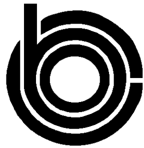

CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

September 30, 2009

S. 1462
American Clean Energy Leadership Act of 2009

As reported by the Senate Committee on Energy and Natural Resources on July 16, 2009

SUMMARY

S. 1462 would establish and modify various federal policies and programs aimed at energy supply and conservation. Major provisions of the legislation would:

- Authorize appropriations for a variety of energy-related programs administered by the Department of Energy (DOE) and other agencies;
- Establish a Clean Energy Deployment Administration (CEDA) within DOE, which would be authorized to provide direct loans, loan guarantees, and letters of credit for clean energy projects;
- Extend and expand federal agencies' authority to enter into certain long-term contracts;
- Modify the mix of products stored in the Strategic Petroleum Reserve (SPR);
- Amend the Gulf of Mexico Energy Security Act of 2006 to accelerate and expand potential oil and gas leasing in the Outer Continental Shelf (OCS), subject to certain conditions;
- Require certain retail electricity suppliers to satisfy a minimum percentage of their electricity sales with electricity generated by facilities that use qualifying renewable fuels or energy sources; and
- Authorize the federal government to indemnify the operators of carbon storage facilities.

Assuming appropriation of the necessary amounts, CBO estimates that implementing S. 1462 would have discretionary costs of about $54.1 billion over the 2010-2014 period. Most of that funding would support ongoing DOE activities as well as a variety of new programs and initiatives aimed at promoting energy efficiency, conservation, renewable energy, and science.

In addition, CBO estimates that over the 2010-2019 period enacting S. 1462 would increase direct spending by $13.9 billion and revenues by about $375 million. On balance, those changes would increase budget deficits by about $13.5 billion over the 2010-2019 period.

Pursuant to S. Con. Res. 70, the Concurrent Resolution on the Budget for Fiscal Year 2009, CBO estimates that changes in direct spending and revenues from enacting S. 1462 would cause an increase in the on-budget deficit of greater than $5 billion in at least one of the four consecutive 10-year periods starting in 2020.

S. 1462 contains intergovernmental and private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) because it would impose new requirements on electric utilities, producers of electricity, and manufacturers of commercial furnaces and lighting products. In some cases, those mandates would affect only public entities or only private entities; in other cases, the mandates would affect both.

CBO estimates that the aggregate cost of mandates in the bill on state, local, and tribal governments would fall below the annual threshold established in UMRA ($69 million in 2009, adjusted annually for inflation). The cost of most of the mandates on private entities would be small; however, the cost of some of the private-sector mandates is uncertain and would depend on future regulations. Therefore, CBO cannot determine whether the aggregate cost of all the private-sector mandates in the bill would exceed the annual threshold established in UMRA ($139 million in 2009, adjusted annually for inflation).

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of S. 1462 is shown in Table 1. The costs of this legislation fall within budget functions 250 (science), 270 (energy), 300 (natural resources and environment), and 950 (undistributed offsetting receipts).

TABLE 1. ESTIMATED BUDGETARY IMPACT OF S. 1462

	By Fiscal Year, in Millions of Dollars					
	2010	2011	2012	2013	2014	2010-2014
CHANGES IN SPENDING SUBJECT TO APPROPRIATION [a]						
Estimated Authorization Level	13,117	14,733	16,002	18,684	4,174	66,710
Estimated Outlays	5,390	9,977	12,949	15,237	10,521	54,074
CHANGES IN DIRECT SPENDING						
Estimated Budget Authority	1,013	11,037	1,180	509	1,154	14,893
Estimated Outlays [b]	82	196	466	100	1,509	2,353
CHANGES IN REVENUES						
Estimated Revenues [c]	0	0	23	19	29	71
NET IMPACT ON DEFICITS FROM THE CHANGES IN DIRECT SPENDING AND REVENUES						
Increase or Decrease (-) in the Deficit	82	196	443	81	1,480	2,282

a. For components of estimated discretionary spending, see Table 2.

b. Enacting S. 1462 would increase direct spending by $13.9 billion over the 2010-2019 period (see Table 3).

c. Enacting S. 1462 would increase revenues by $375 million over the 2010-2019 period (see Table 3).

BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 1462 will be enacted near the start of fiscal year 2010, that the amounts necessary to implement the bill will be appropriated each year, and that outlays will follow historical spending patterns for similar programs. CBO estimates that implementing S. 1462 would have a discretionary cost of $54.1 billion over the 2010-2014 period, assuming appropriation of amounts authorized and estimated to be necessary. We also estimate that enacting S. 1462 would increase direct spending and revenues over the 2010-2019 period by $13.9 billion and $375 million, respectively.

