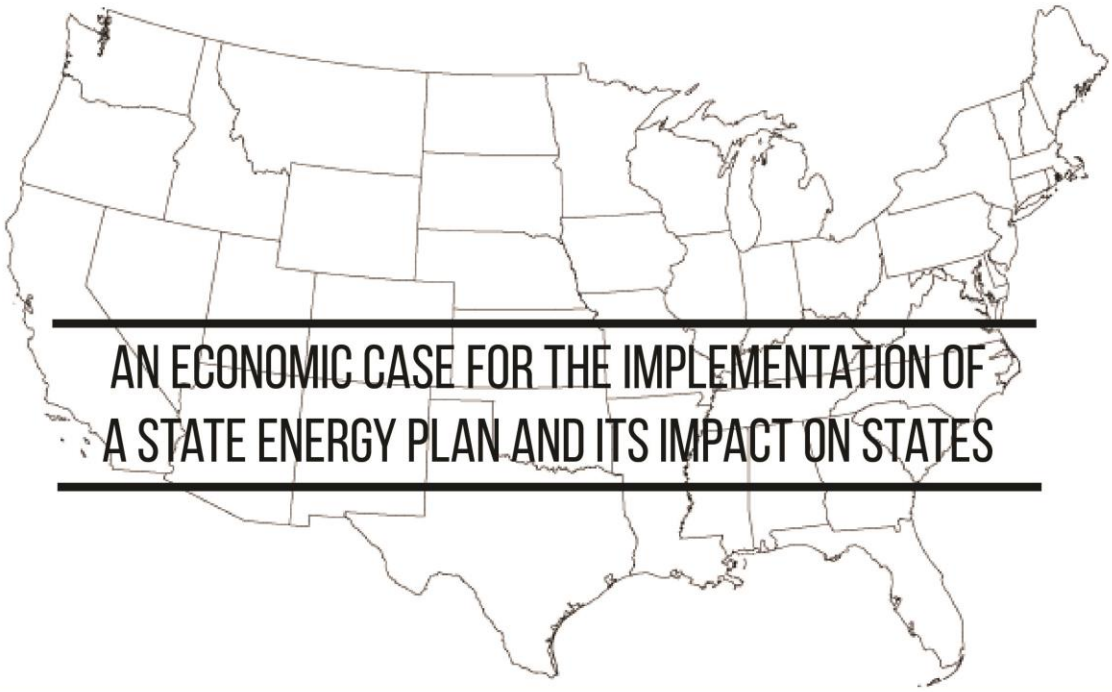
IMPLICATIONS OF STATE ENERGY PLANS

MISSOURI ENERGY INITIATIVE | 2014



AN ECONOMIC CASE FOR THE IMPLEMENTATION OF A STATE ENERGY PLAN AND ITS IMPACT ON STATES

MEI
MissouriEnergyInitiative

White Paper: Implications of Adopting a State Energy Plan

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Introduction – What is a State Energy Plan?

A State Energy Plan (SEP) is a comprehensive strategy that helps policymakers, state utility regulators, energy suppliers, and consumers strategically plan for a state's energy future. SEPs examine the current energy profile of a state, assess energy market trends, predict future challenges, and identify new opportunities for affordable, sustainable and secure energy practices. As a guide, plans build consensus among stakeholders and bring transparency to decision-making processes. State Energy Plans help enable effective prioritization of energy policies and programs within a state. They can determine and assign specific responsibilities to keep involved parties accountable and ensure smooth implementation of energy policies. Ultimately, the goal is for the SEPs to act as a roadmap to improve energy affordability, security, and resilience, which in turn, will ultimately lead to a state's prosperity.

Lessons Learned

This paper was undertaken in 2013, and its analysis is backward looking. As of early 2014, 18 states are updating or considering developing new energy plans.[1] MEI engaged in this project to analyze the impact of SEP adoption on a state in order to determine if an economic benefit was associated with the creation and implementation of a SEP. This study utilized data collected from the National Association of State Energy Offices, the U.S. Census Bureau, the Bureau of Labor Statistics, and the Energy Information Administration to investigate and compare states over multiple year tranches from 2005-2010. The initial results suggest that it is too early to tell if statewide energy planning results in economic development. States with and without a SEP show only small differences over time in five key variables: GDP per state, electricity prices (residential and commercial), total jobs, total business establishments, and new business creation. While the economic trends in states with SEP adoption are moving in the right direction, there is currently not enough data to state conclusively that all plans, or even any plan, is a causative factor. With more data and time a better determination can be made as to which economic factors are affected, and by how much, through adoption of a SEP.

Most plans before 2014 did not develop tracking metrics to identify cost savings, job production or economic growth. The data contained in this paper shows a possible corollary benefit of a SEP but no causal relationship. Many of the early SEPs set out certain tasks to be completed and only tracked their completion status. If the tasks were completed, it was seen as a success. But, in times of tight budgets and difficult political climates, a complete understanding of the impact of an action is required so most new plans are including qualitative and quantitative metrics to determine success.

Limitations

Further analyses of SEPs and a comparison of states with and without SEPs will need to take place in the future. Such a follow-up will need to include data from the state's most recent SEPs and should consider reviewing any metrics from earlier fully or partially implemented SEPs. It will be necessary to include an analysis of data that is collected outside of an economic bust period or to control for a recession in an analysis. A majority of the information used in this analysis comes from the time period of the most recent economic downturn and was not controlled for in this analysis. Finally, it is highly recommend that a regression analysis be used to further analyze the extent of an impact of a SEP on various factors within a state.

Background

Which states have adopted a State Energy Plan?

As of 2014, thirty-eight of the fifty states (76%) in the United States had some form of energy planning document to guide statewide energy policy (Table 1 and Figure 1)[2]. Additionally, the District of Columbia has a comprehensive energy plan. As of 2013, the twelve states that did not have a SEP, five were in the process of creating or adopting an energy plan, and two have governor strategies yet to be fully adopted or implemented by the state.[3] Governor Pat Quinn of Illinois, for example, has a "Comprehensive Energy Strategy" that is made up of his supported proposed energy policies and pending energy legislation.[4] Similarly, Governor John Kaisch of Ohio created an outline of a comprehensive state energy strategy and actively solicited input in the development of a SEP.[5]

In 2012, the Alabama Energy Division and the Alabama Department of Community Affairs began developing a comprehensive statewide energy plan with stakeholder input, but budgetary concerns have delayed the process. The Alabama Energy Division released a survey soliciting ideas regarding state energy goals, policies, and programs with the results available online.[6] In Arizona, Governor Jan Brewer established a Master Energy Plan Task Force responsible for creating a draft of a comprehensive energy plan which was announced in 2014.[7] Similarly, in 2012 the Nevada State Office of Energy was undergoing the completion of a comprehensive energy policy, mandated by legislation.[8] The only states that have no known immediate plans to create or adopt a SEP: Kansas, Louisiana, Tennessee, South Carolina, South Dakota and Wisconsin.

Historically, State Energy Plans have failed to include quantitative metrics. They relied on recommendations, suggestions or tasks, but lacked evaluation. Evaluation is something new plans and the NASEO have focused on to ensure SEPs are stable and valued policy components for their respective states.

Figure 1 – States with an Energy Plan

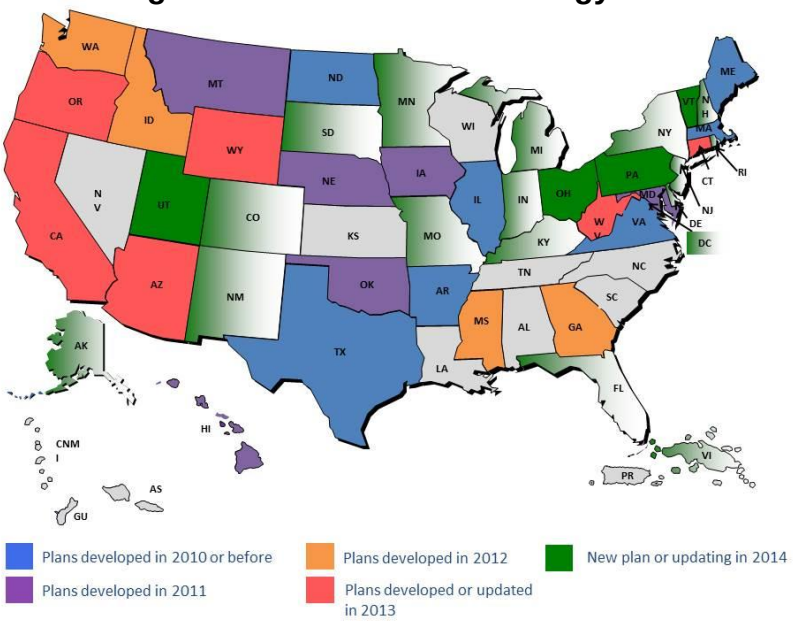


Table 1 – State Energy Plans

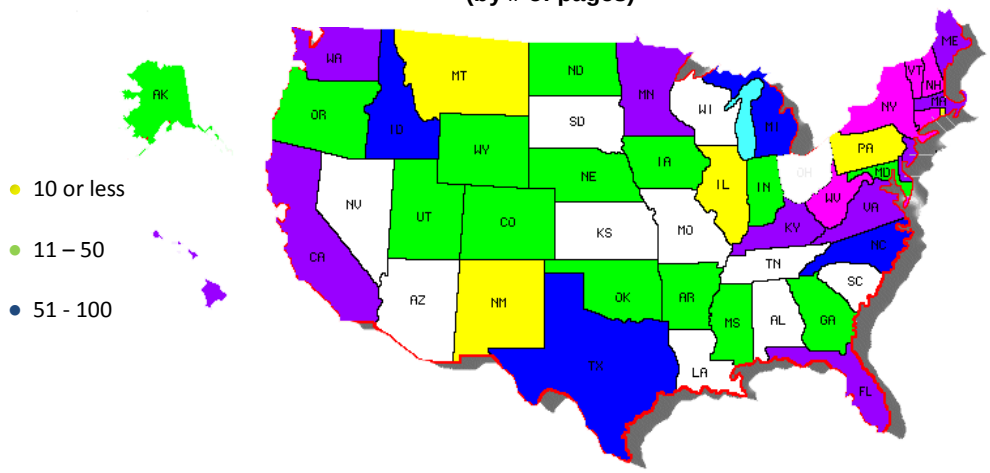
**2012-2013 plans not included in analysis*

