarka 2012, p. 87-109). Energy efficiency and renewable energy are increasingly being considered in connection with EU policies on climate change as well as on the security of supply employment and industrialized competitiveness and are not only discussed within the EU but the US as well (Roosa, 2008).

Findings:

The results of my discourse analysis display that ecological modernization is the dominant discourse for both case studies' federal and state level discourse. This result is both surprising and very interesting for, after conducting my literature review, it appeared as though most scholars believed that ecological modernization was less utilized and that sustainable development was not only the international discourse but was regarded as a common national discourse as well. There are several reasons why the data might display a strong correlation with ecological modernization and a weak correlation with sustainable

development and it is important to understand the implications of what this pattern means towards the policy choices and policy mechanisms of the EU and the US.

For reasons I will now explain, I will reject H0a and H2a regarding policy movement within Austria and the EU and will therefore accept H1a, which states that there is a top down correlation from the EU to Austria regarding its energy legislation. With regard to Washington and US legislation, while the data did display similar patterns toward ecological modernization instead of sustainable development, I found the data did not truly display a significant mechanism from US legislation to Washington legislation or vice versa. I will therefore accept H0b and reject H1b and H2b. In accepting H0b, I have found that Washington and the US are not dependent on each other in terms of energy policy or the discourse that is found within the US or Washington energy legislation. Not only will I accept H0b regarding the mechanism of policy movement between the US and Washington legislation, but I also found that the discourse that I believed would be the strongest for both Washington and the US legislation was also incorrect. Based upon the literature review, I believed that the US would display a strong bottom up trend within the legislation that would create a strong prevalence towards the sustainable development discourse. I instead found that the US legislation had a much stronger connection to the discourse of ecological modernization while the Washington legislation displayed a fairly consistent usage of both the sustainable development and ecological modernization discourses with a slightly higher consistency towards the ecological modernization discourse. These two utilizations of discourse at the federal and state level did not tend to impact one another from year to year as was seen within the federal structure of the EU.

Justification for Accepting H1a:

The H1a hypothesis stated that a top down correlation from the EU to Austria regarding its energy legislation was presented in the data—Figures 4 and 5 to display this pattern in Appendix One. Figure 4 displays the pattern of the EU rising in 2003 and 2004 in percentage of ecological modernization. This same higher percentage of ecological modernization is seen in the Austrian legislation—also displayed in figure 4—from 2007 and 2009 displaying the delayed pattern between the passage of the EU legislation to the passage of the Austrian legislation. Similarly, and perhaps more dramatically, the EU displayed a strong increase in usage of sustainable development in 2009 and 2010, displayed in figure 5, which correlated directly to a significant decrease in the ecological modernization discourse and a sharp increase in the sustainable development discourse within the Austrian legislation from 2009 and 2010 as is displayed in figure 6. The rapid increase in the sustainable development discourse during 2009 and 2010 in both the EU and Austria appeared initially to not align with the rest of the data's general increased usage of the ecological modernization discourse over the sustainable development discourse. Upon looking at the actual frequencies of words used within the sustainable development discourse during 2009 and 2010—seen in figures 10 and 13—there is only one word within the lexicon that is significantly swaying the pattern from ecological modernization to sustainable development and that is the word development. Further analysis of the document displayed that the term development referred frequently to the development of green energy. So while the Austrian and EU documents of 2009 and 2010 do display a more varied use of sustainable development terms, I do not believe that it deters from the general pattern of the predominant usage of the ecological modernization

discourse that is utilized most frequently within the EU and Austria over this 21 year period. What is more important to take away from this slight change in discursive pattern is that both Austria and the EU appear to change their rhetoric in tandem with each other. The EU changes its discourse first and Austria follows that change in discourse. This change clearly displays the top down trend of the EU's policy movement from the federal level to the state level that has very important implications for how environmental policy is passed within the EU to its states.

Implications for Accepting H1a:

Accepting H1a states that the data displays that the EU both utilizes the discourse of ecological modernization more frequently than the discourse of sustainable development and that there is a more top down policy mechanism within the EU. This top down mechanism would indicate that the EU has the ability to pass environmental legislation to its states more often than Austria is able to push legislation up to the EU, which correlates directly to Kelemen's theory of regulatory federalism which states that a federal structure that is less constrained will have the ability to pass legislation to the state level more easily than a highly constrained state. The results display that Kelemen's theory of regulatory federalism functions within federal environmental policy for the EU and its states.

Justification for Accepting H0b:

The H0b hypothesis states that both Washington and the US are not dependent on each other in terms of energy policy. Both legislative bodies appear to not be sufficiently correlated, meaning that Washington State has an independent energy policy process in relation to the US. This is displayed clearly in Figures 1, 2, and 3 in which there is no

significant correlation between the passage of US legislation changing the discourse that is utilized within Washington State or visa versa. What was gathered from the data is that neither Washington nor the US tends to display the sustainable development discourse more frequently than the ecological modernization discourse. In fact, in all years with the exception of 1999 and 2000 within the Washington State legislation, the US and Washington had higher frequencies of the discourse of ecological modernization.

Implications for Accepting H0b:

What is important to note about this is that though it appears that the frequency of ecological modernization is more prevalent within the US and Washington, the sustainable development and ecological modernization discourses appear with almost the same frequency in the US and Washington, as is displayed by Figure 1, indicating that neither level of government is dependent on the other. This similar pattern can lead to several conclusions. It is possible that, as was discussed previously within my literature review, the lexicon chosen for sustainable development did not fully encompass the discourse. As many scholars noted, it is very difficult to model sustainable development because it has not been given a concise definition and thus could encompass many of the terms that are also displayed within the ecological modernization discourse. Thus when both Washington and the US display both discourses evenly, it is possible that what we are seeing is the sustainable development discourse being utilized in both, though the economic portion of the sustainable development discourse is perhaps stronger within the energy legislation. While this might be true, it would not explain why there is a clear distinction between sustainable development and ecological modernization within the Austrian and EU legislation. The US and Washington legislation also does not contain the bottom up

mechanism that is indicative of sustainable development nor does it display the top down mechanism of ecological modernization.

This lack of policy movement and lack of clear discourse leads me to believe that the reason why we are not seeing this pattern is because the US is so constrained at the federal level that it is inhibiting a flow of policy and discourse effectively causing US environmental policy to fluctuate at the state level and at the federal level independently of one another. While both Washington State and the US display similar frequencies of ecological modernization and sustainable development, they do not appear to be impacted by one another too significantly in terms of policy movement or discursive practice. While this is not what my hypothesis predicted, it is still possible that Kelemen's theory of regulatory federalism is still impacting the results. It could be that the level of constraint at the federal level is inhibiting this policy movement either from the state to the federal government or from the federal government to the state. A strong level of constraint at the federal level would cause not only an inhibition of top down legislation but also an inhibition of bottom up legislation, which is what could be causing this independent trajectory of environmental discourses at the state and federal level within the US institutional structure.

Conclusion:

After conducting a literature review that looked at the importance of discourse and federal structures in creating environmental policy and applying the importance of both to my case studies and then analyzing data of my case study findings, I have been able to reach several conclusions. My case studies have shown that the implications of rhetoric in policy within energy legislation are impactful with what the policymaker is attempting to

convey in that policy and also the way in which that policy is able to move within a federal system. The results of my discourse analysis demonstrate that environmental policy will behave differently depending on the level of constraint felt at the federal level and on the mechanism of policy movement as is described within Kelemen's theory of regulatory federalism.

If a government is highly constrained at the federal level then a bottom up approach is used and is seen with the more frequent movement of policy from the state to the federal government instead of from the federal government to the state. If, however, the government is less constrained at the federal level, then there will be an increased passage of legislation from the federal government to the state instead of legislation from the state to the federal government. What was not discussed within the literature was a third potential mechanism of policy movement and level of constraint. If a federal entity is highly constrained at the federal level, it is possible that there will be no movement within the rhetoric of the legislation from the state to the federal government or from the federal government to the state. Effectively, the federal government is so highly constrained that it inhibits any type of policy movement either from the bottom up or the top down. Federal structures with this level of constraint will be functioning on two different levels of government with little fluctuation and sharing of ideas from either level. My case studies effectively displayed both the top down approach—the EU—and the inhibition of policy movement from the state to the federal government or from the federal government to the state—the US.

Within Austria and the EU, the legislation displayed a strong correlation between the rhetoric of the EU legislation impacting the rhetoric of the Austrian legislation. As was

discussed in my analysis section, the pattern of increased percentage of ecological modernization terms seen within EU legislation correlated very directly with an increase in ecological modernization terms within the Austrian legislation with a lapse of about two years between the passage of each set of legislation. This pattern was also seen very directly within the increased usage of the sustainable development discourse within the EU legislation and the usage of the sustainable development discourse within the Austrian legislation.

The US and Washington State legislation displayed a different pattern than what was expected in either a top down or bottom up policy approach. The Washington and US legislation displayed similar frequencies of both the sustainable development and ecological modernization discourse and did not display either a bottom up or a top down approach with regard to policy movement from either the state government to the federal government or from the federal government to the state government. While further research would need to be conducted to see if this true, this lack of policy interaction is maybe due to the tremendous level of constraint at the US federal level of government. The US is so highly constrained at the federal level that not only does it not push environmental policy down to the state level but it also does not allow for environmental policy to be pushed upwards from the state level. While this does not display exactly what Kelemen's theory states, the general concept of the theory still holds true. The more highly constrained a federal government is, the more constrained that structure is which can inhibit the passage, or movement, of policy from the federal government to the state government. This also appears to be true with regard to the push for a bottom up approach to environmental policy as well.

The goal of this discourse analysis was to see if: 1. The rhetoric of both discourses is truly dominating the federal policy realm in these federal case studies: 2. To analyze if both discourses are following the mechanisms as described in the literature: 3. To determine if the mechanism can be correlated to each federation's respective level of constraint amongst policy actors at the federal level as understood by the theory of regulatory federalism. What has been discovered is that not only does Kelemen's theory of regulatory federalism apply to the functionality of environmental policy at the federal level but that this functionality can be correlated directly to either a bottom up or top down policy movement from the state government to the federal government or from the federal government to the state government. This has very large implications for the way in which environmental discourses are discussed within the institutional framing of federal structures.

