CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

July 7, 2017

S. 239
Energy Savings Through Public-Private Partnerships Act of 2017

As reported by the Senate Committee on Energy and Natural Resources on May 24, 2017

SUMMARY

S. 239 would modify agencies' authority to enter into energy savings performance contracts (ESPCs), a specific type of long-term contract used to procure equipment and services to conserve energy in federal buildings. The bill also would specify new reporting requirements for federal agencies.

In CBO's view, commitments under ESPCs create direct spending because agencies enter into such contracts without appropriations in advance to cover their full costs. On the basis of that view, CBO estimates that enacting S. 239 would increase direct spending by $504 million over the 2017-2027 period. CBO also estimates that reductions in federal agencies' energy costs attributable to investments in energy-related services and equipment procured through contracts authorized under the bill would total $209 million over the 2017-2027 period (and additional amounts after 2027). Over that period, CBO also estimates that discretionary spending for certain services related to those contracts would total $45 million.

Because S. 239 would affect direct spending, pay-as-you-go procedures apply. Enacting the bill would not affect revenues. CBO estimates that enacting S. 239 would not increase net direct spending or on-budget deficits by more than $5 billion in any of the four consecutive 10-year periods beginning in 2028.

For purposes of determining budget-related points of order for legislation considered by the Senate, section 3207 of the Concurrent Resolution on the Budget for Fiscal Year 2016 specifies how CBO should prepare cost estimates for ESPCs. Specifically, that resolution requires CBO to estimate, on a net-present-value basis, the lifetime net cost or savings attributable to projects financed by such contracts and to record that amount as an upfront change in spending subject to appropriation. Using those procedures, CBO estimates that S. 239 would not affect direct spending and would reduce spending subject to appropriation by $30 million over the 2017-2027 period.

The bill contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local or tribal governments.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

For this estimate, CBO assumes that S. 239 will be enacted near the start of fiscal year 2018. The estimated budgetary effects of this legislation are shown in the following table. Because the legislation would affect energy-related spending by agencies throughout the federal government, the costs of this legislation would be spread across most budget functions.

BACKGROUND

Under current law, a variety of statutory provisions and executive orders direct federal agencies to meet certain goals to reduce the amount of energy used, increase the consumption of electricity that is generated from renewable sources, reduce emissions of greenhouse gases, and ensure that federal facilities meet certain standards related to the use of sustainable resources. To support investments in energy-efficient and renewable technologies necessary to achieve those goals, federal agencies sometimes use ESPCs—specific types of long-term contracts that enable nonfederal vendors to finance energy-related investments on behalf of the government.

Under such contracts, agencies agree to pay vendors for energy conservation measures and related financing costs over time on the basis of anticipated and realized reductions in energy costs. Typically, an ESPC vendor develops a baseline estimate of energy consumption that would occur in the absence of energy conservation measures and estimates the reductions in energy consumption and energy costs that would result from an ESPC-funded project. Those estimated reductions are used to set the annual payments to the vendor for the services and equipment provided under the ESPC. According to the Department of Energy, the typical term of those payments under an ESPC is at least 17 years—that is, it takes at least 17 years, on average, for the government to realize sufficient savings to cover the contractual payments due to the vendor. After the contract is fully repaid, additional savings generated by energy conservation measures accrue to the government.

ESTIMATED BUDGETARY EFFECTS OF S. 723 AS REPORTED BY THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES ON MAY 24, 2017

