



*Independent Statistics & Analysis*  
U.S. Energy Information  
Administration

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# Analysis of the Clean Energy Standard Act of 2012

May 2012



## Contacts

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## Background

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This report responds to a request from Senator Jeff Bingaman, Chairman of the Senate Committee on Energy and Natural Resources, for an analysis of the Clean Energy Standard (CES) Act of 2012. The request letter and the text of the proposed legislation are provided in Appendix D. The request follows a previous [study](#)<sup>1</sup> performed by the U.S. Energy Information Administration (EIA) in November of 2011, also at the request of Chairman Bingaman. In the current study, the policy is compared to EIA's early-release Reference case scenario from the *Annual Energy Outlook 2012*.

### Policy Description

A CES is a policy that requires covered electricity retailers to supply a specified share of their electricity sales from qualifying clean energy resources. The impacts of a CES can vary substantially based on specification of policy details, and this analysis applies only to the specification designated in Chairman Bingaman's 2012 request and the associated bill, the [Clean Energy Standard Act of 2012](#)<sup>2</sup> (BCES12), as described below:

- All generation from existing and new wind, solar, geothermal, biomass, municipal solid waste, and landfill gas plants earns full credits. Hydroelectric and nuclear generation from capacity and uprates placed in service after 1991 earns full credits.
- Generation from nuclear and hydroelectric capacity placed in service prior to 1992 does not receive any credits, but the total generation from these two sources is deducted from the overall requirement for credits and deducted from the sales baseline of those owning them or purchasing their power.
- Partial credits are earned for generation using specific technologies fueled by natural gas or coal based on a calculated crediting factor that reflects the carbon intensity of each technology. More details on this crediting scheme can be found in the original [BCES report](#)<sup>1</sup>. In addition, generation from combined heat and power (CHP) facilities that have an overall system efficiency of greater than 50 percent qualify for credits on a similar basis. However, CHP facilities that trade credits must also hold credits for any CHP generation used on-site.
- The Secretary of Energy will also establish additional credits for CHP facilities based on the greenhouse gas reductions from the facility compared to a stand-alone thermal system. This provision requires discretionary input not specified in the bill, and is not analyzed in this report.
- The carbon intensity of biomass generation will be determined by the Secretary of Energy based on a National Academy of Sciences (NAS) study specified in the legislation. For purposes of this report, EIA assumes that biomass generation is carbon-neutral, and biomass is thus assumed to earn full credit for its generation. While this assumption is consistent with assumptions made in the Reference case and current EIA reporting conventions, the resulting NAS report may result in some biomass facilities earning less-than-full CES credit for their generation.
- The BCES12 target for the share of retail electricity sales from clean energy sources starts at 24 percent in 2015 and ultimately reaches 84 percent in 2035. Based on discussion with Chairman Bingaman's staff, the analysis in this report assumes that the target remains constant after 2035, and that the policy does not expire.

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<sup>1</sup> See: "Analysis of Impacts of a Clean Energy Standard as requested by Chairman Bingaman", released November 30, 2011, at [www.eia.gov/analysis/requests/ces\\_bingaman/](http://www.eia.gov/analysis/requests/ces_bingaman/)

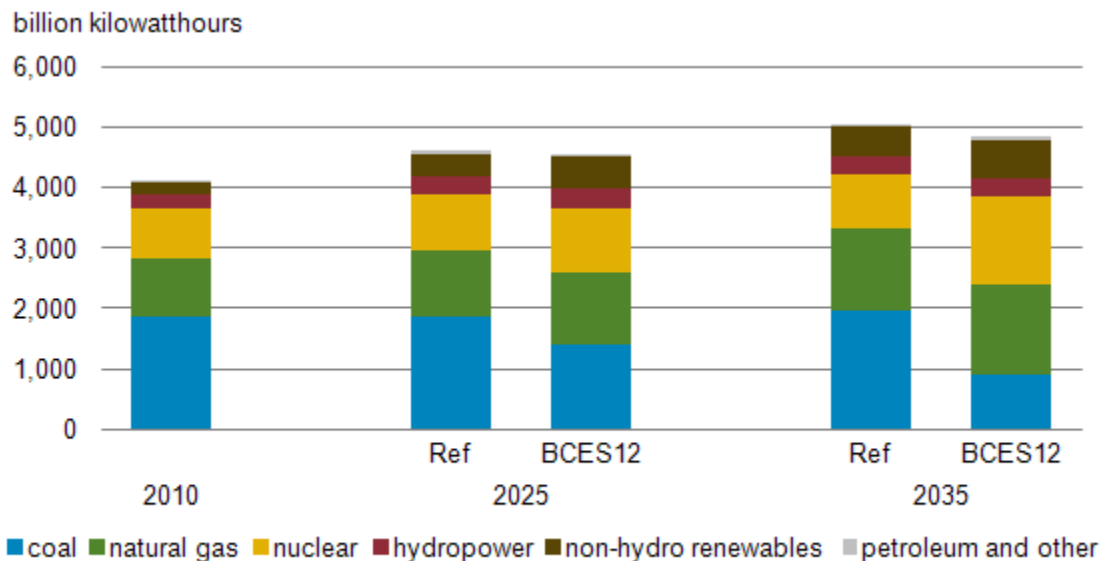
<sup>2</sup> See: "Clean Energy Standard Act of 2012", at [www.energy.senate.gov/public/index.cfm/files/serve?File\\_id=b3580f37-ec8c-4698-a635-3e19f9815b9a](http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=b3580f37-ec8c-4698-a635-3e19f9815b9a)

- Small electricity retailers are exempt from BCES12 compliance. This exemption applies to all retailers with sales less than 2,000,000 megawatthours (MWh) in 2015, with the exemption level linearly decreasing to its terminal level of 1,000,000 MWh in annual sales for 2025 and beyond.
- Covered electricity retailers may also comply by making an alternative compliance payment that is 3 cents per kilowatthour in 2015, increasing at an inflation-adjusted rate of 5 percent per year.
- CES credits can be banked for use in a subsequent year.

## Results

The BCES12 alters the projected generation mix, significantly reducing the role of coal-fired generation, while increasing the role of nuclear, natural gas, and non-hydropower renewable technologies. Coal-fired generation decreases significantly under the BCES12, falling to 25 percent below the Reference case level in 2025 and 54 percent below the Reference case level in 2035. Conversely, natural gas-fired generation increases under the BCES12, with the greatest impact relatively early in the projection period, prior to significant new renewable or nuclear capacity coming online. In 2020, natural gas-fired generation is 13 percent above the Reference case. By 2025, this differential has fallen to 10 percent, and by 2035, natural gas-fired generation under the BCES12 is only 8 percent higher than in the Reference case. In absolute terms, most additional natural gas-fired generation occurs in the electric power sector; however, total combined heat and power (CHP) generation fired by natural gas does increase substantially due to the BCES12 provision that allows some CHP generators, to a limited extent, to sell BCES12 credits (see the Policy Description section). BCES12 CHP generation fired by natural gas exceeds the Reference case by 8 percent in 2025, and by 21 percent in 2035.

**Figure 1. Total Net Electricity Generation**

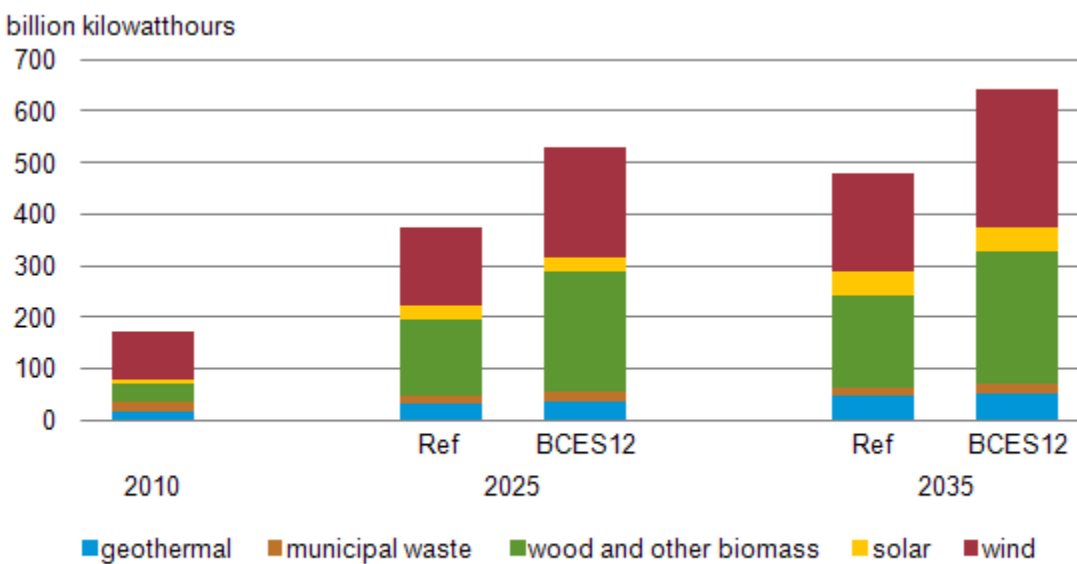


Source: U.S. Energy Information Administration, National Energy Modeling System, runs ref2012.d121011b and bing12ichp.d042312b

Nuclear generation increases substantially under the BCES12 policy. More than 80 gigawatts of capacity is added by 2035, compared to less than 10 gigawatts in the Reference case, resulting in 2025 nuclear generation exceeding the Reference case by 16 percent and 2035 nuclear generation exceeding the Reference case by 62 percent. Although pre-1991 nuclear capacity does not receive credits, its generation is removed from the baseline of required clean energy sales, so there is an incentive not to retire existing units beyond those already retired in the Reference case. Furthermore, due to the significant number of coal-fired plant retirements—97 gigawatts by 2035 versus 33 gigawatts in the Reference case—there is greater need for additional baseload capacity. The relatively high credit price combined with the need for additional baseload capacity and CES-compliant generation all contribute to the significant nuclear capacity additions in the latter part of the forecast. The implications of a scenario in which new nuclear builds are highly constrained are discussed at the conclusion of this section.