State	Date of Plan	State	Date of Plan
Alabama	--	Montana	2011
Alaska	2010	Nebraska	2011
Arizona	2013*	Nevada	--
Arkansas	2010	New Hampshire	2002
California	2010	New Jersey	2011
Colorado	2007	New Mexico	2007
Connecticut	2007	New York	2009
Delaware	2009	North Carolina	2007
District of Columbia	2009	North Dakota	2008
Florida	2008	Ohio	--
Georgia	2006	Oklahoma	2011
Hawaii	2000	Oregon	2011
Idaho	2007	Pennsylvania	2008
Illinois	2009	Rhode Island	2002
Indiana	2006	South Carolina	--
Iowa	2011	South Dakota	--
Kansas	--	Tennessee	--
Kentucky	2008	Texas	2008
Louisiana	--	Utah	2011
Maine	2009	Vermont	2011
Maryland	2011	Virginia	2010
Massachusetts	2010	Washington	2010
Michigan	2007	West Virginia	2007
Minnesota	2001	Wisconsin	--
Mississippi	2010	Wyoming	2013*
Missouri	--		

SEPs range in comprehensiveness, breadth and scale. For example, New Mexico's "plan" is merely a two-page inventory of policies, programs and current legislation.[9] In contrast, New Jersey's plan is a 128-page comprehensive document (see Figure 2). Additionally, the scope of energy topics covered varies among the states. The plans for Arkansas, Colorado, and Maryland are narrowly focused on sustainability, clean energy, and addressing climate change, while states like California, New York, and New Jersey address a wide spectrum of energy issues. Nevertheless, an overwhelming majority of states have adopted some sort of energy planning document or SEP. The new trend is for longer SEPs, a detailed stakeholder development process, tracking and regular updates. Two examples of this new trend, Washington and West Virginia, also include a biennial review process where they review energy, transportation, land use and waste.

Figure 2 – Length of SEPs

(by # of pages)



Motivations for adoption of a SEP

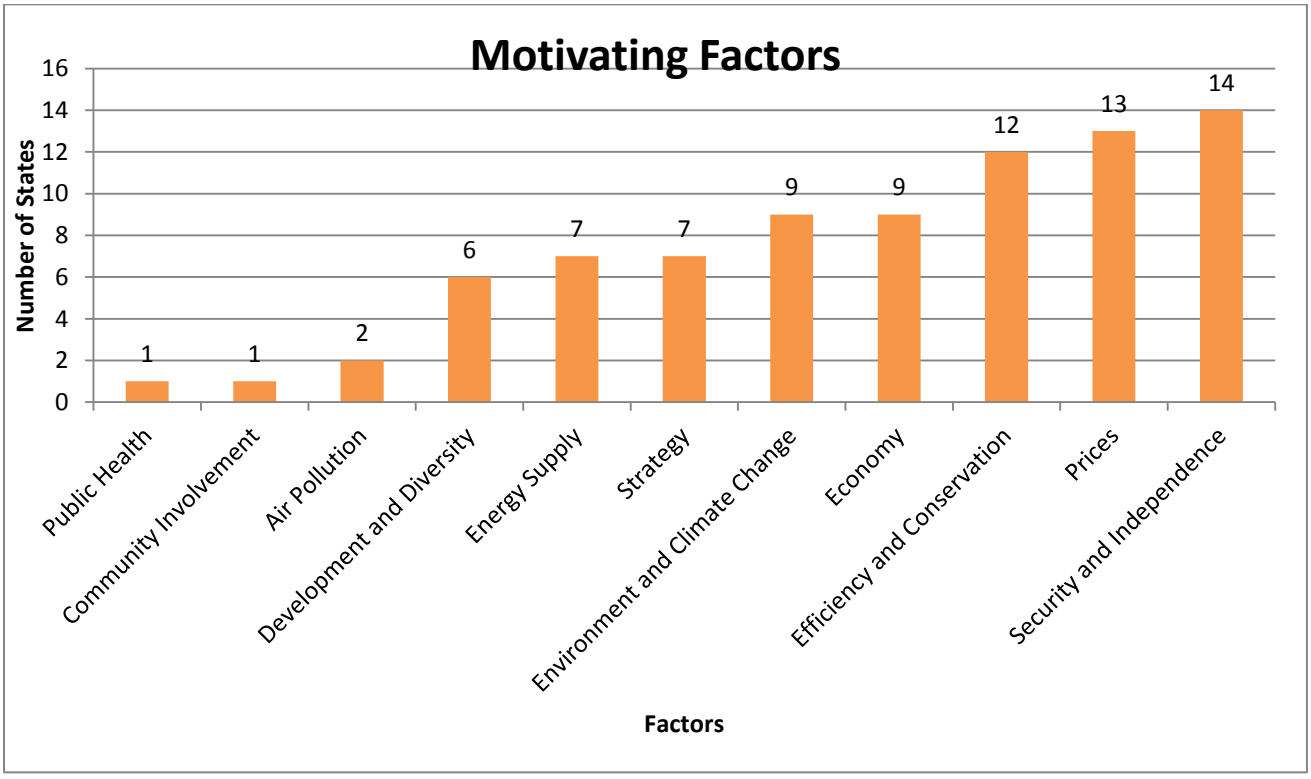
According to the National Association State Energy Offices report, which reviewed SEPs and their development, most states had multiple reasons for entering into the process of developing a state energy plan.[10] States are motivated to develop and/or improve their SEP by various concerns from rising energy prices to the threats of climate change (Figure 3). Nine states specifically identified economic development as a motivating factor. However, vulnerability to new environmental threats and energy emergencies has encouraged states to focus on improving their readiness and prevention measures as well. Many states address this by adopting a climate change action plan focused on reducing greenhouse gas (GHG) emissions. In fact, some states' climate change action plan also serves as their SEP, such as the Massachusetts Clean Energy and Climate Plan for 2020.[11]

Meeting a growing population's energy demands is a concern to many states, so securing reliable energy sources and ensuring affordable energy prices is an additional focus of some SEPs. In order to reach

these goals, most SEPs encourage energy efficiency and conservation as well as promotion of other economic development opportunities. Some states are introducing relevant practices and leading by example through reductions in state energy consumption and improving energy efficiency standards in public buildings. For example, in 2007, the Colorado Climate Action Plan set a goal to reduce energy consumption by 20% in state government buildings by the year 2012. The energy reductions were achieved, but the water reduction goals of this plan were not.[12] This plan, along with Colorado's other efforts, have produced more than $12 million in avoided costs from the state government's energy bills.[13]

Specific concerns and goals like air pollution, public health, and community investment are integral parts of many SEPs but differ based on states' location and energy portfolios. Coastal states, like North Carolina, cite rising sea levels as a motivation to create an energy plan that addresses the issue of climate change.[14] Midwestern states, like Kentucky, address its potential biofuel industry and includes goals to bring revenue to the state and become a national biofuel leader within its SEP.[15] Finally, plain states like, North Dakota, focus on improving its energy resilience by taking advantage of native energy sources such as wind power.[16]

Figure 3 – Motivations for Adopting a SEP



Source: Energy Plan Component Comparison Grid, MEI

Developing and Tracking State Energy Plans

The process for developing an energy plan varies from state to state, but the process typically starts through legislative mandate or a governor's initiation. When an energy plan is mandated by the state legislature, legislative hearings and committee meetings identify statewide energy challenges and goals to address in the energy planning process. The findings of these hearings and committees are then utilized to produce a bill that mandates the creation of an energy plan, identifying who is responsible for its creation, and often outlining a set of goals and policy principles to guide the planning process. An example of this type of legislative energy planning mandate is found in §5B-2F-1 of the West Virginia Code, which establishes the Division of Energy in West Virginia and charges it with the creation of an energy policy and development plan. A governor's initiative is another way the energy plan development process can begin and is typically done through an executive order. For example, Michigan's energy plan was created pursuant to Governor Jennifer Granholm Executive Directive 2006-2, which ordered the Michigan Public Service Commission to create the plan and outlined some principles and goals to guide its development.[17]

Once the executive or legislative branch has mandated planning, a state agency or legislative subcommittee is usually tasked with overseeing the plan's development. Sometimes this oversight is carried out by existing government agency in charge of energy policy and programs, such as a State Energy Office or Public Utilities Commission. The New Jersey Board of Public Utilities is an example of a PUC managing the development and tracking of a state energy plan.[18] The Mississippi Development Authority, which houses the state's energy office, pushed for the creation of a SEP and implemented the plan following its passage. Other states have created a new board or commission, such as the statutorily created New York Energy Planning Board, specifically tasked with the creation and maintenance of the states' energy plans. Often these commissions and boards are created under the authority of existing agencies, but their members may consist of stakeholders outside of government and from a diverse range of energy groups. The particular interests represented on these boards vary from state to state.

The New York Energy Planning Board consists of members from within state government responsible for energy policy.[19] In contrast, the EmpowerND Commission, responsible for the creation and tracking of the North Dakota energy plan, consists of 14 members from all sectors of the North Dakota energy industry itself.[20] These members include representatives from refining, agriculture, petroleum, biodiesel, oil and gas, coops, wind, ethanol, investor-owned utilities, lignite coal, biomass, and transmission. Finally, some states' planning boards consist of members from a more diverse spectrum of interests. For example, the Oregon SEP was created based on recommendations from a "Citizen Task Force" that was comprised of hand-selected volunteers from a broad spectrum of stakeholders including environmentalists, energy consultants, members of the governor's office, energy producers, and corporate energy consumers.[21]

The actual process of drafting and developing the plan varies from state to state. The most common process, however, involves the solicitation of public and stakeholder input through a series of stakeholder meetings and public hearings. New Jersey held three separate stakeholder meetings and four public hearings during the process of drafting its 2011 Energy Master Plan.[22] Many states solicit public comment on their energy planning websites with comments often displayed online.

