

**Red, White, Blue, and Green Federal Buildings:
Public Policy Model Testing Through Title IV
of the *Energy Independence and Security Act of 2007***

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This study examines the efficacy of the model-based approach to the study of public policy by applying a model of policy implementation to a case study of American policymaking. The model used for testing was Pressman and Wildavsky's Implementation Model. The suggestions of this model were closely tested with the details of the implementation of Title IV of the Energy Independence and Security Act. Through this testing, the implementation of the Energy Independence and Security Act is explored in great depth. Finally, this study finds that the model-based paradigm of examining public policy is more useful than other approaches in most circumstances.

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Introduction

The model approach of studying public policy is an attempt to better understand the policymaking process by creating templates and explanations of expected behavior, activity, and outcomes. It is through the application of these models that policy scholars hope to develop a way to better understand, and thus predict future policymaking. Models vary with regards to the actors, processes, and even portions of the policy timetable they choose to examine. For the models that examine similar characteristics, they tend to differ on the theories underlying the predicted behavior. To better understand which models are more effective and accurate than others, models can be applied to already completed policymaking processes to determine how well they are (or are not) supported. This study is an attempt to examine a model of policy implementation as applied to the *Energy Independence and Security Act of 2007 (EISA)*.

EISA was an omnibus energy bill passed in December 2007 which contained 82 smaller acts. Much of the bill focused on provisions such as lower vehicle emissions, increased research and production of alternative fuels, and appliance and lighting efficiency. However, Title IV of the bill narrowed in primarily on increasing energy efficiency in federal agencies and buildings. This section of *EISA* was the direct incorporation of nine separate bills relating to energy efficiency in federal buildings introduced in Congress between June 2006 and August 2007.

The first section of this paper will discuss the suggestions and assumptions of Pressman and Wildavsky's Implementation Model, the second will systematically apply the details of the policy implementation process of *EISA* to those assumptions, and the final two sections will evaluate both the efficacy of the Implementation Model and then the utility of the model-based approach to public policy.

Pressman and Wildavsky's Implementation Model

Jeffrey Pressman and Aaron Wildavsky introduced one of the earliest models dedicated to the evaluation of policy implementation in their 1973 book *Implementation: How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing That Federal Programs Work at All* (hereafter known as *Implementation*). The monograph was an attempt to evaluate an Economic Development Agency (EDA) program dedicated to reducing chronic unemployment in Oakland, California from 1966-1971. Pressman and Wildavsky (1973) proposed a normative set of prescriptions with the potential to make policy implementation more successful than it was for the EDA. While utilizing Pressman and Wildavsky's Implementation Model does not hold the same predictive power as other popular policymaking models, such as Graham Allison's (1971) Bureaucratic Politics Model and John Kingdon's (1984) Policy Streams, the Implementation Model can be evaluated by comparing its suggestions to actions taken after the passage of *EISA*. To first introduce the primary suggestions from the Implementation Model:

1) *Implementation should not be divorced from policymaking*

Pressman and Wildavsky (1973) suggest that "means and ends can be brought into somewhat closer correspondence only by making each partially dependent on the other" (143). Prior to their work, many scholars separated the processes of policy formulation and implementation. Woodrow Wilson (1887) is well-known for his enumerated policy/administration dichotomy. Contrarily, the Implementation Model views successful implementation as being integrated into policymaking. Otherwise, the creators of policy will

“succumb to the temptation to juxtapose grand schemes for which their resources, both in terms of money and administrative capacity, are inadequate” (136). The primary implication of this error is that programs will be created which are not given the resources necessary to succeed. This leads to the infamous unfunded mandate. When formulation and implementation are undertaken in tandem, it is much more likely that those creating policy will better understand what is truly necessary to implement successful programs.

2) Designers of policy must consider direct means for achieving ends and simplicity can be ignored only at the peril of breakdown

A common feature of Pressman and Wildavsky's (1973) *Implementation* are cartoons illustrating Rube Goldberg machines. These machines, while seeming idealistically perfect, rely on specific (and outlandish) mechanisms so numerous and complex that it is predictably impossible for the machines to ever function properly. These cartoons illustrate Pressman and Wildavsky's (1973) concept of the “complexity of joint action” in which “each required clearance point adds to the probability of stoppage or delay” (143). The more steps which are necessary for a program to be implemented, the less likely it is to succeed. These steps include additional necessary actors, agencies, and offices, bureaucratic clearances to receive, communication necessary, funds to be disbursed, etc. The solution is that “the number of these points should be minimized wherever possible” (143) because “the more directly the policy aims at its target, the fewer the decisions involved in its ultimate realization and the greater the likelihood it will be implemented” (147).

The theory behind the complexity of joint action is that all of the players in an administrative process act independently. Each of these actors have their own agendas, procedures, variable interest and commitment levels, and goals from partaking in action. When these characteristics conflict it leads to both intentional and unintentional implementation delays (Pressman and Wildavsky 1973). The fewer actors involved, the more this potential problem is minimized. For the actors which must be involved (as it is highly unlikely a government program can be implemented through only one office), those implementing the program “had better begin with a high probability that each and every actor will cooperate” if they wish “to assure a reasonable prospect of a program implementation” (Pressman and Wildavsky 1973, 132). Implementation runs more smoothly if all of the involved are doing their job, with the same objectives, moving in the same direction. A version of this issue which will become significant during assumption testing is that when there is “a high level of uncertainty about even the possibility of success, it is not hard to predict or to explain the failure of the effort to reach its goals” (Pressman and Wildavsky 1973, 90).

Not only should implementation be simple, but it must be direct. Problems relating to this reflect “the difficulty of translating broad agreement into specific decisions” (Pressman and Wildavsky 1973, 6). Pressman and Wildavsky (1973) note two extreme kinds of policies. There are policies which are very broad and vague with few specific requirements and then there are policies which are bogged down by specific regulations and prescribed actions. Broad policies are more likely to yield some sort of result, but this result is often unpredictable and may not match the original goals of policymakers. Specific policies have predictable results following a well defined objective, but they are much less likely to yield significant impacts (Pressman and

Wildavsky 1973). The synthesis of these antonymic methods is to formulate programs which are direct as opposed to vague or broad, and simple as opposed to detailed and overly specific.

3) Policymakers must carefully consider the theory which underlies prescribed action

A common reason for the failure of government programs is because they are designed with solutions which do not actually address the problem they set out to solve. The example described by Pressman and Wildavsky (1973) is that the EDA subsidized capital investments in an attempt to boost job creation, when it would have made much more sense to directly subsidize or invest in labor costs and wages. As noted in previous assumptions, implementation processes are already faced with several difficulties even in a successfully aimed program. When the program would not solve the problem even if successfully implemented, “theoretical defects exacerbate bureaucratic problems” (Pressman and Wildavsky 1973, 147).

While it may seem like it should be intuitive for policy creators, it is not uncommon for policy to be enacted which has no hope of solving specific problems as the policy is fundamentally and theoretically flawed. This causes Pressman and Wildavsky (1973) to list having theoretically sound programs as a suggestion for increasing the future success of implementation strategies.

4) For successful implementation, there must be continuity in leadership

The political and private actors involved in implementing government policy matter. As much as Max Weber may want the government to function like a finely tuned machine, the human element of governance allows for a great deal of discretion in administration. Discretion

is then important for the executive leaders and bureaucrats responsible for actually implementing policy. Pressman and Wildavsky (1973) note that successfully implementing policy “depends more on ‘knowing how’ than on ‘knowing that’” (175).

Experience is beneficial for these discretionary positions because policymaking and implementation are ultimately dependent upon a great deal of “trial and error searching for feasible solutions” (Pressman and Wildavsky 1973, 166). “Implementation is evolution” and “a basic reason programs survive is that they adapt themselves to their environment over a long period of time” (Pressman and Wildavsky 1973, 176; 116). As time progresses, administrative leaders learn how to most effectively carry out policy. With any job there is a learning curve for new employees, and government program implementation is no different. When there is a high turnover of executive leadership, a greater amount of time is spent learning and adjusting to the realities of the position. For these leaders, “their ability to test the environment so as to correct error and reinforce truth makes them effective. Inability to learn is fatal” (Pressman and Wildavsky 1973, 125). Administrators and bureaucrats who possess a greater amount of experience can more effectively lead government programs and increase the chances of implementation success.

Implementation Model Testing

Applying the implementation processes of the successful and not as successful provisions of *EISA* Title IV to the suggestions of Pressman and Wildavsky's (1973) Implementation Model gives support for the efficacy of many of their proposed solutions. This section will systematically test these assumptions in the order they were introduced. After providing evidence which supports or fails to support each assumption, the overall strength of the assumption will be examined, and in the subsequent section the entire model will be considered.

1) Implementation should not be divorced from policymaking

Due to the generally chronological nature of the policymaking process, this assumption can be restated as formulation should consider implementation. One of the most important implications of this suggestion is that policy formulators should take into account the resources that will be necessary for the implementation of specific policy provisions—the primary resource being fiscal appropriations. When analyzing the success and failures of different *EISA* Title IV provisions, this suggestion finds a great deal of support as the provisions which were well-funded largely achieved their goals, and the provisions which did not receive sufficient funding accomplished very little.