As shown in Table A1, there is virtually no generation from plants that use carbon capture and sequestration (CCS) technologies under the BCES12, even though CCS technology is awarded nearly a full credit under the BCES12 specification.

**Figure 2. Total Non-Hydroelectric Renewable Generation**

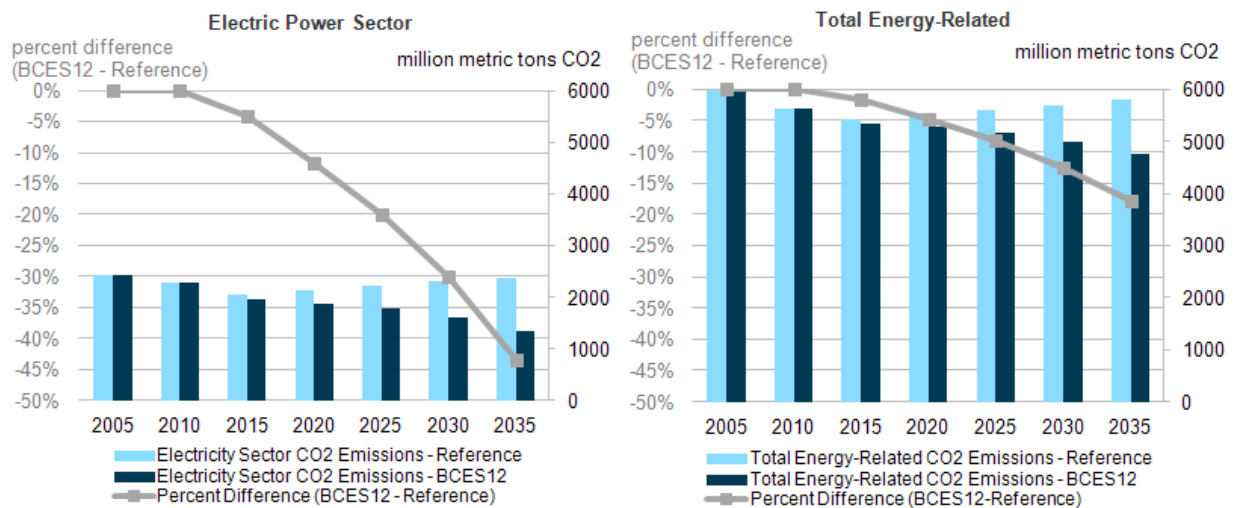


Source: U.S. Energy Information Administration, National Energy Modeling System, runs ref2012.d121011b and bing12ichp.d042312b

Non-hydroelectric renewable generation increases significantly under the BCES12, exceeding the Reference case by 42 percent in 2025, and 34 percent in 2035, with wind and biomass exhibiting the largest increases. Although the contribution of solar appears to be relatively unchanged, the underlying market structure actually shifts significantly. Projected end-use solar photovoltaic (PV) generation in 2035 exceeds the Reference case by 71 percent under the BCES12, but electric power-sector solar PV falls 68 percent below the Reference case in that same year. Most of the later-term model solar PV capacity builds in the Reference case occur in the CAMX (California) region. Under the BCES12, additional combined-cycle natural gas and end-use PV capacity comes online prior to when PV becomes cost-competitive in the region. This tends to reduce the peak load of the region, and also reduces the

cost of fuels potentially displaced by the utility PV, which delays the market-based development of PV in the electric power sector.

**Figure 3. Carbon Dioxide Emissions**



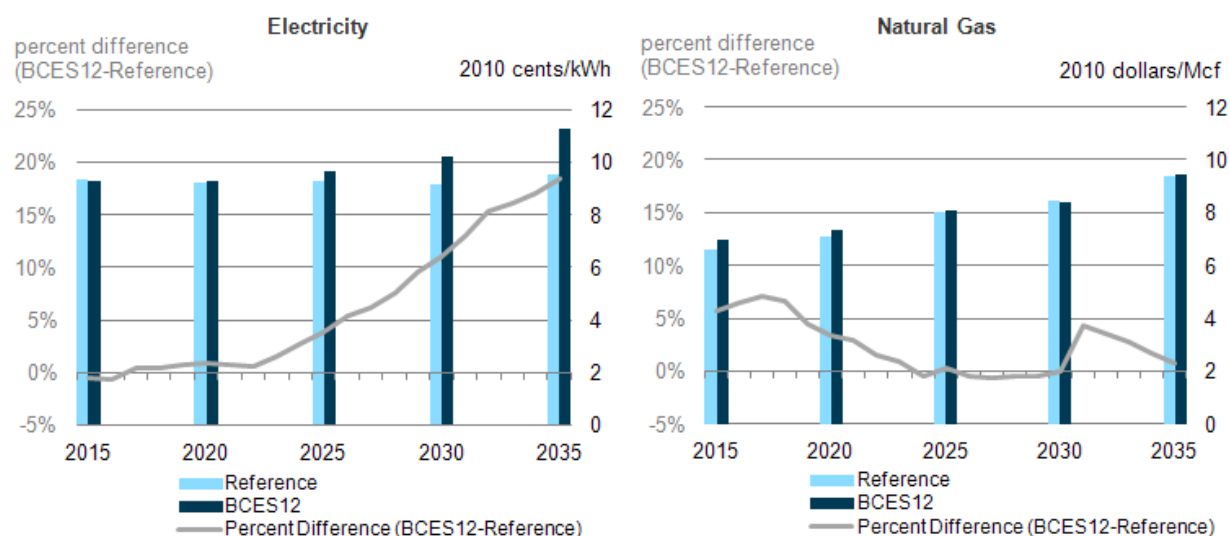
Source: U.S. Energy Information Administration, National Energy Modeling System, runs ref2012.d121011b and bing12ichp.d042312b

Projected annual electricity sector carbon dioxide emissions decrease significantly under the BCES12, to 20 percent below the Reference case level in 2025 and 44 percent below the Reference case level in 2035 (Figure 3, Table A1). For context, total energy-related carbon dioxide emissions in the BCES12 case trail the Reference case by 8 percent in 2025, and are almost 18 percent lower than in the Reference case by 2035. The BCES12 level of energy-related carbon dioxide emissions in 2035 is roughly consistent with a 20-percent decline in emissions from a 2005 baseline.

In the early part of the forecast, average delivered natural gas prices under the BCES12 are higher than in the Reference case (Figure 4, Table A1), as natural gas-fired generation plays an important role in BCES12 compliance during the first decade of the program. Increased electric power consumption of natural gas results in upward pressure on prices. However, this effect attenuates toward the latter part of the forecast as additional non-hydro renewable and nuclear capacity comes online.

Electricity prices, generally speaking, do not experience a significant impact until after 2020, as compliance with the BCES12 becomes less a matter of using natural gas and biomass at existing facilities, and more a matter of requiring investment in new combined cycle, renewable, and nuclear capacity. The projected average end-use electricity price under the BCES12 exceeds the Reference case by less than 4 percent in 2025, but that difference grows to 18 percent by 2035.

**Figure 4. BCES12 Impact on Average Delivered Electricity and Natural Gas Prices (BCES12 Difference from Reference case)**



Source: U.S. Energy Information Administration, National Energy Modeling System, runs ref2012.d120111b and bing12ichp.d042312b

However, because electricity retailers with sales under a given level are exempt from the BCES12, average price impacts do not capture what may be a considerable divergence in the price impacts on customers of exempt and non-exempt electricity providers. Price impacts will also vary depending on the State-level regulatory structure in place, and on regulator discretion. These regulatory factors will affect or determine how credit revenues and expenditures are realized in retail electricity prices. If the BCES12 credits from these generators generally flow with the electricity to the small utilities they serve, the electricity prices to the customers of the exempt providers could actually fall because of revenue they earn selling the credits to non-exempt providers. Using an estimation described in Appendix B, results suggest that there is minimal divergence between covered and exempt utilities in the early years of the BCES12, but that the potential for large divergence increases as the BCES12 target increases. By 2030, depending on the region, providers covered by the BCES12 program may pay from 3 percent to almost 30 percent more than providers exempt from the BCES12 in the same region<sup>3</sup>.

The BCES12 does not lead to large use of the alternative compliance payment (ACP) option; a relatively small amount of ACP payments are made in the last few years of the projections, but these may arise as an artifact of the modeling approach.