For Kentucky, when they created their first energy plan, they utilized a collaborative stakeholder process to identify the priorities their plan would include. As a result, the plan had 42 individual goals. When revisiting their plan again, the goals of the revised Kentucky SEP were created by the state energy office, the plan was sent to the legislature for approval, and then a comment period commenced. From their most recent planning process, the SEP became more streamlined and attainable with only seven identified goals for the Kentucky SEP.

Some states' SEPs are developed with assistance from experts at a local research institution. For example, the most recent West Virginia plan was developed with assistance from West Virginia University and Marshall University. Marshall University produced two reports utilized in the creation of the West Virginia energy plan; a report analyzing energy efficiency policy opportunities for West Virginia and a report analyzing renewable energy policy.[23] West Virginia University produced a report analyzing fossil energy opportunities utilized in the West Virginia energy planning process.[24] Similarly, the New Jersey state plan has been drafted with assistance from local resources such as Rutgers Center for Energy, Economic and Environmental Policy (CEEEP) and the Rutgers Economic Advisory Service of the Center for Urban Policy Research at Rutgers University.[25] These institutions provide the plan drafters with valuable analysis. Typically, all of this input from stakeholders, academics, and the public are synthesized together to produce a draft of the energy plan, which is then presented for one last round of public comments.

Once completed, the same agency, commission, or committee that was charged with the creation of the plan often tracks the plan. For example, the New York Energy Planning Board is responsible for both the creation and tracking of New York's energy plan. The board tracks the progress of energy planning development and implementation online.[26]

In some cases a special commission, committee, or council is created and specifically tasked with tracking energy policy. For example, the Delaware legislature enacted the Governor's Energy Advisory Council to monitor recommendations for implementation of policy and to track ongoing implementation efforts.[27] The Delaware Governor's Energy Advisory Council is a seventeen-member council consisting of eight representatives from government agencies, in addition to nine members appointed by the Governor to represent energy stakeholders across the states. [28]

Other states task the various agencies and organizations responsible for implementing the individual components of the plan with independently tracking and reporting on their own implementation and progress. The Maine energy plan tasks each individual office to track their energy plan progress.[29] The Nevada plan, while not yet complete, will task the individual utilities to report progress and implementation to the Nevada State Office of Energy.[30]

Finally, some SEPs do not specifically charge any particular entity with the tracking of the energy plan, but energy policy is independently tracked. For example, the Nebraska SEP does not reference policy tracking, but the Nebraska State Energy Office, the same agency that created the energy plan, is independently required to annually track energy developments and policy.[31] Although it may not be viewed as a specific tracking plan, various states provide annual reports on their SEP, which are publically available and used to highlight accomplishments that can be attributed to their plan. Other states do not publically report the outcome of their plans each year, but use internal documents to track the outcome and success of their SEP.

A review of SEPs that have been implemented successfully reveals that the key components to a successful plan include stakeholder input, data analysis and consistent tracking. These components reduce political friction, ensure accurate policy development, and help remove non-data driven metrics which all increase the transparency, efficiency of policy passage and resource allocation.

Energy Strategy Components

SEPs consistently include the following components: energy efficiency and conservation; renewable energy sources such as wind, solar, and hydropower; economic development and opportunity; fossil fuel usage (natural gas and coal/clean coal); transportation, such as electric vehicles and biofuels; and emerging technologies and innovations. Energy efficiency is the most commonly cited energy topic in SEPs, followed by renewable energy and then transportation.

Most state plans include financing goals which most commonly consist of tax incentives, rebate programs, and investment programs to incentivize energy efficiency and offset the upfront costs of renewable energy production. The Virginia SEP calls for the creation and expansion of tax benefits for consumer investments in energy efficiency, and the West Virginia plan supports rebate programs for similar investment.[32]

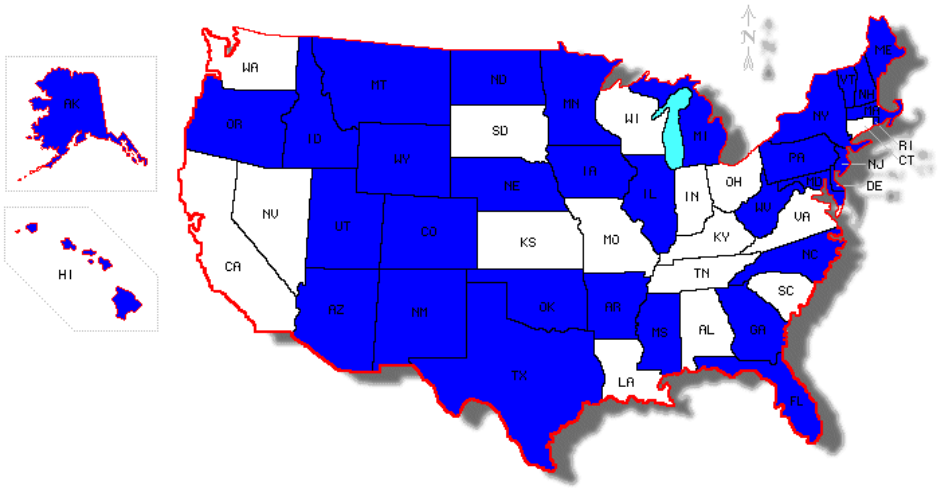
Some plans include possible financing mechanisms to make the implementation of recommendations tangible and effective. One of the most innovative incentive models resides in Iowa where the Iowa Power Fund is a critical tool used with support of state leaders to support Iowa's new energy economy. The Iowa Power Fund Board, with the Due Diligence Committee, leverages investments to stimulate economic growth and job creation and is primarily focused on commercialization of new energy technology and improving pre-existing innovations.[33]

Property Assessed Clean Energy (PACE) is a popular financing program included in many energy plans, including Washington D.C.'s SEP. The DC PACE Program involves the assessment of both residential and commercial properties for energy efficiency improvements and property owners applying for PACE financing to make improvements with a payback of ten to twenty years.[34] This allows property owners to afford sustainable innovations without suffering from debilitating upfront payments.

Plans should include an energy outlook to predict and prepare for future needs and address current and future challenges by outlining an implementation strategy. The timeline is important for setting milestones to evaluate progress and set dates for completion and implementation. The timeline can be anywhere from a couple of weeks to almost two years as exemplified by New York's 20 month 2009 timeline.[35] Some states have more than one timeline. Idaho, for example, has separate implementation timelines for each proposal included in its energy plan.[36]

Thirty-seven of the states with energy plans have identified energy efficiency goals (Figure 4). Specifically, the most common energy efficiency goals include revising building codes for energy efficiency (particularly in state buildings), creating or supporting demand-side management programs, and net metering. A possible reason why energy efficiency is the most common component of an energy plan is due to its impact on three common state energy goals: reducing energy prices, reducing environmental impact and increasing local economic benefits. Tracking the impact of energy efficiency policy is relatively easy, as there is a straightforward variable to measure: energy consumption.

Figure 4 – States with Energy Efficiency Goals



Source: Energy Plan Component Comparison Grid, MEI

Renewable energy goals are the second most common component of SEPs. These goals often include the creation, support or modification of a statewide Renewable Energy Standard (RES). RES requires that a certain percentage of power produced or sold in the state comes from renewable sources. The specific amount of this requirement varies from state to state. SEPs often recommend either the creation of an RES or increasing the requirements of an existing RES. In some rare cases, the plan calls for re-evaluation of the state's RES or even advocates against increasing its requirements. A common component of SEPs is investment in specific forms of renewable energy, most commonly solar and wind. This investment is often in the form of tax incentives and rebate programs designed to overcome the heavy upfront capital costs of these forms of energy production.

SEPs often make efforts to improve states' transmission infrastructures, which are related to both energy efficiency and renewable energy. One major challenge states face when attempting to produce more renewable energy is efficiently transmitting that energy from the source of production to the point of consumption. Therefore, some states have goals to improve this process. In addition, many states have goals to simply improve the transmission grid generally, in order to accommodate projected demand growth.

Most states' plans include transportation goals. These are typically related to reducing petroleum consumption through the use of alternative fuels or reduced vehicle miles traveled. The most common way energy plans seek to accomplish this is through the increased development and use of ethanol and bio fuels. Many states include a goal to convert state vehicle fleets to alternative fuel vehicles. Transportation goal often include investment in and promotion of mass transit options within the state to reduce vehicle miles traveled. In the case of Washington, the state energy office claims their plan's primary goals are transportation related.

Almost all states include goals related to coal, natural gas, and petroleum, but the specific goals vary. Some examples include the expansion of a state's natural gas pipeline infrastructure, clean coal technologies, including carbon capture and sequestration. Almost all states, except for the major petroleum producers, focus their oil goals on reducing petroleum consumption and establishing greater energy independence.

While these are the most common goals, states often have additional goals that are tailored to their unique energy portfolios and the related opportunities and challenges they present. It is not uncommon for a state to revisit its energy plan to review its relevance and the constantly changing energy markets, but to also adjust the SEP due to changes in gubernatorial leadership of the state.

Empirical Analysis

SEPs are generally adopted with ambitious goals in mind, including goals for improving energy efficiency and energy prices, and subsequent goals for improved overall state-level economic performance. It would be worthwhile to test and see if states that have adopted SEPs, relative to those that have not, have, in fact, achieved improvements in various state-based economic indicators.

For this report the following five variables were analyzed to determine the possible impact on a state economy of adoption of a SEP: GDP per state, electricity prices (residential and commercial), total jobs, total business establishments, and new business creation. In the empirical analysis of each of these variables, states that had adopted a SEP were compared to states that had not adopted a SEP up until that year.

Limitations of this study stem from the lack of data available from monitoring and evaluation in states with energy plans. In states such as Kentucky, monitoring and evaluation of a plan has been forgone to place more emphasis and to invest limited funds in program development dictated by the Kentucky SEP. Other states encounter similar issues juggling limited monetary and personnel resources between program implementation, policy implementation, and monitoring and evaluation of their SEP. The results of regular monitoring and evaluation of SEPs allows for plans to be data driven. With greater tracking of SEPS, an increase in accountability and transparency occurs allowing outcomes of the plan to be analyzed and evaluated.