Level of constraint at the federal level determines both the way in which environmental policy is able to move through federal and state legislation and also leads to the type of discourse that is utilized by the federal and state entities. More highly constrained federal institutions will use a discourse that is structured to either a bottom up policy mechanism or will function independently from its state environmental policy if it is highly constrained. Less constrained federal institutions will use a discourse that is structured to a top down policy mechanism. Understanding this variation in policy movement and discourse has large implications for the types of policies that will pass in varying countries because, as was discussed in my analysis of the discourses of sustainable development and ecological modernization, while both discourses often discuss similar problems and host potentially similar solutions to those problems they should not be

conflated because they are ultimately trying to achieve two very different goals and go about achieving those goals in very different ways. If the way in which the institutional structure of the federal government determines this change in discourse then how a federal government or a state government will discuss environmental issues is dependent on the mechanism of policy movement that is ultimately shaping the discourse of the legislation and the policy goals of said legislation. The correlation between the institutional structure of a federal system and the discourse that will most likely be utilized based on that structure can help determine the types of legislation and policy that will be enacted within varying countries which can have large implications for how effective the policy will be with regard to dealing with different types of environmental problems.

Further Research

What would be interesting to study is whether this type of structure would also be seen within states that rely heavily on their federal government to enforce environmental legislation. It would be interesting to determine if this theory holds true not just with the most environmental states of a federal institution but also amongst their least environmental states. If I were to continue this research, this would be avenue in which I would pursue it.

Appendix 1: Charts and Graphs

Graphs of Annual Percentages of Sustainable Development and Ecological Modernization within the Summed Yearly Legislation:

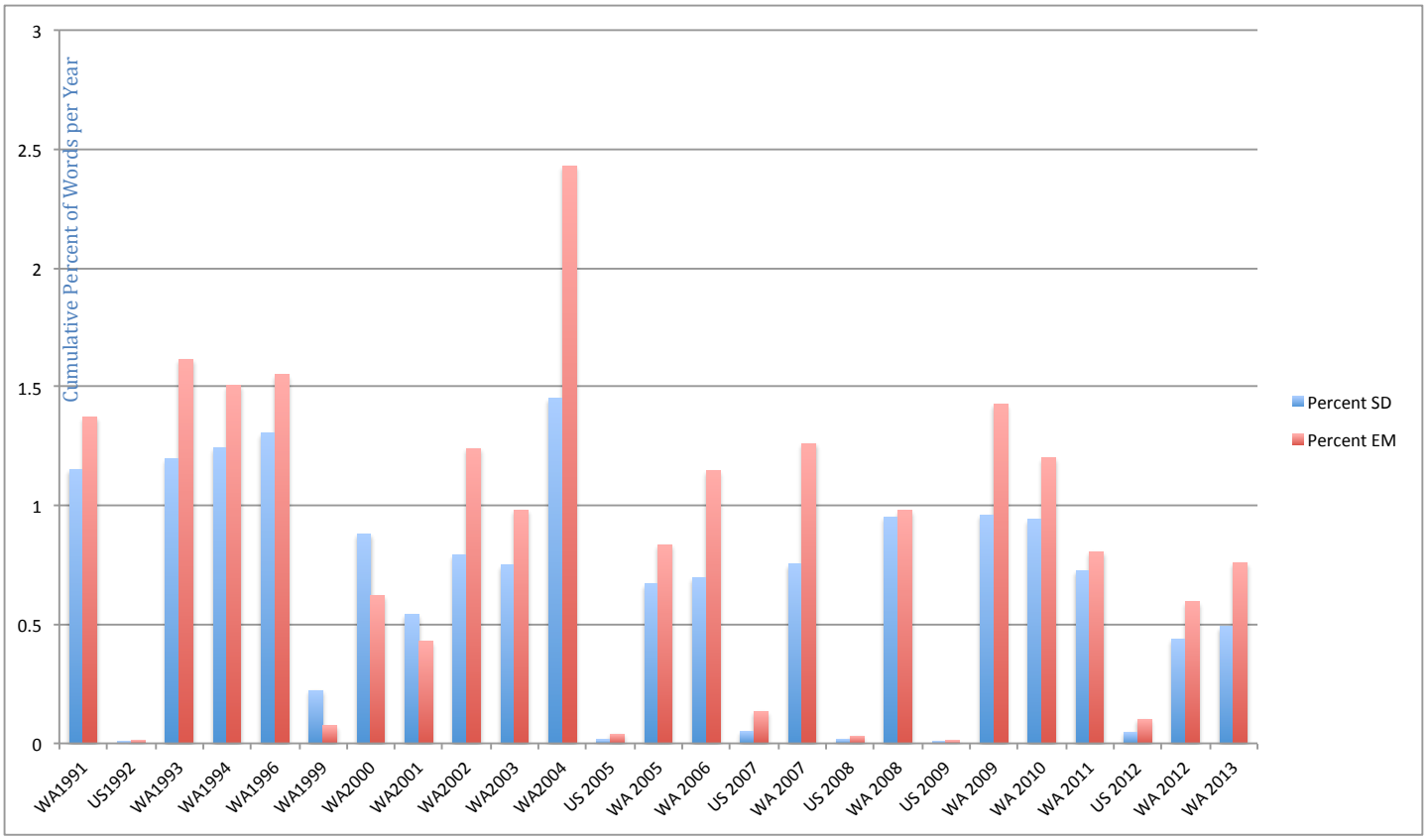

Figure 1: Annual Percentage of Ecological Modernization and Sustainable Development: WA and US

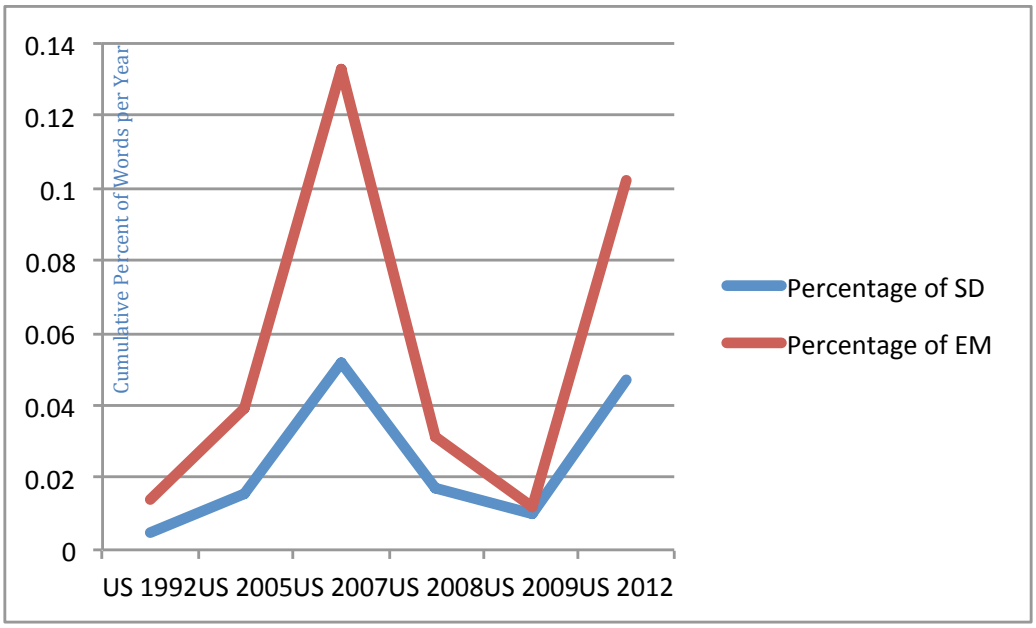

Figure 2 Annual Percentages of Ecological Modernization and Sustainable Development:USA

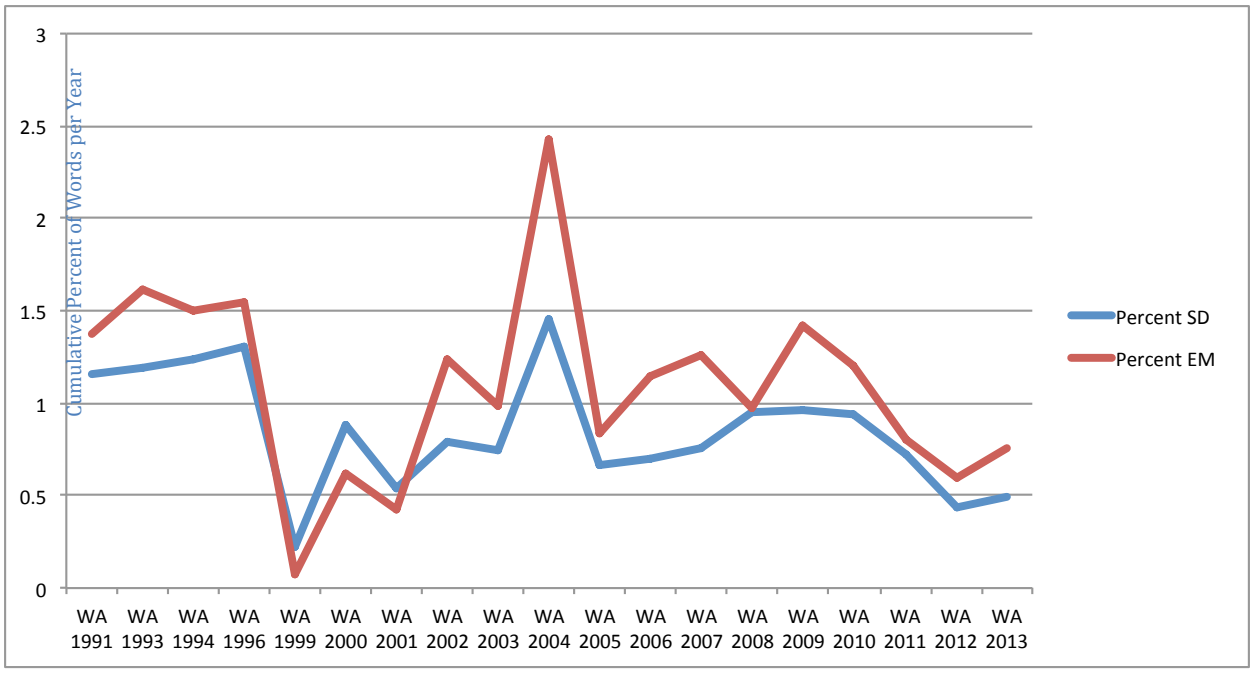

Figure 3 Annual Percentages of Ecological Modernization and Sustainable Development: Washington