TABLE 2. CHANGES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 1462

	By Fiscal Year, in Millions of Dollars					
	2010	2011	2012	2013	2014	2010-2014
DOE Programs						
Science						
Authorization Level	5,800	6,469	7,215	8,046	0	27,530
Estimated Outlays	3,190	5,298	6,779	7,560	3,496	26,323
Energy Efficiency, Distributed Energy and Electric Energy Systems, Renewable Energy						
Authorization Level	1,974	2,388	2,821	3,258	0	10,441
Estimated Outlays	592	1,299	1,788	2,274	1,672	7,625
Fossil Energy						
Authorization Level	1,074	1,272	1,470	1,668	0	5,484
Estimated Outlays	269	694	1,081	1,303	1,069	4,416
Nuclear Energy						
Authorization Level	998	1,196	1,394	1,592	0	5,180
Estimated Outlays	349	698	972	1,247	878	4,144
Subtotal, DOE Programs						
Estimated Authorization Level	9,846	11,325	12,900	14,564	0	48,635
Estimated Outlays	4,400	7,989	10,620	12,384	7,115	42,508
Other Activities						
Building Efficiency						
Estimated Authorization Level	1,072	1,207	1,005	2,570	2,720	8,574
Estimated Outlays	322	678	786	1,309	1,889	4,984
Energy Innovation and Workforce Development						
Estimated Authorization Level	990	1,072	1,055	1,065	975	5,155
Estimated Outlays	297	614	751	848	909	3,419
Manufacturing Energy Efficiency						
Estimated Authorization Level	537	542	553	0	0	1,634
Estimated Outlays	161	321	390	277	159	1,308
Improved Efficiency in Appliances and Equipment						
Estimated Authorization Level	213	207	200	195	190	1,005
Estimated Outlays	64	125	147	162	174	672
Clean Energy Technology Deployment						
Estimated Authorization Level	182	247	157	157	157	901
Estimated Outlays	55	128	142	140	149	614
Energy Resources on Public Lands						
Estimated Authorization Level	246	133	133	132	132	775
Estimated Outlays	74	112	108	117	126	537

Continued

TABLE 2. Continued.

	By Fiscal Year, in Millions of Dollars					
	2010	2011	2012	2013	2014	2010-2014
Energy Markets, Studies, and Reports						
Estimated Authorization Level	31	1	0	0	0	32
Estimated Outlays	17	10	5	0	0	32
Subtotal, Other Activities						
Estimated Authorization Level	3,271	3,408	3,102	4,119	4,174	18,075
Estimated Outlays	990	1,988	2,329	2,853	3,406	11,566
Total Changes						
Estimated Authorization Level	13,117	14,733	16,002	18,684	4,174	66,710
Estimated Outlays	5,390	9,977	12,949	15,237	10,521	54,074

Notes: DOE = Department of Energy.

Components may not sum to totals because of rounding.

Spending Subject to Appropriation

S. 1462 would authorize the appropriation of $66.7 billion over the 2010-2014 for a variety of energy-related activities. Most of that amount—$48.6 billion—would support ongoing activities of major DOE programs related to science and the supply and conservation of energy. Remaining amounts would support a variety of new or expanded programs and activities. In total, CBO estimates that fully funding S. 1462 would cost $5.4 billion in 2010 and $54.1 billion over the 2010-2014 period (see Table 2).

DOE Programs. The bill would specifically authorize appropriations of $48.6 billion over the 2010-2013 period for ongoing activities of certain DOE programs:

- Science programs—$27.5 billion;
- Energy efficiency, electricity supply and delivery, and renewable energy programs—$10.4 billion;
- Fossil energy programs—$5.5 billion; and
- Nuclear energy programs—$5.2 billion.

By comparison, a total of $35.1 billion was provided for those programs in 2009, including $26.3 billion provided by Public Law 111-5, the America Recovery and Reinvestment Act of 2009.

Based on information from DOE and on historical spending patterns for those activities, CBO estimates that funding those programs at the authorized levels would cost $4.4 billion in 2010 and $42.5 billion over the 2010-2014 period, with additional spending occurring in later years.

Other Activities. CBO estimates that carrying out other activities authorized by S. 1451 would require appropriations totaling $18.1 billion over the 2010-2014 period. That amount includes:

- For building efficiency—$8.6 billion, including nearly $4.9 billion for weatherization assistance;
- Energy innovation and workforce development—$5.2 billion;
- Manufacturing energy efficiency—$1.6 billion;
- Improved efficiency in appliances and equipment—$1 billion;
- Clean energy technology deployment—$900 million;
- Energy resources on Public lands—$775 million; and
- Energy markets, studies, and reports—$32 million.

Assuming appropriation of the necessary amounts, CBO estimates that implementing those provisions would increase discretionary spending by $1.0 billion in 2010 and $11.6 billion over the 2010-2014 period, with additional spending occurring in later years. That estimate is based on information from DOE and historical spending patterns for existing energy-related programs and related activities.

The above estimate does not include any costs related to a provision to increase, from $18 billion to $30 billion, the aggregate amount of loans and other debt obligations DOE would be authorized to guarantee to support the construction of a pipeline to transport natural gas from Alaska to the continental United States. While CBO believes that the subsidy costs of such loan guarantees would be significant—perhaps requiring the appropriation of billions of dollars—CBO expects that construction of such a pipeline would not occur until after 2014.

Direct Spending

Increases in direct spending under S. 1462 are summarized in Table 3 and would result primarily from provisions that would:

- Authorize DOE to provide financial assistance for privately sponsored projects using clean energy technologies;
- Extend and expand federal agencies' authority to enter into certain long-term contracts;
- Modify the mix of products stored in the Strategic Petroleum Reserve;
- Authorize states to spend alternative compliance payments generated under the proposed federal renewable electricity standard;
- Expand and accelerate oil and gas leasing activities on the OCS;
- Establish a large-scale program for carbon storage; and
- Authorize other energy-related activities.