Additionally, data availability issues stem from the short time period that state's SEPs have been active. The years that a plan has been in place vary from state to state, with the most recent plans in this study being adopted in 2010 and the most senior plans being adopted prior to 2005. Due to this limited time frame of active SEPs, only a small number of observations are available for this study. To analyze this data in more detail requires additional years of data for all of the states. This analysis would need to include additional variables to control for other causation possibilities, including the impact of economic cycles, trade effects, input prices, weather, politics and regulation.

Because all thirty-eight states that adopted a SEP adopted them in different years, each of the variables analyzed in this empirical section are investigated in sets of tranches that compare states with and

without a SEP up to that year. Table 2 below describes the tranches, and the states as categorized in each year. In the 2005 tranche for example, Hawaii, Minnesota, New Hampshire, and Rhode Island are compared to the rest of the fifty states. In the 2006 tranche, Hawaii, Minnesota, New Hampshire, Rhode Island, Georgia, and Indiana are compared to the remaining fifty states. The rest of the tranches are compiled similarly. The adoption of SEPs have taken place in a staggered fashion over the past decade, with the earliest plans adopted in 2002, and the most recent plans just last year (see Table 1 and Figure 1).[37]

Table 2 – Year-Based Tranches

States Never Adopting a Plan	Plan Adopted in 2010 or earlier	Plan Adopted in 2009 or earlier	Plan A and availability issues in the adopted in 2008 or earlier	Plan Adopted in 2007 or earlier	Plan Adopted in 2006 or earlier	Plan Adopted in 2005 or earlier
Alabama	Alaska	Colorado	Colorado	Colorado	Georgia	Hawaii
Arizona	Arkansas	Connecticut	Connecticut	Connecticut	Hawaii	Minnesota
Kansas	California	Delaware	Florida	Georgia	Indiana	New Hampshire
Louisiana	Colorado	District of Columbia	Georgia	Hawaii	Minnesota	Rhode Island
Missouri	Connecticut	Florida	Hawaii	Idaho	New Hampshire	
Nevada	Delaware	Georgia	Idaho	Indiana	Rhode Island	
Ohio	District of Columbia	Hawaii	Indiana	Michigan		
South Carolina	Florida	Idaho	Kentucky	Minnesota		
South Dakota	Georgia	Illinois	Michigan	New Hampshire		
Tennessee	Hawaii	Indiana	Minnesota	New Mexico		
Wisconsin	Idaho	Kentucky	New Hampshire	North Carolina		
Wyoming	Illinois	Maine	New Mexico	Rhode Island		
	Indiana	Michigan	North Carolina	West Virginia		
	Kentucky	Minnesota	North Dakota			
	Maine	New Hampshire	Pennsylvania			
	Massachusetts	New Mexico	Rhode Island			
	Michigan	New York	Texas			
	Minnesota	North Carolina	West Virginia			
	Mississippi	North Dakota				
	New Hampshire	Pennsylvania				
	New Mexico	Rhode Island				
	New York	Texas				
	North Carolina	West Virginia				
	North Dakota					
	Pennsylvania					
	Rhode Island					
	Texas					
	Virginia					
	Washington					
	West Virginia					

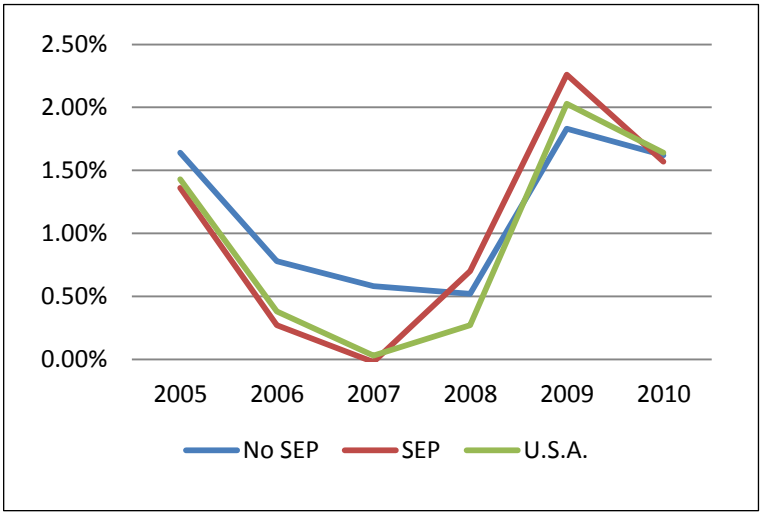
GDP per state[38]

Figure 5 below shows the following five variables were analyzed to determine the possible impact on a state economy of adoption of a SEP: State GDP, electricity prices (residential and commercial), total jobs, total business establishments, and new business creation. In each of the empirical analyses, states that had adopted a SEP were compared to those that had. The average GDP growth was analyzed for states with and without a SEP as of 2010, 2009, 2008, 2007, 2006, and 2005.[39] The results are given below in both tabular and graphical form. Statistical analyses[40] were performed on each of the tranches separately, to determine whether there was any statistically significant difference. Based on the results, 2007 was the only statistically significant year, with 90% certainty ($p < 0.10$), for the GDP variable.

Figure 5

Average Growth, GDP per state

	No SEP	SEP	U.S.A.
2005	1.64%	1.36%	1.43%
2006	0.78%	0.27%	0.38%
2007	0.58%	-0.02%	0.03%
2008	0.52%	0.70%	0.27%
2009	1.83%	2.26%	2.03%
2010	1.62%	1.57%	1.64%



The general lack of statistically significant results in the comparison of the GDP per state variable implies that either the adoption of a SEP is likely to have been too recent to have affected state GDP levels much to date or that SEPs do not affect GDP per state growth.[41]

Electricity Prices[42]

Electricity prices at both the residential and commercial levels (Figures 6-9) were analyzed for states with and without a SEP in each tranche year. Beginning with residential prices, Figures 6 and 7 show, respectively, the percent change in average residential electricity prices and the average electricity prices themselves.

Figure 6

Average Percent Change in Residential Electricity Prices

	No SEP	SEP	U.S.A.
2005	3.90%	5.77%	3.75%
2006	3.55%	4.32%	2.43%
2007	3.05%	4.85%	2.44%
2008	2.03%	2.79%	1.35%
2009	2.17%	2.69%	0.91%
2010	2.76%	2.39%	1.56%

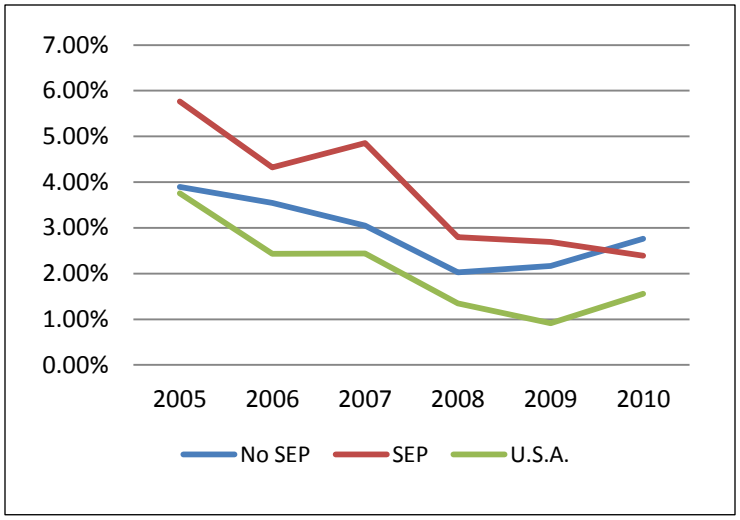
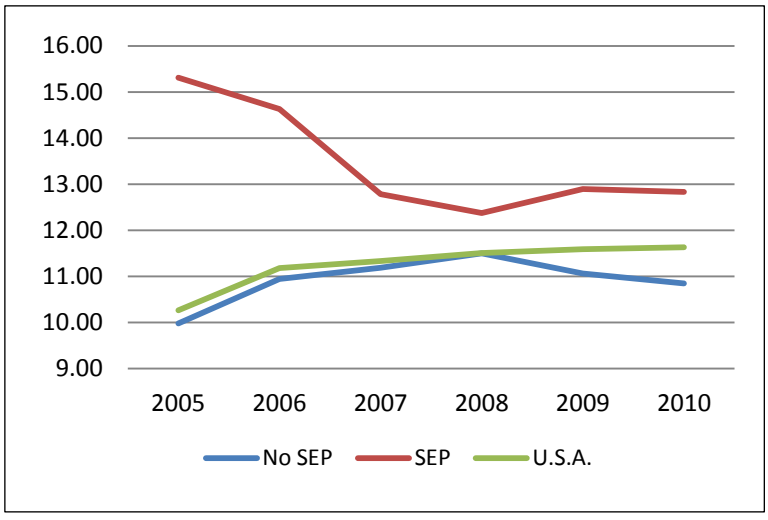


Figure 7

Average Residential Electricity Prices

	No SEP	SEP	U.S.A.
2005	9.98	15.31	10.26
2006	10.94	14.63	11.18
2007	11.18	12.78	11.34
2008	11.50	12.37	11.51
2009	11.06	12.90	11.59
2010	10.85	12.83	11.63



Results are similar for commercial electricity prices (Figures 8 and 9):

Figure 8

Average Percent Change in Commercial Electricity Prices

	No SEP	SEP	U.S.A.
2005	3.66%	6.00%	2.99%
2006	2.91%	3.83%	1.62%
2007	2.58%	4.54%	1.53%
2008	1.01%	1.96%	-0.41%
2009	1.99%	2.09%	0.29%
2010	2.36%	1.80%	0.39%