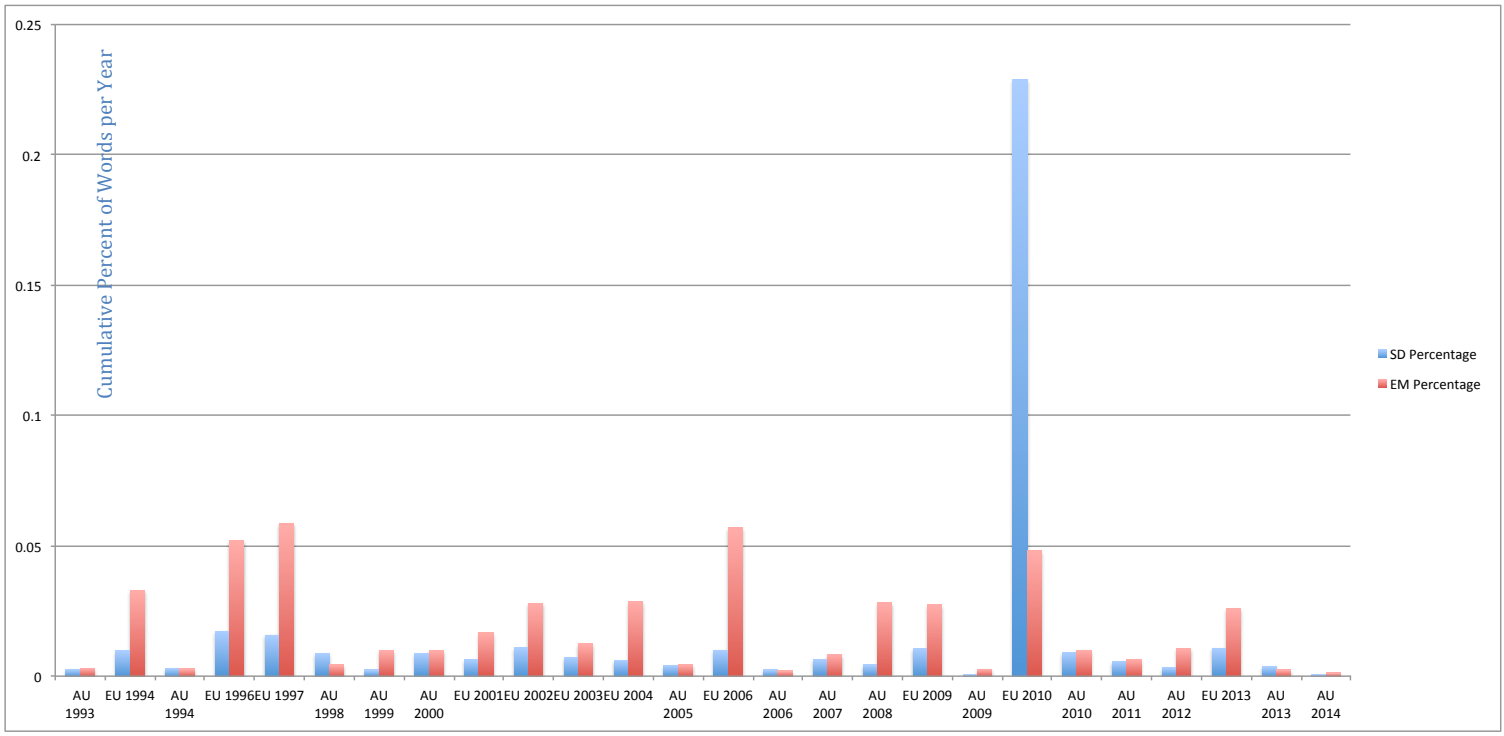

Figure 4 Annual Percentages of Ecological Modernization and Sustainable Development: Austria and EU

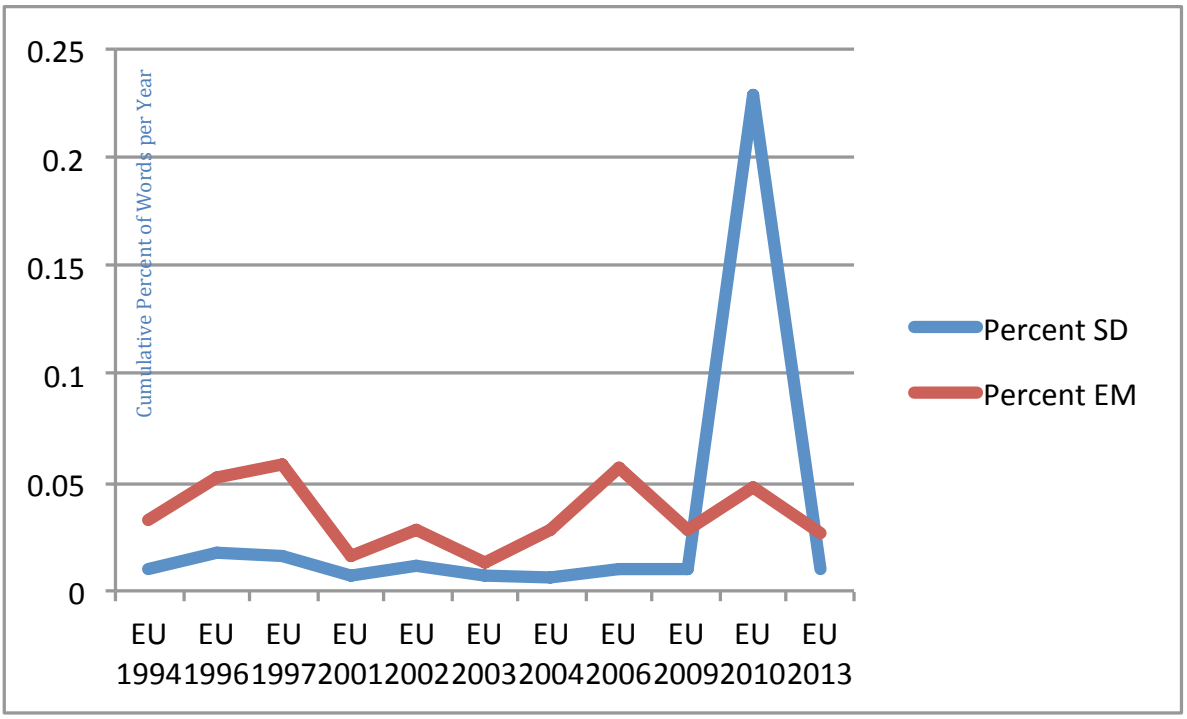

Figure 5 Annual Percentages of Sustainable Development and Ecological Modernization: EU

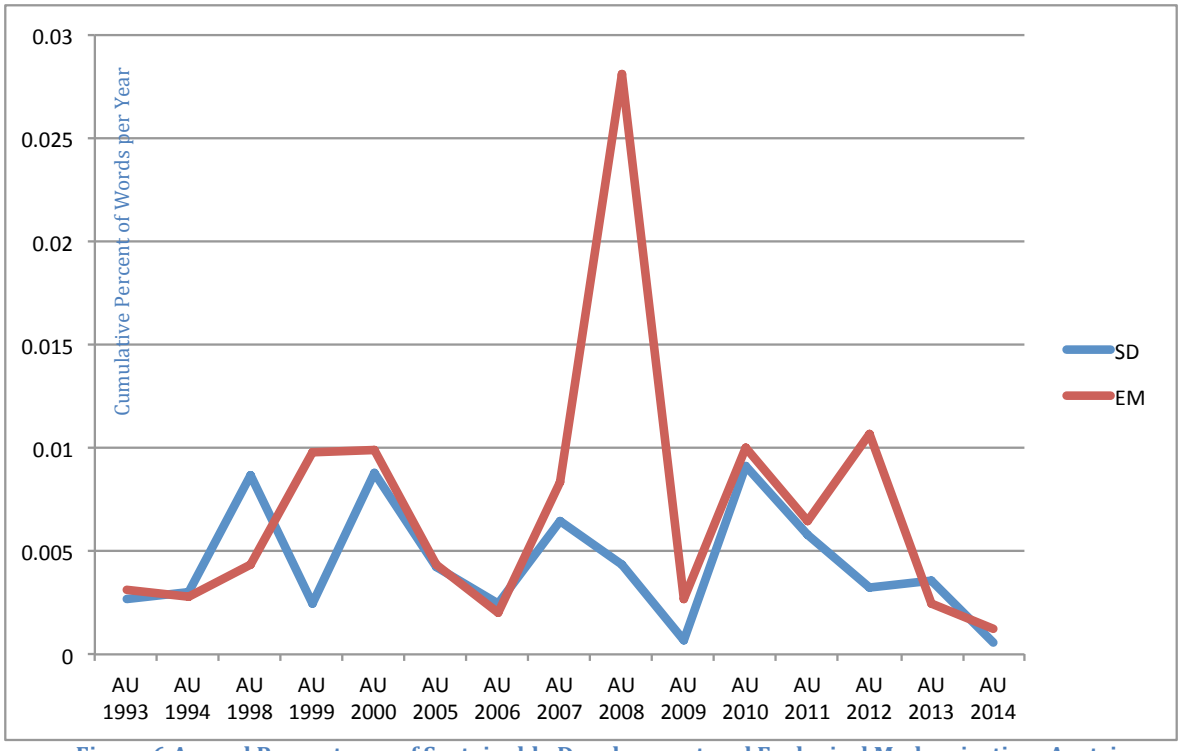

Figure 6 Annual Percentages of Sustainable Development and Ecological Modernization: Austria

