WHY POWER PURCHASE AGREEMENTS MAKE SENSE

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EXECUTIVE SUMMARY

Rising energy prices and federal renewable energy goals are driving federal agency demand for renewable energy sources to control costs and meet new requirements. Over the last decade, electricity prices have risen at a rate greater than inflation and have been an unpredictable cost in annual agency budgets. The U.S. Energy Information Administration reported a 42% increase in electricity prices for all sectors from 1997 to 2008. In just one year from Fiscal Year 2005 to 2006, federal costs for electricity increased by 8.6%. Furthermore, the Energy Policy Act of 2005 mandated that federal agencies obtain at least 7.5% of their electricity from renewable energy sources by 2013. These pressures combined with budget-cutting are compelling agencies to seek new financial solutions to realize renewable energy projects.

While renewable energy sources have been available for some time, solar power has become increasingly attractive to federal agencies because of declining prices and advances in technology. This is prompting federal agencies to adopt solar power more broadly. The Government wants on-site solar; solar developers want to build more projects; and the investment community is always interested in financing profitable projects. All of this creates jobs and allows for reinvestment in the next stage of the solar industry. A power purchase agreement (PPA) is the financial tool that can bring it all together.

PPAs allow federal agencies to build solar energy projects on-site with no upfront costs. Additionally, a PPA allows an agency to get a fixed electrical rate on a long-term contract. A fixed rate is possible because solar power projects have no fuel costs, unlike gas or coal whose prices fluctuate and can drive up the cost of electricity. A solar PPA with a term between 20 and 30 years can stabilize a portion of the utility costs for the Government.

1. Independent Statistics & Analysis, Electric Power Monthly: Average Retail Price of Electricity to Ultimate Customer. Table 5.3 Total by End-Use Sector (U.S. Energy Information Administration, U.S. Department of Energy, May 2011), http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html.

2. Federal Energy Management Program, Report to Congress on Federal Government Energy Management and Conservation Programs Fiscal Year 2006 Annual (Assistant Secretary, Energy Efficiency and Renewable Energy, U.S. Department of Energy, November 26, 2008), http://www1.eere.energy.gov/femp/pdfs/annrep06.pdf, P2.

3. Federal Energy Management Program, Overview of Federal Energy Management Policy and Mandates (U.S. Department of Energy, Accessed May 31, 2011), http://www1.eere.energy.gov/femp/pdfs/overview_policy_mandates.pdf, P2.

A 10-year limitation on energy contracts stymied adoption of PPAs until recently. Innovative 20-year PPAs by Nellis Air Force Base and Fort Carson in 2007 overcame the term limitation hurdle. Agency interest in PPAs has been evident from the release of many PPA requests for proposals (RFPs) between 2008 and 2009. However, almost all of these PPAs required a 10-year term according to the Federal Acquisition Regulation (FAR) contract term limit. Consequently, these projects rarely crossed the financing finish line because they could not attract affordable capital. In 2010, the Naval Facilities Engineering Command Southwest (NAVFAC Southwest) received approval for a 20-year term using a Department of Defense (DoD) authority that permits a 30-year term. The multiple award contracts are currently in negotiations and are being closely watched in the Government contracts and solar communities.

The time has come for a Government-sanctioned power purchase agreement that will help federal agencies meet their environmental goals and control costs while driving solar power to a new level of adoption.

SECTIONS

1. What Is a Power Purchase Agreement?
2. How PPAs Benefit the Federal Government
3. Why Private Sector PPAs Have Been More Common Than Government PPAs
4. Why Momentum Is Growing for Government PPAs
5. How to Prepare for a Solar Power Purchase Agreement

WHAT IS A POWER PURCHASE AGREEMENT?

SECTION 1

A power purchase agreement (PPA) is a contract between a solar system owner and the host, which consumes the electricity. A PPA allows a federal agency to host a solar power system with no upfront costs. In exchange, the agency agrees to purchase electricity from the system owner at a pre-determined rate over a 20 or 30-year term.

A solar developer designs and builds the system, and a tax equity investor finances the project and receives the tax benefits. Large financial institutions and insurance companies are typically the tax equity investors in these projects. As opposed to the Government which doesn't pay taxes, the investors have the financial ability to fully absorb tax credits as well as take advantage of accelerated depreciation. This structure allows large-scale solar projects to be constructed without the need for a capital budget allocation by the Government. The Government simply uses its utility expense budget to pay for the electricity and is insulated from volatile fuel prices.

Under a PPA, a special purpose entity (SPE) is formed usually as a limited liability corporation (LLC), which is owned by the tax equity investor. The developer sells the system to the SPE, and the SPE becomes the system owner who sells the electricity to the agency over the life of the PPA. Oftentimes, the developer continues to play a role in performance guarantees and maintenance of the system. At the end of the PPA term, the Government can extend the contract, buy the system, or have the system removed.

PPA Pricing Scenarios

There are two primary PPA pricing scenarios: fixed escalation or fixed price. The fixed price scenario sets one price for the duration of the agreement. The starting electrical rate may be higher than the utility rate, but as energy costs rise, the average rate is expected to be lower. Many times, the Government cannot tolerate a starting rate that is higher than the actual utility rate and will opt for a fixed escalation.