Clean Energy Deployment Administration. The bill would establish a Clean Energy Deployment Administration within DOE, which would be authorized to provide loans, loan guarantees, and other forms of financial assistance for clean energy projects. It would limit CEDA's financial liabilities to the amounts available in a newly created Clean Energy Investment Fund, which would be funded by an appropriation of $10 billion, interest earnings on unspent balances in the fund, and income from certain fees. Finally, S. 1462 would modify the terms and procedures governing the existing loan-guarantee program for advanced energy technologies created under title 17 of the Energy Policy Act of 2005. In total, CBO estimates that implementing those provisions would increase direct spending by $9.6 billion over the 2010-2019 period.

CEDA's debt-related transactions would be subject to the Federal Credit Reform Act of 1990 (FCRA), which requires appropriations for subsidy costs in advance of commitments for direct loans and loan guarantees. Under that act, the subsidy cost is the estimated long-term cost to the government of the transactions (excluding administrative expenses), calculated on a present-value basis. By contrast, the agency's noncredit-related transactions would likely be recorded in the budget on a cash basis.

TABLE 3. CHANGES IN DIRECT SPENDING AND REVENUES UNDER S. 1462

	By Fiscal Year, in Millions of Dollars											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2010-2014	2010-2019
CHANGES IN DIRECT SPENDING												
Clean Energy Deployment Administration (CEDA)												
New CEDA Programs												
Estimated Budget Authority	0	10,027	279	374	435	441	432	405	379	334	11,115	13,106
Estimated Outlays	0	25	125	275	450	700	1,000	1,350	1,700	2,125	875	7,750
Modifications to Title 17 Loan-Guarantee Program												
Estimated Budget Authority	430	430	290	230	230	230	240	240	250	250	1,610	2,820
Estimated Outlays	10	30	100	210	280	270	230	220	230	230	630	1,810
Changes to Long-term Contracting Authority												
Estimated Budget Authority	580	580	580	580	30	30	30	30	30	30	2,350	2,500
Estimated Outlays	70	140	210	290	320	300	260	200	140	110	1,030	2,040
Strategic Petroleum Reserve												
Estimated Budget Authority	0	0	0	0	620	670	720	780	160	160	620	3,110
Estimated Outlays	0	0	0	0	620	670	720	780	160	160	620	3,110
Outer Continental Shelf Leasing												
Estimated Budget Authority	0	0	0	-700	-200	-70	-60	-60	-100	-130	-900	-1,320
Estimated Outlays	0	0	0	-700	-200	-70	-60	-60	-100	-130	-900	-1,320
Federal Renewable Electricity Standard (RES)												
Estimated Budget Authority	0	0	31	25	39	37	67	64	121	116	95	500
Estimated Outlays	0	0	31	25	39	37	67	64	121	116	95	500
Other												
Estimated Budget Authority	3	0	0	0	0	0	0	-1	-1	-2	3	-1
Estimated Outlays	2	1	0	0	0	0	0	-1	-1	-2	3	-1
Total Changes												
Estimated Budget Authority	1,013	11,037	1,180	509	1,154	1,338	1,429	1,458	839	758	14,893	20,715
Estimated Outlays	82	196	466	100	1,509	1,907	2,217	2,553	2,250	2,609	2,353	13,889
CHANGES IN REVENUES												
Estimated Revenues	0	0	23	19	29	28	50	48	91	87	71	375
NET IMPACT ON THE DEFICIT FROM CHANGES IN DIRECT SPENDING AND REVENUES												
Net Increase or Decrease (-) in the Deficit	82	196	443	81	1,480	1,879	2,167	2,505	2,159	2,522	2,282	13,514

Note: CEDA = Clean Energy Deployment Administration; RES = Federal Renewable Electricity Standards.

New CEDA programs. S. 1462 would appropriate $10 billion for CEDA activities once the agency is operational, but no later than 18 months after enactment of the legislation. Provisions allowing CEDA to spend earnings on those appropriated funds would provide an additional $3 billion over the 2011-2019 period, CBO estimates. Outlays stemming from those authorities would increase direct spending by an estimated $7.8 billion over the next 10 years.

The timing of such spending is difficult to predict for several reasons. Demand for CEDA's programs would depend on investment decisions made by private firms and nonfederal entities in response to market and other conditions. Program costs also would depend on the technological, contractual, and market risks of the projects receiving support. Based on trends in other federal credit programs and the availability of similar types of assistance under the American Recovery and Reinvestment Act and other existing laws, CBO estimates that demand for CEDA's programs would ramp up slowly over the next few years and that all of the available funds would be obligated by the end of the 10-year period.

Modifications to DOE's Title 17 Loan Guarantee Program. S. 1462 would modify the terms of DOE's loan guarantee program for advanced energy technologies, which was established under title 17 of the Energy Policy Act of 2005. The bill would exempt the title 17 program from the provisions in FCRA that require such programs to receive an appropriation. The effect of this exemption would be to give DOE permanent authority to guarantee such loans without further legislative action or limitations. Other provisions in the bill would transfer the administration of the title 17 program to CEDA within 18 months of the bill's enactment and amend DOE's authority to collect and spend certain fees. CBO estimates that enacting those changes would increase spending by $1.8 billion over the 2010-2019 period.