### Constrained New Nuclear Capacity Scenario

As explained above, increased nuclear generation is a key compliance option in the BCES12 case. However, there is uncertainty about the ability of the nuclear industry to ramp up quickly even with the incentives that will be provided by the CES. While new nuclear capacity is once again under construction in the United States, it will be some time before a broad expansion could be expected. With these uncertainties in mind, EIA also looked at a case that assumed that no new nuclear capacity is

<sup>3</sup> This assumes that baseline prices for both exempt and covered retailers are equal to regional average prices. Prices can range significantly from provider to provider within a region, based on a number of factors, including the size of the utility.

built, aside from planned additions in the Reference case. Compared to the BCES12 case, natural gas generation in 2035 is about 11 percent higher and renewable generation is about 32 percent higher in an effort to meet the requirement with other qualifying sources. Most of the growth in renewable generation is projected to come from wind and solar generators. The price for clean energy credits and electricity prices are projected to be higher in this case, while the reduction in energy-related carbon dioxide emissions is smaller. With nuclear power builds limited to plants already in the pipeline, ACP payments are more widely used than the BCES12 case by 2035.



## Appendix A: Summary Table

Table A1. BCES12 and Reference Case Results

	2010	2025		2035	
		Reference	BCES12	Reference	BCES12
<b>Generation (billion kilowatthours)</b>					
Coal	1,851	1,855	1,388	1,951	901
Petroleum	37	31	21	32	18
Natural Gas	982	1,101	1,209	1,368	1,483
Nuclear	807	917	1,064	894	1,452
Conventional Hydropower	257	304	311	313	311
Non-Hydro Renewable	173	374	530	478	641
Geothermal	16	31	37	47	53
Municipal Waste	19	17	17	17	17
Wood and Other Biomass	38	146	236	178	257
Solar	6	27	28	45	46
Wind	95	153	212	190	268
Other	21	20	20	21	21
Total Generation	4,128	4,603	4,543	5,056	4,828
<b>Capacity (gigawatts)</b>					
Coal	318	298	257	301	236
Petroleum	109	90	83	88	81
Natural Gas	350	401	386	470	430
Nuclear	101	115	134	112	184
Conventional Hydropower	78	80	82	82	82
Non-Hydro Renewable	56	93	112	119	148
Geothermal	2	4	5	6	7
Municipal Waste	4	4	4	4	4
Wood and Other Biomass	7	12	12	18	17
Solar	4	16	17	23	27
Wind	39	57	75	68	92
Other (including pumped storage)	25	25	25	25	25
Total	1,037	1,102	1,079	1,197	1,185

Table A1. BCES12 and Reference Case Results (continued)

	2010		2025		2035	
			Reference	BCES12	Reference	BCES12
<b>Generation by Technology (billion kilowatthours)</b>						
Electric Power Sector						
Coal						
w/o Sequestration	1,831	1,883	1,508	1,952	978	
with Sequestration	0	7	7	7	7	
Oil and Natural Gas Steam	125	86	77	87	77	
Combined Cycle						
w/o Sequestration	752	877	974	1,087	1,150	
with Sequestration	0	0	0	3	0	
Combustion Turbine/Diesel						
Advanced	0	1	0	2	0	
Conventional	66	35	31	34	31	
Nuclear Power	807	917	1,064	894	1,452	
Other	390	522	589	599	665	
End-Use						
Coal	20	46	46	63	63	
Petroleum	3	2	2	2	2	
Natural Gas	84	121	140	174	237	
Other Gaseous Fuels	11	15	15	15	15	
Renewable Sources	35	87	89	134	148	
Other	4	3	3	3	3	
Total	4,128	4,603	4,543	5,056	4,828	
<b>Prices (2010 cents/kWh)</b>						
Credit Price			3.30		7.96	
Average End-Use Electricity Price	9.78	9.29	9.65	9.54	11.29	
Residential	11.50	11.02	11.48	11.08	12.77	
Commercial	10.14	9.47	9.74	9.55	11.30	
Industrial	6.70	6.43	6.70	6.82	8.54	
Average Delivered Natural Gas Price (2010 dollars/Mcf)	7.33	8.03	8.06	9.40	9.47	
<b>Expenditures (billion 2010 dollars)</b>						
Total Electricity Expenditures	367	385	394	429	481	
Residential Electricity Expenditures	167	171	177	193	213	
Household Electricity Expenditures (2010 Dollars/Household)	1460	1291	1332	1326	1465	
Total Natural Gas Expenditures	163	186	190	228	234	
Electricity Sector Natural Gas Expenditures	39	45	48	65	67	
Non-Electricity Sector Natural Gas Expenditures	124	141	142	164	167	

Table A1. BCES12 and Reference Case Results (continued)

	2010	2025		2035	
		Reference	BCES12	Reference	BCES12
<b>CES Compliance</b>					
Alternative Compliance Payment (billion 2010 dollars)			0		36
Credits Required (percent of sales)			34		54
Credits Achieved (percent of sales)			31		43
Generation Achieved (percent of sales)			34		43
Total Electricity Sales (billion kilowatthours)	3,730	4,121	4,067	4,467	4,234
<b>Electric Power Sector Emissions</b>					
Sulfur Dioxide (million tons)	5.1	2.8	2.6	2.8	1.7
Nitrogen Oxide (million tons)	2.1	2.0	1.7	2.0	1.1
Mercury (tons)	35	24	19	24	11
Carbon Dioxide (million metric tons CO <sub>2</sub> )	2,271	2,234	1,789	2,383	1,346
<b>Macroeconomic</b>					
GDP (billion 2005 dollars)	13,088	19,176	19,135	24,639	24,508
Per Capita GDP (thousand 2005 dollars/person)	42.1	53.6	53.4	63.2	62.8
Employment, Non-Farm (million)	129.8	153.3	153.3	166.7	166.2
Employment, Manufacturing (million)	11.5	11.4	11.4	9.1	9.0

## Appendix B: Estimating Price Impacts of the BCES12 Small Retailer Exemption

The CES policy proposal analyzed in this paper, as outlined in the letter and draft legislation provided in Appendix D, exempts small electricity retailers. Small electricity retailers are defined as those with sales less than 2,000,000 megawatthours (MWh) in 2015, with the exemption level decreasing linearly to 1,000,000 MWh in 2025 and beyond. EIA is not able to disaggregate the price impacts of exempt small retailers from those of larger covered retailers within the National Energy Modeling System (NEMS). Given the exemption, there is likely to be a considerable divergence in the price impacts for customers of exempt and non-exempt electricity providers. Using historical data and assuming that small retailer sales grow at the same rate as total sales in a region, we can approximate the extent of the regional differences in the proportions of exempt and non-exempt retail electricity sales (Table B1).

**Table B1. Exempt Retailer Share of Total Sales by Electricity Market Module (EMM) Region<sup>4</sup>**

Region	2015	2020	2025	2030	2035
Texas Regional Entity (ERCT)	0.15	0.11	0.08	0.08	0.08
Florida Reliability Coordinating Council (FRCC)	0.07	0.06	0.04	0.04	0.04
Midwest Reliability Organization / East (MROE)	0.32	0.26	0.25	0.25	0.25
Midwest Reliability Organization / West (MROW)	0.34	0.32	0.28	0.28	0.28
NPCC / Northeast (NEWE)	0.15	0.13	0.12	0.12	0.12
NPCC / NYC-Westchester (NYCW)	0.07	0.05	0.02	0.02	0.02
NPCC / Long Island (NYLI)	0.03	0.03	0.03	0.03	0.03
NPCC / Upstate New York (NYUP)	0.15	0.14	0.14	0.14	0.14
Reliability First Corporation / East (RFCE)	0.05	0.04	0.03	0.03	0.03
Reliability First Corporation / Michigan (RFCM)	0.09	0.09	0.06	0.05	0.05
Reliability First Corporation / West (RFCW)	0.1	0.1	0.09	0.09	0.09
SERC / Delta (SRDA)	0.14	0.13	0.08	0.08	0.08
SERC / Gateway (SRGW)	0.3	0.28	0.24	0.24	0.23
SERC / Southeastern (SRSE)	0.22	0.18	0.13	0.12	0.12
SERC / Central (SRCE)	0.39	0.34	0.23	0.22	0.21
SERC / Virginia-Carolina (SRVC)	0.18	0.16	0.1	0.09	0.08
Southwest Power Pool / North (SPNO)	0.19	0.19	0.15	0.15	0.15
Southwest Power Pool / South (SPSO)	0.28	0.25	0.2	0.19	0.19
WECC / Southwest (AZNM)	0.11	0.09	0.07	0.07	0.07
WECC / California (CAMX)	0.06	0.05	0.02	0.02	0.02
WECC / Northwest Power Pool Area (NWPP)	0.21	0.19	0.15	0.14	0.13
WECC / Rockies (RMPA)	0.3	0.27	0.17	0.16	0.15

Note: Darker shades indicate a higher share of exempt retail sales. Source: U.S. Energy Information Administration, based on National Energy Modeling System, run ref2012.d121011b, and Form EIA-861