	By Fiscal Year, in Millions of Dollars												
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2017-2022	2017-2027
INCREASES IN DIRECT SPENDING[a]													
Federal Obligations Under ESPCs[b]													
Estimated Budget Authority	0	60	60	60	60	60	60	60	60	60	60	300	600
Estimated Outlays	0	18	42	60	60	60	60	60	60	60	60	240	540
INCREASES OR DECREASES (-) IN SPENDING SUBJECT TO APPROPRIATION[a]													
Reductions in Energy and Energy-Related Costs Attributable to ESPCs													
Estimated Authorization Level	0	-1	-4	-8	-13	-18	-23	-28	-33	-38	-43	-44	-209
Estimated Outlays	0	-1	-4	-8	-13	-18	-23	-28	-33	-38	-43	-44	-209
Appropriations for ESPC-related services													
Estimated Authorization Level	0	*	1	2	3	4	5	6	7	8	9	10	45
Estimated Outlays	0	*	1	2	3	4	5	6	7	8	9	10	45
Total Changes in Spending Subject to Appropriation													
Estimated Authorization Level	0	-1	-3	-6	-10	-14	-18	-22	-26	-30	-34	-34	-164
Estimated Outlays	0	-1	-3	-6	-10	-14	-18	-22	-26	-30	-34	-34	-164

Memorandum: Estimated Net Present Value of All Budgetary Effects related to ESPCs under S. 239, as Required by section 3207 of the Concurrent Resolution on the Budget for Fiscal Year 2016

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2017-2022	2017-2027
DECREASES IN SPENDING SUBJECT TO APPROPRIATION AS ESTIMATED ON A NET-PRESENT-VALUE BASIS[c]													
Decreases in Spending Subject to Appropriation													
Estimated Authorization Level	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-5	-10
Estimated Outlays	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-5	-10

Notes: ESPCs = energy savings performance contracts. * = between zero and $100,000.

a. The estimates reflect CBO's view of how cash flows related to ESPCs should be recorded in the federal budget. Since ESPCs were first implemented in 1998, however, the Administration has not recorded the full extent of federal obligations under ESPCs upfront when contracts were signed. Instead, the Administration records ongoing contract payments to vendors on a year-by-year basis as appropriations for such payments are provided. If the Administration was to continue following that practice for executing ESPCs under S. 239, agencies' total energy-related costs would be largely unchanged during the contract period, when estimated savings from reduced energy use would be paid to make to vendors under ESPC contracts. As a result, CBO estimates that there would be no significant reduction in appropriations from implementing S. 239 over the 10-year period covered by this estimate. If expected reductions in energy use continued beyond the contract period, budgetary savings would accrue to the federal government if annual appropriations for agencies' energy-related spending were reduced accordingly.

b. Estimated budget authority reflects the value of energy conservation measures as installed plus the net present value of a portion of vendors' borrowing costs attributable to contract interest rates that would exceed U.S. Treasury interest rates. Estimated outlays stemming from such commitments are spread across the period during which the vendor is expected to construct, manufacture, or purchase energy conservation assets on behalf of the federal government.

c. Section 3207 of the Concurrent Resolution on the Budget for Fiscal Year 2016 requires CBO to calculate, on a net-present-value basis, the lifetime net cost or savings attributable to projects financed by ESPCs and to record that amount as an upfront change in spending subject to appropriation in the year when commitments are expected to be made.

CBO generally expects that implementing ESPCs will affect both direct spending and spending subject to appropriation. The rationale for CBO's longstanding budgetary treatment of ESPCs, and differences between CBO's view and the Administration's, are discussed in depth in a CBO report on that topic.[1] In brief, upon entering into an ESPC, the government effectively commits to making payments to a vendor in future years before having appropriations to cover all of the resulting costs; in CBO's view, the authority to enter into such contractually binding agreements without appropriations is a form of direct spending. ESPCs permit agencies to pay vendors for energy conservation measures and related financing costs over time on the basis of anticipated and realized reductions in energy costs, which are generally paid from discretionary annual appropriations.

BASIS OF ESTIMATE

S. 239 would make a variety of changes to the ESPC statute. In particular, the bill would:

- Require agencies to implement energy conservation measures identified as being cost-effective;

- Expand the definition of an energy conservation measure to include the acquisition of energy-consuming devices and support structures (such as appliances located within federal buildings);

- Expand the definition of energy savings that may be included in an ESPC to include the use, sale, or transfer of energy incentives, rebates, or credits (such as renewable energy certificates) as well as savings from reductions in water or energy use, more efficient waste recycling, or additional energy generated from energy conservation measures;[2]

- Authorize agencies to use, sell, or transfer energy incentives, rebates, or credits as a means of making payments to vendors under ESPCs;

- Require agencies to include anticipated reductions in operation and maintenance (O&M) costs when estimating the savings attributable to energy conservation measures acquired through an ESPC; and

1. See Congressional Budget Office, *Using ESPCs to Finance Federal Investments in Energy-Efficient Equipment*, (February 2015), https://www.cbo.gov/publication/49869.