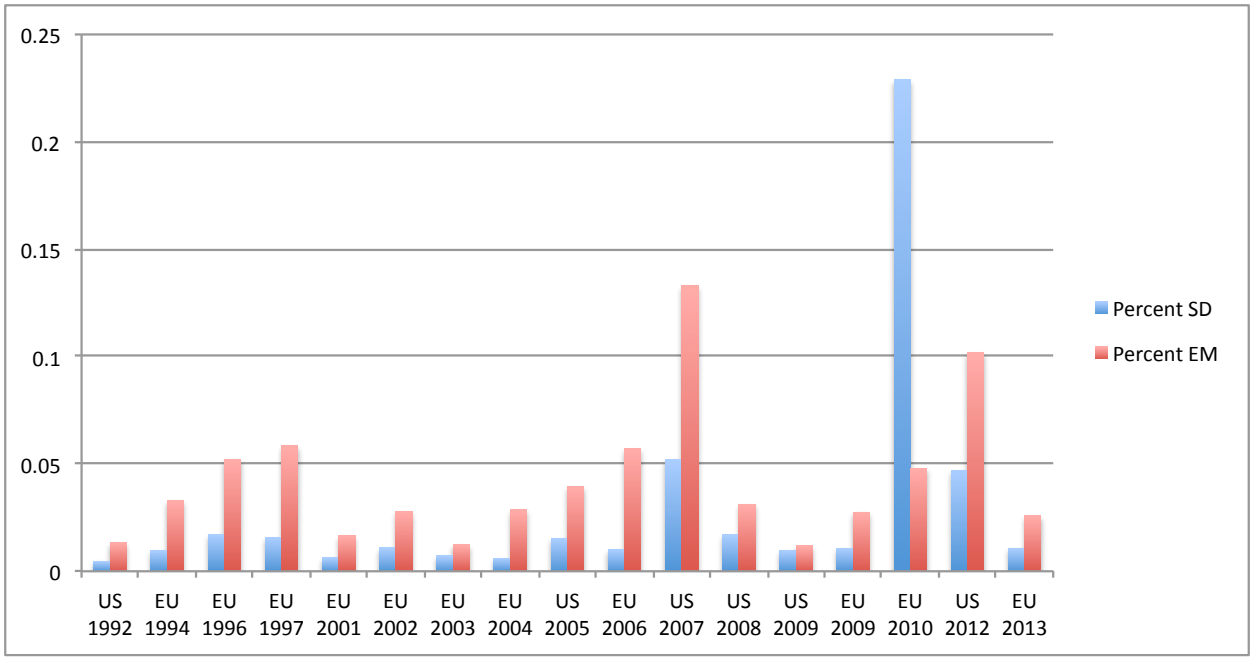

Figure 7 Annual Percentages of Ecological Modernization and Sustainable Development: EU and US

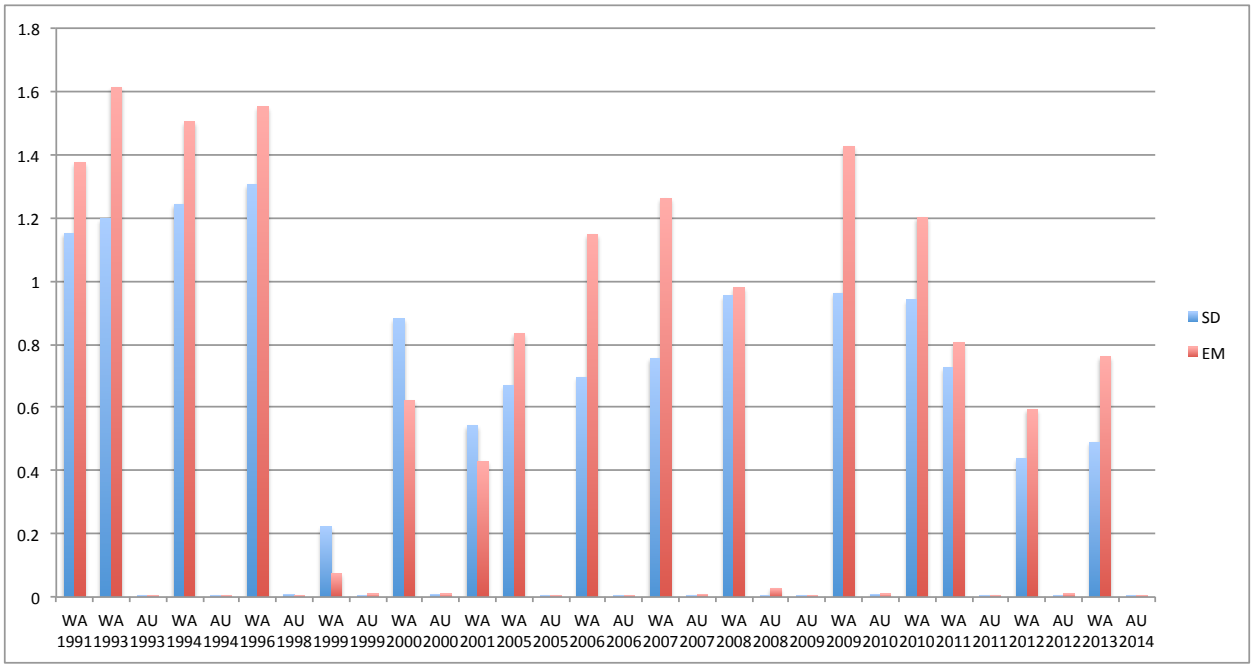

Figure 8 Annual Percentages of Sustainable Development and Ecological Modernization: Austria and Washington

Graphs of the Patterns of Words used within the Sustainable Development and Ecological Modernization Discourse throughout the Different Years of Legislation:

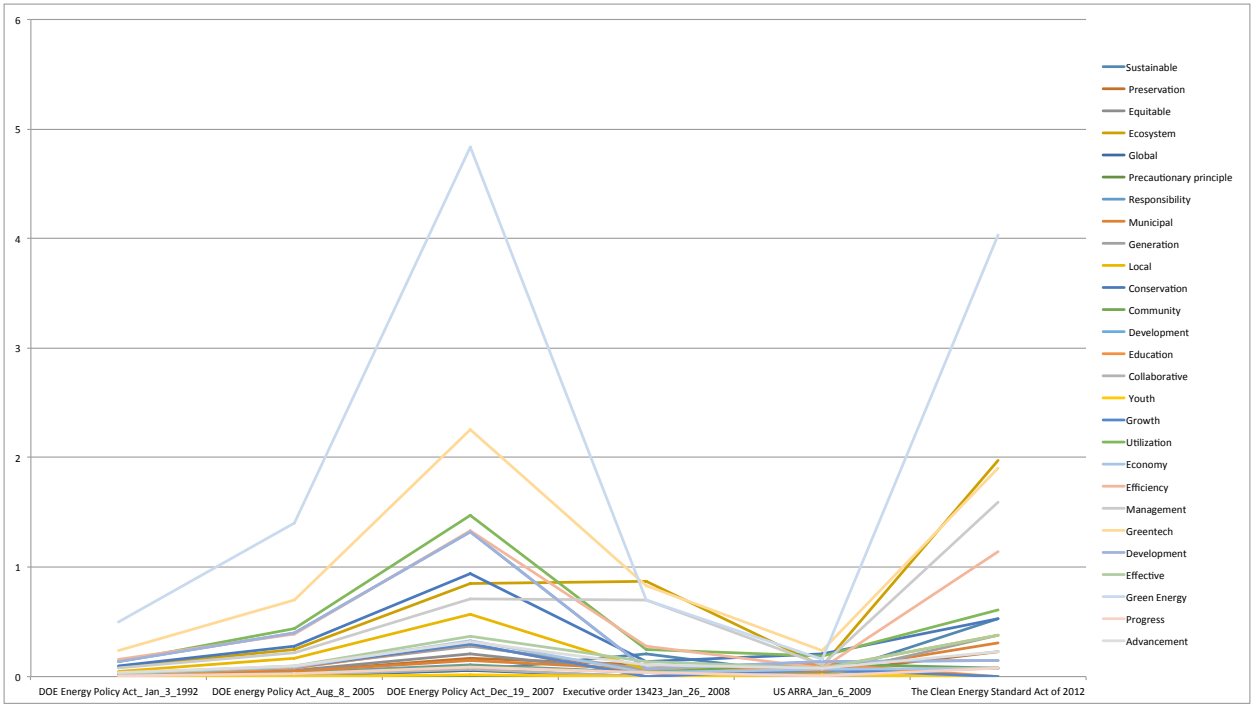

Figure 9 Patterns of Ecological Modernization and Sustainable Development Lexicons for the United States

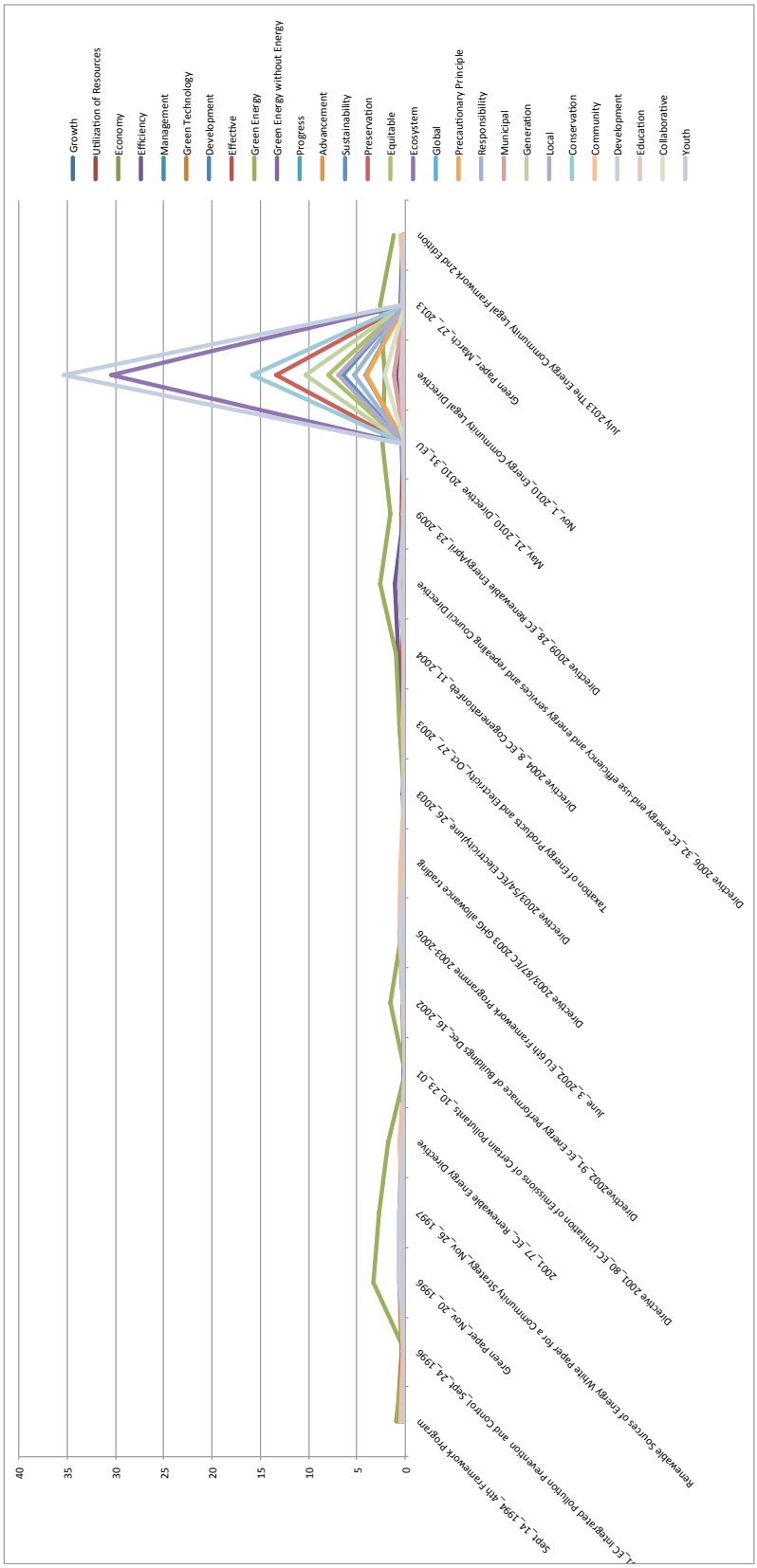

Figure 10 Patterns of Ecological Modernization and Sustainable Development Lexicons for the EU