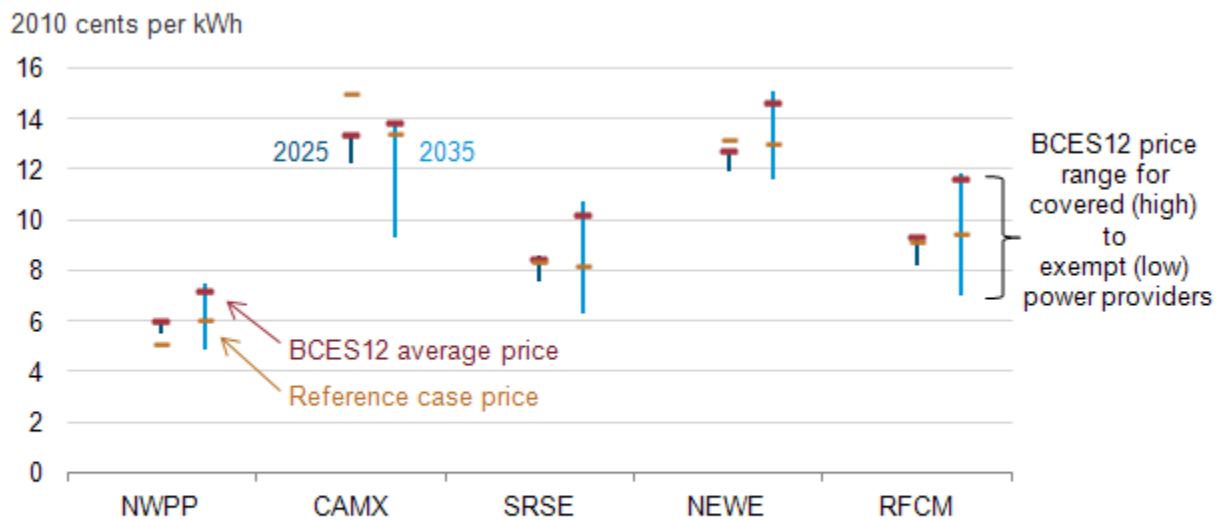
As shown, these regional differences are pronounced and persistent throughout the projections. It should also be noted that these estimates assume that larger retail utilities do not take steps that might increase the number of exempt small retailers when faced with the CES requirement. The price paid by a

<sup>4</sup> See Appendix C for a map of EMM regions

customer of a covered (non-exempt or large) provider will include a certain amount of compliance cost. The price paid by a customer of an exempt provider will not.

While EIA cannot determine an actual projection for differences in electricity price impacts between exempt and covered retailers, we can get a general sense of the potential magnitude of these differences attributable to the CES by apportioning the national CES credit expenditures in any given year to each region based on that region’s share of the national covered load, excluding exempt retailers and excluded nuclear and conventional hydropower sales. By dividing this allocation by the sales from the covered retailers in the region, EIA can estimate how much (per kWh) CES compliance is costing covered retailers, which, under some circumstances, would represent the compliance component of the average retail price for those retailers. To figure out the price to the exempt retailers, shown for selected regions in Figure B1, subtract the regional share of CES expenditures from the total regional electricity expenditures, then divide by total sales. This calculation yields a value for the underlying cost of electricity excluding the purchase of any CES credits, which, under some circumstances, would represent the price paid by the exempt retailers. The price paid by the covered retailers is the underlying electricity price plus the compliance component estimated previously.

**Figure B1. Regional Delivered Electricity Price Comparison for Selected Regions**



Source: U.S. Energy Information Administration, based on National Energy Modeling System, runs ref2012.d121011b and bing12ichp.d042312b and Form EIA-861.

This approach implicitly assumes that electricity retailers purchase the CES credits. Generation is implicitly assumed to come from pure-play generators (that is, independent power producers, deregulated utility subsidiaries, or other generators that don’t directly serve retail load). The retail price estimated in the model already accounts for any price reductions that result from the sale of credits, and this approach assumes it to be retained by the generators. In a region that relies primarily on market-based pricing mechanisms, this assumption seems reasonable. In a region that relies primarily on cost-of-service regulation as a pricing mechanism, this approach would be consistent with a regulator that allowed or required retail utilities to obtain generation, especially CES-compliant generation, from

non-retail generators. For vertically integrated electricity utilities that are generating substantial amounts of compliant generation “in house”, this approach would not accurately account for the price offsets that came from selling CES credits. Currently, somewhat more than half of the CES-compliant capacity is owned by non-utility generators, and EIA assumes that all new generation comes from these sources, rather than from capacity owned by the retail electricity sellers. However, it is important to note that regulatory practice may change in unexpected ways in the face of a significant new Federal policy, such as the one examined here. This approach does not account for any underlying price differences between exempt and covered retailers in any given region.

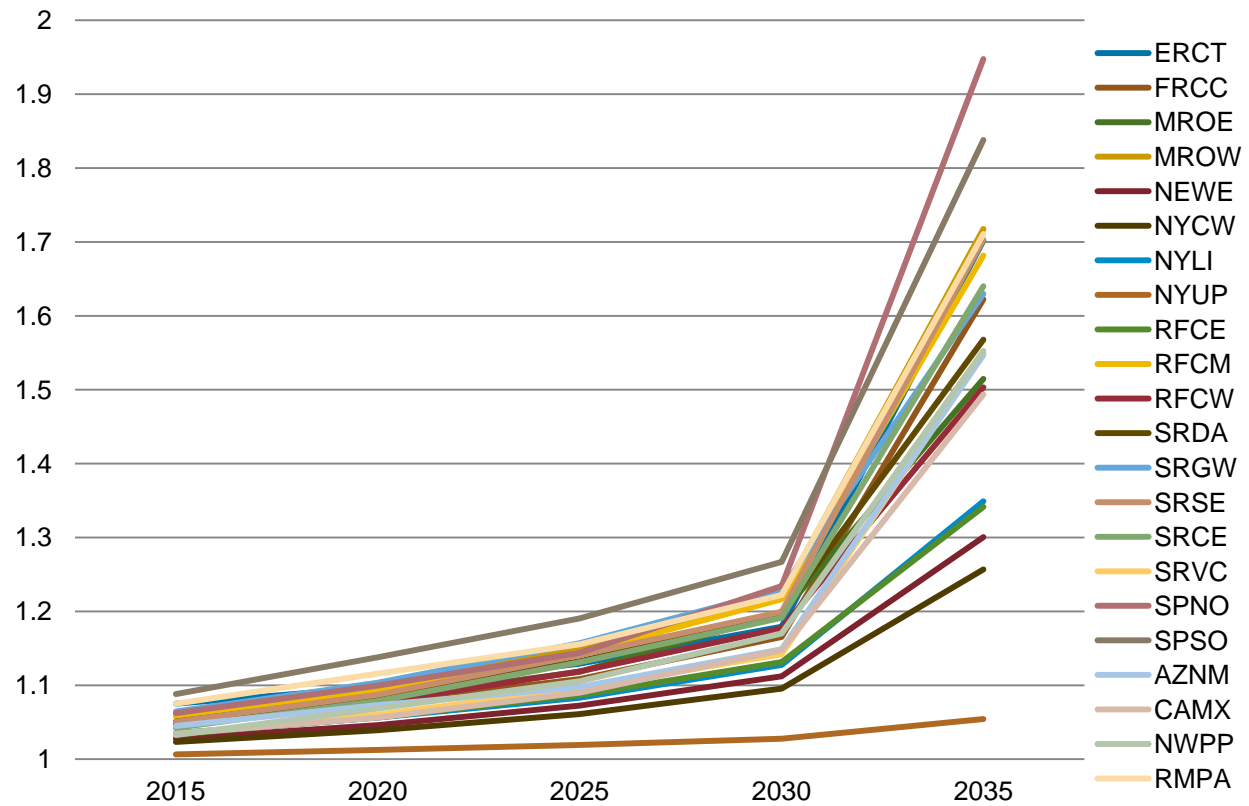
When applying this approach, EIA finds that regions with a lower average electricity price would tend to see a greater disparity in price between the exempt and covered retailers. This reflects a situation in which total compliance cost will tend to be a larger portion of total electricity costs for the covered retailers.

In addition, EIA finds that the excluded nuclear/hydropower generation in a region is a significant factor affecting intra-regional price disparity. Excluded generation tends to depress overall regional compliance costs, so regions with more excluded generation tend to have lower costs. This may be somewhat offset if the exempt retailer share of sales is particularly large in a region, as compliance costs will be spread over fewer units of sales. However, it is difficult to disentangle the relationship here, as some of the regions with the highest shares of excluded generation also have some of the largest shares of small retailers (NWPP<sup>5</sup>, SRCE, SRGW) and vice versa (ERCT, MROE, RFCM).