Under current law, DOE's authority to guarantee loans under the title 17 program is contingent on appropriation acts that provide the budget authority necessary to cover the projected subsidy costs and impose other limits on the use of that authority. Recent appropriation acts have directed DOE to collect upfront fees from borrowers sufficient to cover the subsidy cost of those guarantees; limited the volume of loans guaranteed; and restricted federal agencies' participation in such projects. CBO expects that the challenges and constraints involved in estimating subsidy costs for such innovative projects make it more likely that DOE will underestimate than overestimate the fees borrowers are required to pay to offset the subsidy cost of the program. Based on financial information about costly energy investments, such as nuclear power plants, CBO estimates that the premiums charged to borrowers will, on average, be at least 1 percent lower than the likely cost of the guarantees.

Based on the volume of applications pending under the title 17 program, CBO estimates that, in the absence of any statutory limits, DOE would guarantee an additional $100 billion in loans for nuclear power projects over the next 10 years and close to another $30 billion in loans for fossil and other large capital projects. We expect that fees paid by borrowers would be at least 1 percent lower than the amount needed to cover the costs of the guarantee; consequently, the legislation would increase spending for credit subsidies by $1 billion over the next 10 years.

In addition, CBO anticipates that the absence of statutory restrictions on federal involvement in guaranteed projects would result in the federal government using the program to acquire government assets or services. Government support for such projects could be significant. For example, based on Department of Defense (DoD) plans to reduce its consumption of imported products, CBO estimates that synthetic and alternative fuels could account for 10 percent of DoD's annual purchases of fuel for aircraft and ground vehicles within the next 10 years. Meeting that target, which represents about 12 million barrels of oil a year, could require capital investments of about $6 billion. Agencies also have expressed an interest in installing independent power systems and acquiring other alternative sources of energy.

CBO expects that federal agencies would most likely participate in nonnuclear projects that provide assets or services needed by the government. The extent of such support would depend on individual agencies' policies and legal authorities. Most DoD contracts involving multiyear acquisitions, for example, cannot exceed five years, which may account for less than 25 percent of the useful life of a facility. For this estimate, we assume that agency projects would account for about $1.5 billion over the 10-year period, resulting in estimated outlays (on a cash basis) of about $800 million.

Changes to Long-term Contracting Authority. S. 1462 would expand and extend federal agencies' authority to enter into certain types of long-term contracts for energy services. In particular, the legislation would allow agencies to sign long-term contracts—up to 30 years—to procure electricity generated from renewable sources. (Under current law, such contracts are generally limited to 10 years.) The legislation also would expand agencies' authority to enter into energy savings performance contracts (ESPCs), a specific type of long-term contract, for a variety of new purposes, including the installation of renewable energy systems and certain energy-efficient technologies.

Under ESPCs or long-term utility contracts, the government is obligated to make payments in the future. Using such contracts to finance facilities intended to produce electricity for federal consumption is equivalent to exercising borrowing authority for a federal activity even if the initial spending for such a facility is done by a private entity on behalf of the government. Thus, consistent with governmentwide accounting principles, the budget should record those commitments as new obligations at the time the government enters into such contracts.

Taken together, CBO expects that federal agencies would significantly increase their use of long-term contracts to obtain long-term supplies of renewable electricity and to invest in renewable energy systems, energy-efficiency measures, and other capital projects. Based on current levels of investment in such activities and information from DOE and other agencies, we estimate that additional direct spending would total about $2.0 billion over the 2010-2019 period. That estimate assumes that agencies would use long-term contracts to fulfill roughly half of the quantity of renewable electricity that agencies are currently required to obtain. It also assumes that agencies would use the variety of expanded contracting tools to support capital investments in renewable generation facilities and other energy efficiency systems. The expected magnitude of those investments is based on current levels of federal spending under ESPCs and related contracts and takes into account estimates of capital costs of renewable facilities and other energy-related projects.

Strategic Petroleum Reserve. Under current law, DOE is required to establish a Strategic Petroleum Reserve containing 1 billion barrels of petroleum. S. 1462 would specify that at least 30 million barrels of that total should be in the form of refined petroleum products. The SPR's current capacity is 727 million barrels of crude oil.

Under this bill, CBO expects that DOE would create a refined petroleum products reserve without further appropriation—in the same way it created the Northeast Home Heating Oil Reserve. To establish the heating oil reserve in fiscal year 2000, DOE entered into agreements with companies to exchange crude oil from the SPR for heating oil and associated storage facilities. DOE subsequently replenished the SPR with oil acquired through the Department of the Interior's royalty-in-kind (RIK) program. (Under current law, DOE is authorized to acquire oil for the SPR by taking title to oil that is paid in-kind to the United States in lieu of a royalty on production on federal lands.) Acquiring oil for the SPR through the RIK program reduces offsetting receipts from royalties that otherwise would be collected by the Department of the Interior. In the absence of any statutory restrictions on this practice, CBO assumes that DOE would use similar methods to create a refined product reserve authorized by S. 1462.[1]

For this estimate, CBO expects that DOE would begin exchanging crude oil for refined products and storage services beginning in 2013. Because the government already has a 2 million barrel reserve of home heating oil, we estimate that DOE would procure 28 million barrels of products to meet the target established by this bill. Based on CBO's petroleum price forecasts, we estimate that DOE would need to exchange nearly 45 million barrels of oil to cover the higher costs of refined products and the cost of

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[1] Although the Administration recently announced that it would suspend the RIK program, the authority to use petroleum produced on federal lands to fill the SPR remains in current law. CBO expects that authority would be used to fund the proposed new petroleum products reserve. The alternative to using that authority would be to request a separate appropriation from the Congress to procure products and storage services for the proposed reserve.