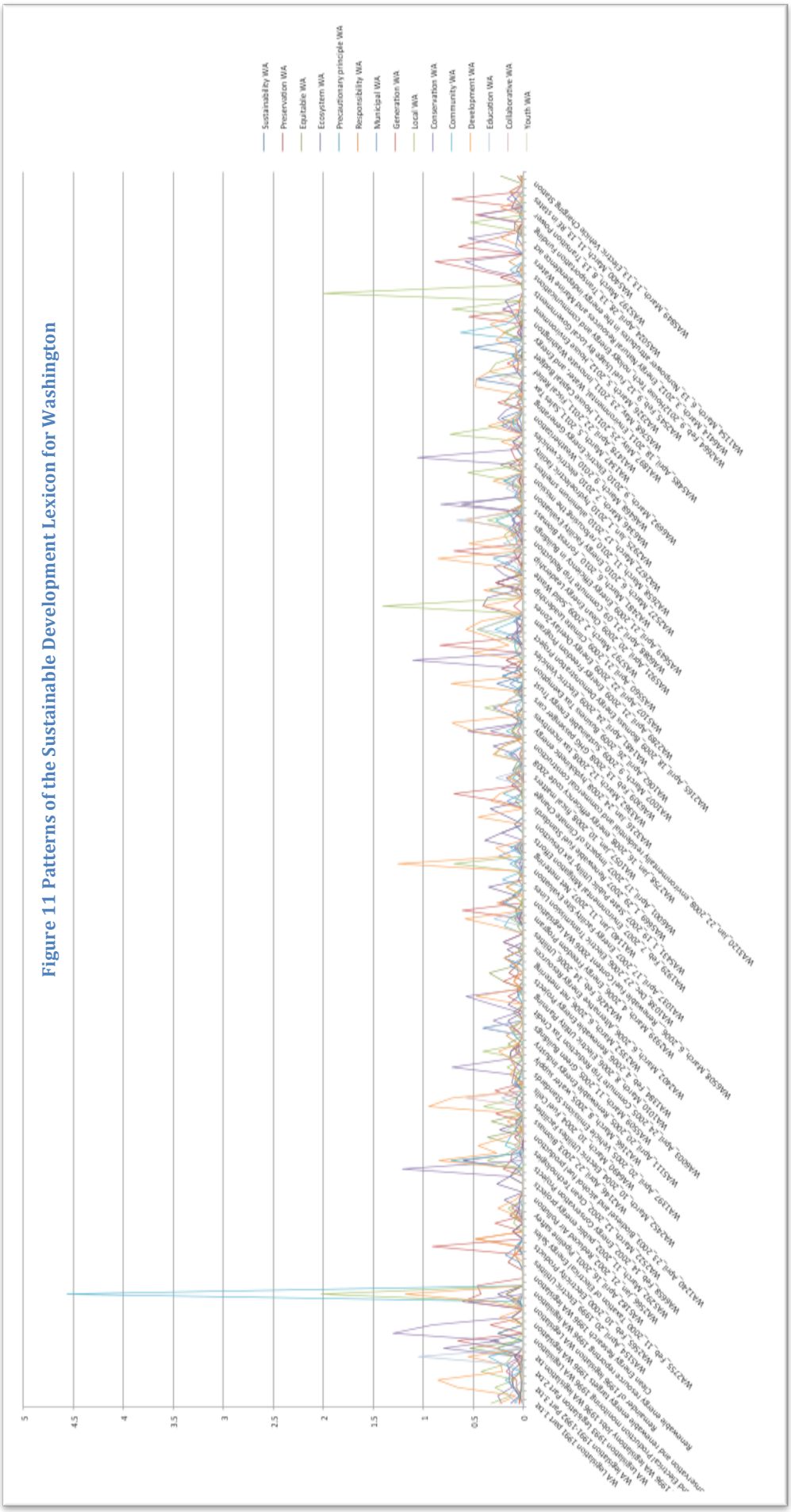

Figure 11 Patterns of the Sustainable Development Lexicon for Washington

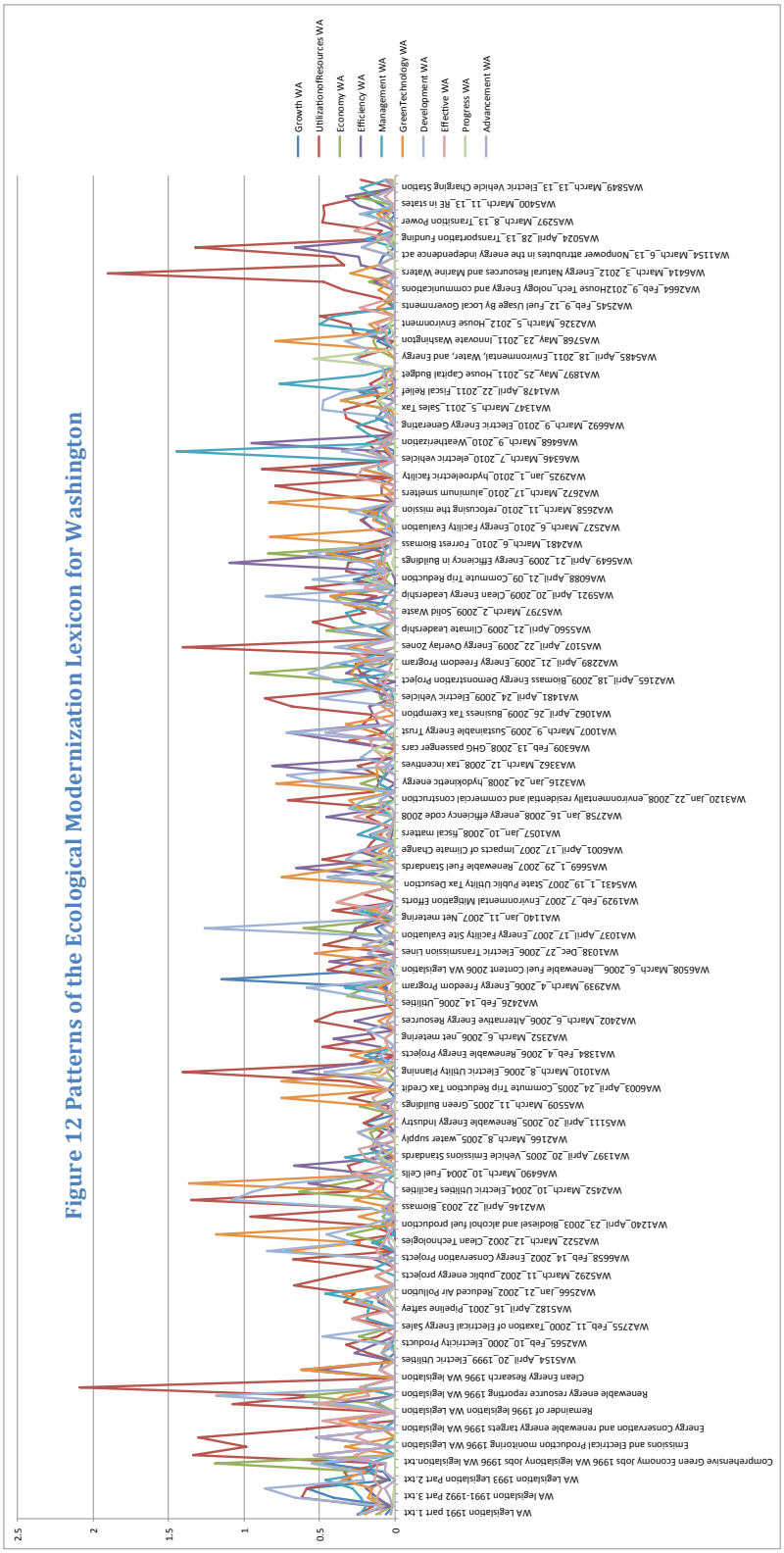
Figure 12 Patterns of the Ecological Modernization Lexicon for Washington
Growth WA
UtilizationofResources WA
Economy WA
Efficiency WA
Management WA
GreenTechnology WA
Development WA
Effective WA
Progress WA
Advancement WA
2.5
2
1.5
1
0.5
0
WA Legislation 1991 part 1.txt
WA legislation 1991-1992 Part 3.txt
WA legislation 1993 legislation Part 2.txt
Comprehensive Green Economy Jobs 1996 WA legislationy Jobs 1996 WA legislation.txt
Emissions and Electrical Production monitoring 1996 WA Legislation
Energy Conservation and renewable energy targets 1996 WA legislation
Remainder of 1996 legislation WA Legislation
Renewable energy resource reporting 1996 WA legislation
Clean Energy Research 1996 WA legislation
WA5154_April_20_1999_Electric Utilities
WA2565_Feb_10_2000_Electricity Products
WA2755_Feb_11_2000_Taxation of Electrical Energy Sales
WA5182_April_16_2001_Pipeline saftey
WA2566_Jan_21_2002_Reduced Air Pollution
WA5292_March_11_2002_public energy projects
WA6658_Feb_14_2002_Energy Conservation Projects
WA2522_March_12_2002_Clean Technologies
WA1240_April_23_2003_Biodiesel and alcohol fuel production
WA2146_April_22_2003_Biomass
WA2452_March_10_2004_Electric Utilities Facilities
WA6490_March_10_2004_Fuel Cells
WA1397_April_20_2005_Vehicle Emissions Stanards
WA2166_March_8_2005_water supply
WA5111_April_20_2005_Renewable Energy Industry
WA5509_March_11_2005_Green Buildings
WA6003_April_24_2005_Commute Trip Reduction Tax Credit
WA1010_March_8_2006_Electric Utility Planning
WA1384_Feb_4_2006_Renewable Energy Projects
WA2352_March_6_2006_net metering
WA2402_March_6_2006_Alternative Energy Resources
WA2426_Feb_14_2006_Utilities
WA2939_March_4_2006_Energy Freedom Program
WA6508_March_6_2006__Renewable Fuel Content 2006 WA legislation
WA1038_Dec_27_2006_Electric Transmission Lines
WA1037_April_17_2007_Energy Facility Site Evaluation
WA1140_Jan_11_2007_Net metering
WA1929_Feb_7_2007_Environmental Mitigation Efforts
WA5431_1_19_2007_State Public Utility Tax Deuction
WA5669_1_29_2007_Renewable Fuel Standards
WA6001_April_17_2007_Impacts of Climate Change
WA1057_Jan_10_2008_fiscal matters
WA2758_Jan_16_2008_energy efficiency code 2008
WA3120_Jan_22_2008_environmentally residential and commercial construction
WA3216_Jan_24_2008_hydrokinetic energy
WA3362_March_12_2008_tax incentives
WA6309_Feb_13_2008_GHG passenger cars
WA1007_March_9_2009_Sustainable Energy Trust
WA1062_April_26_2009_Business Tax Exemption
WA1481_April_24_2009_Electric Vehicles
WA2165_April_18_2009_Biomass Energy Demonstration Project
WA2289_April_21_2009_Energy Freedom Program
WA5107_April_22_2009_Energy Overlay Zones
WA5560_April_21_2009_Climate leadership
WA5797_March_2_2009_Solid Waste
WA5921_April_20_2009_Clean energy leadership
WA6088_April_21_09_Commute Trip Reduction
WA5649_April_21_2009_Energy Efficiency in Buildings
WA2481_March_6_2010_ Forrest biomass
WA5527_March_6_2010_Energy Facility Evaluation
WA2658_March_11_2010_refocusing the mission
WA2672_March_17_2010_aluminum smelters
WA2925_Jan_1_2010_hydroelectric facility
WA6346_March_7_2010_electric vehicles
WA6468_March_9_2010_Weatherization
WA6692_March_9_2010_Electric Energy Generating
WA1347_March_5_2011_Sales Tax
WA1478_April_22_2011_Fiscal Relief
WA1897_May_25_2011_House Capital Budget
WA5485_April_18_2011_Environmental, Water, and Energy
WA5768_May_23_2011_innovate Washington
WA2226_March_5_2012_House Environment
WA2545_Feb_9_12_Fuel Usage By Local Governments
WA2664_Feb_9_2012House Tech_nology Energy and communications
WA6414_March_3_2012_Energy Natural Resources and Marine Waters
WA1154_March_6_13_Nonpower attributes in the energy independence act
WA5024_April_28_13_Transportation Funding
WA5297_March_8_13_Transition Power
WA5400_March_11_13_RE in states
WA5849_March_13_13_Electric Vehicle Charging Station