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<sup>5</sup> See Appendix C for a map of EMM regions

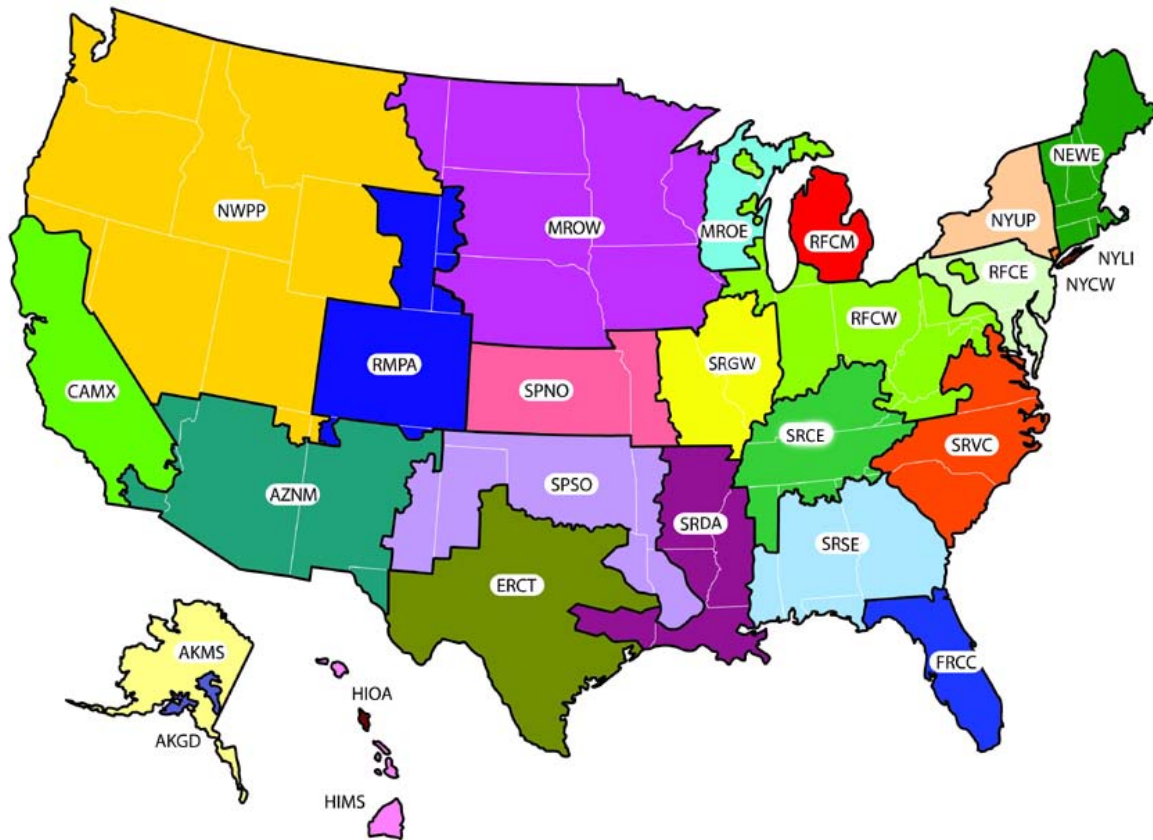
**Figure B2. Ratio of Estimated Price at Covered Retailers to Estimated Price at Exempt Retailers, by Year and Region**



Source: U.S. Energy Information Administration, based on National Energy Modeling System, runs ref2012.d121011b and bing12ichp.d042312b and Form EIA-861.

In the early years, when the CES target is low, there is little covered/exempt disparity in any of the regions; generally we'd expect the costs of covered retailers to be 1 percent to 15 percent above the cost of exempt small retailers in the same region in 2020 (Figure B2). As the target increases, the exempt retail load decreases, and the electricity price increases, the spread in the credit-inclusive cost of generation between the covered and exempt retailers becomes quite pronounced. By 2030, we'd expect the credit-inclusive cost of generation for covered retailers to be about 3 percent to 30 percent above the costs of exempt small retailers in the same region. After the price cap is reached, in regions with the largest disparity, covered retailers are paying almost twice as much for wholesale electricity as exempt retailers in the same region. Upstate New York (NYUP) is still a low-disparity outlier at this point, with only a 5 percent difference, and in the next lowest disparity regions (NYCW and NEWY), covered retailers are paying about 25 percent to 30 percent more than the exempt retailers.

## Appendix C: Map of NEMS Electricity Market Module Regions



- |    |   |    |   |
|----|---|----|---|
| 1  | Texas Regional Entity (ERCT)                    | 12 | SERC / Delta (SRDA)                     |
| 2  | Florida Reliability Coordinating Council (FRCC) | 13 | SERC / Gateway (SRGW)                   |
| 3  | Midwest Reliability Organization / East (MROE)  | 14 | SERC / Southeastern (SRSE)              |
| 4  | Midwest Reliability Organization / West (MROW)  | 15 | SERC / Central (SRCE)                   |
| 5  | NPCC / Northeast (NEWWE)                        | 16 | SERC / Virginia-Carolina (SRVC)         |
| 6  | NPCC / NYC-Westchester (NYCW)                   | 17 | Southwest Power Pool / North (SPNO)     |
| 7  | NPCC / Long Island (NYLI)                       | 18 | Southwest Power Pool / South (SPSO)     |
| 8  | NPCC / Upstate New York (NYUP)                  | 19 | WECC / Southwest (AZNM)                 |
| 9  | Reliability First Corporation / East (RFCE)     | 20 | WECC / California (CAMX)                |
| 10 | Reliability First Corporation / Michigan (RFCM) | 21 | WECC / Northwest Power Pool Area (NWPP) |
| 11 | Reliability First Corporation / West (RFCW)     | 22 | WECC / Rockies (RMPA)                   |



## Appendix D: Request Letter and Bill

JEFF BINGAMAN, New Mexico, Chairman  
 RON WYDEN, Oregon  
 TIM JOHNSON, South Dakota  
 MARY L. LANDRIEU, Louisiana  
 MARIA CANTWELL, Washington  
 BERNARD SANDERS, Vermont  
 DEBBIE STABENOW, Michigan  
 MARK UDALL, Colorado  
 JEANNE SHAHEEN, New Hampshire  
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 JOE MANCHIN, III, West Virginia  
 CHRISTOPHER A. COONS, Delaware

LISA MURKOWSKI, Alaska  
 JOHN BARRASSO, Wyoming  
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 MIKE LEE, Utah  
 RAND PALL, Kentucky  
 DANIEL COATS, Indiana  
 ROB PORTMAN, Ohio  
 JOHN HOEVEN, North Dakota  
 DEAN HELLER, Nevada  
 BOB CORKER, Tennessee

ROBERT M. SIMON, STAFF DIRECTOR  
 SAM E. FOWLER, CHIEF COUNSEL  
 MCKIE CAMPBELL, REPUBLICAN STAFF DIRECTOR  
 KAREN K. BILLUPS, REPUBLICAN CHIEF COUNSEL

### United States Senate

COMMITTEE ON  
 ENERGY AND NATURAL RESOURCES

WASHINGTON, DC 20510-6150

ENERGY.SENATE.GOV

February 10, 2012

Dr. Howard Gruenspecht  
 Acting Administrator  
 Energy Information Administration  
 1000 Independence Ave. SW  
 Washington, DC 20585

Dear Dr. Gruenspecht:

Over the past decade, Congress has considered many different legislative proposals to drive the development and deployment of clean energy generating technologies in the power sector and reduce the greenhouse gases resulting from the generation of electricity. During the current Congress I have focused my attention in this regard on a policy to establish a national Clean Energy Standard (CES) that would require an increasing percentage of electricity to be generated from clean sources. Your analysis of a series of policy options for the design of a CES in response to my request this past August has helped to inform the final legislation that I plan to introduce. I am writing to request that you conduct an updated analysis of the effects of my proposed CES legislation.

The primary elements of the policy proposal to analyze should be as follows:

- The entities subject to the CES include all electric service providers that sell electricity to retail consumers. The base against which the clean requirement should be calculated is defined as all electric utility retail sales in a given calendar year.
- The assumptions for the policy should be based on the Early Release version of the 2012 *Annual Energy Outlook* report.
- Full or partial clean energy credits should be awarded to generators placed in service after December 31, 1991 that have a lower carbon-intensity (as measured on a carbon dioxide equivalency basis) than that of new supercritical coal generation (“new scrubbed coal plant” as defined in Table 8.2 of *Assumptions to the Annual Energy Outlook 2011*, <http://www.eia.gov/forecasts/aeo/assumptions/pdf/electricity.pdf>). Zero emission generation technologies should receive 1 credit for each MWh of retail electricity sold. Fossil generation with a carbon intensity equal to or greater than new supercritical coal should receive zero credits. Partial credits should be awarded to fossil-fuel utilities generating with a lower carbon-intensity than supercritical coal proportional to their

- improvement over supercritical coal per MWh.
- Clean energy credits may be banked indefinitely.
- Although not earning credits toward each utility's requirement, generation from existing nuclear and hydroelectric utilities placed in service on or before December 31, 1991 should be counted towards the overall goal, and their generation should be deducted from the base against which a utility's requirement is calculated.
- Utilities should alternately be able to achieve compliance through a payment that begins at 3.0 cents per kilowatt hour and rises at an inflation-adjusted rate of 5% per year.
- Utilities with sales lower than the level of the small utility exemption specified in the following table should not face a clean energy compliance obligation.