2. Renewable energy certificates represent the rights to the nonpower renewable and environmental attributes of electricity generated from renewable resources. Such certificates, and other similar incentives and rebates, can be sold separately from the underlying units of physical electricity.

- Specify that ESPCs could not be used to install energy conservation measures at dams, reservoirs, or hydropower facilities that are owned or operated by a federal agency.

Taken as a whole, CBO expects that those changes would allow agencies to use ESPCs to pay for new energy-related projects that otherwise would not be undertaken under current law. In general, we expect that broadening the scope of effects that could be counted as energy savings—in particular, by allowing agencies to include the full extent of anticipated reductions in O&M costs stemming from ESPC-financed investments—would enable agencies to make investments that might not otherwise be justifiable within existing requirements. We also expect that permitting agencies to count incentives such as renewable energy credits as savings and use them to pay vendors would lead to greater investments in renewable technologies.

CBO estimates that, under S. 239, agencies would use ESPCs to implement additional energy conservation measures with an underlying cost of about $40 million annually. That estimate represents a relatively modest incremental increase in anticipated spending for energy-related investments. By comparison, since 2012 overall spending by federal agencies for energy-related investments has averaged nearly $1.7 billion annually, with more than 40 percent of energy conservation measures—or about $700 million annually—acquired through ESPCs or similar contracts.

Under the agency's usual methods, CBO estimates that enacting S. 239 would increase direct spending for contractual obligations to pay for energy-related investments and, on net, reduce the need for discretionary spending to cover agencies' annual energy costs. Under the scoring rule for energy contracts specified in the budget resolution, estimates of both direct spending and spending subject to appropriation would be different. Under that rule, CBO estimates that S. 239 would not affect direct spending and, because of the method used to calculate the costs, would reduce spending subject to appropriation by smaller amounts than under CBO's usual methods.

Direct Spending

Under S. 239, CBO estimates that direct spending for the upfront cost of contractual commitments to acquire additional energy conservation measures through ESPCs would total $55 million annually. CBO's estimate of direct spending reflects an amount equal to the annual cost of energy conservation measures as installed (about $40 million), plus the net present value of the portion of the contractor's borrowing costs that are attributable to interest rates that would exceed U.S. Treasury interest rates (about $15 million).[3] The

3. The methodology that CBO follows in preparing cost estimates for proposals involving ESPCs is consistent with scorekeeping guidelines set forth in the joint statement of managers that accompanied the conference reports on the Balanced Budget Act of 1997. See House Committee on the Budget, *Conference Report to Accompany H.R. 2015*, House Report 105-217 (July 30, 1997), pp. 1007-1014, http://go.usa.gov/hb8Q (PDF, 3,1 MB). In particular, Rule 11 specifies scoring treatments for legislation that authorizes agencies to enter into capital leases and other third-party financing arrangements.

portion of the borrowing costs that are equivalent to the amount of interest the Treasury would pay if projects were financed with appropriated funds are not included in our estimate because, for the enforcement of Congressional budget rules, changes in the amount of interest the Treasury pays are not reflected in cost estimates. CBO's estimate of spending reflects its judgment as to when equipment or services would be provided—typically over a three-year period for equipment. On that basis, CBO estimates that direct spending under S. 239 would total $504 million over the 2017-2027 period.

Spending Subject to Appropriation

ESPCs permit federal agencies to pay vendors for energy conservation measures and related financing costs over time on the basis of anticipated and realized reductions in energy costs, which are generally paid from annual appropriations. CBO estimates that reductions in energy and related costs attributable to ESPCs entered into under S. 239 would occur gradually over the period of time covered by such contracts—up to 25 years. As a result, most anticipated savings attributable to projects financed by such contracts would occur beyond the period covered by this estimate.