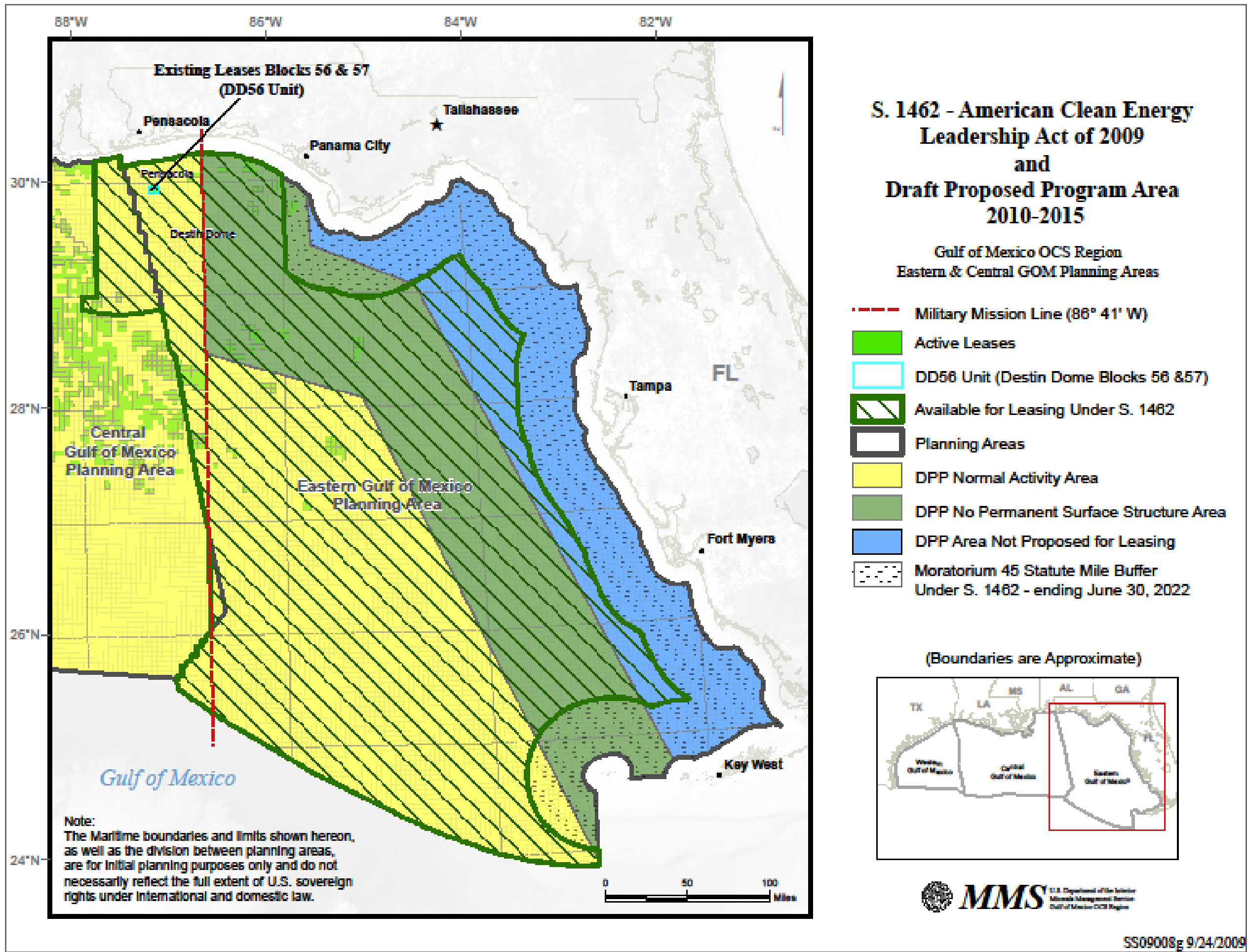
leasing storage capacity. Under those assumptions, CBO estimates that implementing this program would reduce offsetting receipts (an increase in direct spending) by $3.1 billion over the 2010-2019 period.

Outer Continental Shelf Leasing. The bill would amend the Gulf of Mexico Energy Security Act of 2006 (GOMESA) to accelerate and expand potential oil and gas leasing in the OCS, subject to certain conditions. CBO estimates that enacting those changes would increase offsetting receipts (a reduction in direct spending) by about $1.3 billion over the 2013-2019 period.

GOMESA imposed a temporary ban on leasing of areas within 125 miles of the coast of Florida and all areas east of the geographic demarcation known as the "military mission line," which covers areas in the eastern Gulf of Mexico used by the Department of Defense for military training and related purposes. Under current law, those areas will be available for leasing beginning in 2022, subject to the approval of the Secretary of Defense. S. 1462 would change the timing and geographic scope of that leasing activity. It would direct the Secretary of the Interior to hold a lease sale for areas located at least 45 miles beyond the Florida coastline as soon as certain environmental and other assessments are completed. The bill also would authorize the Secretary to offer leases in two areas that are within 45 miles of the Florida coast—the Pensacola and Destin Dome areas, which include portions of the Central and Eastern Gulf of Mexico planning areas. Finally, the legislation would retain DoD's authority to impose restrictions or withdraw lands from leasing but would direct the department to assess and report on its use of certain areas on an annual basis (see Figure 1).