<u>Year of compliance</u>	<u>Annual retail sales (MWh)</u>
2015	2,000,000
2016	1,900,000
2017	1,800,000
2018	1,700,000
2019	1,600,000
2020	1,500,000
2021	1,400,000
2022	1,300,000
2023	1,200,000
2024	1,100,000
2025-2035	1,000,000

- The overall targets for clean energy should be as follows:

<u>Year of compliance</u>	<u>Overall Clean Energy Target</u>
2015	45%
2020	50%
2025	60%
2030	70%
2035	80%

- The overall clean energy targets should be increased linearly between each interim target, and held constant after 2035. The total clean energy required based on covered sales, plus any non-targeted clean energy (existing nuclear and hydro generation), should be equal to the share of electricity sales indicated in the table above from utilities with retail sales above the annual level of the small utility exemption.

In your analysis of these policy scenarios, I ask that you specifically address:

- The impact on deployment of clean technologies in terms of both type and scale nationally and by region, as well as the change in total generation mix to determine what

resources new clean generation is displacing.

- The annual impact on electricity and natural gas prices on both a regional and national basis throughout the projection period as compared to a business-as-usual baseline.
- The impact of the proposal on total U.S. greenhouse gas emissions and on power sector greenhouse gas emissions.
- The anticipated use of the alternative compliance payment.

Thank you for your attention to this request. I ask that my staff be briefed prior to the release of information. Should you or your staff have any questions, please contact Kevin Rennert with the Senate Committee on Energy and Natural Resources at (202) 224-7826.

Sincerely,



Jeff Bingaman

112<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# S. 2146

To amend the Public Utility Regulatory Policies Act of 1978 to create a market-oriented standard for clean electric energy generation, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

MARCH 1, 2012

Mr. BINGAMAN (for himself, Mr. WYDEN, Mr. SANDERS, Mr. UDALL of Colorado, Mr. FRANKEN, Mr. COONS, Mr. KERRY, Mr. WHITEHOUSE, and Mr. UDALL of New Mexico) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To amend the Public Utility Regulatory Policies Act of 1978 to create a market-oriented standard for clean electric energy generation, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Clean Energy Stand-  
5 ard Act of 2012”.

1 **SEC. 2. FEDERAL CLEAN ENERGY STANDARD.**

2 Title VI of the Public Utility Regulatory Policies Act  
3 of 1978 (16 U.S.C. 2601 et seq.) is amended by adding  
4 at the end the following:

5 **“SEC. 610. FEDERAL CLEAN ENERGY STANDARD.**

6 “(a) PURPOSE.—The purpose of this section is to cre-  
7 ate a market-oriented standard for electric energy genera-  
8 tion that stimulates clean energy innovation and promotes  
9 a diverse set of low- and zero-carbon generation solutions  
10 in the United States at the lowest incremental cost to elec-  
11 tric consumers.

12 “(b) DEFINITIONS.—In this section:

13 “(1) CLEAN ENERGY.—The term ‘clean energy’  
14 means electric energy that is generated—

15 “(A) at a facility placed in service after  
16 December 31, 1991, using—

17 “(i) renewable energy;

18 “(ii) qualified renewable biomass;

19 “(iii) natural gas;

20 “(iv) hydropower;

21 “(v) nuclear power; or

22 “(vi) qualified waste-to-energy;

23 “(B) at a facility placed in service after  
24 the date of enactment of this section, using—

25 “(i) qualified combined heat and  
26 power; or

1                   “(ii) a source of energy, other than  
2 biomass, with lower annual carbon inten-  
3 sity than 0.82 metric tons of carbon diox-  
4 ide equivalent per megawatt-hour;

5                   “(C) as a result of qualified efficiency im-  
6 provements or capacity additions; or

7                   “(D) at a facility that captures carbon di-  
8 oxide and prevents the release of the carbon di-  
9 oxide into the atmosphere.

10                  “(2) NATURAL GAS.—

11                   “(A) INCLUSION.—The term ‘natural gas’  
12 includes coal mine methane.

13                   “(B) EXCLUSIONS.—The term ‘natural  
14 gas’ excludes landfill methane and biogas.

15                  “(3) QUALIFIED COMBINED HEAT AND  
16 POWER.—

17                   “(A) IN GENERAL.—The term ‘qualified  
18 combined heat and power’ means a system  
19 that—

20                   “(i) uses the same energy source for  
21 the simultaneous or sequential generation  
22 of electrical energy and thermal energy;

23                   “(ii) produces at least—

1                   “(I) 20 percent of the useful en-  
2                   ergy of the system in the form of elec-  
3                   tricity; and

4                   “(II) 20 percent of the useful en-  
5                   ergy in the form of useful thermal en-  
6                   ergy;

7                   “(iii) to the extent the system uses  
8                   biomass, uses only qualified renewable bio-  
9                   mass; and

10                  “(iv) operates with an energy effi-  
11                  ciency percentage that is greater than 50  
12                  percent.

13                  “(B) DETERMINATION OF ENERGY EFFI-  
14                  CIENCY.—For purposes of subparagraph (A),  
15                  the energy efficiency percentage of a combined  
16                  heat and power system shall be determined in  
17                  accordance with section 48(c)(3)(C)(i) of the  
18                  Internal Revenue Code of 1986.

19                  “(4) QUALIFIED EFFICIENCY IMPROVEMENTS  
20                  OR CAPACITY ADDITIONS.—

21                  “(A) IN GENERAL.—Subject to subpara-  
22                  graphs (B) and (C), the term ‘qualified effi-  
23                  ciency improvements or capacity additions’  
24                  means efficiency improvements or capacity ad-  
25                  ditions made after December 31, 1991, to—

1                   “(i) a nuclear facility placed in service  
2                   on or before December 31, 1991; or

3                   “(ii) a hydropower facility placed in  
4                   service on or before December 31, 1991.

5                   “(B) EXCLUSION.—The term ‘qualified ef-  
6                   ficiency improvements or capacity additions’  
7                   does not include additional electric energy gen-  
8                   erated as a result of operational changes not di-  
9                   rectly associated with efficiency improvements  
10                  or capacity additions.

11                  “(C) MEASUREMENT AND CERTIFI-  
12                  CATION.—In the case of hydropower, efficiency  
13                  improvements and capacity additions under this  
14                  paragraph shall be—

15                         “(i) measured on the basis of the  
16                         same water flow information that is used  
17                         to determine the historic average annual  
18                         generation for the applicable hydroelectric  
19                         facility; and

20                         “(ii) certified by the Secretary or the  
21                         Commission.

22                  “(5) QUALIFIED RENEWABLE BIOMASS.—The  
23                  term ‘qualified renewable biomass’ means renewable  
24                  biomass produced and harvested through land man-  
25                  agement practices that maintain or restore the com-



1 position, structure, and processes of ecosystems, in-  
2 cluding the diversity of plant and animal commu-  
3 nities, water quality, and the productive capacity of  
4 soil and the ecological systems.

5 “(6) QUALIFIED WASTE-TO-ENERGY.—The  
6 term ‘qualified waste-to-energy’ means energy pro-  
7 duced—

8 “(A) from the combustion of—

9 “(i) post-recycled municipal solid  
10 waste;

11 “(ii) gas produced from the gasifi-  
12 cation or pyrolization of post-recycled mu-  
13 nicipal solid waste;

14 “(iii) biogas;

15 “(iv) landfill methane;

16 “(v) animal waste or animal byprod-  
17 ucts; or

18 “(vi) wood, paper products that are  
19 not commonly recyclable, and vegetation  
20 (including trees and trimmings, yard  
21 waste, pallets, railroad ties, crates, and  
22 solid-wood manufacturing and construction  
23 debris), if diverted from or separated from  
24 other waste out of a municipal waste  
25 stream; and

1           “(B) at a facility that the Commission has  
2 certified, on an annual basis, is in compliance  
3 with all applicable Federal and State environ-  
4 mental permits, including—

5           “(i) in the case of a facility that com-  
6 mences operation before the date of enact-  
7 ment of this section, compliance with emis-  
8 sion standards under sections 112 and 129  
9 of the Clean Air Act (42 U.S.C. 7412,  
10 7429) that apply as of the date of enact-  
11 ment of this section to new facilities within  
12 the applicable source category; and

13           “(ii) in the case of a facility that pro-  
14 duces electric energy from the combustion,  
15 pyrolization, or gasification of municipal  
16 solid waste, certification that each local  
17 government unit from which the waste  
18 originates operates, participates in the op-  
19 eration of, contracts for, or otherwise pro-  
20 vides for recycling services for residents of  
21 the local government unit.

22           “(7) RENEWABLE ENERGY.—The term ‘renew-  
23 able energy’ means solar, wind, ocean, current, wave,  
24 tidal, or geothermal energy.

25           “(c) CLEAN ENERGY REQUIREMENT.—

1           “(1) IN GENERAL.—Effective beginning in cal-  
 2           endar year 2015, each electric utility that sells elec-  
 3           tric energy to electric consumers in a State shall ob-  
 4           tain a percentage of the electric energy the electric  
 5           utility sells to electric consumers during a calendar  
 6           year from clean energy.