The implementation process of *EISA* was unique in that it can be broken down into three distinct periods based upon the passage of a subsequent piece of legislation. After the passage of *EISA* in December 2007, small measures were taken by agencies such as the Department of Energy (DOE) and General Services Administration (GSA) to implement the provisions of Title IV. However, only a fraction of the money authorized by *EISA* was actually appropriated, and

many programs lacked the funding necessary to make any meaningful change throughout most of 2008—this was the first period. The second period began in late 2008 and early 2009 when stimulus packages passed through the *American Recovery and Reinvestment Act (ARRA)* as a response to the Great Recession appropriated billions of dollars to certain provisions of *EISA*. This resulted in a two year boom of energy efficiency programs. However, most of the money appropriated in 2009 only lasted for two years, and beginning in 2011 there was a third period of declining federal government energy efficiency activity.

The slower rates of implementation activity from the first and third period compared to the rapid success of the highly funded second period provide support for the assumption that the resources available for implementation must be considered during formulation, and that a lack of resources leads to a lower probability of success. Further, the formulation process surrounding the *ARRA* acts as a unique revisiting of the formulation process of *EISA* Title IV after legislators and administrators had the opportunity to witness its implementation over the course of a year. This reunites the formulation and implementation processes of *EISA* Title IV and yields a greater appropriation of funds which leads to more successful implementation.

First Period of Implementation, 2008: A Lack of Funding

In February of 2008, the DOE Office of Energy Efficiency and Renewable Energy (EERE) requested \$185.9 million for building efficiency programs for its FY2009 budget which would begin in October of 2008 (US Department of Energy, “President Bush Requests...”, 2008). This \$185.9 million was lower than the \$400 million authorized by *EISA* and significantly

lower than the billions of dollars that would eventually be found necessary to get most of the energy efficiency provision in *EISA* off the ground (Unger et. al 2015, 41).

Even working with the smaller FY 2008 budget which had not accounted for the authorizations of *EISA*, and a smaller than needed amount of funding arriving in October, DOE was still able to begin implementing parts of Title IV of *EISA* by utilizing increased Environmental Savings Performance Contracts (ESPCs) called for in Title V. On August 4, 2008 DOE announced the first four ESPCs which would “enable \$140 million in energy efficiency improvements to DOE facilities” (US Department of Energy, “DOE Announces Contracts to...”, 2008). DOE would utilize ESPCs again, announcing another 16 contracts in December of 2008 which “could result in up to \$80 billion in energy efficiency, renewable energy, and water conservation projects at federally-owned buildings and facilities” (US Department of Energy, “DOE Awards Sixteen Contracts...”, 2008). The ESPC related projects of *EISA* were some of the few which the American Council for an Energy-Efficient Economy (ACEEE) would judge to be successful implementation methods in a 2015 evaluation of *EISA* (Unger et. al 2015).

DOE also began to implement the ambitious Section 422 of *EISA* which called for the Zero-Net Energy Commercial Buildings Initiative (CBI). On August 5, 2008 DOE officially “announced the launch of DOE's Zero-Net Energy Commercial Building Initiative (CBI) with establishment of the National Laboratory Collaborative on Building Technologies (NLCBT)” (US Department of Energy, “DOE to Pursue Zero-Net Energy Commercial Buildings”, 2008). The purpose of the NLCBT was “bringing to bear the unprecedented collaboration in scientific resources of five National Laboratories to bring about the needed transformation of the built environment...and accelerate commercial deployment of clean,

efficient building technologies” (US Department of Energy, “DOE to Pursue Zero-Net Energy Commercial Buildings”, 2008).

DOE announced additional funding for commercial building programs on September 26th, which included \$21 million for “twenty-one companies, which will include retailers, financial institutions and commercial real estate firms” to work with national laboratories on making energy-saving commercial building technologies more market-ready and to decrease the energy use of their buildings (US Department of Energy, “DOE Awards \$15 Million in Technical Assistance...”, 2008). While benefitting commercial buildings overall, this money did not directly contribute to any activities as part of the CBI.

Another program which began implementation in 2008 was the expansion of the State Energy Program (SEP) under Section 411 of *EISA*. In September, DOE announced \$6.6 million in funding for six state programs with the goal to “develop advance building codes” (US Department of Energy, “DOE Announces \$6.6 Million in Competitive Grant Selections...”, 2008). These programs were a California online program to “to educate building department professionals to enforce” new building codes. “A combination of administrative, legislative, compliance tool development, and training tasks” in Florida. A plan “to develop and implement plans to upgrade, implement and enforce [stricter] building energy codes” in Massachusetts. New policy formulation in Nebraska, where they sought “to increase the state's economic and energy freedom and to become a national leader in energy efficiency”. The money would go to “support organization and management of a stakeholder process to review and support changes to the state energy code” in North Carolina. Finally, the grant would go towards the “development and revision of materials to implement the 2009 changes and training and support to the building

community” in Washington (US Department of Energy, “DOE Announces \$6.6 Million in Competitive Grant Selections...”, 2008). While this was a beginning action on the part of DOE, the \$6.6 million provided for these specific grants was significantly lower than the \$3.1 billion dollars that would eventually be provided to the states during the second period of implementation (Unger et. al 2015).

While limited by appropriations, DOE was successful in at least beginning implementation of the important provisions of Title IV as evidenced by the release of funds to the states (although much less than would eventually be necessary), awarding of new ESPCs, and creation of an institutionalized collaboration on zero-net energy commercial buildings. However, DOE was not the only agency with heavy responsibility in the implementation of *EISA*. Several key provisions of Title IV specifically charged GSA with action.

Like DOE, GSA began quickly at the onset of 2008 to begin making progress towards greening the federal government. Their first action was in response to Section 436 of *EISA* which mandated the evaluation and choosing of a green building certification system. This provision was the cause of some of the greatest conflict in the policy formulation process of *EISA*. Primarily, Senate Democrats wanted LEED (the certification method developed by the United States Green Building Council (USGBC)) to be named as the official certification method in the bill. Senate Republicans did not support the use of a specific system and feared some of the economic implications of LEED (US Congress, 2006, S. Rpt. 109-358). GSA had already determined LEED to be the optimal rating system (US General Services Administration 2010; US Congress, 2006, S. Rpt. 109-358) and officially notified DOE that GSA had chosen “LEED

as the most effective rating standard for the Federal real property inventory” in April 2008 (US General Services Administration 2010).

In testimony before the House of Representatives Subcommittee on Government Management, Organization, and Procurement on July 21, 2010, the director of GSA, Kevin Kampschroer, testified about GSA’s actions since the passage of *EISA*. Sections 421 and 436 of *EISA* mandated GSA create the Offices of Federal and Commercial High Performance Green Buildings, respectively (OFHPGB and OCHPGB). Kampschroer recognized that these offices were created and that “since initiating operations, OFHPGB has moved aggressively and resourcefully to fulfill its mandate” (US General Services Administration 2010). OFHPGB created the Interagency Sustainability Working Group (ISWG) whose primary goals was to coordinate green building action between government agencies—the full extent and implications of this action will be addressed during discussion of the next assumption. However, past the release of one document, very little was achieved by OFHPGB, OCHPGB, and the ISWG.

The creation of OFHPGB and OCHPGB and the ISGW document represented the most concrete step towards GSA implementation in 2008, however very little else was done. Kampschroer noted in his testimony that “before the funding provided through the Recovery Act, the office began planning innovative programs to coordinate Federal high-performance buildings activities, accelerate technology commercialization, and foster adoption of sustainable practices at all the lifecycle stages of Federal assets” (US General Services Administration 2010). It could be more helpful to insert the word “only” into the testimony so it reads, “before the funding provided through the Recovery Act, the office ONLY began planning innovative programs“. Kampschroer even recognizes that most of the GSA activity in 2008 was limited to planning.

This begins the transition into the critical second period of stimulated implementation fostered by the passage of the *American Recovery and Reinvestment Act (ARRA)* in early 2009. A 2015 report found that “GSA is spending its \$5.5 billion in funds from the American Recovery and Reinvestment Act to convert federal buildings to high-performance green buildings” (US General Services Administration 2015). This is a much more direct implementation of *EISA* than the planning activity Kampschroer discusses was happening prior to the *ARRA* in 2008.

Second Period of Implementation, 2009-2010: The *ARRA*

The great economic recession developing through the latter half of 2008, which played a part in preventing sufficient funding to *EISA* programs, helped create the environment in which those programs would flourish during 2009 and 2010. Coupled with the election of President Obama and the new Democratic administration’s commitment to sustainable energy policies (which will be addressed during a later discussion), billions of dollars of stimulus money passed in early 2009 (specifically aimed towards “shovel-ready” programs that could be found in *EISA*) created an opportunity for significant advancements of *EISA* implementation. Additionally, the formulation process surrounding the *ARRA* provided a unique attempt for legislators to revisit and rejoin the formulation and implementation processes of *EISA* Title IV congruent with the Implementation Model’s first suggestion.