According to the Minerals Management Service (MMS), the acreage that would be made available by this bill contains technically recoverable reserves of oil and natural gas equivalent to almost 9 billion barrels of oil. That estimate includes undiscovered resources in the eastern and central Gulf of Mexico as well as resources that have been discovered in the Destin Dome unit. Based on publicly available information, CBO estimates that the Destin Dome and Pensacola areas contain about 2.4 billion barrels of oil equivalent (BOE)—that is, either oil or an equivalent amount of natural gas with the same energy content. Most of the remaining resources are in ultra-deepwater (more than 2,400 meters), located 125 miles or more from the Florida coastline.

Figure 1. OCS Areas Affected by S. 1462.



All of those resources would probably not be leased or developed, however. About two-thirds of the resources in the Destin Dome and Pensacola areas—about 1.6 billion BOE—could be developed economically under current conditions, CBO estimates. That estimate is based on information from MMS and reflects the fact that most of the resources in those shallow waters are natural gas. In addition, as shown in Figure 1, some of the discovered reserves in the Destin Dome area are already under lease or in areas subject to military restrictions. After adjusting for those factors and recognizing the likelihood that areas near the Florida coast might not be leased because of state concerns under the Coastal Zone Management Act, CBO estimates that the unencumbered, economically recoverable reserves made available in those areas would total roughly 600 million BOE.

The volume of economically recoverable resources in the deepwater areas is very uncertain because those fields are untested and located long distances from the infrastructure needed to process and market oil and natural gas. In addition, a significant portion of that acreage is subject to DoD's restrictions on building permanent structures.

As a result, CBO expects that those areas would attract relatively few bidders, at least in the near term.

Based on information about recent lease sales and market values, CBO estimates that gross bonus bids from leases issued in the Destin Dome and Pensacola areas would total about $1.0 billion over the next 10 years. Rents and royalties from those leases would increase net offsetting receipts by an additional $150 million over the 2013-2019 period, CBO estimates.

By contrast, CBO anticipates that the volume and value of leases issued for deepwater resources in the eastern Gulf of Mexico would be much lower because of the high costs and uncertainty associated with those areas. For example, the 2009 auction of leases for the newly opened "181-south" area, which contains an estimated 900 million BOE, yielded only $6 million. Based on those and other auction results, CBO estimates that offsetting receipts from deepwater leases in the eastern Gulf would total about $150 million over the 2013-2019 period.

Federal Renewable Electricity Standard (RES). S. 1462 would require that, starting in 2012, certain retail electricity suppliers provide a minimum percentage of the electricity they sell from facilities that use qualifying renewable fuels or energy sources. That percentage would be measured relative to the portion of a supplier's base sales of electricity generated from sources specified in the bill and would need to equal or exceed 3 percent of such sales by each covered supplier in 2011 and increase to 15 percent by 2021. To meet the RES requirement, suppliers would have to generate their own qualifying renewable power, purchase renewable energy credits (RECs) from other firms, or make alternative compliance payments to the state in which they operate. If requested by a state government, electricity suppliers in that state could satisfy up to 26.67 percent of their RES compliance obligation by demonstrating a reduction in their customers' electricity consumption through qualified energy-efficiency projects initiated after the bill's enactment.

Under the bill, the Secretary of Energy would establish a system for issuing tradable RECs associated with units of electricity generated from a renewable energy source (for example, wind, solar, or geothermal). RECs could be traded on a secondary market, enabling firms in regions where renewable energy sources are scarce or relatively expensive to purchase credits generated in regions with an excess supply of RECs. In the event an electricity supplier does not have the requisite number of RECs or sufficient reductions in customers' electricity consumption to comply with the proposed standard, such entities could choose to remit, to the state in which they operate, alternative compliance payments equal to 2.1 cents per kilowatt hour to meet the suppliers' compliance requirement (those payments would be adjusted annually for inflation). The legislation would require states to use any amounts received from alternative compliance

payments to promote a variety of activities related to renewable energy and energy efficiency.

CBO believes that cash flows associated with the issuance and sale of federal RECs should not be recorded in the federal budget.[2] Because alternative compliance payments would result from an exercise of the federal government's sovereign power to regulate industry, however, CBO believes that collections of those compliance payments should be recorded in the federal budget as revenues. Similarly, subsequent spending of those payments should be considered direct spending.

As a result, CBO expects that enacting the proposed RES would increase both federal revenues and direct spending. CBO's estimate of anticipated revenues from alternative compliance payments is described later in this estimate (see "Revenues"). Based on historical spending patterns for activities related to renewable energy and energy efficiency, we estimate that increased direct spending of alternative compliance payments under S. 1462 would total about $500 million over the 2012-2019 period.

Indemnification of Operators of Carbon Storage Projects. Carbon sequestration, which involves injecting carbon dioxide into geologic formations, is being studied as a way to remove greenhouse gases from the atmosphere. DOE, the Environmental Protection Agency (EPA), and other agencies are in the process of examining the use of such technologies on a commercial scale. One source of uncertainty is determining who would be legally liable for any damages that may arise from such activities over the life of those permanent storage facilities, which would span several decades. Areas of concern include the potential impacts on human health, property, and natural resources, including drinking water.

