CONGRESSIONAL BUDGET OFFICE
U.S. Congress
Washington, DC 20515

Douglas W. Elmendorf, Director

November 29, 2011

Honorable Jeff Bingaman
Chairman
Committee on Energy
and Natural Resources
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

This letter responds to your request for information about the Congressional Budget Office's (CBO's) analyses of the budgetary impact of power purchase agreements (PPAs). PPAs are a type of long-term contract used by federal agencies to procure electrical power or generating capacity. In particular, you asked us to explain how CBO's estimates of the cost of legislation related to PPAs take into account any long-term budgetary savings and other benefits realized by the government under such contracts.

What are PPAs?

PPAs are commonly used in the private sector to support the development of new energy systems. Typically, a developer installs a system to supply power to a major facility in exchange for a customer agreeing to purchase a specified portion of the power generated by the system. Under a PPA, the customer effectively pays the developer for the cost of building and operating the system through utility payments over the life of the contract.

In recent years, a handful of federal agencies have entered into PPAs for installing energy systems at federal sites. Such agreements are a form of third-party financing, in which private parties fund infrastructure projects.[1] Budgetary pressures make arrangements of that sort attractive because they are generally structured so that payments are spread over the contract period. Some advocates argue that recording such payments in the budget in the year when they are made would make it easier to fund projects by avoiding the need for substantial up-front

1. For more on third-party financing, see Congressional Budget Office, *Third-Party Financing of Federal Projects* (June 1, 2005).

appropriations or other traditional forms of federal financing. However, that budgetary treatment would be at odds with established principles of federal budgeting, which require agencies to record the costs of government investments when they are made.

Current statutory and regulatory requirements for federal agencies related to energy management—particularly involving procurement of renewable energy—also make PPAs attractive. Specifically, current law requires that, by fiscal year 2013, at least 7.5 percent of electric energy consumed by federal agencies must be generated from renewable resources such as wind, solar, geothermal, and biomass resources. (The Department of Defense faces higher targets for renewable energy consumption.) The law also specifies a "bonus" for renewable energy that is both generated and consumed at federal facilities. Such energy counts twice toward the federal requirement, thereby creating an incentive for agencies to invest in onsite facilities to generate power from renewable sources.

The Department of Energy (DOE) monitors federal compliance with energy-related requirements and provides technical assistance to agencies interested in using alternative financing mechanisms such as PPAs to implement renewable energy projects on federal sites. Federal agencies already have authority to enter into PPAs for up to 10 years; a handful of agencies, including the Western Area Power Administration and the Department of Defense, participate in PPAs that extend for longer periods of time.[2]

How do PPAs Affect the Federal Budget?

The budgetary impact of PPAs is complicated because such contracts result in changes to federal cash flows that are recorded in different budget categories. In particular:

- In CBO's view, entering into legally binding agreements such as PPAs results in *mandatory spending* (that is, obligations and outlays that stem from budget authority provided in laws other than appropriation acts).

- Subsequent changes in federal spending for energy costs, which are generally paid from annually appropriated funds, would be considered changes in *discretionary spending*.

- Because nonfederal developers of renewable energy projects often qualify for certain federal tax benefits, using PPAs to finance such projects can also affect federal *revenues*.

2. Federal agencies cite multiple provisions of law related to the authority to enter into PPAs and other arrangements. See, for example, 40 U.S.C. 501, 29 U.S.C. 22a, 43 U.S.C. 485h, 43 U.S.C. 388, 43 U.S.C. 389, 16 U.S.C. 825.

Those impacts typically occur over different periods of time. For example, while changes in discretionary spending associated with PPAs occur gradually over the life of such contracts, most of the mandatory spending for investments in energy projects occurs upfront during the construction period associated with those projects. The timing of revenue impacts could be front-loaded or spread more evenly over longer periods of time, depending on the nature of projects carried out with PPAs and the tax benefits for which developers qualify.

How do CBO Cost Estimates Account for the Budgetary Impact of PPAs?

A key purpose of CBO's cost estimates is to illustrate how legislative proposals would affect the government's cash flows over specified periods of time. Consistent with principles of appropriation and budget law and long-established guidelines used in preparing cost estimates, CBO's analyses of authorizing legislation distinguish between changes in mandatory and discretionary spending on the basis of whether such changes are contingent on the enactment of subsequent legislation to provide the funding necessary to carry out a particular activity.[3]

CBO's cost estimates for proposals to modify current law related to PPAs or to establish energy-related goals or requirements for federal agencies that may lead to increased use of such contracting tools attempt to take all potential budgetary effects into account. Legislative proposals to amend agencies' authority to enter into PPAs—for example, to authorize agencies to sign contracts covering longer periods of time—would affect mandatory spending, spending subject to appropriation, and potentially revenues. Because of their long-term nature, however, a significant portion of anticipated effects on net spending related to those contracts are expected to occur well beyond the 5- and 10-year estimating periods covered by CBO's cost estimates.[4]

Effects on Mandatory Spending. While specific contract terms vary from project to project, federal PPAs typically involve features that, taken together, effectively commit the federal government at the time the contract is signed to paying (over time through power purchases) for the full cost of the project, as well as interest costs on the developer's borrowing for the project.

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3. For a more detailed discussion of the principles that govern CBO's analyses of long-term contracts such as PPAs, see Congressional Budget Office, letter to the Honorable Fred Upton on the Budgetary Impact of Energy Savings Performance Contracts (July 1, 2011).

4. See CBO's cost estimates for S. 1462, the American Clean Energy Leadership Act of 2009, as reported by the Senate Committee on Energy and Natural Resources (September 30, 2009); and H.R. 2701, the Transportation Energy Security and Climate Change Mitigation Act of 2007, as ordered reported by the House Committee on Transportation and Infrastructure (July 18, 2007).