During the latter half of 2008, Representative Edward Markey (D-MA), Chairman of the House Select Committee on Energy Independence and Global Warming, in one of the earliest hearings on the subject of stimulus funding, stated that the country was in “an economic tailspin”

and “speedy adoption of a green stimulus package is a crucial first step” (US Congress, 2008, H. Hrg. 110-49).

This hearing was held on September 18, 2008 and the stated purpose was “to examine policy options for investment in and development of energy efficient and renewable energy technologies to promote economic recovery and job creation” (US Congress, 2008, H. Hrg. 110-49). The panelists at this hearing advocated the potential for the economic and environmental benefits of funding the already authorized, but underfunded measures of *EISA* while authorizing even more spending.

While it was not an understood and express goal of the legislators involved at the time, this hearing began the process of indirectly revisiting the implementation progress of the energy efficient provisions of *EISA* Title IV. This acted to reconnect the formulation and implementation processes as suggested by Pressman and Wildavsky (1973).

The first panelist at the September 18th hearing, Senior Fellow at the Center for American Progress Bracken Hendricks wanted to focus “the bulk of [his] comments on why renewable energy and energy efficiency actually are a very, very strategic point of investment for rebuilding the economy” (US Congress, 2008, H. Hrg. 110-49). Mr. Hendricks specifically focused in on the Weatherization Assistance Program (WAP) and its underfunding. He stated, “The authorization has been upwards of \$700 million, but the appropriation has been about 2 and a quarter million dollars... We are dramatically under-investing in something that clearly yields a positive cost benefit” (US Congress, 2008, H. Hrg. 110-49).

Professor of Economics at the University of Massachusetts-Amherst Dr. Robert Pollin suggested a spending package that increased energy efficiency programs in “a \$100 billion

program over 2 years” (US Congress, 2008, H. Hrg. 110-49). This plan contained several different elements, but noted building retrofits aimed at energy efficiency were “in fact the most important single piece in terms of where we think money should be spent now” (US Congress, 2008, H. Hrg. 110-49). He further advocated for increased state funding through block grants.

This hearing gave strong support for increasing the funding of key provisions of *EISA* Title IV. One of the most important programs which began to gain a lot of attention in subsequent hearings was the WAP, which would eventually become the highest funded and most successful provision of *EISA* Title IV.

A second hearing about stimulus funding for energy efficiency programs was held by the Senate Committee on Energy and Natural Resources on December 10th to “discuss a range of energy and natural resource programs that should be considered as part of an economic stimulus package” according to committee Chairman Senator Jeff Bingaman (D-NM) (US Congress, 2008, S. Hrg. 110-685). This is significant as the Senate Committee on Energy and Natural Resources was critical in the initial formulation of Title IV. Chairman Bingaman even introduced S.R. 1115 and S.R. 1321—two of the nine bills creating Title IV. The Senators present at this hearing were the same which had contributed to creating Title IV at the beginning of the 110th Congress in early 2007. Now, as the 110th Congress drew to a close (this was one of the last hearings held by the 110th), the same legislators revisited the same programs they had examined in several hearings during the formulation process.

Spending additional stimulus money on energy efficiency measures garnered bipartisan support. Senator Lisa Murkowski (R-AK) specifically wanted to increase the current funding for the Weatherization Program stating, “I am supportive of additional funding in a recovery bill for

weatherization--only if we can effectively spend more than the \$487 million that is now proposed” (US Congress, 2008, S. Hrg. 110-685). Committee Ranking Member Senator Pete Domenici (R-NM), in his final hearing in Congress, noted that a great deal of money had already been authorized by *EISA*, just not appropriated. He said, “We have all the authorization for green buildings in the Federal Government already authorized. I mean, 2, 3, \$4 billion worth is already in there. We aren't doing anything with it. Nobody's putting any money up” (US Congress, 2008, S. Hrg. 110-685). He also recognized that “partisan politics has prevented the handling of the appropriations process pursuant to regular order as perhaps some of these important programs would have already received needed funding” (US Congress, 2008, S. Hrg. 110-685).

In a rare Capitol Hill event both parties agreed on necessary solutions and the panelists joined them in that opinion. Testifying again, Bracken Hendricks further recognized the lack of appropriation of already authorized funds in that “there has been a lack of commitment to actually appropriate and to put the funds forward to make the sort of investments that we need” (US Congress, 2008, S. Hrg. 110-685). He put forward a more comprehensive plan than in the first hearing in which he recognized the need for both “short-term impacts that will use tax credits and immediate spending” and “longer-term...investments in transit, investments in energy infrastructure, like the electrical grid, investments in green buildings, schools, and critically needed projects” (US Congress, 2008, S. Hrg. 110-685).

Senior Vice President of Energy Policy, Oil and Alternative Energy at FBR Capital Markets Corporation Kevin Book proposed a much larger spending package similar to Dr. Pollin's in the previous hearing in which he specifically cited the need for \$122 billion of spending over two years (US Congress, 2008, S. Hrg. 110-685).

Director of the Maryland Energy Administration Malcolm Woolf and Senior VP of Policy and Research at the Alliance to Save Energy Joe Loper put up more modest packages. Mr. Woolf wanted to “fund the Energy Efficiency and Conversation Block Grant Program [EECBGP]” in which \$5 billion be disbursed to the States within 30 days of enactment...A second \$5 billion could be dispensed the following year” (US Congress, 2008, S. Hrg. 110-685). Mr. Woolf also focused his testimony on the importance and efficacy of ESPCs and how funding for those should be increased, as well. He stated, “Energy performance contracts are a really powerful tool to achieve the goals we're talking about today” (US Congress, 2008, S. Hrg. 110-685).

Mr. Loper included slightly less for the states at only \$3 billion, but furthered his proposal by including “\$8 billion for public buildings. That's improvements in Federal, State, and local government buildings” and “\$5 billion for energy efficiency in homes. That includes \$2 billion to the weatherization assistance project, and another \$3 billion for State-administered programs” (US Congress, 2008, S. Hrg. 110-685).

It is also important to note Mr. Book, Mr. Loper, and Mr. Woolf all proposed two year spending programs. This two year focus of the stimulus package will become significant in later implementation efforts. Further, the sheer volume of funds all of the actors involved in the *ARRA* formulation process suggested were significantly higher than what was disbursed during the first period of implementation. Most of the programs in 2008 received and released money in the millions of dollars range. Almost every program discussed to receive *ARRA* appropriations involved billions of dollars.

At the beginning of the following legislative session in January 2009, the *ARRA* had taken its final form. The bill contained funding for DOE energy efficiency programs including

appropriations for the energy intensive operations regulation of *EISA*, increased funding and regulation of reporting and sustainability assessments, and changes in funding for the WAP (US Congress, 2009, S. Rpt. 111-3). In the House version of the bill, it expanded funding for the WAP and State Energy Program (SEP) “That \$5,000,000,000 shall be for the Weatherization Assistance Program...Provided further, That \$3,100,000,000 shall be for the State Energy Program” (US Congress, 2009, H. Rpt. 111-16).

Before the final passage of the *ARRA*, the House Committee on Transportation and Infrastructure held another hearing on January 22nd “to examine infrastructure investment’s role in economic recovery and job creation efforts, including investments in transportation, infrastructure, and public buildings” (US Congress, 2009, H. Hrg. 111-2). The supplemental materials accompanying the hearing transcript noted that the *ARRA* would provide \$7.7 billion for building improvements (US Congress, 2009, H. Hrg. 111-2). Further, according to GSA “the types of projects that would be ready to go include major repair and alteration projects to modernize and upgrade aging Federal Buildings” (US Congress, 2009, H. Hrg. 111-2). The programs of *EISA* Title IV were posed to gain a great deal of support from the passage of the *ARRA*.

It becomes clear through the January hearing that Republican members of Congress form at least a part of the group which used political pressure to slow the implementation of certain portions of *EISA* during 2008. Representative Mario Diaz-Balart (R-FL) held reservations about increasing funding and projects for GSA, especially in such a large concentrated fashion as the billion of dollars in the *ARRA*. He cautioned, “there seems very little that would prevent funds from being used for projects, even those that this committee has, in a bipartisan fashion,

intentionally rejected in the past” (US Congress, 2009, H. Hrg. 111-2). This suggest that the committee had previously opposed energy efficiency programs authorized by Title IV. As a further caveat to any increased funding for GSA projects, Rep. Diaz-Balart suggested GSA officials “be at least required to submit a projected spending plan to this committee before—before—they enter into any contracts” (US Congress, 2009, H. Hrg. 111-2).

However, even the more cautious members of the committee, well represented by Rep. Diaz-Balart, still recognized the importance of spending on energy efficiency measures to at least assist in stimulating the economy. Rep. Diaz-Balart said, “there are many development projects that have either stalled or are at risk of stalling because of the economy... We could stimulate the economy by resurrecting stalled construction projects” (US Congress, 2009, H. Hrg. 111-2).