S. 1642 would establish a three-tiered approach for managing liabilities stemming from certain carbon sequestration projects. Eligibility for this program would be limited to 10 demonstration projects funded by cooperative agreements with DOE. Project sponsors would have to comply with certain performance standards and provide financial assurances at levels specified by DOE and other federal agencies. The government would then indemnify those 10 firms for liabilities that exceed the value of those financial assurances, subject to a limit of $10 billion per project, or a total of $100 billion (adjusted for inflation). Once DOE has certified that a project has met all closure requirements, the department may take ownership of the site. The legislation would waive the Anti-Deficiency Act to allow DOE to sign indemnification agreements in advance of appropriation acts and would provide a permanent, indefinite appropriation for any costs incurred by DOE to indemnify liabilities and to manage and remediate sites that come under government ownership. Finally, the bill would require project developers to pay a

[2] For a discussion of the budgetary treatment of federal RECs, see CBO's June 5, 2009, cost estimate for H.R. 2454, the American Clean Energy and Security Act of 2009, as ordered reported by the House Committee on Energy and Commerce on May 21, 2009.

fee equal to the net present value of the anticipated indemnification payments. CBO estimates that this indemnification program would have an insignificant impact on direct spending over the 2010-2019 period.

Under the bill, CBO assumes that DOE, EPA, and other affected federal agencies would require companies to provide financial assurances sufficient to cover any anticipated costs or risks that fall within the purview of the project sponsor. As a result, we expect that DOE would set indemnification fees to cover unanticipated risks, such as catastrophic events that have a low probability of occurring.

Setting a price for indemnification fees would be especially difficult in this case because agencies and the industry lack experience with geologic sequestration. EPA's proposed regulations, for example, rely on the results of pilot projects, modeling efforts, and experience with other underground injection activities such as enhanced oil and gas recovery. Most models suggest the risks of a major accident are likely to be small; and the 2006 report of the International Panel on Climate Change said that well-engineered, well-managed projects might effectively sequester 99 percent or more of the carbon dioxide over periods of 100 years or more.

The amounts collected from project developers would depend on whether DOE would apply such probability factors to the maximum liability under the bill ($100 billion, adjusted for inflation) or to an assessment of the risks of each project. CBO expects that DOE would base fees on values well below the $10 billion ceiling specified in the bill. DOE and other analysts have suggested that the risks posed by projects funded by the 10 cooperative agreements may be relatively small because they will be located in geologic formations that are well understood and, as demonstration projects, would be subject to extensive monitoring and oversight. In addition, firms might not seek federal indemnification if the fee was considered disproportionate to the risks. For example, DOE would have to charge each project $100 million on a net-present-value basis to cover a 1 percent chance that the government would have to pay $10 billion—an amount that would significantly increase total project costs.

The budgetary impact of the indemnification regime in S. 1462 could reduce direct spending if income from the fees exceeds the nominal value of any payments but would increase net outlays if the costs of the program exceed the amounts paid by the companies. Because most of the eligible projects would not begin injections until sometime after 2013 and initially would involve relatively low volumes of carbon dioxide, we estimate that the net effect on direct spending would not be significant over the 2010-2019 period. In the absence of legislative directives, CBO expects that firms would pay indemnification fees over the operating life of the facility, based on the volume of carbon dioxide injected each year. While the long-term costs of the indemnification program are unknown, CBO expects that enacting those provisions

would increase direct spending in the future due to the cost of managing and remediating sites that would be owned by DOE.

Other Provisions. Several other provisions of the bill could affect direct spending, but CBO estimates that the net effect of those changes would be small over the 2010-2019 period. For example, the bill would appropriate $3 million for a commission to study options for disposing of nuclear waste generated by civilian and federal facilities. In contrast, we estimate that provisions of the bill that would repeal certain types of royalty relief in the OCS would increase offsetting receipts by about $4 million over the next 10 years. Other provisions would have no significant net impact on direct spending.

Revenues

CBO estimates that significant changes in revenues under S. 1462 would stem from the provision to establish a new federal renewable electricity standard as described earlier in this estimate (see "Direct Spending"). Suppliers of retail electricity that are subject to the proposed standard would meet that standard by submitting a federal REC or by making an alternative compliance payment equal to 2.1 cents (in 2009, adjusted for inflation) for each kilowatt hour of renewable electricity necessary to comply with the standard.

CBO expects that the amount of renewable electricity generated under current law will be sufficient on a national level to satisfy the proposed federal standard. However, based on information from DOE, CBO expects that some regions of the country—particularly the Southeast—would probably not generate sufficient energy from renewable sources to satisfy the federal standard. Thus, covered electricity suppliers in those areas would have to either purchase RECs elsewhere or make alternative compliance payments to the states in which they operate.

CBO expects that, in some cases, covered electricity suppliers would choose to make alternative compliance payments rather than purchase RECs. S. 1462 would require states to use any alternative compliance payments received pursuant to the federal renewable energy standard to promote the development of renewable energy resources. To the extent that electricity suppliers that are subject to the RES would benefit from states' spending of alternative compliance payments, S. 1462 might provide an incentive for suppliers to favor those payments over REC purchases as a means of complying with the federal standard.

CBO believes that this incentive would most likely affect the behavior of electricity suppliers in instances where the price of an REC is equal to or slightly below the compliance payment. Based on information from DOE about estimated prices of RECs under S. 1462, however, CBO expects that most suppliers would use RECs to comply with the federal standard. We estimate that alternative compliance payments would probably not exceed $500 million over the 2011-2019 period. The volume of electricity

associated with estimated payments is small—less than one-tenth of one percent of all electricity generation.

In addition, the cost of the alternative compliance payments would become an additional business expense for utilities, thus reducing federal tax revenue. The amount of this revenue offset would be equal to 25 percent of the payments, resulting in an overall increase in revenues from this provision of $71 million over the 2010-2014 period and about $375 million over the next 10 years.