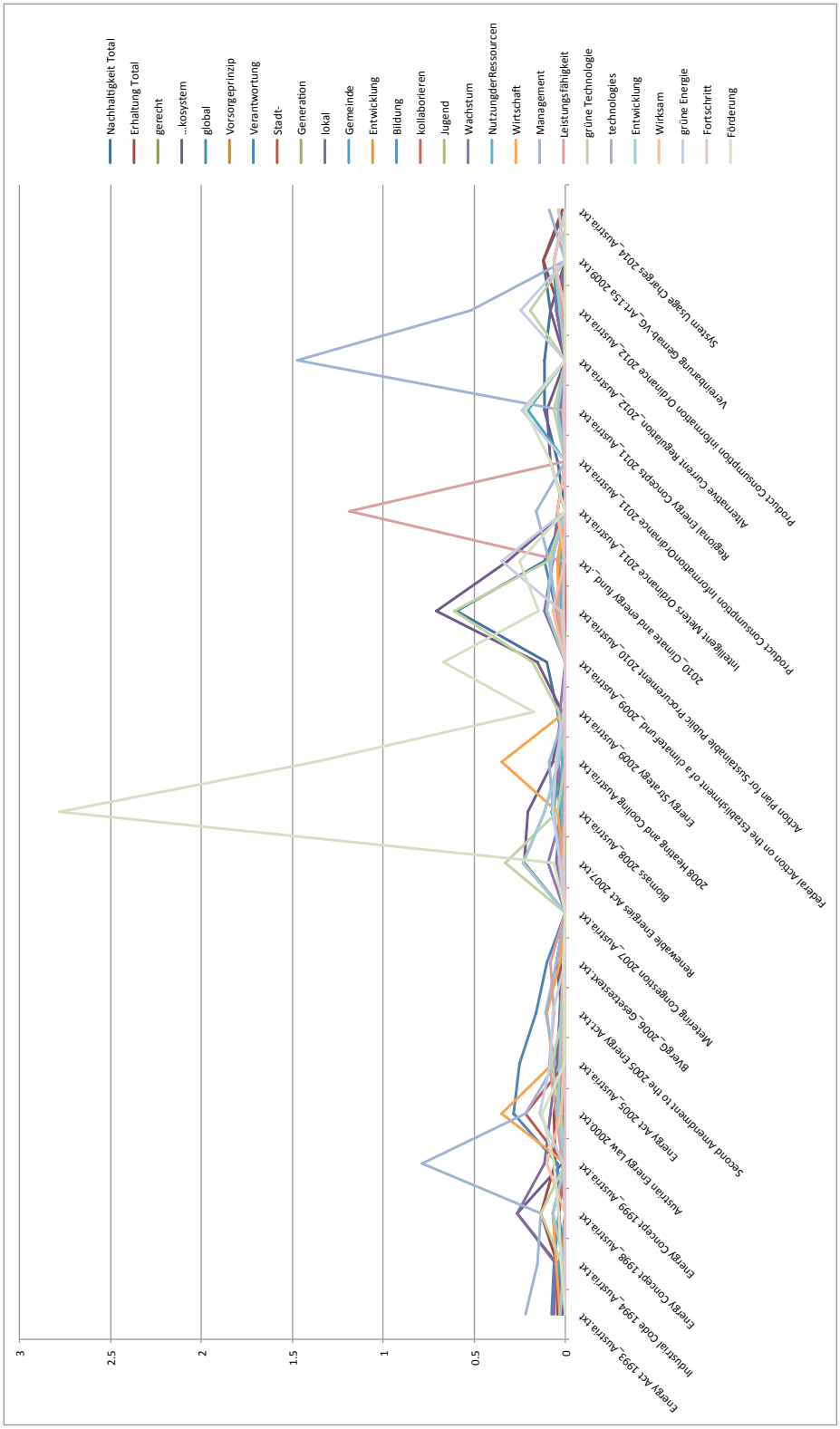

Figure 13 Patterns of Ecological Modernization and Sustainable Development Lexicons for Austria

Electricity generated from renewable sources

% of gross electricity consumption

geo \ time	2004	2005	2006	2007	2008	2009	2010	2011
EU (28 countries)	14.3	14.8	15.3	15.9	16.7	18.8	19.7	21.8
EU (27 countries)	14.2	14.7	15.1	15.8	16.6	18.8	19.6	21.7
Belgium	1.7 (e)	2.3 (e)	2.9 (e)	3.4 (e)	4.4 (e)	5.8 (e)	6.9 (e)	8.8 (e)
Bulgaria	8.7	9.0	9.1	9.2	9.7	11.0	12.5	12.9
Czech Republic	3.9	3.9	4.2	4.7	5.2	6.4	7.5	10.6
Denmark	23.7	24.6	24.0	25.0	25.9	28.3	32.8	35.9
Germany	8.9	10.1	11.4	12.7	13.6	16.8	18.1	21.3
Estonia	0.6	1.2	1.5	1.5	2.1	6.1	10.4	12.3
Ireland	6.0	7.2	8.7	10.1	11.1	13.7	14.9	17.6
Greece	8.6	8.9	9.7	10.1	10.4	11.8	13.1	14.6
Spain	18.7	18.9	19.8	21.5	23.6	27.8	29.8	31.5
France	13.8	13.8	14.1	14.3	14.4	15.1	14.9	16.5
Croatia	41.7	38.8	36.6	32.5	31.3	33.4	35.6	35.5
Italy	16.1	16.3	15.9	16.0	16.6	18.4	20.1	23.5
Cyprus	0.0	0.0	0.0	0.1	0.3	0.6	1.4	3.4
Latvia	46.0	43.0	40.4	38.6	38.7	41.9	42.0	44.7
Lithuania	3.5	3.8	4.0	4.6	4.8	5.9	7.4	9.0
Luxembourg	2.8	3.2	3.2	3.3	3.6	4.1	3.8	4.1
Hungary	2.2	4.4	3.5	4.2	5.3	7.0	7.1	6.4
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Netherlands	4.1	5.1	5.2	5.9	7.1	9.0	9.7	9.8
Austria	62.2	62.3	62.3	64.5	65.2	67.8	65.7	66.1
Poland	2.3	2.8	3.1	3.5	4.4	5.9	6.7	8.2
Portugal	28.2	28.9	30.0	32.7	34.6	38.2	41.2	46.5
Romania	28.4	28.8	28.1	28.1	28.1	30.9	30.4	31.1
Slovenia	29.2	28.4	28.2	27.7	30.0	33.8	32.1	30.8
Slovakia	16.0	16.1	17.1	17.4	18.0	18.5	18.4	19.8
Finland	26.7	26.9	26.4	25.5	27.3	27.3	27.6	29.2
Sweden	51.2	50.8	51.6	53.0	53.5	58.1	56.0	59.6
United Kingdom	3.5	4.1	4.5	4.8	5.4	6.6	7.4	8.7
Iceland	:	:	:	:	:	:	:	:
Norway	97.6	97.0	100.5	98.7	99.8	104.8	97.9	104.8
Switzerland	:	:	:	:	:	:	:	:

:=not available e=estimated

Source of Data: Eurostat
Last update: 07.02.2014
Date of extraction: 10 Feb 2014 00:13:26 MET
Hyperlink to the table: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdcc330
General Disclaimer of the EC website: http://ec.europa.eu/geninfo/legal_notices_en.htm
Short Description: This indicator is the ratio between the electricity produced from renewable energy sources and the gross national electricity consumption for a given calendar year. It measures the contribution of electricity produced from renewable energy sources to the national electricity consumption. Electricity produced from renewable energy sources comprises the electricity generation from hydro plants (excluding pumping), wind, solar, geothermal and electricity from biomass/wastes. Gross national electricity consumption comprises the total gross national electricity generation from all fuels (including autoproduction), plus electricity imports, minus exports.
Code: tsdcc330

Figure 14: Euro-Stat Electricity Generated from Renewable Resources 2004-2011

Figure 15: EIA State Renewable Electricity Profiles 2010

State Renewable Electricity Profiles				
State	Net Summer Capacity(gigawatts)	Rank	Net Generation(gigawatthours)	Rank
Alabama	3.885	6	11.081	6
Alaska	0.422	41	1.452	42
Arizona	2.901	10	6.941	14
Arkansas	1.667	21	5.283	18
Caliornia	16.46	2	58.881	2
Colorado	2.01	17	5.133	19
Connecticut	0.281	45	1.13	44
Delaware	0.01	50	0.138	50
Florida	1.182	29	4.664	21
Georgia	2.689	12	6.502	16
Hawaii	0.34	44	0.817	48
Idaho	3.14	9	10.168	7
Illinois	2.112	19	5.257	29
Indiana	1.452	28	3.699	38
Iowa	3.728	7	10.309	10
Kansas	1.082	30	3.473	33
Kenucky	0.893	31	3.02	28
Louisiana	0.517	38	3.577	30
Maine	1.692	22	7.963	11
Maryland	0.799	34	2.241	34
Massachusetts	0.566	39	2.27	35
Michigan	0.807	33	4.083	25
Minnesota	2.588	14	7.48	12
Mississippi	0.235	46	1.504	41
Missouri	1.03	32	2.527	36
Montana	3.085	8	10.442	9
Nebraska	0.443	43	1.807	47
Nevada	1.507	24	4.444	23
New Hampshire	0.671	35	2.71	32
New Jersey	0.23	47	0.868	46
New Mexico	0.818	36	2.072	40
New York	6.033	5	32.286	4
North Carolina	2.449	13	6.84	13
North Dakota	1.941	20	6.15	22
Ohio	0.231	48	1.129	45
Oklahoma	2.412	15	6.969	15
Oregon	10.684	3	32.299	3
Pennsylvania	1.984	16	6.577	17
Rhode Island	0.028	49	0.144	49
South Carolina	1.623	23	4.25	24
South Dakota	2.223	18	6.611	20
Tennessee	2.847	11	9.125	8
Texas	10.985	4	28.967	5
Utah	0.528	40	1.476	43
Vermont	0.408	42	1.829	39
Virginia	1.487	26	3.72	26
Washington	23.884	1	74.905	1
West Virginia	0.715	37	2.307	37
Wisconsin	1.267	27	4.586	27
Wyoming	1.722	25	4.271	31
United States Total	132.711		427.376	

Appendix Two: Complete List of Analyzed Legislation	
Legislative Timeline European Union	
'94	Sept_14_1994_4th Framework Program
'96	Directive 1996_61_EC Integrated Pollution Prevention and Control
	Green Paper_Nov_20_ 1996
'97	Renewable Sources of Energy White Paper for a Community Strategy_Nov_26_ 1997
'01	Directive 2001_77_EC_ Renewable Energy Directive
	Directive 2001_80_EC Limitation of Emissions of Certain Pollutants
'02	Directive2002_91_EC Energy Performance of Buildings Dec_16_2002
	June_3_2002_EU 6th Framework Programme 2003-2006
'03	Directive 2003/87/EC 2003 GHG allowance trading
	Directive 2003/54/EC ElectricityJune_26_2003
	Taxation of Energy Products and Electricity_Oct_27_ 2003
'04	Directive 2004_8_EC CogenerationFeb_11_2004
'06	Directive 2006_32_EC energy end-use efficiency and energy services and repealing Council Directive April_5_2006
'09	Directive 2009_28_EC Renewable Energy April_23_2009
'10	May_21_2010_Directive 2010_31_EU
	Nov_1_2010_Energy Community Legal Directive
'13	Green Paper_March_27_ 2013
	July 2013 The Energy Community Legal Framework 2nd Edition
Legislative Timeline United States	
'92	DOE Energy Policy Act_ Jan_3_1992
'05	DOE energy Policy Act_Aug_8_ 2005
'07	DOE Energy Policy Act_Dec_19_ 2007
'08	Executive order 13423_Jan_26_ 2008
'09	US ARRA_Jan_6_2009
'12	The Clean Energy Standard Act of 2012
Legislative Timeline Austria	
'93	Bundesgesetzblatt Fur die Republik Osterreich 1993 (Energy Act 1993)
'94	Bundesgesetzblatt Fur die Republik Osterreich 1994(Industrial Code 1994)
'98	Verordnung über die Prüfung zum anerkannten Abschluß Geprüfter Natur- und Landschaftspfleger/Geprüfte Natur- und Landschaftspflegerin
	(Energy Concept 1998)

'99	Bundesgesetz zur Bereinigung der vor 1946 kundgemachten einfachen Bundesgesetze und Verordnungen (Energy Concept 1999)
'00	Bundesgesetz: Energieliberalisierungsgesetz (Energy Law 2000)
'05	Gesetz über die Elektrizitäts- und Gasversorgung (Energy Act 2005)
	Eckpunkte der Energiestrategie Österreich(Energy Strategy 2005)
	Zweites Gesetz zur Neuregelung des Energiewirtschaftsrechts(Second Amendment to the 2005 Energy Act)
'06	Bundesvergabegesetz 2006 (Procurement Act of 2006)
'07	Verordnung der Energie-control Kommision (Metering Congestion 2007)
	EEG-Erfahrungsbericht (Renewable Energies Act 2007)
'08	NÖ Biomasse Fernwärmefonds (Biomass 2008)
	waerme-kaelteleitungsausbaugesetz (Heating and Cooling 2008)
'09	Energy Strategy 2009_Austria
	Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Klima u
	Energiefondsgesetz (Federal Action on the Establishment of a Climate Fund 2009)
'10	Österreichischer Aktionsplan zur nachhaltigen öffentlichen Beschaffung (Action Plan for Sustainable Public Procurement 2010)
	Nationaler Aktionsplan 2010 für erneuerbare Energie für Österreich (Climate and Energy Fund 2010)
'11	Intelligente Messgeräte-Anforderungs (Intelligent Meters Ordinance 2011)
	Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Produkte-Verbrauchsangabenverordnung 2011 (Product Consumption Information Ordinance 2011)
	Regionales Energiekonzept (Regional Energy Concepts 2011)
'12	Meter Standards Ordinance_Austria_2012
	Alternative Current Regulation_2012_Austria
	Gesetz zur Kennzeichnung von energieverbrauchsrelevanten Produkten, Kraftfahrzeugen und Reifen mit Angaben über den Verbrauch an Energie und an anderen wichtigen Ressourcen (Product Consumption information Ordinance 2012)
'13	Art. 15a B-VG, mit der die Vereinbarung gemäß Art. 15a B-VG
	über die Organisation und Finanzierung des Gesundheitswesens(Health Law 2013)
'14	Verordnung der Regulierungskommission der E-Control, mit der die Entgelte für die Systemnutzung bestimmt werden (System Usage Charges 2014)
Legislative Timeline Washington State	
'91	WA Legislation 1991-1992 part 1
	WA legislation 1991-1992 part 2
	WA legislation 1991-1992 Part 3
	WA legislation 1991-1992 Part 4
'93	WA Legislation 1993 Legislation Part 1

‘94	1994 WA Legislation Part 1
‘96	Comprehensive Green Economy Jobs
	Deductions Relating to Energy Conservation from Renewable Resources
	Emissions and Electrical Production monitoring
	Encouragement of Energy Cogeneration
	Energy Conservation and Renewable Energy Targets
	Energy Freedom Account
	Remainder of 1996 Legislation
	Renewable Energy Cost Savings
	Renewable Energy Resource Reporting
	State Energy Strategy Principles
	Clean Energy Research
	Energy Freedom Program Established
‘99	WA5154_April_20_1999_Electric Utilities
‘00	WA2334_Feb_10_2000_Net Metering
	WA2565_Feb_10_2000_Electricity Products
	WA2644_March_6_2000_Nuclear Power
	WA2755_Feb_11_2000_Taxation of Electrical Energy Sales
	WA6062_March_3_2000_Natural Gas
‘01	WA5182_April_16_2001_Pipeline Safety
‘02	WA2522_March_12_2002_Clean Technologies
	WA2566_Jan_21_2002_Reduced Air Pollution
	WA2669_Feb_14_2002_Alternative Energy Resource
	WA5292_March_11_2002_Public Energy Projects
	WA6329_Feb_16_2002_Hybrid Vehicles
	WA6658_Feb_14_2002_Energy Conservation Projects
	WA2506_Feb_14_2002_Green Building
	WA2522_March_12_2002_Clean Technologies
‘03	WA1003_April_22_2003_Research and Transfer
	WA1240_April_23_2003_Biodiesel and Alcohol Fuel Production
	WA1243_March_11_2003_Biodiesel Pilot Program
	WA2146_April_22_2003_Biomass
	WA2172_April_27_2003_Fuel Cells
‘04	WA2452_March_10_2004_Electric Utilities Facilities
	WA6146_Feb_10_2004_Renewable Energy and Energy Efficiency
	WA6490_March_10_2004_Fuel Cells
‘05	WA1062_April_21_2005_Efficiency Standards
	WA1397_April_20_2005_Vehicle Emissions Standards