7           “(2) PERCENTAGE REQUIRED.—The percentage  
 8           of electric energy sold during a calendar year that  
 9           is required to be clean energy under paragraph (1)  
 10          shall be determined in accordance with the following  
 11          table:

“Calendar year	Minimum annual percentage
2015 .....	24
2016 .....	27
2017 .....	30
2018 .....	33
2019 .....	36
2020 .....	39
2021 .....	42
2022 .....	45
2023 .....	48
2024 .....	51
2025 .....	54
2026 .....	57
2027 .....	60
2028 .....	63
2029 .....	66
2030 .....	69
2031 .....	72
2032 .....	75
2033 .....	78
2034 .....	81
2035 .....	84.

12           “(3) DEDUCTION FOR ELECTRIC ENERGY GEN-  
 13           ERATED FROM HYDROPOWER OR NUCLEAR

1 POWER.—An electric utility that sells electric energy  
2 to electric consumers from a facility placed in service  
3 in the United States on or before December 31,  
4 1991, using hydropower or nuclear power may de-  
5 duct the quantity of the electric energy from the  
6 quantity to which the percentage in paragraph (2)  
7 applies.

8 “(d) MEANS OF COMPLIANCE.—An electric utility  
9 shall meet the requirements of subsection (c) by—

10 “(1) submitting to the Secretary clean energy  
11 credits issued under subsection (e);

12 “(2) making alternative compliance payments of  
13 3 cents per kilowatt hour in accordance with sub-  
14 section (i); or

15 “(3) taking a combination of actions described  
16 in paragraphs (1) and (2).

17 “(e) FEDERAL CLEAN ENERGY TRADING PRO-  
18 GRAM.—

19 “(1) ESTABLISHMENT.—Not later than 180  
20 days after the date of enactment of this section, the  
21 Secretary shall establish a Federal clean energy  
22 credit trading program under which electric utilities  
23 may submit to the Secretary clean energy credits to  
24 certify compliance by the electric utilities with sub-  
25 section (c).

1           “(2) CLEAN ENERGY CREDITS.—Except as pro-  
2           vided in paragraph (3)(B), the Secretary shall issue  
3           to each generator of electric energy a quantity of  
4           clean energy credits determined in accordance with  
5           subsections (f) and (g).

6           “(3) ADMINISTRATION.—In carrying out the  
7           program under this subsection, the Secretary shall  
8           ensure that—

9                   “(A) a clean energy credit shall be used  
10                  only once for purposes of compliance with this  
11                  section; and

12                   “(B) a clean energy credit issued for clean  
13                  energy generated and sold for resale under a  
14                  contract in effect on the date of enactment of  
15                  this section shall be issued to the purchasing  
16                  electric utility, unless otherwise provided by the  
17                  contract.

18           “(4) DELEGATION OF MARKET FUNCTION.—

19                   “(A) IN GENERAL.—In carrying out the  
20                  program under this subsection, the Secretary  
21                  may delegate—

22                           “(i) to 1 or more appropriate market-  
23                          making entities, the administration of a  
24                          national clean energy credit market for  
25                          purposes of establishing a transparent na-

1 tional market for the sale or trade of clean  
2 energy credits; and

3 “(ii) to appropriate entities, the track-  
4 ing of dispatch of clean generation.

5 “(B) ADMINISTRATION.—In making a del-  
6 egation under subparagraph (A)(ii), the Sec-  
7 retary shall ensure that the tracking and re-  
8 porting of information concerning the dispatch  
9 of clean generation is transparent, verifiable,  
10 and independent of any generation or load in-  
11 terests subject to an obligation under this sec-  
12 tion.

13 “(5) BANKING OF CLEAN ENERGY CREDITS.—  
14 Clean energy credits to be used for compliance pur-  
15 poses under subsection (c) shall be valid for the year  
16 in which the clean energy credits are issued or in  
17 any subsequent calendar year.

18 “(f) DETERMINATION OF QUANTITY OF CREDIT.—

19 “(1) IN GENERAL.—Except as otherwise pro-  
20 vided in this subsection, the quantity of clean energy  
21 credits issued to each electric utility generating elec-  
22 tric energy in the United States from clean energy  
23 shall be equal to the product of—

1           “(A) for each generator owned by a utility,  
2           the number of megawatt-hours of electric en-  
3           ergy sold from that generator by the utility; and

4           “(B) the difference between—

5                   “(i) 1.0; and

6                   “(ii) the quotient obtained by divid-  
7           ing—

8                           “(I) the annual carbon intensity  
9                           of the generator, as determined in ac-  
10                          cordance with subsection (g), ex-  
11                          pressed in metric tons per megawatt-  
12                          hour; by

13                           “(II) 0.82.

14           “(2) NEGATIVE CREDITS.—Notwithstanding  
15           any other provision of this subsection, the Secretary  
16           shall not issue a negative quantity of clean energy  
17           credits to any generator.

18           “(3) QUALIFIED COMBINED HEAT AND  
19           POWER.—

20                   “(A) IN GENERAL.—The quantity of clean  
21                   energy credits issued to an owner of a qualified  
22                   combined heat and power system in the United  
23                   States shall be equal to the difference be-  
24                   tween—

1                   “(i) the product obtained by multi-  
2 plying—

3                   “(I) the number of megawatt-  
4 hours of electric energy generated by  
5 the system; and

6                   “(II) the difference between—

7                   “(aa) 1.0; and

8                   “(bb) the quotient obtained  
9 by dividing—

10                   “(AA) the annual car-  
11 bon intensity of the gener-  
12 ator, as determined in ac-  
13 cordance with subsection  
14 (g), expressed in metric tons  
15 per megawatt-hour; by

16                   “(BB) 0.82; and

17                   “(ii) the product obtained by multi-  
18 plying—

19                   “(I) the number of megawatt-  
20 hours of electric energy generated by  
21 the system that are consumed onsite  
22 by the facility; and

23                   “(II) the annual target for elec-  
24 tric energy sold during a calendar



1 year that is required to be clean en-  
2 ergy under subsection (e)(2).

3 “(B) ADDITIONAL CREDITS.—In addition  
4 to credits issued under subparagraph (A), the  
5 Secretary shall award clean energy credits to an  
6 owner of a qualified heat and power system in  
7 the United States for greenhouse gas emissions  
8 avoided as a result of the use of a qualified  
9 combined heat and power system, rather than a  
10 separate thermal source, to meet onsite thermal  
11 needs.

12 “(4) QUALIFIED WASTE-TO-ENERGY.—The  
13 quantity of clean energy credits issued to an electric  
14 utility generating electric energy in the United  
15 States from a qualified waste-to-energy facility shall  
16 be equal to the product obtained by multiplying—

17 “(A) the number of megawatt-hours of  
18 electric energy generated by the facility and  
19 sold by the utility; and

20 “(B) 1.0.

21 “(g) DETERMINATION OF ANNUAL CARBON INTEN-  
22 SITY OF GENERATING FACILITIES.—

23 “(1) IN GENERAL.—For purposes of deter-  
24 mining the quantity of credits under subsection (f),  
25 except as provided in paragraph (2), the Secretary

1 shall determine the annual carbon intensity of each  
2 generator by dividing—

3 “(A) the net annual carbon dioxide equiva-  
4 lent emissions of the generator; by

5 “(B) the annual quantity of electricity gen-  
6 erated by the generator.

7 “(2) BIOMASS.—The Secretary shall—

8 “(A) not later than 180 days after the date  
9 of enactment of this section, issue interim regu-  
10 lations for determining the carbon intensity  
11 based on an initial consideration of the issues  
12 to be reported on under subparagraph (B);

13 “(B) not later than 180 days after the  
14 date of enactment of this section, enter into an  
15 agreement with the National Academy of  
16 Sciences under which the Academy shall—

17 “(i) evaluate models and methodolo-  
18 gies for quantifying net changes in green-  
19 house gas emissions associated with gener-  
20 ating electric energy from each significant  
21 source of qualified renewable biomass, in-  
22 cluding evaluation of additional sequestra-  
23 tion or emissions associated with changes  
24 in land use by the production of the bio-  
25 mass; and

1           “(ii) not later than 1 year after the  
2           date of enactment of this section, publish  
3           a report that includes—

4                   “(I) a description of the evalua-  
5                   tion required by clause (i); and

6                   “(II) recommendations for deter-  
7                   mining the carbon intensity of electric  
8                   energy generated from qualified re-  
9                   newable biomass under this section;  
10                  and

11                  “(C) not later than 180 days after the  
12                  publication of the report under subparagraph  
13                  (B)(ii), issue regulations for determining the  
14                  carbon intensity of electric energy generated  
15                  from qualified renewable biomass that take into  
16                  account the report.

17                  “(3) CONSULTATION.—The Secretary shall con-  
18                  sult with—

19                   “(A) the Administrator of the Environ-  
20                   mental Protection Agency in determining the  
21                   annual carbon intensity of generating facilities  
22                   under paragraph (1); and

23                   “(B) the Administrator of the Environ-  
24                   mental Protection Agency, the Secretary of the  
25                   Interior, and the Secretary of Agriculture in

1           issuing regulations for determining the carbon  
2           intensity of electric energy generated by bio-  
3           mass under paragraph (2)(C).