The primary witness on the panel was the Director of Physical Infrastructure Issues at the Government Accountability Office Terrell Dorn. Mr. Dorn recognized the same thing that all other bureaucrats, legislators, and private sector researchers had already stated, that “Agencies report that the biggest barrier to improving energy performance in Federal buildings...is available capital” (US Congress, 2009, H. Hrg. 111-2). In terms of past action and the necessary amount of money to make meaningful improvements, Mr. Dorn suggested:

“The implementation of this act began this year, and it is still ramping up. The Department of Energy estimates that Federal agencies will need an additional \$1 billion annually for the next 6 years to meet the congressional goals established by the Energy Independence and Security Act”

Mr. Dorn only suggests \$6 billion is needed compared to the \$7.7 billion already included in *ARRA*. This distinction is significant in that all of the stimulus programs put forth and implemented in *ARRA* are two year stimulus-type spending plans. While *ARRA* would inject a great deal of money (\$7.7 billion) into energy efficiency programs, it would only last for two fiscal years. Mr. Dorn's suggestion reflected a much more long-term solution for creating viable energy efficiency programs. However, the primary goal of *ARRA*, and Congress as a whole, at this time was to stimulate the economy, and short-term high-volume spending measures seemed more promising and important than ensuring the long-term viability of *EISA* programs. The result of this decision will be discussed shortly.

When *ARRA* was signed into law on February 19, 2009, President Obama stated:

“the American Recovery and Reinvestment Plan...places a down payment on the energy economy by doubling the capacity to generate alternative energy over the next three years, laying down 3,000 miles of transmission lines, making 75 percent of federal buildings more efficient, and weatherizing 2 million homes”

A great number of previously underfunded and ineffective measure of *EISA* received a boost from the funding provided in *ARRA*. A 2015 ACEEE report on the efficacy of *EISA* recognized that, prior to *ARRA*, the appropriations for *EISA* programs had been “a fraction of the new authorizations and had been decreasing” and that the implementation process “changed with the influx of stimulus funds in the Recovery Act” (Unger et. al 2015, 41).

The new appropriations provided for *EISA* programs is certainly significant for the success of Title IV implementation. This will be examined further in a comparison of the most

and least successful *EISA* provisions and the funding they received. However, the most significant part of the *ARRA* formulation process is the way in which the *EISA* was revisited after a period of implementation. Pressman and Wildavsky (1973) recognize that “there is no way for us to understand at first all the relevant constraints on resources” (169). Revisiting a policy after a period of time allows for an evaluation and correction. This is variable to a policymaking process in which a policy is formulated, passed into an implementation process, and then left to run its course. In revisiting, legislators are allowed to shift the course of unsuccessful policies, and better equip emerging provisions to recognize their full potential—as in the case of the increase in funding for WAP and EECBGP. Hindsight is always much more astute than planning, and coupling formulation and implementation and revisiting programs after they have begun implementation allows for a more efficient process.

As most of the funding in *ARRA* had been directed towards *EISA* measures which were “shovel-ready”, increased implementation activity began very soon after the passage of *ARRA*. On February 27th, only a week after the signing of *ARRA*, DOE and the Department of Housing and Urban Development (HUD) announced a “major partnership between HUD and DOE that will streamline and better coordinate federal weatherization efforts” (US Department of Energy, “Secretaries Donovan and Chu Announce Partnership...”, 2009). This announcement additionally cited “\$16 billion in economic recovery funds to retrofit existing homes” including “\$5 billion in weatherization funds; \$3.2 billion for a new Energy and Environment Block Grant that cities and states can use to retrofit homes; \$3.1 for the State Energy Program” (US Department of Energy, “Secretaries Donovan and Chu Announce Partnership...”, 2009). These funds were directed into programs authorized by Sections 411 and 412 of *EISA*.

After the initial announcement of the funds to be disbursed, the EECBGP operated by posting announcements in the *Federal Register* for local governments, states, and Indian tribes to apply online based on formulas including population, energy consumption, workforce size, and relative numbers of other governments applying and the grants they were receiving (*Federal Register*, 74 FR 17461, 2009). The was not an original method as “DOE's implementation approach is consistent with the approach developed by the Community Development Block Grant Program (CDBG) administered by the Department of Housing and Urban Development (HUD)” (*Federal Register*, 74 FR 17461, 2009).

On March 26th DOE formally announced a plan to release the \$3.2 billion for local energy efficiency programs through the EECBGP originally announced on February 27th. The original round of grant awards was announced on the same day for \$2.7 billion worth of specific projects based on “calculations under a series of complex formulas set out in the Energy Independence and Security Act” (US Department of Energy, “Obama Administration Announces \$3.2 Billion in Funding...”, 2009). An additional \$60 million was awarded on June 11th, 2010 for programs under the EECBGP that were not initially eligible for funding in 2009 (US Department of Energy, “More than \$60 Million in Recovery Act Funding to...”, 2010).

For WAP disbursements, households meeting the guidelines applied through state agencies. “Federal appropriations [were] allocated annually by formula to states for distribution through local agencies and governments” (National Housing and Rehabilitation Center 2010). States received money based on application packages and budgets developed at the state level allowing public input and education through mandated public meetings (US Department of Energy, “Weatherization Program Notice 09-1”, 2009). This program operated through a great

deal of federalism, as then it was up to states to “craft annual plans on how the monies [were] to be spent, including eligibility standards for recipients and priorities in the use of funds” (National Housing and Rehabilitation Center 2010).

After the \$5 billion announced in 2009, another \$2 billion would be invested in WAP in program year 2010 (U.S. Department of Energy, “Weatherization Assistance Program...”, 2015). This was an increase of \$1.8 billion over the only \$226 million spent in 2008—a more typical year in WAP spending. Further, WAP had a clause which allowed 2% of funding in any year that total WAP spending surpassed \$275 million to be given to the Sustainable Energy Resources for Consumers Program (SERC). As a result of *ARRA* funding, “\$90 million was invested [in SERC] to test these types of technologies in low-income residences and to help local agencies expand their skillsets to install these technologies” (U.S. Department of Energy, “Sustainable Energy Resources for Consumers (SERC)...”, 2013). A great deal of activity took place between 2009 and 2010, with action continuing into the next period of implementation.

Programs outside of the WAP and EECBGP also flourished with the assistance of *ARRA* appropriations. In November of 2009 DOE announced that it was “awarding more than \$155 million in funding under the *American Recovery and Reinvestment Act* for 41 industrial energy efficiency projects across the country” (U.S. Department of Energy, “Secretary Chu Announces More than \$155 Million...”, 2009). These programs were pursuant to Sections 451 and 452 of *EISA* addressing industrial energy efficiency and intensive-energy industry regulation.

The other major agency responsible for *EISA* implementation, GSA, also increased activity with the help of *ARRA* funding. GSA “received \$5.55 billion to be re-invested in the Federal buildings portfolio on an accelerated basis” (U.S. General Services Administration

2010). This appropriation would eventually be converted into 270 projects across the U.S. (U.S. General Services Administration 2015).

According to an *EISA* mandated U.S. Government Accountability Office (GAO) report, GSA received a “\$4 million Recovery Act appropriation to fund its Office of Federal High-Performance Green Buildings and plans to use this funding to hire staff and carry out the office’s functions” (U.S. Government Accountability Office 2009). According to the GSA Director, soon after the *ARRA* was passed, “OFHPGB engaged directly with GSA’s Public Buildings Service (PBS) to support Recovery Act procurements” (U.S. General Services Administration 2010). They list the primary contribution of OFHPGB as establishing “Minimum Performance Criteria to guide the scoping and execution of Recovery Act projects” (U.S. General Services Administration 2010).

GSA also led an investment in “innovative technologies and alternative energy solutions” to “lead the transformation to new green jobs and green industries” (U.S. General Services Administration 2010). In addition to major construction, renovation, and investment programs, GSA pledged “over \$110 million for High-Performance Green Building Small Projects” (U.S. General Services Administration 2010). Further, GSA “initiated preliminary discussions with the National Institute of Standards and Technology Office of Applied Economics to update the lifecycle cost methodology” to update “an *EISA*-mandated increase in the time period for lifecycle costing from 25 to 40 years” to better account for the long-term benefits of green building projects (U.S. General Services Administration 2010). Section 439 charged GSA with creating the cost effective technology acceleration program. “GSA established a program to accelerate the use of more cost-effective technologies...in May 2009. For example, GSA is

working with DOE's Oak Ridge National Laboratory to assist in the development, management, and performance of a geothermal technology acceleration program” (U.S. Government Accountability Office 2009).