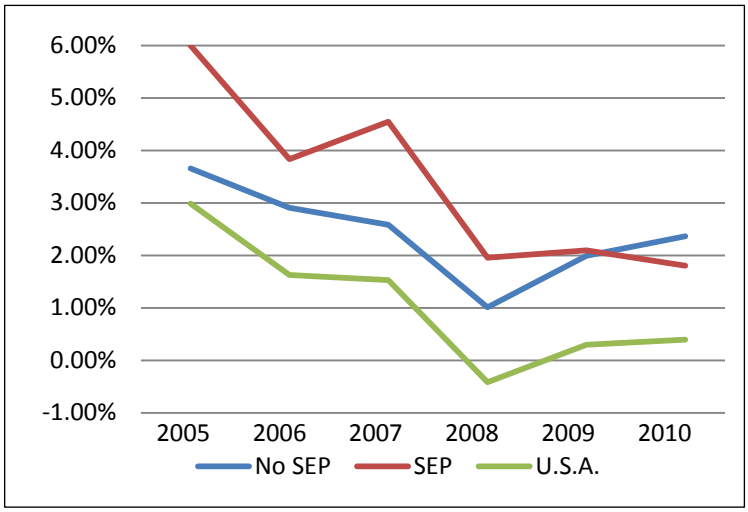
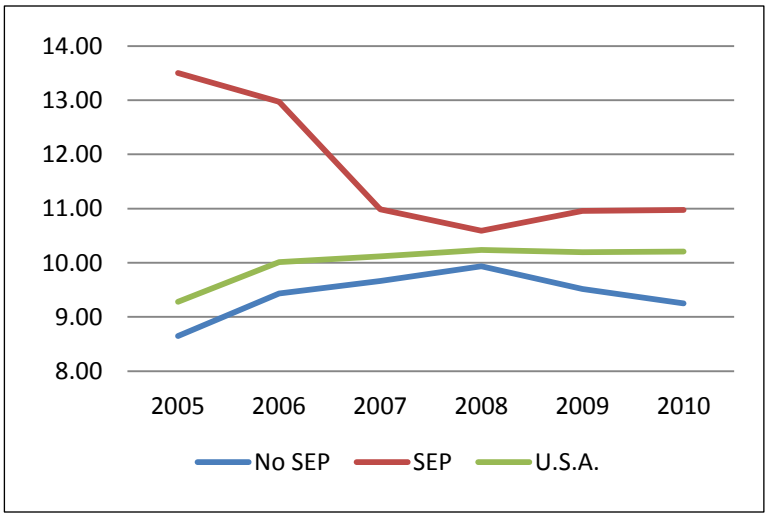


Figure 9

Average Commercial Electricity Prices

	No SEP	SEP	U.S.A.
2005	8.65	13.50	9.28
2006	9.43	12.97	10.01
2007	9.66	10.99	10.12
2008	9.94	10.59	10.24
2009	9.52	10.96	10.20
2010	9.25	10.98	10.21



The data on the average percent changes in electricity prices, both residential and commercial, appears to show that the electricity prices in each tranche year were almost always higher in states with SEPs than without. Statistical analyses find that only in 2007 was this difference significant at the 90% level of confidence. However, the raw data on electricity prices themselves also suggests that prices are generally higher in states with SEPs than in states without. Though in this case only in 2005 were prices significantly different according to the statistical analysis, at the 5% level ($p < 0.05$) for residential prices and the 10% level ($p < 0.10$) for commercial prices.

Similar to the result for GDP per state, the few significant results within the empirical analysis implies that the adoption of a SEP hasn't yet had much of a significant effect on electricity prices, either because there has not been enough time for the SEP to influence electricity prices or because SEPs simply might not have a significant effect on electricity prices. It is possible that states with SEPs are aware of their higher electricity prices and have used a SEP to address these concerns. Due to the lack of available data this would need to be addressed in an additional report with a comparison of why states have included electricity as a priority in their SEP.

Natural Gas Prices[43]

Residential and commercial natural gas prices (Figures 10-13) were also analyzed for states with and without a SEP in each tranche year. Beginning with residential prices, Figures 10 and 11 show the percent change in average residential natural gas prices and the average natural gas prices respectively for states with and without a SEP as well as the U.S. average.

Figure 10

Average Percent Change in Residential Natural Gas Prices

	No SEP	SEP	U.S.A.
2005	18.17%	11.71%	18.14%
2006	10.25%	10.59%	8.11%
2007	-4.40%	-6.60%	-4.73%
2008	4.06%	7.48%	6.19%
2009	-8.99%	-10.96%	-12.60%
2010	-8.40%	-6.90%	-6.18%

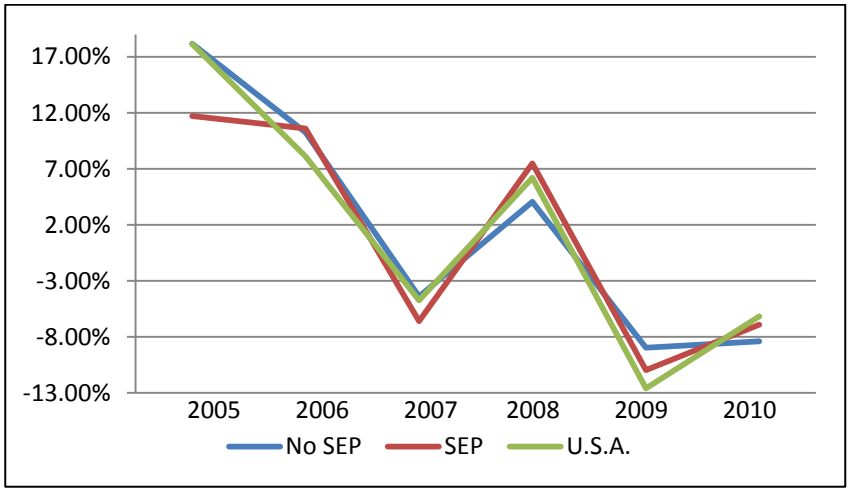


Figure 11

Average Residential Natural Gas Prices

	No SEP	SEP	U.S.A.
2005	12.96	17.98	12.70
2006	14.20	18.72	13.73
2007	13.59	15.19	13.08
2008	14.09	16.07	13.89
2009	12.53	14.24	12.14
2010	11.46	13.03	11.39

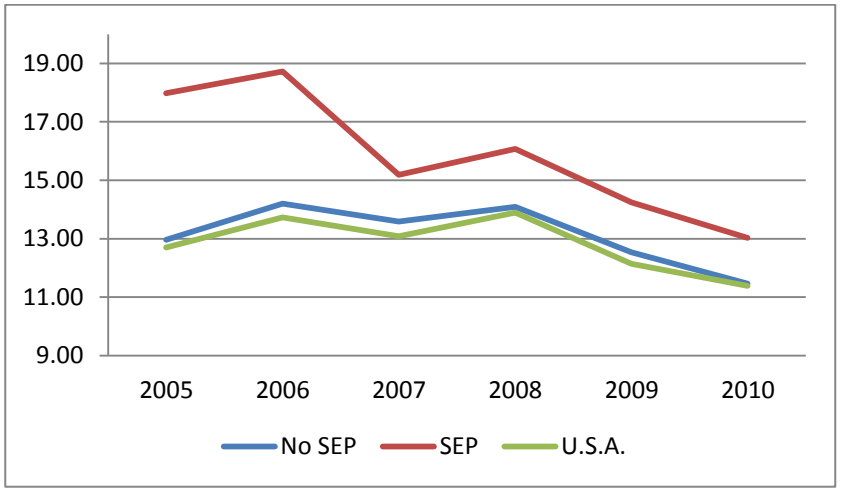


Figure 12

Average Percent Change in Commercial Natural Gas Prices

	No SEP	SEP	U.S.A.
2005	20.10%	14.41%	20.25%
2006	7.96%	7.63%	5.82%
2007	-3.89%	-6.63%	-5.50%
2008	6.09%	9.48%	7.85%
2009	-13.54%	-15.28%	-17.74%
2010	-7.78%	-7.40%	-5.86%

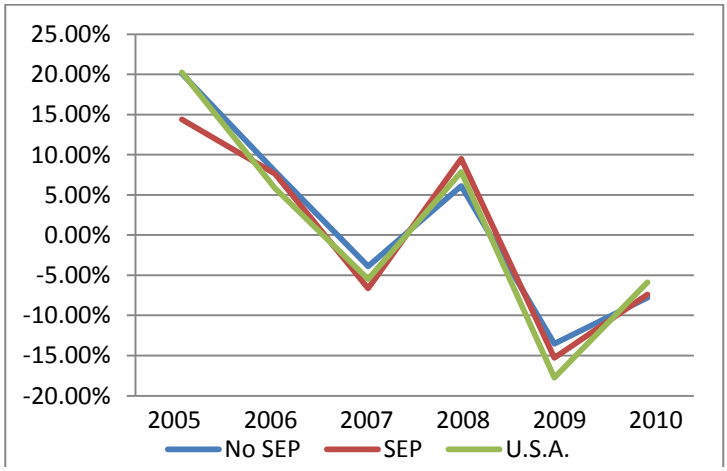
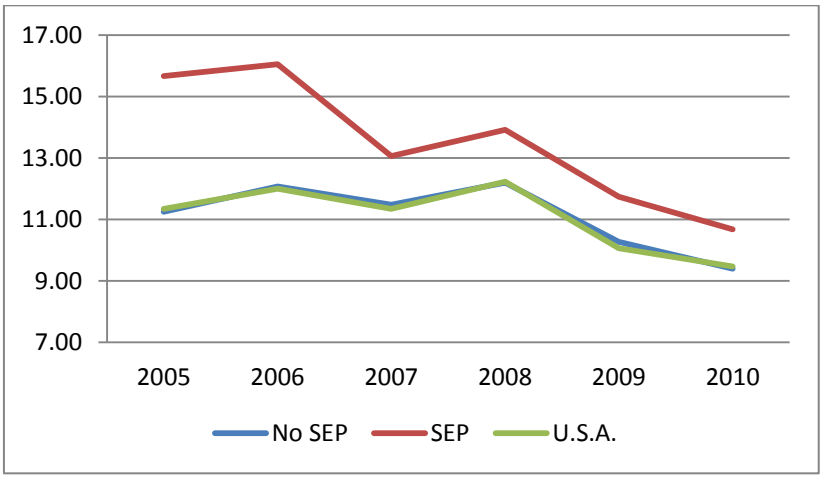


Figure 13

Average Commercial Natural Gas Prices

	No SEP	SEP	U.S.A.
2005	11.25	15.66	11.34
2006	12.07	16.05	12.00
2007	11.48	13.06	11.34
2008	12.20	13.91	12.23
2009	10.27	11.74	10.06
2010	9.40	10.68	9.47



The data on the average natural gas prices show that in each tranche year the natural gas price was higher in states with SEPs than without, though not the historically significant. The data on the average percentage change in residential and commercial natural gas prices seems to suggest that states with a SEP experience larger changes in price both positive and negative, but again these differences were not significantly different according to the statistical analysis.