4           “(h) CIVIL PENALTIES.—

5                 “(1) IN GENERAL.—Subject to paragraph (2),  
6           an electric utility that fails to meet the requirements  
7           of this section shall be subject to a civil penalty in  
8           an amount equal to the product obtained by multi-  
9           plying—

10                     “(A) the number of kilowatt-hours of elec-  
11           tric energy sold by the utility to electric con-  
12           sumers in violation of subsection (c); and

13                     “(B) 200 percent of the value of the alter-  
14           native compliance payment, as adjusted under  
15           subsection (m).

16           “(2) WAIVERS AND MITIGATION.—

17                     “(A) FORCE MAJEURE.—The Secretary  
18           may mitigate or waive a civil penalty under this  
19           subsection if the electric utility was unable to  
20           comply with an applicable requirement of this  
21           section for reasons outside of the reasonable  
22           control of the utility.

23                     “(B) REDUCTION FOR STATE PEN-  
24           ALTIES.—The Secretary shall reduce the  
25           amount of a penalty determined under para-

1 graph (1) by the amount paid by the electric  
2 utility to a State for failure to comply with the  
3 requirement of a State renewable energy pro-  
4 gram, if the State requirement is more strin-  
5 gent than the applicable requirement of this  
6 section.

7 “(3) PROCEDURE FOR ASSESSING PENALTY.—  
8 The Secretary shall assess a civil penalty under this  
9 subsection in accordance with section 333(d) of the  
10 Energy Policy and Conservation Act (42 U.S.C.  
11 6303(d)).

12 “(i) ALTERNATIVE COMPLIANCE PAYMENTS.—An  
13 electric utility may satisfy the requirements of subsection  
14 (c), in whole or in part, by submitting in lieu of a clean  
15 energy credit issued under this section a payment equal  
16 to the amount required under subsection (d)(2), in accord-  
17 ance with such regulations as the Secretary may promul-  
18 gate.

19 “(j) STATE ENERGY EFFICIENCY FUNDING PRO-  
20 GRAM.—

21 “(1) ESTABLISHMENT.—Not later than Decem-  
22 ber 31, 2015, the Secretary shall establish a State  
23 energy efficiency funding program.

24 “(2) FUNDING.—All funds collected by the Sec-  
25 retary as alternative compliance payments under

1 subsection (i), or as civil penalties under subsection  
2 (h), shall be used solely to carry out the program  
3 under this subsection.

4 “(3) DISTRIBUTION TO STATES.—

5 “(A) IN GENERAL.—An amount equal to  
6 75 percent of the funds described in paragraph  
7 (2) shall be used by the Secretary, without fur-  
8 ther appropriation or fiscal year limitation, to  
9 provide funds to States for the implementation  
10 of State energy efficiency plans under section  
11 362 of the Energy Policy and Conservation Act  
12 (42 U.S.C. 6322), in accordance with the pro-  
13 portion of those amounts collected by the Sec-  
14 retary from each State.

15 “(B) ACTION BY STATES.—A State that  
16 receives funds under this paragraph shall main-  
17 tain such records and evidence of compliance as  
18 the Secretary may require.

19 “(4) GUIDELINES AND CRITERIA.—The Sec-  
20 retary may issue such additional guidelines and cri-  
21 teria for the program under this subsection as the  
22 Secretary determines to be appropriate.

23 “(k) EXEMPTIONS.—

24 “(1) IN GENERAL.—This section shall not apply  
25 during any calendar year to an electric utility that

1 sold less than the applicable quantity described in  
2 paragraph (2) of megawatt-hours of electric energy  
3 to electric consumers during the preceding calendar  
4 year.

5 “(2) APPLICABLE QUANTITY.—For purposes of  
6 paragraph (1), the applicable quantity is—

7 “(A) in the case of calendar year 2015,  
8 2,000,000;

9 “(B) in the case of calendar year 2016,  
10 1,900,000;

11 “(C) in the case of calendar year 2017,  
12 1,800,000;

13 “(D) in the case of calendar year 2018,  
14 1,700,000;

15 “(E) in the case of calendar year 2019,  
16 1,600,000;

17 “(F) in the case of calendar year 2020,  
18 1,500,000;

19 “(G) in the case of calendar year 2021,  
20 1,400,000;

21 “(H) in the case of calendar year 2022,  
22 1,300,000;

23 “(I) in the case of calendar year 2023,  
24 1,200,000;

1           “(J) in the case of calendar year 2024,  
2           1,100,000; and

3           “(K) in the case of calendar year 2025 and  
4           each calendar year thereafter, 1,000,000.

5           “(3) CALCULATION OF ELECTRIC ENERGY  
6           SOLD.—

7           “(A) DEFINITIONS.—In this subsection,  
8           the terms ‘affiliate’ and ‘associate company’  
9           have the meanings given the terms in section  
10          1262 of the Energy Policy Act of 2005 (42  
11          U.S.C. 16451).

12          “(B) INCLUSION.—For purposes of calcu-  
13          lating the quantity of electric energy sold by an  
14          electric utility under this subsection, the quan-  
15          tity of electric energy sold by an affiliate of the  
16          electric utility or an associate company shall be  
17          treated as sold by the electric utility.

18          “(l) STATE PROGRAMS.—

19          “(1) SAVINGS PROVISION.—

20                 “(A) IN GENERAL.—Subject to paragraph  
21                 (2), nothing in this section affects the authority  
22                 of a State or a political subdivision of a State  
23                 to adopt or enforce any law or regulation relat-  
24                 ing to—

25                         “(i) clean or renewable energy; or



1                   “(ii) the regulation of an electric util-  
2                   ity.

3                   “(B) FEDERAL LAW.—No law or regula-  
4                   tion of a State or a political subdivision of a  
5                   State may relieve an electric utility from com-  
6                   pliance with an applicable requirement of this  
7                   section.

8                   “(2) COORDINATION.—The Secretary, in con-  
9                   sultation with States that have clean and renewable  
10                  energy programs in effect, shall facilitate, to the  
11                  maximum extent practicable, coordination between  
12                  the Federal clean energy program under this section  
13                  and the relevant State clean and renewable energy  
14                  programs.

15                  “(m) ADJUSTMENT OF ALTERNATIVE COMPLIANCE  
16                  PAYMENT.—Not later than December 31, 2016, and an-  
17                  nually thereafter, the Secretary shall—

18                         “(1) increase by 5 percent the rate of the alter-  
19                         native compliance payment under subsection (d)(2);  
20                         and

21                         “(2) additionally adjust that rate for inflation,  
22                         as the Secretary determines to be necessary.

23                  “(n) REPORT ON CLEAN ENERGY RESOURCES THAT  
24                  DO NOT GENERATE ELECTRIC ENERGY.—

1           “(1) IN GENERAL.—Not later than 3 years  
2 after the date of enactment of this section, the Sec-  
3 retary shall submit to Congress a report examining  
4 mechanisms to supplement the standard under this  
5 section by addressing clean energy resources that do  
6 not generate electric energy but that may substan-  
7 tially reduce electric energy loads, including energy  
8 efficiency, biomass converted to thermal energy, geo-  
9 thermal energy collected using heat pumps, thermal  
10 energy delivered through district heating systems,  
11 and waste heat used as industrial process heat.

12           “(2) POTENTIAL INTEGRATION.—The report  
13 under paragraph (1) shall examine the benefits and  
14 challenges of integrating the additional clean energy  
15 resources into the standard established by this sec-  
16 tion, including—

17                   “(A) the extent to which such an integra-  
18 tion would achieve the purposes of this section;

19                   “(B) the manner in which a baseline de-  
20 scribing the use of the resources could be devel-  
21 oped that would ensure that only incremental  
22 action that increased the use of the resources  
23 received credit; and

24                   “(C) the challenges of pricing the re-  
25 sources in a comparable manner between orga-

1 nized markets and vertically integrated mar-  
2 kets, including options for the pricing.

3 “(3) COMPLEMENTARY POLICIES.—The report  
4 under paragraph (1) shall examine the benefits and  
5 challenges of using complementary policies or stand-  
6 ards, other than the standard established under this  
7 section, to provide effective incentives for using the  
8 additional clean energy resources.

9 “(4) LEGISLATIVE RECOMMENDATIONS.—As  
10 part of the report under paragraph (1), the Sec-  
11 retary may provide legislative recommendations for  
12 changes to the standard established under this sec-  
13 tion or new complementary policies that would pro-  
14 vide effective incentives for using the additional  
15 clean energy resources.

16 “(o) EXCLUSIONS.—This section does not apply to an  
17 electric utility located in the State of Alaska or Hawaii.

18 “(p) REGULATIONS.—Not later than 1 year after the  
19 date of enactment of this section, the Secretary shall pro-  
20 mulgate regulations to implement this section.

21 **“SEC. 611. REPORT ON NATURAL GAS CONSERVATION.**

22 “Not later than 2 years after the date of enactment  
23 of this section, the Secretary shall submit to Congress a  
24 report that—

1           “(1) quantifies the losses of natural gas during  
2           the production and transportation of the natural  
3           gas; and

4           “(2) makes recommendations, as appropriate,  
5           for programs and policies to promote conservation of  
6           natural gas for beneficial use.”.

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