Commercial buildings-focused programs also received more funding during the *ARRA* stimulus period. On November 20th, 2010 Energy Secretary Chu “announced that 24 projects are receiving a total of \$21 million in technical assistance to dramatically reduce the energy used in their commercial buildings” (US Department of Energy, “Secretary Chu Announces Nearly \$21 Million in Technical Assistance...”, 2009). While the CBI was nowhere close to becoming the program it was intended to be due to a shortage in funding, the \$21 million released in November 2010 outside of CBI was more than the only \$1 million originally appropriated of the \$110 million authorized in *EISA* (Unger et. al 2015). The *ARRA* spending period also saw the creation of the Commercial Building Consortium in late 2009 which began meeting to discuss potential commercial building options (Fazeli 2013).

As 2010 drew to a close, much of the stimulus money provided by *ARRA* did, as well. Major increases in appropriations for green building and energy efficiency programs created or expanded by *EISA* led to significant implementation efforts. The ACEEE evaluation of *EISA* noted that the Recovery Act programs of *EISA* “flourished” as the slow initial progress on *EISA* implementation “changed with the influx of stimulus funds in the Recovery Act” in 2009 while all other programs at DOE and HUD “languished” (Unger et. al 2015, 41). The same was true for GSA and EPA programs. WAP, SEP, and EECBGP received the largest funding and made the greatest impact during this spending and implementation period. Through GSA the OFHPGB was able to begin serious implementation of over 270 building programs, investments in new

technology, and rule changes. Significant progress was made at EPA in implementing the stormwater runoff regulations of *EISA*. While implementation activity would begin to slow and gradually be replaced by a newer initiative beginning in 2011, several measures of *EISA* continued to work and find success.

Third Period of Implementation, 2011-Present: Decreasing Funds and Fading Interest

While a stimulus backed boom in funding for *EISA* Title IV program implementation led to a great deal of success, as the two-year spending cycle came to a close, the implementation activity reflected the importance of sufficient appropriations. Funding for energy efficiency programs decreased by \$3.17 billion from 2010 to 2011. While the amount would increase slightly in 2012 after a recommitment of the Obama administration to energy efficiency, the amount would again decrease in 2013, never reaching more than 30% of the money spent in 2010 (U.S. Department of Energy. Federal Energy Management Program 2015). The change in appropriated money for energy efficiency, according to FEMP, can be seen in Table 1. In addition to a decrease in the amount of money for energy efficiency projects, newer initiatives were created which began to replace elements of Title IV of *EISA*.

On February 3rd, 2011 the Obama Administration launched the Better Building Initiative (BBI) with the purpose of “achiev[ing] a 20 percent improvement in energy efficiency by 2020, reduc[ing] companies’ and business owners’ energy bills by about \$40 billion per year, and sav[ing] energy by reforming outdated incentives and challenging the private sector to act” (Lee 2011). Specifically, BBI included programs such as

Year	Appropriation (Millions of Dollars)
2008	468.7
2009	1,081.5
2010	3,543.7
2011	369.0
2012	1080.8
2013	793.8

Table 1 - Appropriations for Energy Efficiency Programs according to FEMP.

“reforming tax and other incentives to retrofit, creating a new competitive grant program for states and localities that streamline their regulations to attract retrofit investment, and challenging the private sector to invest in building upgrades through a new “Better Buildings Challenge.” (White House, Office of the Press Secretary, Feb. 2011).

BBI made significant progress through the first half of 2011 announcing “the 14 initial partners committing to the Better Buildings Challenge” on June 30th (US Department of Energy, “Obama Administration Announces 14 Initial Partners...”, 2011). A successful example of the Better Buildings Challenge is program participant University of California-Irvine where “over 150 retrofits and renovations have been completed to date, including 13 lab renovations, changes to heating and ventilation, data center efficiency projects, and smart information technology upgrades” have led to “exceed[ing] the 20 percent energy savings challenge seven years early and reset[ing] their goal higher to 40 percent by 2020” (Stepp 2014).

While the BBI shared similar goals as *EISA* Title IV, it was a separate executive program which largely replaced and overshadowed several of the primary implementation efforts established in *EISA* and funded by *ARRA*. This constrained the creation of new initiatives within *EISA* implementation and left only programs and measures currently enacted or in the process of being enacted.

One of the programs through *EISA* which persevered was the WAP which reached the milestone in December 2011 of “weatherizing more than 600,000 low-income homes...more than three months ahead of schedule” (US Department of Energy, “Energy Department Announces Major Recovery Act Milestone...”, 2011). This announcement marked another significant shift in implementation strategy as the press release ended with profiling the provisions of the BBI as the steps the administration would take in energy efficiency actions moving forward. President Obama made another announcement in December committing “nearly \$4 billion in combined federal and private sector energy upgrades to buildings over the next 2 years” specifically as “part of the Better Buildings Initiative launched in February” (White House, Office of the Press Secretary, Dec. 2011).

Another program which achieved some action after 2010, while largely unsuccessful, was the Zero Net Energy Commercial Buildings Initiative. The Commercial Building Consortium (CBC) had been created in 2009 to begin working towards solutions to achieve the ambitious goal of eventual zero net energy use (Fazeli 2013). Early on DOE felt this goal was “difficult, if not impossible” and only allocated \$1 million of the authorized \$110 million to the program (Unger et. al 2015, Executive Summary). The CBC shared a similar view of the program’s over-ambition and viewed “net zero energy as a directional goal” instead of a definite number to reach

(Zero Energy Commercial Buildings Consortium 2011). This early lack of motivation was coupled with severe underfunding. The budget for the CBC from DOE peaked in 2010 during the height of *ARRA* funding at \$369,082, but by 2012 had decreased to \$94,613 with no commitment for 2013 (Fazeli 2013). The result was that by 2013 the CBC had only successfully “systematically collect[ed] stakeholder input to refine and deploy DOE’s Building Energy Performance Taxonomy” and this was considered a milestone by the program leader (Fazeli 2013).

By 2012 the BBI had completely replaced other *EISA* programs as evidenced by being the only program mentioned with regard to federal government energy efficiency on the 2012 official DOE timeline (US Department of Energy, “Timeline of Events: 2012”, 2012). The BBI was now the primary program through which money was appropriated and physical projects were undertaken.

Suggestion One Conclusion

Tracing the implementation activity of *EISA* Title IV using *ARRA* funding to mark implementation periods heavily supports Pressman and Wildavsky’s (1973) first suggestion that implementation should not be divorced from policymaking, especially that leaders must anticipate future constraints on resources. The first period of implementation was severely underfunded and resulted in very little implementation besides some office creation, minor planning activity, and grant and loan disbursements in millions of dollars.

The second period began with a series of Congressional hearings surrounding *ARRA* formulation. These hearings created a unique and ideal situation in which many of the same

committees and legislators heavily involved with the formulation of *EISA* Title IV were afforded the ability to reevaluate the effectiveness of Title IV programs and then increase the funding to make them more effective. This is a situation which matches Pressman and Wildavsky's (1973) first suggestion of coupling formulation and implementation better than most policies can.

The second period of implementation also illustrates how important sufficient resources are for successful implementation. In the case of *EISA* implementation, appropriations turned out to be the most critical factor resulting in successful or failing policy. A comparison of WAP to the CBI after the evaluation of all the suggestions will better illustrate this. The third period of implementation where activity slowed after a decrease in funding and shift in focus reinforces the importance of resources. As stimulus funding dried up, so did implementation. As Congressional leaders seeking short term solutions for recession-based issues as opposed to long term energy problems passed two year appropriations, resources did not last long enough to match energy savings goals.

2) Designers of policy must consider direct means for achieving ends and simplicity can be ignored only at the peril of breakdown

The second suggestion of the Implementation Model also found support through the implementation of *EISA* Title IV (although not nearly as much as suggestion one). Evaluation of this assumption should take into account the complexity of joint action and how well this was minimized or addressed. More successful policies should have fewer actors, fewer steps of required action and coordination, and/or less restriction in implementation.

In *EISA* implementation, DOE, GSA, and EPA all had primary responsibilities. To begin, *EISA* Title IV established several new institutions to deal with coordination efforts. GSA was charged with establishing the OFHPGB. One of the primary duties of OFHPGB was “to ensure full coordination of high-performance green building information and activities within GSA” (U.S. General Services Administration 2010). GSA Director Kevin Kampschroer explained in his Congressional testimony how GSA further implemented this coordination through existing organizations:

“Consistent with its *EISA* charter, GSA has dedicated significant resources and expertise to a variety of interagency green buildings initiatives. GSA coordinates much of its interagency agenda through existing Federal interagency bodies – such as the Interagency Sustainability Working Group (ISWG), which GSA has just begun to co-chair with DOE’s Federal Energy Management Program (FEMP), and the OSTP subcommittee on Buildings Technology Research and Development (BTRD)” (U.S. General Services Administration 2010).