The lack of significant results within the empirical analysis implies that either there has not been enough time for the SEP to influence natural gas prices or SEPs might not have a significant effect on natural gas prices.

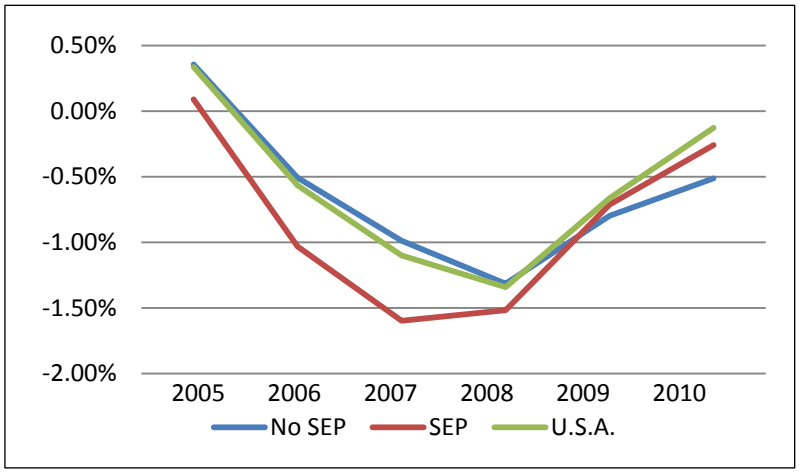
Total Business Establishments[44]

The number of total business establishments in the U.S., as defined by the U.S. Department of Commerce, Census Bureau was examined for states with and without a SEP. This variable was also affected by the 2007-2009 recession and the numbers move similar to that of the change in employment.

Figure 14

Percent Change in Total Business Establishments

	No SEP	SEP	U.S.A.
2005	0.35%	0.09%	0.34%
2006	-0.51%	-1.03%	-0.57%
2007	-0.99%	-1.60%	-1.10%
2008	-1.32%	-1.52%	-1.34%
2009	-0.80%	-0.71%	-0.67%
2010	-0.51%	-0.26%	-0.13%



Statistically, we can say with 99% confidence that, only years 2006 and 2007 show significant differences between states with and without a SEP.

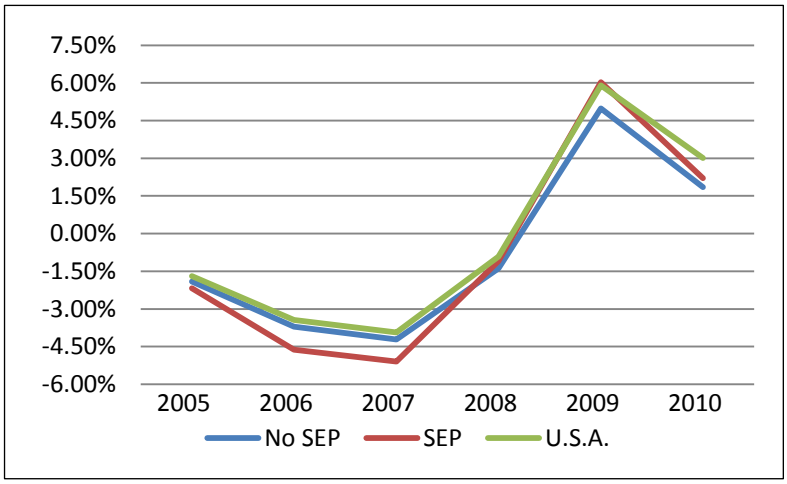
New Business Creation[45]

A somewhat different picture emerges when looking at new business establishments or start-ups.[46]

Figure 15

Percent Change in New Business Establishments

	No SEP	SEP	U.S.A.
2005	-1.91%	-2.18%	-1.69%
2006	-3.71%	-4.62%	-3.44%
2007	-4.22%	-5.09%	-3.93%
2008	-1.38%	-1.09%	-0.91%
2009	4.99%	6.02%	5.90%
2010	1.85%	2.21%	3.01%



There is a statistical difference in the percentage change in new business establishments between states with and without a SEP in the year 2006 at the 10% level of significance ($p < 0.10$). The tranches are not statistically different in 2007. The lack of statistically significant results in more than two years indicates that the impact of a SEP on new business establishments appears to be minimal at this time. It is important to recall the limitations of the data used for this analysis due to the limited information available regarding state energy plans.

Discussion

Most states that adopted a SEP did so with optimistic goals of improving economic performance in a number of key areas. The expectation, therefore, was that states with SEPs would show higher performances in key economic indicators when compared with states that had not adopted a SEP. However, data does not necessarily show this result with most year trenches demonstrating only a statistically insignificant difference. In all of the graphs, the red line, i.e. the line measuring groups of states that adopted SEPs begin in a worse position (i.e. lower GDP per state growth, higher electricity prices, lower numbers of jobs and businesses) than states without SEPs. Note however, that in later years, things do tend to improve. A plausible narrative is that SEPs were initially adopted *because* a state underperformed, and over, the limited time period under study, things did begin to improve though statistically insignificant. The graphs seem to suggest that over time, states that adopted a SEP are doing better than had that state not adopted a SEP.

It is important to note that these results might also have alternative explanations. The improving performance of tranche years with SEP adoption may be driven by the fact that the pool of states adopting a SEP altered the tranche averages over time. For example, when examining the results on electricity prices, the high electricity prices of Hawaii, an early adopter of a SEP, gets diluted over the years as states with lower electricity prices enter the SEP pool. With the limited data available, robust causation conclusions cannot, as yet, be determined.

Reiterating the limitations of the small number of observations available for this study (i.e. the limited number of years for which most SEPs have been in place), the ability to perform additional robust empirical analyses that would provide answers to the causal relationships at work is limited. An in-depth analysis would require many additional years of data for all states including additional variables to control for other causation possibilities, such as the impact of economic cycles, trade effects, input prices, politics and regulation, etc.

GDP per state

Only 2007 was statistically significant for the GDP per state variable and the result showed that states with a SEP had significantly lower average GDP per state than states with no SEP. In fact, states with a SEP had negative GDP per state growth in 2007. Recall that 2007 was the year that the global financial crisis began, resulting in large decreases in investment and borrowing in the U.S. and around the world. It is possible that this result is driven by the large change in the financial situation within which the states with SEP commitments were operating. Funding for new or existing energy projects might have been elusive or only available at very high costs. Although an increase in investment would show up as an increase in GDP per state, an increase in the financial costs of investment does not show up as an increase the GDP per state; the increased financial costs could result in lower investment and lower GDP per state. It is possible, therefore, that the 2007 negative result was due to high financing costs for states that had planned on making large SEP-related energy investments. The GDP of a state is

influenced by various factors unrelated to energy and the differences in 2007 on the results result of potential external factors.

Electricity Prices

One oft-stated goal of SEPs is to reduce electricity prices, but few significant results attained for electricity prices in this analysis suggest, instead, that SEP states had high electricity prices, both residential and commercial. While SEP states saw a larger decrease in power costs, from $12.5cents/kwh to $10.9cents/kwh compared to states without a SEP, SEP states started with substantially higher electricity prices overall and never quite dipped below the rates of states without SEPs. This may be due, however, to the fact that states without a SEP rely on coal and other existing long-term low cost energy sources including the introduction of natural gas. Another explanation of these results could be due to states with high electricity prices addressing the through a SEP. It is promising that states with a SEP did see large decreases in power rates over the tranche years.

Employment & Business Establishments

An additional stated goal of many SEPs is to increase economic development, create more jobs and foster more new business establishments. The results show that the recession hit states with SEPs more so than states without SEPs with significant jobs losses and reductions in new businesses. Similar to the GDP per state analysis, this may be because the financing for SEP related projects intended to bolster employment and new business establishments, stalled.

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APPENDIX

Appendix 1. States Listed By Year Plan Introduced

2013

West Virginia

Wyoming

2012

California

Georgia

2011

Hawaii

Montana

Nebraska

New Jersey

Oklahoma

Oregon

Utah

Vermont

Washington

2010

Alaska

Arkansas

Maryland

Massachusetts

North Dakota

Virginia

2009

Delaware

Illinois

New York

2008

Florida

Iowa

Kentucky

Maine

Pennsylvania

Texas

2007

Connecticut

Idaho

Michigan

New Mexico

2006

Indiana

2003

North Carolina

2002

New Hampshire

Rhode Island

No Plan As of 2014

Alabama

Arizona

Colorado

Kansas

Louisiana

Minnesota

Mississippi

Missouri

Nevada

Ohio

South Carolina

South Dakota

Tennessee

Wisconsin

Washington D.C.