Entering into such agreements constitutes a commitment of government resources without appropriations to cover all of the resulting costs—and thus is a form of mandatory spending, in CBO's judgment. Hence, consistent with established accounting principles, the budget should reflect such commitments in full as new obligations when PPAs are signed. Consequently, CBO's cost estimates for legislation that would authorize agencies to enter into PPAs reflect its best estimate of the full cost of the commitments that agencies would enter into over the 10-year period following enactment of that legislation.

Effects on Spending Subject to Appropriation. PPAs affect agencies' energy costs, which are generally paid from annual appropriations. The net effects on such costs vary from project to project and depend heavily on the details of particular agreements.

Current law directs federal agencies to increase, to 7.5 percent by 2013, the proportion of electricity they consume that is generated from renewable sources. To comply with that requirement, agencies can generate and consume their own renewable electricity, directly purchase such electricity, or acquire renewable energy credits (RECs), which represent the renewable attributes of electricity generated from renewable sources and can be sold separately from the underlying units of power with which they are associated.[5] According to DOE, federal agencies currently use a combination of those three approaches to comply with the federal requirement for renewable electricity.

PPAs can affect federal agencies' spending to purchase both power and RECs. Whether resulting costs under a PPA would be higher or lower than without the PPA would depend heavily on the details of the contract. CBO expects that substituting renewable electricity, which is generally more expensive to generate than nonrenewable electricity, for nonrenewable electricity would tend to increase agencies' energy costs—at least in the near term. However, using PPAs to secure long-term supplies of renewable power at prices that are contractually specified for the long term might in some cases be less expensive than purchasing renewable power at prevailing market prices. Other factors can play important roles as well; for example, the contractual price of power under a PPA would depend heavily on the length of the contract and whether the agency retains the RECs for the power it purchases or allows the developer to sell the RECs to improve a project's cost-effectiveness.

The uncertainty surrounding such factors makes it difficult to estimate how a PPA would affect an agency's annual spending for energy costs. CBO expects that changes in such spending over the next 10 years would generally be modest

5. See the EPA's definition of a renewable energy credit at www.epa.gov/greenpower/whatis/glossary.htm.

compared to the magnitude of upfront investments in renewable facilities financed by a PPA.

Furthermore, the Budget Control Act of 2011 (Public Law 112-25) specifies caps on future discretionary appropriations through fiscal year 2021. While individual legislative proposals could change the level of future appropriations required to implement specific activities, achieving a net reduction in total discretionary spending would require reductions in the statutory caps on such spending.

Revenues. Under a PPA, the project developers typically retain ownership of the renewable energy system to qualify for certain federal tax benefits. In particular, owners of certain renewable facilities may qualify for the renewable production tax credit (1.5 cents per kilowatt hour of renewable electricity sold from qualifying facilities in the first 10 years of operation) or an investment tax credit (up to 30 percent of investment costs). To the extent that federal PPAs enable developers to implement projects that would otherwise not be financially viable and that would not replace other sources of qualifying power, those agreements would effectively increase demand for federal tax credits, potentially resulting in a loss of federal revenue.

Assessing the Long-Term Budgetary Impact of PPAs

CBO's cost estimates provide budgetary information for the next 5 or 10 years but, pursuant to longstanding conventions that guide the preparation of such estimates, they usually do not provide comprehensive analyses of the long-term costs or savings of major capital investments. Legislation related to PPAs is not unique in having long-term effects; other legislative proposals—for example, those related to capital spending on infrastructure—can also have budgetary impacts that exceed the periods covered by typical cost estimates. Unfortunately, it is not generally possible for CBO to produce longer-term analyses for legislative proposals.

Other considerations also make it difficult for CBO's cost estimates to assess, in a comprehensive way, the budgetary impact of federal investments carried out using PPAs. For example, the federal budget generally records spending year by year on a cash basis, and procedures followed for purposes of Congressional budget enforcement do not usually combine budgetary effects in different categories (mandatory spending, discretionary spending, and revenues).[6]

CBO expects that the long-term effects of PPAs would vary from project to project, with net costs or benefits largely being driven by specific characteristics

6. There are two major exceptions to recording spending on a cash basis: the impact of federal credit programs and the Troubled Asset Relief Program (TARP) are recorded on a noncash basis. Specifically, the Federal Credit Reform Act and the law authorizing TARP require that the budget reflect the net present value of anticipated cash flows related to those activities.

of a project, market forces, and the credit worthiness of involved parties. In general, CBO has found that relying on third-party financing for such investments is more costly to the government than paying for them directly.[7] More broadly, federal agencies' use of PPAs to support investments in energy facilities can lead to economic and environmental effects that lie beyond the scope of budgetary analyses.

I hope this information is useful to you. If you have further questions regarding PPAs, Megan Carroll and David Newman are the CBO staff contacts for this issue.

Sincerely,

Douglas W. Elmendorf

Douglas W. Elmendorf
Director

cc: Honorable Lisa Murkowski
Ranking Member

Honorable Kent Conrad, Chairman
Senate Committee on the Budget

Honorable Jeff Sessions
Ranking Member

Honorable Fred Upton, Chairman
House Committee on Energy and Commerce

Honorable Henry A. Waxman
Ranking Member

Identical letter sent to the Honorable Christopher Coons.

7. Congressional Budget Office, *Third-Party Financing of Federal Projects* (June 1, 2005). As the report notes, relying on third-party financing generally increases costs to the government, particularly because interest rates on private debt usually exceed interest rates on Treasury bonds.