The ISGW was a primary coordination between GSA’s OFHPGB and DOE’s FEMP. In December of 2008 ISGW released the final draft of their “High Performance and Sustainability Guidance” which was meant to “assist agencies in meeting the high performance and sustainable buildings goals” of EO13423 and *EISA* (Interagency Sustainability Working Group 2008). “High Performance and Sustainability Guidance” set reporting requirements to be “documented in the agency’s Sustainable Building Implementation Plan (SBIP)” and made rules for several provisions of *EISA* (Interagency Sustainability Working Group 2008). The first of these

provisions mandated metering of all natural gas and steam lines “to track and continuously optimize performance” in response to Section 434 of *EISA* (Interagency Sustainability Working Group 2008). Another provision regulated storm water runoff pursuant to Section 438. More broadly, “High Performance and Sustainability Guidance” required “when building commissioning has been performed, the commissioning report, summary of actions taken, and schedule for recommissioning must be documented” to meet the guidelines “of EISA 2007, Section 432 and associated FEMP guidance” (Interagency Sustainability Working Group 2008).

ISGW and OFHPGB primarily worked to increase coordination and information sharing across all government agencies responsible for green building, as well as conduct monitoring of green building progress. Manifested ISGW and OFHPGB actions resulted in “as of June 2009, 148 nonresidential Federal buildings achieved LEED certification” and “more than 1,800 Federal building projects are LEED registered as of June 2009, which generally signifies intent to gain LEED certification” (US Department of Energy. Federal Energy Management Program 2009, 3). Establishing these offices and groups dedicated to the purpose of coordination led to an increase in green building certifications in early 2009 and after. While attempting to implement policy across agencies will always be difficult, *EISA* Title IV took that into account and took concrete steps to minimize the negative effects of the complexity of joint action.

The more direct and simple projects were also generally more successful in implementation compared to more complex processes. The WAP and CBI bookend the spectrum of direct and indirect action and will be compared in more detail in a later section. However, programs which involved direct loans and grants through states (WAP, EECBGP, SEP) tended to be more successful while rule making procedures tended to be more encumbered by detailed

processes requiring formal announcements, public input periods, and revisions followed by a repeated process (some of which are still occurring).

These rule processes tended to move very slowly due to the number of steps required in their formulation. One of the most important new regulations was mandated by Section 433 which required the Secretary of Energy to develop specified federal building energy efficiency performance standards. An early version of these rules was released on October 15th, 2010, but “DOE received a number of comments expressing concern and encouraging DOE to re-examine the proposed regulations” (*Federal Register*, 79 FR 61693, 2014). The GAO report (2009) gives more detail that “DOE received agency comments that compelled it to rescind the notice. DOE officials explained that agencies wanted the flexibility to choose the green building rating system that best suited their needs”. The specific formulation process of these rules within DOE is not readily apparent as the most revealing comment DOE is willing to offer, even directly to GAO auditors, is that “the agency developed a draft notice” (US Government Accountability Office 2009). The same lack of transparency is true for most other rule making processes.

This pressure and vague wording in *EISA* Section 433 delayed the next draft of the Section 433 rules for nearly 4 years (Unger et. al 2015). On October 14th, 2014 “Fossil Fuel-Generated Energy Consumption Reduction for New Federal Buildings and Major Renovations of Federal Buildings” was announced. This rule “established revised-performance standards for the construction of all new Federal buildings, including commercial, multi-family high-rise residential and low-rise residential buildings” and provided a time table in which federal buildings must reduce fossil fuel consumption by 80% in 2020 and 100% in 2030 (*Federal*

Register, 79 FR 61693, 2014). Public comments on the rule closed in December 2014, however as of early 2015 DOE had not issued the final ruling (Unger et. al 2015).

Another major ruling was pursuant to Section 413 of *EISA* required regulations on manufactured housing standards by December 2011. DOE announced it had “initiated the process to develop and publish energy standards for manufactured housing” in February of 2010 (*Federal Register*, 78 FR 37995, 2013). It further announced it needed “to allow interested parties an additional opportunity to provide information they feel will assist DOE in developing the proposed standards” in June of 2013 (*Federal Register*, 78 FR 37995, 2013). DOE released another request for information on February 11th, 2015. The specific issues with the proposed versions are not publicly available, but will likely be explained when the next draft of the rule is released.

Section 481 of *EISA* required HUD to implement the 2006 International Energy Conservation Code (IECC) or American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2004 for multifamily high rise energy efficiency and to update federal regulations whenever IECC or ASHRAE releases a new standard (Unger et. al 2015). HUD implemented the 2006 standards in 2013, and newer 2009 standards in May 2015. ASHRAE released an even more recent standard in 2013 and IECC in 2014 which HUD has not made any public recognition of, however new regulations from HUD should be forthcoming (Unger et. al 2015). The cycle of HUD updating the newest version of the IECC and ASHRAE rules generally runs late, due to the same cumbersome processes of public notices required.

The EPA was also responsible for specific rule making. “EPA, in close coordination with other federal agencies” assisted in writing a Technical Guidance to address Section 438 of *EISA*

regarding storm water runoff requirements for federal buildings (U.S. Environmental Protection Agency 2009). The agencies involved in this process are unclear and not readily available through any EPA documentation. The EPA released during December 2009 “Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act” which outlined two specific options for implementing Section 438. Option 1 “calls upon site designers to design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of stormwater” (U.S. Environmental Protection Agency 2009). The second option “provides site designers with a process to design, construct, and maintain stormwater management practices using a site-specific hydrologic analysis” (U.S. Environmental Protection Agency 2009). Option 1 was a simplified option to be easily interpreted and implemented in most cases, while Option 2 provides the opportunity for more uniquely developed plans in special cases. The issue with this document is that it was not a binding regulation and only acted as guidance. As a result it was widely considered to be ineffective.

The EPA rules left a great deal of discretion to site operators and did not account for widespread watershed runoff problems. A National Research Council Report in 2009 found the rules to be ineffective and a 2010 court case resulted in a settlement where EPA committed to revisit and expand the rules (Copeland 2015). A great deal of public input was taken after the commitment, and numerous public meetings were held across the country. Several sides began to form as environmental groups favored stronger national regulations, while states and municipalities promoted state and local laws for better managing local runoff conditions. Further, many industry groups pushed against stronger regulations of any kind (Copeland 2015). This

public input froze the rule making process and there has not been a new rule proposal as of late 2015.

The primary problem with the rule making procedures undertaken by DOE, HUD, and EPA are that they require a great deal of public input and consideration. Many interests with specific stakes in potential rules will put up greater resistance against certain rule implementations more so than they may have to the original legislation. The result is that all four of the previously described rule making processes have stalled or are still in the process of releasing legally binding rules without major public or interest group pushback.

This supports the second assumption of the Implementation Model in that the increased steps necessary to pass these rules in the form of public input result in differing opinions which greatly delay the implementation process. Additional steps within the government require a great deal of unity in action and intent, once the public and (perhaps more importantly) affected interest and commercial groups become involved, they will bring diverse and competing views to the process. It is then up to small executive agencies to approach a compromise. Legislatures and professional legislators are much more experienced and equipped for these political processes, while more technically minded bureaucrats will be more significantly affected. The result is that these processes have a much higher rate of implementation failure (100% in the case of *EISA* rule making discussed here).

One element of suggestion two which was not supported was the expected difficulty of federalism. Federal programs which must be instituted through states were found to be especially ineffective by Pressman and Wildavsky (1973). To Pressman and Wildavsky (1973) federalism “means precisely that state and local organizations must be able to oppose, delay, and reject

federal initiatives” (161). Trying to coordinate implementation across and among federal organizations leads to the complexity of joint action sufficiently enough. According to the Implementation Model, compounding that complexity with federalism and 50 separate state governments all acting slightly variably would create an environment in which implementation is significantly delayed at the least.

However, the elements of Title IV which relied upon federalism did not display this difficulty. In fact, the three major programs which did operate primarily through federalism (WAP, EECBGP, and SEP) were three of the most successful. It is very likely that states essentially only receiving disbursements from the federal government, and not requiring much coordination do not fit the pattern of federalist programs meant by the Implementation Model. The EDA program in Oakland involved much more invasive implementation actions such as managing construction projects, procurement contracts, and training programs. Whereas, WAP, EECBGP, and SEP all primarily operated with states bringing budgets and requests to DOE and being rewarded funds through formula loans and grants which they distributed through systems they developed.

Overall, suggestion two receives a great deal of support. *EISA* Title IV included provisions to pursue interagency coordination to minimize the negative effects of the complexity of joint action. The programs which were the most simple and most direct (such as WAP) were the most effective and most successfully implemented. More vaguely written and indirect programs such as the CBI were much less effective. Further, the complicated rule making processes were all derailed by the complicated procedures involving public input. The success of federalist operating programs weakens the support of suggestion two, however it is most likely

that this is because the federalism dependent programs in Title IV all involved disbursing money to state programs which tends to operate more smoothly than direct federal meddling in a state or local program's operations.

3) Policymakers must carefully consider the theory which underlies prescribed action

Suggestion three of the Implementation Model is the assumption with the least bearing on the implementation of *EISA* Title IV. First, the implication that "policymakers must carefully consider" indicates more responsibility on the part of legislators than administrators. However, considering both simultaneously as noted by suggestion 1, the theory underlying almost all of the provisions of Title IV are at the least ineffective as opposed to incorrect. The Implementation Model, using the EDA project as its primary example, considers incorrect theory more significant than ineffective theory (Pressman and Wildavsky 1973).