Appendix 2. Basic Information about Energy Plans

State	Plan Name	How was it developed?	How was it implemented?	Is the plan tracked?
Alabama	-	-	-	-
Alaska	Alaska Energy Pathway	Alaskan Energy Authority (public)	Legislation	-
Arizona	-	-	-	-
Arkansas	APSC Sustainable Energy Resources Action Guide		Docket No. 08-144-U ("Sustainability Docket")	Yes
California	2012 Integrated Energy Policy Report	The California Energy Commission	Pub. Res. Code § 25000	Yes
Colorado	-	-	-	-
Connecticut	2007 Energy Plan for Connecticut	Connecticut Energy Advisory Board	Public Act 03-140 Public Act 11-80 Statute 16a-3a	No
Delaware	Delaware Energy Plan 2009-2014	The Governor's Energy Advisory Council	Del. Code Anne. Tit. 29 § 8053(c)7	Yes
Florida	Florida's Energy and Climate Action Plan	Governor's Action Team on Energy and Climate	Executive Order 05-241	Yes
Georgia	2012 Georgia Energy Report	Georgia Environmental Finance Authority	Executive Order 07-126 Executive Order 07-127 Executive Order 07-128	Yes
Hawaii	HCEI Road Map	Memorandum of Understanding (Between Hawaii and the DOE)	Hawaii Revised Statute: Section 226-18	Yes
Idaho	Idaho Energy Plan	Idaho Legislative Council Interim Committee on Energy, Environment and Technology with the assistance of Energy and Environmental Economics, Inc.	HCR 062 (2006 Session) HCR 013 (2007 Session)	Yes
Illinois	Governor Quinn's Comprehensive			

	Energy Strategy			
Indiana	Indiana's Strategic Energy Plan			
Iowa	Iowa Energy Plan			No
Idaho	Idaho Energy Plan	Idaho Legislative Council Interim Committee on Energy, Environment, and Technology	Idaho HCR 062 (2006 Session) and HCR 013 (2007 Session)	Yes
Kansas	-	-	-	-
Kentucky	Intelligent Energy Choices for Kentucky's Future		Legislation	No
Louisiana	-	-	-	-
Maine	State of Main Comprehensive Energy Pan	Governor's Office of Energy Independence and Security	Maine Revised Statute Ann. Tit. 2 §9	Yes
Maryland	EmPower Maryland		EmPower Maryland Energy Efficiency Act (2008)	Yes
Massachusetts	Massachusetts Clean Energy and Climate Plan for 2020	Executive Office of Energy and Environmental Affairs (EEA)	Chapter 298 of the Global Warming Solutions Act of 2008 M.G.L.c.21N	Yes
Michigan	Michigan's 21st Century Energy Plan	Michigan Public Service Commission	Executive Directive No. 2006-02	Yes
Minnesota	Minnesota State Energy Program			
Mississippi	Mississippi Energy Policy Institute's (MEPI's) Roadmap for Mississippi's Energy Future	Mississippi Division of Energy		No
Missouri	-	-	-	-

Montana	Montana's Energy Policy		Senate Bill No. 225 (Chapter 242, Laws of 1993) and Montana Code Annotated 90-4-1001 Senate Bill No. 305 (Chapter 385. Laws of 2011)	Yes
Nebraska	2011 Nebraska Energy Plan	Nebraska State Energy Office		No
Nevada	-	-	-	-
New Hampshire	New Hampshire's 10 Year State Energy Plan	Public hearings and stakeholder meetings throughout the state	New Hampshire Chapter 121 (2001)	
New Jersey	Energy Master Plan	Public hearings and stakeholder meetings. Four working groups.		
New Mexico	State "Clean Energy Plan"			
New York	2009 New York State Energy Plan	Energy Planning Board meeting	Executive Order No. 2, April 9, 2008	Yes
North Carolina	North Carolina State Energy Plan 2003	Energy Policy Working Group	North Carolina General Statutes Chapter 113B North Carolina Energy Policy Act of 1975	Yes
North Dakota	EmPower ND 2010-2025	EmPower ND Commission		Yes
Ohio	-	-	-	-
Oklahoma	Oklahoma First Energy Plan	Group of energy producers and consumers		No
Oregon	2011-2013 State Energy Plan	Citizen task force	Governor appointed 10-year Energy Action Plan Task Force in 2011	Yes
Pennsylvania	Pennsylvania Energy Development Plan	Pennsylvania Energy Development Authority	Pennsylvania Energy Development Authority and Emergency Powers Act of 1982	Yes
Rhode Island	Rhode Island Energy Plan	Outgrowth of work initiated in 1995 by Energy	State Energy Office	Yes

		Coordinating Council		
South Carolina	-	-	-	-
South Dakota	-	-	-	-
Tennessee	-	-	-	-
Texas	2008 Texas State Energy Plan	29 public and private sector leaders formed the Governor's Competitiveness Council		
Utah	Governor's 10-Year Strategic Energy Plan	Governor appointed task	Recommendation to establish an oversight office	Yes
Vermont	Comprehensive Energy Plan 2011		30 V.S.A § 202b. State comprehensive energy plan	Yes
Virginia	2010 Virginia Energy Plan		Title 67 Chapter 1 of Virginia Code of Laws	
Washington	2012 Washington State Energy Strategy	Mandated by statute		
West Virginia	Energy Plan 2013-2017	Energy planning mandated by statute: §5-2F-2(d)		
Wisconsin	-	-	-	-
Wyoming	Wyoming's Action Plan for Energy, Environment, and Economy	Governor Strategy Draft		

Appendix 3. Motivating Factors to Develop State Energy Plans

State	Motivating Factor
Alabama	Program Support and Energy Emergency and Assurance
Alaska	Developing a long-term energy strategy.
Arizona	Maintain an affordable cost of energy for residents
Arkansas	Have established incentive programs to encourage energy efficiency
California	Assess major energy trends; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance CA economy; protect public health and safety
Colorado	Facilitate a minimum of 20 Energy Assessments and/or Audits throughout the region to implement energy-efficiency technologies/practices and to measure and report the changes in energy consumption.
Connecticut	Developing a long-term energy independence strategy.
Delaware	The development of conservation programs to reduce the need to build more electricity generation facilities.
Florida	Diversify, Conserve, and Develop Economic Incentives for Electric Power Generation.
Georgia	A commitment to implementing a comprehensive state energy plan with protection of Georgia's environment and use of its natural resources as key elements.
Hawaii	Primary Long Term Vision is Making Energy Conservation and Efficiency the Most Cost-Effective, Sustainable and utilized of any Energy Options Available.
Idaho	Ensure a secure, reliable and stable energy system for the citizens and businesses of Idaho.
Illinois	Protecting Consumers by Maintaining Stable Energy Bills.
Indiana	Grow Indiana jobs and incomes by producing more the energy we need from our own natural resources while encouraging conservation and energy efficiency.
Iowa	The vision is Iowans creating an economically viable and environmentally sound energy future.

Kansas	Currently promoting energy efficiency and alternative energy.
Kentucky	Improve the Energy Efficiency of Kentucky's Homes, Buildings, Industries, and Transportation Fleet.
Louisiana	Has developed energy efficiency programs, however, recently has been voted to be scrapped by the PUC in April 2013.
Maine	Competitively priced energy is vital to the state's economy, so striving to provide energy at the lowest cost possible; increase energy independence, security, service quality, and reliability through better energy efficiency programs.
Maryland	Energy Reduction (Improving energy efficiency).
Massachusetts	Clean Energy Revolution: Energy Independence; Energy Costs and Volatility; Economic Opportunity; Employment Projections for 2020; Climate Change; Impacts of Local and Regional Air Pollution; and Meeting Challenges, Seizing Opportunities.
Michigan	Ensuring energy independence through renewable energy, energy efficiency measures and cleanest availability utility-built generation.
Minnesota	Continue accurate and aggressive monitoring of energy supplies and prices by the Department of Commerce (DOC) and others.
Mississippi	Analyzing ways Mississippi can enhance its position as a top state for oil and natural gas-related exploration and extraction to allow for the responsible development of the state's energy resources and foster an environment conducive to creating jobs and attracting energy exploration investment. Promoting Mississippi's competitive advantages, maximizing the use of the state's abundant energy resources, and adding value to them through manufacturing, conversion, and processing to encourage job creation and investment.
Missouri	Reliable energy source and customer service.
Montana	Enhancing existing energy development and creating new diversified energy development from all of Montana's abundant energy resources.
Nebraska	Rapidly increasing energy expenditures is the primary motivating factor.
Nevada	-

New Hampshire	Fundamental changes in the energy marketplace, concerns about energy security, the need for clean and reliable power, and the increasingly regional nature of power markets. California energy crisis and September 11 terrorist attacks were also motivating forces.
New Jersey	Rising energy prices was a major motivating factor.
New Mexico	-
New York	Unemployment. Loss of over 200,000 jobs since August 2008. Hardships as a result of the high price of energy. Federal government recognizing the challenges posed by climate change and the need to reduce emissions. Greater interest at federal level in improving country's energy security. Poor air quality in NY. All of these were motivating forces.
North Carolina	Mandated by statute to address state-specific energy issues and concerns. The current report was determined incomplete and outdated given recent energy developments. California energy crisis, September 11, and winter 2000 energy price spike also motivating forces. Climate change and rising sea-levels from CO2 emissions. Coastal state.
North Dakota	The tremendous potential of North Dakota energy resources. It has the largest deposit of ignite coal; is the fourth largest oil-producing state; and has great wind potential.
Ohio	-
Oklahoma	-
Oregon	The success of previous energy planning efforts was the primary motivating force for this new and updated energy plan.
Pennsylvania	Rising oil, electricity and natural gas prices. The rapid increase in demand for energy globally. Plentiful in-state energy resources. 20 years since the last state energy plan.
Rhode Island	Provide energy services.
South Carolina	-
South Dakota	-
Tennessee	-
Texas	Texas population expected to double by 2050, bringing increase in energy demand that must be met. Costs of energy have been increasing. Current heavy reliance on natural gas.
Utah	-

Vermont	1) Foster economic security and independence;2)Safeguard environmental legacy. 3) Drive in-state innovation and job creation4) Increase community involvement and investment.
Virginia	-
Washington	Concern about economic growth and concern about climate change are both motivating factors for the energy plan.
Washington D.C.	-
West Virginia	Heavy reliance on oil imports. Imported 1.3 billion barrells of oil per year. Energy independence is the primary motivating factor in making the plan.
Wisconsin	-
Wyoming	The lack of energy coordination currently at the state and federal level was a primary motivating factor for this plan.