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

S. 1462 contains intergovernmental and private-sector mandates as defined in UMRA because it would impose new requirements on electric utilities, producers of electricity, and manufacturers of commercial furnaces and lighting products. In some cases, those mandates would affect only public entities or only private entities; in other cases, the mandates would affect both. Except where noted, the costs of the individual mandates would be small. CBO estimates that the aggregate cost of mandates in the bill on state, local, and tribal governments would fall below the annual threshold established in UMRA ($69 million in 2009, adjusted annually for inflation). The cost of some of the private-sector mandates is uncertain and would depend on future regulations. Therefore, CBO cannot determine whether the aggregate cost of all the private-sector mandates in the bill would exceed the annual threshold established in UMRA ($139 million in 2009, adjusted annually for inflation).

UMRA excludes from the application of that act any legislative provisions that are necessary for national security. CBO has determined that sections 301(b)(2) and 301(c) would fall under that exclusion because they would provide the Federal Energy Regulatory Commission (FERC) and the Secretary of Energy with expedited or immediate authority to protect the electric transmission grid from cybersecurity vulnerabilities. Consequently, CBO has not reviewed those provisions for intergovernmental or private-sector mandates.

Mandates That Apply to Both Public and Private Entities

Renewable Electricity Standard. Section 132 would create a renewable electricity standard for utilities that sell 4 million megawatt hours of electricity or more annually. Covered entities would have to submit credits to certify that a minimum percentage of their base sales came from renewable sources. CBO anticipates electricity generated from renewable sources on a national level to be greater than the amount that would be required by the standard in the first five years that mandate is in effect.

Interconnection Standard. Section 296 would require electric utilities to connect small generation facilities owned by customers to their power system. According to industry sources, most utilities already offer interconnection service for small generation facilities. In addition, the bill would require state regulatory authorities and nonregulated utilities to consider an interconnection standard for facilities that generate between 15 kilowatts and 20 megawatts of electricity.

Transmission Planning. The bill would establish a regional planning process to promote the construction of interstate transmission projects. The bill would require utilities not participating in the regional planning process to develop a plan for any such transmission project planned for their system. Information from industry sources suggests that the cost for a utility to develop a plan would be small and that most utilities would participate in the regional planning process.

In addition, the bill would authorize FERC to use eminent domain and grant project developers rights-of-way for approved transmission projects. If a right-of-way is obtained through eminent domain, the taking would impose a mandate on the property owner. The cost of the mandate would be the fair-market value of the easement. Because eminent domain would likely be used infrequently to acquire a right-of-way over publicly owned land, CBO expects that the cost of the mandate to public entities would be small. To the extent eminent domain is used to obtain a right-of-way on private property, the cost of the mandate would depend on the location and size of the line and the value of the property. Consequently, CBO cannot estimate the cost of the mandate to private entities.

Cybersecurity Protection. The bill would authorize FERC to issue rules and orders to protect the electric power system from cyber-threats. Public and private entities that generate, transmit, or distribute electricity could be affected by those rules or orders. The costs resulting from this mandate could be significant but would depend on future regulations. Based on information from FERC about existing orders governing similar situations, however, CBO expects the costs of this mandate would be below the thresholds established in UMRA.

Reporting Requirements. The bill would require public and private entities to comply with new reporting requirements by authorizing the collection of new information by the Energy Information Administration. That information includes: the energy used in the treatment and delivery of water; physical oil assets of the largest traders of oil contracts; and the storage capacity for oil and natural gas in the United States.

Mandates That Apply to Public Entities Only

Energy Building Codes. The bill would require states to submit certifications to the Secretary of Energy stating whether or not they have updated residential and commercial building codes to meet standards developed by building efficiency organizations. States

that fail to make such certifications would be required to submit a report on the status of their building codes and a plan for meeting the new codes to the Secretary. Because states can certify that they have not updated their building codes, CBO estimates the cost of the mandate to be small.

Preemptions of State and Local Authority. In addition to the mandates discussed above, the bill contains several preemptions of state and local authority. Because preemptions limit the authority of state and local governments, they are considered intergovernmental mandates under UMRA, but CBO estimates that those preemptions would not impose significant additional costs on state, local, or tribal governments as regulators.

- Section 121 would authorize FERC to issue construction permits for electric transmission facilities in some cases when a state has rejected a permit request.

- Section 224 would preempt state laws governing the energy efficiency of certain portable light fixtures.

- Section 226 would direct the Secretary of Energy to publish final rules governing standards for certain reflector lamps. If the rulemaking results in increased standards for such lamps, those standards would expand an existing preemption of state and local authority.

- Section 227 would preempt state laws governing the efficiency of certain warm air furnaces.

Mandates That Apply to Private Entities Only

The bill would establish new energy conservation standards for commercial furnaces and lighting products, including certain portable lighting fixtures, certain lamp bases, and incandescent reflector lamps. The bill also would direct the Secretary of Energy to establish new standards for all reflector lamps by 2015. Because the cost of the new standards would depend on future regulations, CBO has no basis for determining the aggregate cost of those mandates.

Other Impacts on State and Local Governments

The bill would benefit state and local governments and institutions of higher education by authorizing several grant programs for energy efficiency, water conservation, weatherization, electric vehicle integration, and workforce development. Any costs those governments incur would result from complying with conditions of federal assistance.

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