The EDA project was completely counterintuitive in that it subsidized capital investments in an attempt to boost labor instead of just subsidizing labor costs. All of the major provisions of Title IV had the end goal of reducing energy use and energy costs. The most successful policies did this directly and were well well-funded (WAP, EECBGP, SEP) while the least successful were generally so due to a lack of funding and vague and indirect prescriptions (CBI) or due to complicated procedures fraught with the difficulties of coordination and input (rule making processes).

A thorough look at all of the provisions of *EISA* fails to yield any provisions with counterintuitive theoretical support. All of the programs directly subsidize energy saving and green building practices, establish regulations requiring reductions in energy use and cost, and/or

establish offices and programs to foster greater coordination, information sharing, public outreach, and research into energy efficiency practices. It is difficult to charge any of these provisions with a faulty theory.

The most substantive evaluation of this assumption comes from comparing the efficacy of the most and least effective programs. An in-depth comparison of the WAP and CBI will be done in a later section; comparing the general nature of successfully and unsuccessfully implemented programs feeds off of the other suggestions of the Implementation Model. The programs which were implemented more directly and simply, with greater funding yielded a higher rate of success. The WAP, EECBGP, and SEP were all direct and simple in that they gave money to state energy agencies who distributed the money to energy efficiency improvements. These programs were also extremely well funded. The CBI and rule making processes were less direct, more vague, required more steps for implementation and were underfunded. The result of these programs were less success. While the theory behind the formulation of all the provision of Title IV were acceptable, some were better than other with the programs formulated and implemented using the other suggestions of the Implementation Model had a higher rate of implementation efficacy.

4) For successful implementation, there must be continuity in leadership

Suggestion four of the Implementation Model finds the least support in the implementation of *EISA* Title IV. Pressman and Wildavsky (1973) believe there should be continuity in leadership so that leaders can grow and develop along with their programs as they

both evolve to become more effective. The timeline of *EISA* implementation skews the effect of leadership continuity.

The biggest change in leadership occurred in early 2009 after the election of President Obama. The election of President Obama and the naming of his Energy Secretary, Steven Chu, immediately began a refocusing on the subject of energy efficiency which had trailed off during the final year of the Bush Administration. In his confirmation hearing, Secretary-designate Chu named one of his primary goals as “a greater commitment to wind, solar, geothermal, and other renewable energy sources; aggressive efforts to increase energy efficiency of our appliances and buildings” (US Congress, 2009, S. Hrg. 111–3).

There were also several sub-cabinet level changes in the management of the Department of Energy (DOE) and the Office of Energy Efficiency and Renewable Energy (EERE). Cathy Zoi became the Assistant Secretary of EERE. Ms. Zoi held a long-time commitment to clean energy policy working in the EPA and pioneering the EnergyStar program during the 1990s, as well as serving as Chief of Staff of the White House Office on Environmental Policy during the Clinton administration. In a July 2008 hearing before the House Select Committee on Energy Independence and Global Warming, Ms. Zoi stated, “Now is the time to commence a comprehensive national energy upgrade that will reduce the energy bill of homeowners and businesses, even as cost of energy supplies may be on the rise” (US Congress, 2008, H. Hrg. 110-49).

Dr. Kathleen Hogan, the new Deputy Assistant Secretary for Energy Efficiency in EERE “served for more than 10 years as the Division Director at the U.S. Environmental Protection Agency responsible for the development and operation of EPA's clean energy programs focused

on removing market barriers for energy efficiency and renewable energy” (US Department of Energy, “About Us: Dr. Kathleen Hogan...”, 2015). In a 2013 hearing before the Senate Committee on Energy and Natural Resources, Dr. Hogan stated that she “support[s] the objectives of improving energy efficiency in the residential, commercial, and industrial sectors and in the Federal government. Energy efficiency is a large, low-cost, but underutilized U.S. energy resource” (US Congress 2013, S. Hrg. 113-024). Coupled with the commitment of Secretary Chu, the goals and experience of Ms. Zoi and Dr. Hogan would only have stimulated the implementation process of many Title IV provisions.

The Implementation Model’s primary need for continuity in leadership is to reduce turnover and reduce training and learning time, leading to more time to be effective implementers of policy. However, *EISA* adds a wrinkle by adding the election of a Democratic administration, naturally more friendly to clean energy policy, at the same time as a major stimulus funding bill for energy efficiency policy. The result is that the change in leadership from 2008 to 2009 coincided with the implementation boom caused by increased stimulus funding. It is very possible that the change in leadership had no effect and the increased appropriation was the reason for increased activity.

To extend the analysis forward as a means of control adds some extra insight. Secretary Chu remained the Secretary of Energy until 2013, well after *EISA* implementation activity began to decrease during 2011. If continuity in leadership leads to better implementation (and is more or at least as important as the other suggestions), Secretary Chu’s tenure should have seen an increase in implementation activity from 2009-2013. However, the implementation patterns better match the appropriation patterns of *American Recovery & Reinvestment Act* funding. That

considered, Assistant Secretary for EERE Zoi left the administration in 2011, coinciding with the decrease in activity. It is difficult to distinguish this impact without much more specific information from within EERE. However, the effect is most likely very small, as the Assistant Secretary for EERE should have less effect than the Secretary of Energy who had little to no effect on implementation success.

While continuity in leadership did not seem to have a large effect on implementation, it probably was not negligible. It is more likely that the new democratic leaders in DOE between Secretary Chu, Assistant Secretary for EERE Zoi, and Deputy Assistant Secretary for Energy Efficiency Hogan all created an environment in which the increased stimulus funding could be even more effective than in an administration less accepting of energy efficiency policies (such as the Republican controlled Congressional committee discussed on page 18). Overall, the effect of leadership turnover on the implementation of Title IV ranges somewhere from neutral to slightly positive. Neither of which match the prediction of the Implementation Model that turnover in leadership should lead to negative results.

WAP and CBI Comparison

Comparing the Zero Net Energy Building Initiative (CBI) to the—arguably most successful initiative of Title IV— Weatherization Assistance Program (WAP) illustrates the success and failures of *EISA* implementation well. The comparison also illustrates which suggestions of the Implementation Model are the most critical for successful policy implementation. While the CBI was given very little funding (peak \$370,000/yr)—even during the height of *ARRA* spending—the WAP received \$5 billion. The CBI only achieved some early

planning and gathering of opinions, while the WAP successfully completed 600,000 projects ahead of schedule.

This comparison shows the importance of the *ARRA* and its stimulus funding on the success or failure of *EISA* provisions. The WAP and similar SEP and EECBGP received *ARRA* support with a number of other GSA, EPA, and DOE building projects, while the CBI program did not. This is primarily due to the goals of the stimulus spending which sought to quickly produce energy and fiscal savings and create jobs. “Shovel-ready” programs like WAP, SEP, and GSA building projects fit this goal while a more ambitious and abstract program like CBI did not. This was the most critical reason for the difference in implementation success or failure, and supports suggestion one of Pressman and Wildavsky (1973) as being the most important of the Implementation Model.

This is further supported by the rejoining of implementation and formulation during the *ARRA* formulation hearings in which the same committees and Congressmen who formulated Title IV were able to evaluate its provisions and make new funding decisions. This led to a better coupling of formulation and implementation and a greater success of the programs which were reconsidered during the *ARRA* formulation process.

The second suggestion from the Implementation Model promoted the use of simple and direct means to achieve implementation success. This suggestion is also very well supported by comparing WAP and CBI. WAP had a very simple a direct goal—to disburse funds to state energy agencies, who then give direct loans to families who meet eligibility requirements, who can then use those funds for energy efficiency improvements on their homes. The CBI had a very vaguely written with no specific suggestions and provisions and the largely unobtainable goal of

reducing the energy consumption of all commercial buildings to zero net by 2030. The CBI would fall into Pressman and Wildavsky's category of a policy that is too broad. Not only was the policy too broad, but many did not initially believe in its potential to succeed, which led to a lack of commitment and, as mentioned in the first section, when there is "a high level of uncertainty about even the possibility of success, it is not hard to predict or to explain the failure of the effort to reach its goals" (Pressman and Wildavsky 1973, 90).

Suggestion three receives some minor support from WAP and CBI, but is largely inapplicable to *EISA* Title IV implementation. The theory underlying both WAP and CBI is not necessarily faulty. Especially not nearly as much so as the EDA's plans in Oakland. The WAP theory certainly carries more face validity as directly subsidizing energy efficiency improvements would be expected to create more tangible energy gains than the CBI which began with organizing meetings and collecting member organizations. For the CBI to be more successful a theory based more in direct subsidization and building projects similar to WAP could be expected to work. If this were the case, it would certainly create more support for suggestion three. However, above all else the CBI is/was limited by a lack of funding and constrained resources and indirect and vaguely written instructions.