Appendix 4.1 States with Specific SEP Goals

Energy Efficiency
Alabama
Alaska
Arizona
Arkansas
Colorado
Delaware
Florida
Georgia
Hawaii
Idaho
Illinois
Iowa
Louisiana
Maine
Maryland
Massachusetts
Michigan
Mississippi
Montana
Nebraska
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Oklahoma
Oregon
Pennsylvania
Rhode Island
Texas
Utah
Vermont
West Virginia
Wyoming

Renewable Energy
Alabama
Alaska
Arizona
California
Connecticut
Delaware
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kentucky
Maine
Michigan
Montana
Nebraska
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Oklahoma
Oregon
Pennsylvania
Rhode Island
Texas
Utah
Vermont
Virginia
Washington
West Virginia

Transportation
Alabama
Arizona
Arkansas
Connecticut
Delaware
Florida
Georgia
Hawaii
Maine
Nebraska
New Hampshire
New Jersey
New York
North Carolina
North Dakota
Oklahoma
Oregon
Rhode Island
Utah
Vermont
Virginia
Washington
West Virginia
Wyoming

Natural Gas
Alaska
California
Connecticut
Florida
Kentucky
Maine
New Hampshire
New Jersey
Oklahoma
Rhode Island
Texas
Utah
Vermont
Virginia
West Virginia
Wyoming

Innovation & Emerging Technologies
Alaska
California
Delaware
Nebraska
New Hampshire
New Jersey
New York
North Dakota
Oregon
Texas
Utah
Vermont
Wyoming

Oil and Petroleum
Alaska
Connecticut
Hawaii
Mississippi
Nebraska
North Dakota
Rhode Island
West Virginia
Wyoming

Public Education
Alabama
Alaska
Colorado
Iowa
New York
North Carolina
North Dakota
Oklahoma
Oregon
Pennsylvania
Rhode Island
Texas
Virginia
West Virginia
Wyoming

Appendix 4.2 SEP Goals by State

Alabama
Energy Efficiency
Renewable Energy
Transportation
Public Education

Alaska
Energy Efficiency
Renewable Energy
Natural Gas
Innovation and Emerging Technology
Oil and Petroleum
Public Education

Arizona
Energy Efficiency
Renewable Energy
Transportation

Arkansas
Energy Efficiency
Transportation

California
Renewable Energy
Natural Gas
Innovation and Emerging Technology

Colorado
Energy Efficiency
Public Education

Connecticut
Renewable Energy
Transportation
Natural Gas
Oil and Petroleum

Delaware
Energy Efficiency
Renewable Energy
Transportation
Innovation and Emerging Technology

Florida
Energy Efficiency
Renewable Energy
Transportation
Natural Gas

Georgia
Energy Efficiency
Renewable Energy
Transportation

Hawaii
Energy Efficiency
Renewable Energy
Transportation
Oil and Petroleum

Idaho
Energy Efficiency
Renewable Energy

Illinois
Energy Efficiency
Renewable Energy

Indiana
Renewable Energy

Iowa
Energy Efficiency
Renewable Energy
Public Education

Kentucky
Renewable Energy
Natural Gas

Louisiana
Energy Efficiency

Maine
Energy Efficiency
Renewable Energy
Transportation
Natural Gas

Maryland
Energy Efficiency

Massachusetts
Energy Efficiency

Michigan
Energy Efficiency
Renewable Energy

Minnesota
Energy Efficiency
Renewable Energy

Mississippi
Oil
Energy Efficiency
Economic Development

Montana
Energy Efficiency
Renewable Energy

Nebraska

Renewable Energy
Transportation
Innovation and Emerging Technology
Oil and Petroleum

New Hampshire

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Innovation and Emerging Technology

New Jersey

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Innovation and Emerging Technology

New Mexico

Energy Efficiency
Renewable Energy

New York

Energy Efficiency
Renewable Energy
Transportation
Innovation and Emerging Technology
Public Education

North Carolina

Energy Efficiency
Renewable Energy
Transportation
Public Education

North Dakota

Energy Efficiency
Renewable Energy
Transportation
Innovation and Emerging Technology
Oil and Petroleum
Public Education

Oklahoma

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Public Education

Oregon

Energy Efficiency
Renewable Energy
Transportation
Innovation and Emerging Technology
Public Education

Pennsylvania

Energy Efficiency
Renewable Energy
Public Education

Rhode Island

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Oil and Petroleum
Public Education

Texas

Energy Efficiency
Renewable Energy
Natural Gas
Innovation and Emerging Technology
Public Education

Utah

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Innovation and Emerging Technology

Vermont

Energy Efficiency
Renewable Energy
Transportation
Natural Gas
Innovation and Emerging Technology

Virginia

Renewable Energy
Natural Gas
Public Education

Washington

Transportation
Renewable Energy
Climate

West Virginia

Energy Efficiency
Renewable Energy
Transportation

[1] Kate Marks, NASEO Deputy Director Interview Spring 2014.
[2] Plans after 2012 were not analyzed and economic data sets only apply to plans from 2011 or earlier.
[3]Energy Plan Component Comparison Grid, MEI
[4]http://www2.illinois.gov/gov/Documents/Strategy/Energy%20Plan%20BACKGROUND%20050911.pdf
[5] A plan was developed during the review process for this paper. Details can be found here: http://governor.ohio.gov/Portals/0/pdf/MBR/FINAL%20Energy.pdf
[6] In 2013 the Alabama State Energy Division commissioned a survey. http://www.adeca.alabama.gov/Divisions/energy/Pages/StateEnergyProgram.aspx.
[7] Information can be found online at http://www.azenergy.gov/Policy/MEP.aspx
[8] Nevada Status of Energy Report, Pg. 4, 2013. Last found at: http://energy.nv.gov/uploadedFiles/energynvgov/content/Media/2012-13-StatusofEnergyReport.pdf
[9] New Mexico Clean Energy Plan, found at http://energy.nv.gov/uploadedFiles/energynvgov/content/Media/2012-13-StatusofEnergyReport.pdf
[10] NASEO: An Overview of Statewide Comprehensive Energy Plans, 2012, found at http://www.naseo.org/Data/Sites/1/naseo_39_state_final_7-19-13.pdf
[11] See Energy Plan Component Comparison Grid, MEI (Massachusetts Clean Energy and Climate Plan for 2020, http://www.naseo.org/Data/Sites/1/documents/stateenergyplans/MA.pdf)
[12] Colorado Greening Government Annual Report Card, 2012 available at http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%222012+Greening+Government+Report+Card.pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251853664884&ssbinary=true
[13] Interview, Hillary Dobos, Senior Program Manager, Colorado Energy Office, December 2013.
[14] See Energy Plan Component Comparison Grid, MEI
[15] See Energy Plan Component Comparison Grid, MEI
[16] See Energy Plan Component Comparison Grid, MEI
[17] See Energy Plan Component Comparison Grid, MEI
[18] See Energy Plan Component Comparison Grid, MEI
[19] See Energy Plan Component Comparison Grid, MEI
[20] See Energy Plan Component Comparison Grid, MEI , EmPowerND 2010-2025, p3. Last available at http://www.legis.nd.gov/assembly/61-2009/docs/pdf/edt070810appendixc.pdf
[21] Oregon Energy Task Force Report, 2013, pg. 4. Last available at http://www.oregon.gov/energy/Ten_Year/docs/Oregon_Energy_Task_Force_Report.pdf
[22] Process described in EMP Documents, last available at http://nj.gov/emp/docs/
[23] West Virginia Energy Plan 2013-2017, Appendix. Last available at http://www.legis.state.wv.us/legisdocs/reports/agency/E08_CY_2013_1929.pdf
[24] Id.
[25] http://rei.rutgers.edu/index.php?option=com_content&task=blogcategory&id=28&Itemid=45
[26] www.nysenergyplan.com.
[27] See Energy Plan Component Comparison Grid, MEI
[28] http://www.dnrec.delaware.gov/Admin/Pages/DelawareEnergyPlan.aspx
[29] State of Maine Comprehensive Eneryg Plan 2008-2009. Last available at http://www.naseo.org/Data/Sites/1/documents/stateenergyplans/ME.pdf
[30] Nevada Status of Energy Report, 2013. Last found at: http://energy.nv.gov/uploadedFiles/energynvgov/content/Media/2012-13-StatusofEnergyReport.pdf

[31] http://www.neo.ne.gov/annual_rept?NEOAnnualReport.pdf
[32] See Energy Plan Component Comparison Grid, MEI
[33] The Iowa Power Fund was created in 2007 with $75 Million for investment. http://www.iowaeconomicdevelopment.com/Energy/power Statutory authority can be found here http://coolice.legis.iowa.gov/cool-ice/default.asp?category=billinfo&service=iowacode&ga=83&input=469
[34] DC Pace, How It works. Last available at http://www.dcpace.com/home/how-pace-works
[35] New York Energy Plan 2009 outline. Last available at http://energyplan.ny.gov/Plans/2009.aspx New York has since had an additional iteration (2014) of its energy plan.
[36] 2012 Idaho Energy Plan, 2012 pg. 24. Last available at. http://www.energy.idaho.gov/energyalliance/d/2012_idaho_energy_plan_final_2.pdf
[37] Part of the difficulty with this study and understanding energy plans is the staggered start. With any policy it takes time to develop and implement individual components and it takes even longer for those components to bear fruit. So while it is unfair to compare results for states that have had energy plans for the past five years to states with a plan adopted merely one year ago, it is necessary. However this contrast should provide greater opportunity to review this topic more deeply in the future.
[38] Source data from the Bureau of Economic Analysis.
[39] Current data is only available as of 2011, so a separate 2011 tranche could not be analyzed.
[40] Unpaired two sample t-tests, with unequal variances.
[41] This includes the general lack of a statistically significant difference in the GDP variable for states that had and had not adopted an SEP.
[42] Source data US Energy Information Administration
[43] Source data US Energy Information Administration, downloadable at: http://www.eia.gov/dnav/ng/ng_pri_sum_a_epg0_prs_dmcf_a.htm
[44] Source data from the U.S. Census Bureau, Longitudinal Business Database.
[45] Source data from the U.S. Census Bureau, Longitudinal Business Database.
[46] Start-ups are defined as the number of establishments created within the 12-month year, as defined by the U.S. Department of Commerce, Census Bureau.