	WA1895_April_20_2005_Statewide Energy Efficiency
	WA2166_March_8_2005_Water Supply
	WA5101_April_20_2005_Water Energy and Environment
	WA5111_April_20_2005_Renewable Energy Industry
	WA5381_April_16_2005_Adding New Chapter to Academy of Sciences
	WA5509_March_11_2005_Green Buildings
	WA5916_April_24_2005_Alternative Fuel Vehicles
	WA6003_April_24_2005_Commute Trip Reduction Tax Credit
	WA5916_April_24_2005_Alternative Fuel Vehicles
'06	WA1010_March_8_2006_Electric Utility Planning
	WA1020_March_2_2006_Energy Facility
	WA1384_Feb_4_2006_Renewable Energy Projects
	WA2348_March_4_2006_Aluminum Smelters
	WA2352_March_6_2006_Net Metering
	WA2370_Jan_11_2006_Home Energy Efficiency
	WA2402_March_6_2006_Alternative Energy Resources
	WA2424_March_3_2006_Farm Fuel
	WA2426_Feb_14_2006_Utilities
	WA2644_March_8_2006_Utility Tax Credit
	WA2939_March_4_2006_Energy Freedom Program
	WA6141_Jan_9_2006_Electric Generation Wind Turbine
	WA6508_March_6_2006__Renewable Fuel Content
	WA6840_March_4_2006_Energy Efficiency
	WA1038_Dec_27_2006_Electric Transmission Lines
'07	WA1029_April_14_2007_Technology, Energy and Communication
	WA1037_April_17_2007_Energy Facility Site Evaluation
	WA1091_Jan_10_2007_Innovation Partnership Zones
	WA1140_Jan_11_2007_Net metering
	WA1303_Jan_16_2007_Cleaner Energy
	WA1929_Feb_7_2007_Environmental Mitigation Efforts
	WA2007_Feb_5_2007_Fuel Blends
	WA5431_1_19_2007_State Public Utility Tax Reduction
	WA5445_March_13_2007_Cost Reimbursement
	WA5669_1_29_2007_Renewable Fuel Standards
	WA5881_April_17_2007_Water Power License Fees
'08	WA6001_April_17_2007_Impacts of Climate Change
	WA1032_Jan_4_2008_Portable Electronics Insurance
	WA1057_Jan_10_2008_Fiscal Matters

	WA2639_Jan_11_2008_Renewable Resources
	WA2758_Jan_16_2008_Energy Efficiency Code 2008
	WA2815_Feb_19_2008_GHG 2008
	WA3120_Jan_22_2008_Environmental Residential and Commercial Construction
	WA3188_Jan_23_2008_Vegetable Oil
	WA3216_Jan_24_2008_Hydokinetic Energy
	WA3303_Jan_1_2008_Buisness and Occupational Tax Credit
	WA3362_March_12_2008_Tax Incentives
	WA6308_Jan_15_08_Climate Change Research
	WA6309_Feb_13_2008_GHG Passenger Cars
'09	WA1004_April_16_2009_Energy Efficiency Code
	WA1007_March_9_2009_Sustainable Energy Trust
	WA1010_Feb_23_2009_Biofuel
	WA1062_April_26_2009_Business Tax Exemption
	WA1188_Jan_1_2009_Conservation Projects
	WA1481_April_24_2009_Electric Vehicles
	WA2129_April_20_2009_GHG
	WA2165_April_18_2009_Biomass Energy Demonstration Project
	WA2227_April_21_2009_Green Jobs
	WA2289_April_21_2009_Energy Freedom Program
	WA5055_Feb_25_09_PUC
	WA5107_April_22_2009_Energy Overlay Zones
	WA5290_Feb_26_2009_Gas or Electrical Company Discounts
	WA5560_April_21_2009_Climate Leadership
	WA5724_April_20_2009_Biomass Energy
	WA5797_March_2_2009_Solid Waste
	WA5854_April_20_2009_Reducing Climate Pollution
	WA5921_April_20_2009_Clean Energy Leadership
	WA5989_March_2_09_GHG Performance Standard
	WA6088_April_21_09_Commute Trip Reduction
	WA6170_April_19_2009_Environmental Tax Incentives
	WA5649_April_21_2009_Energy Efficiency in Buildings
'10	WA2420_March_5_2010_Working Land Base
	WA2481_March_6_2010_ Forrest Biomass
	WA2515_Feb_10_2010_Biodiesel Fuel
	WA2527_March_6_2010_Energy Facility Evaluation
	WA2561_April_12_2010_Energy Cost Saving Improvements
	WA2658_March_11_2010_Refocusing the Mission

	WA2661_Feb_10_2010_House Technology Energy Communications
	WA2672_March_17_2010_Aluminum Smelters
	WA2676_March_17_2010_Energy Conservation Bonds
	WA2925_Jan_1_2010_Hydroelectric Facility
	WA3105_March_8_2010_Alternative Fuels and Vehicles
	WA6346_March_7_2010_Electric Vehicles
	WA6350_Feb_12_2010_Marine Waters Planning and Management
	WA6468_March_9_2010_Weatherization
	WA6614_March_8_2010_Conservation Programs
	WA6692_March_9_2010_Electric Energy Generating
	WA6712_March_16_2010_Clean Alternative Fuel Vehicles
'11	WA1347_March_5_2011_Sales Tax
	WA1422_April_13_2011_Authorizing the Department of Natural Resources
	WA1478_April_22_2011_Fiscal Relief
	WA1571_Feb_14_2011_House Technology and Energy Communication
	WA1897_May_25_2011_House Capital Budget
	WA5300_March_4_2011_Enhancing the Use of Washington Natural Resources in Public Buildings
	WA5485_April_18_2011_Environmental, Water, and Energy
	WA5526_March_2_2011_Sterling Converters
	WA5768_May_23_2011_Innovate Washington
	WA5769_April_21_2011_Coal-fired Electric Generation Facilities
'12	WA2326_March_5_2012_House Environment
	WA2384_Feb_10_2012_House Business and Financial Services
	WA2545_Feb_9_12_Fuel Usage By Local Governments
	WA2660__March_8_2012_Transportation Revenue
	WA2664_Feb_9_2012House Technology Energy and Communications
	WA5775_Feb_11_2012_Agriculture Water Rural Economic Development
	WA6414_March_3_2012_Energy Natural Resources and Marine Waters
'13	WA 5709_April_16_13_Biomass to Heat Public Schools
	WA1154_March_6_13_Nonpower Attributes in the Energy Independence Act
	WA1826_April_22_13_Integrated Resource Plan
	WA5024_April_28_13_Transportation Funding
	WA5099_April_28_2013_Fuel Usage of Vehicles
	WA5297_March_8_13_Transition Power
	WA5369_April_23_2013_Geothermal Resources
	WA5400_March_11_13_RE in States
	WA5802_March_13_13_GHG Targets

WA5849_March_13_13_Electric Vehicle Charging Station

WA5882_June_28_13_Tax Preferences

References:

Austrian Parliament. (2014, January). *Volltextsuche Im Parlament*. Retrieved from http://www.parlament.gv.at/HILF/suchhilfeerweitert.shtml

Baxter, B., & Dunphy, R. (2004). *Europe, Globalization and Sustainable Development*. Ed. John Barry. London: Routledge.

Benson, D., & Jordan, A. (2011). Exploring The Tool-Kit Of European Integration Theory: What Role For Cooperative Federalism?. *Journal Of European Integration,* 33.1.

Brandon, P. S., & Lombardi. P. L. (2nd ed.). (2005). *Evaluating Sustainable Development in the Built Environment*. 2nd ed. Oxford, UK: Blackwell Science.

European Legal Services Network. (2014, January). *EuroLex*. Retrieved from the EU European Legal Services Network website http://Eurolex.com/

European Union. (2 Feb. 1992). Treaty of Maastricht. *European Union*. Retrieved from http://www.eurotreaties.com/maastrichtec.pdf

Fisher, D.R. (2013). Understanding The Relationship Between Subnational And National Climate Change Politics In The United States: Toward A Theory Of Boomerang Federalism. *Environment & Planning C: Government & Policy*, 31.5, 769-784.

Gerlagh, R., & Schleicher, S.P. (2009). *Modeling Sustainable Development*. Ed. Valentina Bosetti. Northampton: Fondazione Eni Enrico Mattei.

Hajer, M.A. (1995) *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon Press.

Kelemen, D. (2004). T*he Rules of Federalism: Institutions and Regulatory Politics in the EU and Beyond*. Cambridge, MA: Harvard University Press.

Kjellén, Bo. (2008) *A New Diplomacy for Sustainable Development: The Challenge of Global Change*. New York: Routledge.

Kriebel, D., et al (2001). The Precautionary Principle in Environmental Science. *Environmental Health Perspectives*, 109.9, 871-6.

Langhelle, O. (2000) Why ecological modernization and sustainable development should not be conflated*. Journal of Environmental Policy & Planning*, Vol. 2, Iss. 4.

Litfin K. T., (1994) *Ozone Discourses. Science and Politics in Global Environmental Cooperation.* New York: Columbia University Press.

Mol, P. J. (2001) *Globalization and Environmental Reform: The Ecological Modernization of the Global Economy*. Cambridge: MIT.

Roosa, S. A. (2010). *Sustainable Development Handbook*. Lilburn, GA: Fairmont.

Spence, D.B., (6 March 2012). Federalism, Regulatory Lags, and the Political Economy of Energy Production. *University of Pennsylvania Law Review*, No. 222.

Szarka, J., Climate Challenges, Ecological Modernization, and Technological Forcing: Policy Lessons from a Comparative US-EU Analysis*.* (2012). *Global Environmental Politics.* 12:2, 87-109.

United Nations. (2008). *Achieving Sustainable Development and Promoting Development Cooperation: Dialogues at the Economic and Social Council.* New York, NY: United Nations.

United Nations. (1987) Report of the World Commission on Environment and Development: Our Common Future - A/42/427. *UN Documents: Gathering a Body of Global Agreements*. Retrieved from United Nations website http://www.un-documents.net/wced-ocf.htm

United States Department of Energy. (2014, January). *Laws DOE Administers*. Retrieved from the US DOE website http://energy.gov/gc/laws-doe-administers-0

Vogel, D. (1995). *Trading Up: Consumer and Environmental Regulation in a Global Economy*. Cambridge, MA: Harvard UP.

Washington State Energy Office. (2014, January). *State Energy Office*. Retrieved from http://www.commerce.wa.gov/Programs/Energy/Office/Pages/default.aspx

Wright, J. & Kurian, P., (1987) *Ecological Modernization versus Sustainable Development: The Case of Genetic Modification Regulation in New Zealand:* University of Waikato.