The fourth suggestion involving continuity in leadership provides only mixed support for the Implementation Model. At least at the administration level, the election of President Obama and the confirmation of Secretary Chu brought about a greater commitment to energy efficiency which translated to the most successful year of the WAP, but only a small increase in CBI appropriations and very little activity increase. The change in leadership had a positive effect on WAP and a neutral effect at worst on CBI. Of the lower positions within DOE and EERE to

change between 2008 and 2011, none appear to coincide with any major shifts in implementation activity except for the few President Obama appointments which were accompanied by a recommitment to energy efficiency.

Overall, the factors which seem to be most influential in determining a successfully implemented program are greater funding and more direct and simple methods of action. The WAP was simple, direct, and well-funded while CBI was underfunded, vague, and lacked commitment from those involved with implementation. In a comparison of only WAP and CBI, suggestions one and two of the Implementation Model appear to be the most well supported, with suggestion three having some effect, and suggestion four with very little influence.

Implementation Model Analysis

The greatest strength and greatest weakness of the Implementation Model derive from the nature of the model. While most models such as the Bureaucratic Politics and Policy Streams Models (Allison 1971; Kingdon 1984) are process models focused on actual activity, the Implementation Model is a normative model of suggestions as opposed to empirical assumptions. The Implementation Model is more of a checklist than a template of expected behavior.

The benefit of this characteristic is that the Implementation Model can assist in better understanding if a policy is a success or failure. This is highly supported by the implementation activity of *EISA* Title IV. As discussed in the previous section, suggestions one and two appear to be the strongest, and explain the majority of Title IV implementation activity.

In applying the Implementation Model to other policies, it is very simple to begin evaluation by asking the question “Did legislators consider the future constraints of resources?” followed by “Were the primary provisions simple and direct?” and “Did the implementation process take steps to minimize the negative effects of the complexity of joint action?”. By asking those three questions a researcher can very quickly deduce why a program was or was not successful in its implementation.

Conversely, this leads to the weakness that the Implementation Model loses explanatory power. After all, the purpose of science is to predict future behaviors and results. A model like the Bureaucratic Politics Model (Allison 1971) holds the predictive capacity of seeing competing sides emerge atop executive agencies, the leaders of these sides entering into compromise, and the strongest side emerging with a better solution—the degree of how better depending on

bargaining power dynamics between the groups. No such prediction can be made for a policy until it is already formulated and beginning implementation for the Implementation Model to be helpful. For the purpose of developing more effective policy at a current time, this is too late in the process for the Implementation Model to be helpful.

Another weakness of the Implementation Model is that it does not heavily consider political processes. While most view politics as being more important for policy formulation than implementation, there are many cases of political struggles preventing the successful implementation of policy. Specific to Title IV, many of the rule making processes have been delayed or completely prevented due to political resistance from various interest and commercial groups—in some cases even from other government agencies. The Implementation Model deals with these struggles by characterizing them as the complexity of joint action; that additional actors present in a process will cause more agendas and motivation levels to be considered which will make the process less effective. However, this does nothing to describe the effect of the political processes on implementation. Further, there is no suggestion for how to solve these political struggles during the implementation process.

While political resistance has had some effect on Title IV implementation, it has largely been a bipartisan process. This is similar to Pressman and Wildavsky's (1973) study that "the EDA employment program was not characterized by the presence of participants with intensely negative views" (118). This is possibly why the Implementation Model does not address political struggle, like how Allison (1971) did not address legislative and bureaucratic processes as they did not apply to his study. However, an oversight is still an oversight, and this is a weakness of the Implementation Model.

Because the Implementation Model characterizes political struggle as a problem due to the complexity of joint action, the implied solution—according to the model—is to simplify the process so that the additional steps allowing outside influence are removed. This has significant democratic implications as implementation processes would then be almost completely internalized in bureaucracies. The rule making procedures of executive agencies like DOE and EPA are often very opaque. While the public notification and input mechanisms cause the process to move more slowly (or not at all), removing them transfers all remaining power to the lower bureaucratic structures of executive agencies. These are offices staffed by technical, non-elected employees who operate largely outside of public scrutiny. An improvement to the Implementation Model would include some suggestion to better deal with political struggle during implementation so that it can be better managed while upholding democratic obligations, while also preventing interest group gridlock as seen in the rule making surrounding Title IV.

Another oversight of the Implementation Model, as applied to *EISA* Title IV, is the role of leadership. There is no theoretical fault with Pressman and Wildavsky's (1973) discussion of the importance of leadership continuity. However, *EISA* provides a unique case of leadership turnover being (more than likely) positive. The role of administration change has the ability to be extremely positive or extremely negative with regard to the implementation of a policy passed during a previous administration. This is likely variable on a case by case basis.

EISA happened to be a minority case of a bipartisan supported bill. Energy efficiency measures have been widely supported by every president since President Carter, perhaps with the exception of President Reagan. It is rare that a Democratic administration following such a controversial Republican administration will continue to support and actively implement the

policies passed during the former. It is even more significant in the case of *EISA* that the incoming administration likely supported the policies *more* than the previous administration, and the policies were tied to the bipartisan supported *ARRA* funding which gave the largest push in implementation success.

EISA provided a case in which administration change was positive. It might be more expected that administration change would have a negative effect on the continuation of implementation of activities passed during the prior administration. This is also dependent upon the composition of legislatures, but focusing on the role of implementation leaders in the executive department would lead us to expect that an opposing party administration would want to slow, if not completely reverse, implementation activity of previously passed policies. This adds another dimension to Pressman and Wildavsky's (1973) theory surrounding leadership turnover focused on technical expertise.

Further, a mechanism to better separate the effects to the suggestions would be helpful. As noted in the discussion of leadership turnover in the previous section, it is difficult to separate the effects of each assumption when they coincide with events relating to other suggestions—like leaderships change occurring simultaneously with stimulus funding.

Overall, the Implementation Model is an effective tool in understanding why a policy was or was not successful. This is especially true in the case of resource constraints through appropriations, and through examining the role of the complexity of joint action. When these characteristics are variable among the provisions of a specific policy, such as with Title IV, it becomes even easier to implement a comparative evaluation of the differences these characteristics have. Incorporating a better understanding of political processes on

implementation and the complex role of leadership past training and experience would give the implementation model and even better prescriptive ability.

Evaluation of a Model-Based Paradigm

There are trade-offs to approaching the study of public policy through models instead of through actual detailed analysis of specific policy areas. Models have the ability to simplify and organize observable behaviors in the policymaking process, however models can only do so much. While a detail-based approach can address some of these problems, it too has limitations.

A more detail-oriented policy area approach better equips an interested party to understand all of the nuances, actors, situations, past actions, and potential solutions for a certain sector of public policy. For example, a researcher, legislative assistant, lobbyist, etc. specializing in energy policy (such as *EISA*) would be very familiar with the history of energy efficiency policy, understand all of the key committees and actors discussed involved with formulation, the executive agencies and bureaucracies responsible for its implementation, and the impact of past legislation as described. The specialist in this area would possess this knowledge, while a new party approaching energy policy would not. However, that is where the advantage of the specialist ends. A detail-based approach is primarily limited in that the details learned in one policy area likely do not readily transfer to another.

While this study focused on energy policy and provided a great depth of analysis into the realm of the key actors, organizations, past actions, proposed solutions, etc. in energy policy, the methods used to analyze those details could be easily applied to any other policy area. As previously mentioned, the assumptions of the Implementation Model can be easily transferred to another policy by asking three simple questions about the implementation process. The same goes for the Bureaucratic Politics Model, Policy Streams Model, or any other number of models spanning agenda setting, formulation, implementation, and evaluation.

A model-based researcher can take their knowledge of models and approach almost any and every policy sector with the same confidence. Of course, for any in-depth study they would have to familiarize themselves with at least some details of the policy arena in which they are operating to effectively apply a model. However, models even direct a researcher which details to seek out that are most pertinent to utilizing that model.

One of the biggest drawbacks of a model approach is that all models are limited in some way. Models are an attempt to explain real world behavior, but every model can only get so close. The difficulty of all social science, is in the name of the study. Politics and other social phenomena are based on societies which are highly variable, constantly changing and evolving. This limits the effectiveness of models. The trade-off of models being easily applied to all policies is that they rarely apply perfectly, as every policy will be somewhat unique.

When first approaching a policy area, faced with decades of past legislation and problems, competing solutions, hundreds of pages of Congressional and executive documents, and likely a lack of true evaluation of past policies, it can be incredibly daunting to wade into that information without prior knowledge of a policy area. A model provides a helpful tool to organize and begin to analyze that information. While it is not likely to be perfect in every instance, to incorrectly paraphrase a quote most often attributed to Winston Churchill, a model-based approach to public policy is the worst type of analysis, except for all the others. A detail-based approach may be ideal for a professional legislative assistant, government official, or lobbyist, but for anyone else, models provide the best chance to most effectively study the challenging field of public policy.

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