CBO anticipates that ESPC-funded projects under S. 239 would, on average, have payback periods averaging about 19 years. Based on an analysis of data related to existing ESPCs, CBO also estimates that annual reductions in energy and energy-related costs would equal roughly 11 percent of the underlying cost of energy conservation measures. On that basis, CBO estimates that reductions in energy-related federal costs attributable to ESPCs entered into pursuant to S. 239 would total $209 million over the next 10 years, with additional savings occurring in later years.

Those estimated savings would be partially offset by increased spending for certain services related to ESPCs entered into under the bill. Typically, when using such a contract, an agency agrees to make payments for services related to the operation and maintenance of newly installed equipment. Such agreements include measurement and verification activities to confirm that projects reduce energy consumption as guaranteed by the contract. Because the government can opt out of those services at any time, such contract-related costs are considered discretionary. For this estimate, CBO projects that the cost of such services would total about 2.5 percent of the value of energy conservation measures acquired through ESPCs. Assuming appropriation of the necessary amounts, CBO estimates that discretionary spending for optional contract-related services would total $45 million over the 2017-2027 period and gradually increase as new contracts are entered into each year and payments on older contracts continue. Netting those costs against the projected savings in energy and related costs, CBO estimates discretionary savings of $164 million over the 2017-2027 period.

Estimated Budgetary Effects Attributable to Energy Contracts Under the Budget Resolution

As previously mentioned, in preparing estimates for legislation related to ESPCs that is considered in the Senate, section 3207 of Concurrent Resolution on the Budget for Fiscal Year 2016 requires CBO to estimate the net present value of all budgetary effects attributable to ESPC contracts as a change in discretionary costs. Specifically, that methodology requires CBO to calculate, on a net-present-value basis, the lifetime net cost or savings attributable to projects financed by ESPCs and to record that amount as an upfront change in spending subject to appropriation in the year when commitments are expected to be made.

Following that methodology, CBO estimates that one year's worth of projects pursued through ESPCs under S. 239 would involve payments to contractors totaling, on a nominal basis, $89 million over nearly 20 years. Such payments include $40 million for repayments of principal amounts borrowed by the contractors to finance projects, $28 million in interest costs, and $21 million in payments for optional contract-related services. We also estimate that nominal energy savings attributable to one year's worth of projects would total $101 million over the anticipated useful life of equipment. Adjusting the discount rate for the market risk associated with the various cash flows, CBO estimates that one year's worth of projects would generate net savings, on a net-present-value basis, of $3 million —or $30 million for 10 years' worth of projects over the 2017-2027 period covered by this estimate.

PAY-AS-YOU-GO CONSIDERATIONS

The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The net changes in outlays that are subject to those pay-as-you-go procedures are shown in the following table. Section 3207 of the Concurrent Resolution on the Budget for Fiscal Year 2016 does not apply to estimates for the Statutory Pay-As-You-Go Act; thus, the amounts shown here reflect CBO's estimates of direct spending effects.

CBO Estimate of Pay-As-You-Go Effects for S. 239, as reported by the Senate Committee on Energy and Natural Resources on May 24, 2017

	By Fiscal Year, in Millions of Dollars												
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2017-2022	2017-2027
NET INCREASE IN THE DEFICIT													
Statutory Pay-As-You-Go Impact	0	17	39	56	56	56	56	56	56	56	56	224	504

INCREASE IN LONG-TERM DEFICIT AND NET DIRECT SPENDING

CBO estimates that enacting the legislation would not increase net on-budget deficits or net direct spending by $5 billion or more in any of the four consecutive 10-year periods beginning in 2026.

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

The bill contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

ESTIMATE PREPARED BY:

Federal Costs: Megan Carroll
Impact on State, Local, and Tribal Governments: Jon Sperl
Impact on the Private Sector: Amy Petz

ESTIMATE APPROVED BY:

H. Samuel Papenfuss
Assistant Director for Budget Analysis