The fixed escalation scenario sets a price for the agency, but a predetermined rate of increase is agreed upon in the PPA. According to the National Renewable Energy Laboratory (NREL), this price escalation rate is typically 2-5%. In some rate structures, the price will escalate for a certain time period and then be fixed for the remainder of the agreement. This fixed escalator gives an agency budgetary predictability and relief from volatile electrical rates. Case in point, the average retail electrical price for all sectors increased by 7% from 2004 to 2005. The difference between 2005 and 2006 prices was a 9% increase in rates. Three percent and 9% increases occurred the next two years. Clearly, a fixed escalation PPA gives agencies far more predictability for budget forecasts than what's happening in the energy market.

Other less common PPA pricing models exist. One structure allows agencies to apply project funding to prepay for power that will be generated by the system, essentially buying down the long-term rate. According to the NREL, "this structure takes advantage of a government entity's ability to issue tax-exempt debt or to tap other sources of funding to buy-down the cost of the project. Prepayments can improve economics for both parties and provide greater price stability over the life of the contract." Most other PPA models that exist involve higher risk to the developer and subsequently are quite rare.

The different PPA options give the Government a lot of flexibility in finding the right contracting mechanism, and several key benefits to be explored in the next section make the PPA particularly appealing to federal agencies.

4. Brendan Canavan, et al., Power Purchase Agreement Checklist for State and Local Governments (National Renewable Energy Laboratory, May 2008), http://www.nrel.gov/docs/fy10osti/46668.pdf, P3.

5. Canavan et al., P3.

6. Independent Statistics & Analysis, Table 5.3.

7. Canavan et al., P4.

HOW PPAS BENEFIT THE FEDERAL GOVERNMENT

SECTION 2

PPAs give federal agencies a viable financial mechanism to realize solar power projects, thereby allowing agencies to meet EPACT requirements and long-term cost-cutting goals. PPAs remove much of the burden of managing a solar power system from the agency, and they create a situation where the Government only has to pay a utility bill. The simplification of the path to solar power is a big reason why many agencies are turning to PPAs.

Key Benefits of PPAs

Perhaps the most important benefit of a PPA for cash-strapped agencies is the arrangement's no upfront cost. This allows agencies to commission a solar project without having to re-allocate budget, which would often mean cutting other programs. With recent budget cuts, some agencies will find that a deal with no upfront costs is the only way to commission a solar project.

Other top benefits of the PPA include:

- Developer provides operation and maintenance (O&M)
- Performance-based--only pay for what is produced
- Known long-term electricity price
- Minimal risk to the agency
- Maximizes available incentives such as tax credits and accelerated depreciation

Under a PPA, the Government can benefit from tax incentives without actually realizing them. Without the investor, a tax-exempt entity can't use credits like the 30% investment tax credit (ITC). Consequently, an agency would often be limited to purchasing a much smaller solar system. The Environmental Protection Agency states:

"SPPA [solar power purchase agreement] arrangements enable the host customer to avoid many of the traditional barriers to adoption for organizations looking to install solar systems: high up-front capital costs; system performance risk; and complex design and permitting processes. In addition, SPPA arrangements can be cash flow positive for the host customer from the day the system is commissioned."

8. Environmental Protection Agency, Solar Power Purchase Agreements (EPA, June 2, 2011), http://www.epa.gov/greenpower/buygp/solarpower.htm.

A PPA also allows tax equity investors to take advantage of the Modified Accelerated Cost Recovery System (MACRS), which is unavailable to government agencies. "The Internal Review Service allows investors a five-year accelerated cost recovery system for commercial PV systems." This further alleviates financial risks to the investor and helps to attract more investors to federal agency solar projects.

Reduced Risk and Alleviation of Maintenance Concerns

Because the contract is designed so that another party owns the system on the agency's site, that owner is responsible for O&M. This reduces costs to the Government as well as removes potential distractions to the agency or base's mission. O&M requires training and education of staff, hiring contractors to regularly review performance, and other asset management. The federal agency simply has to pay utility bills under the PPA, and performance concerns are taken care of by the system owner.

With so much benefit for federal agencies, one would expect PPAs to be more commonplace on the federal level. The next section will explore why PPAs have a much longer history of use in the private sector.

9. Canavan et al., P5.

WHY PRIVATE SECTOR PPAS HAVE BEEN MORE COMMON THAN GOVERNMENT PPAS

SECTION 3

With so many benefits for using a PPA, it begs the question of why this financial tool hasn't been more common at the federal level. A combination of issues has deterred investors and businesses. However, significant government and developer effort has cleared away the obstacles and is creating a winning scenario for all parties.

Complications of Executing PPAs Historically

Government regulations limit civilian federal agencies to contracts of 10 years pursuant to Federal Acquisition Regulation 41.103 under the "Acquiring Utility Services" section as well as Title 40 Section 501 in the United States Code. This short timeframe doesn't allow tax equity investors enough time to earn their return on investment. Hence, finding a partner for a renewable energy project is more difficult. Furthermore, those investors who are interested typically charge higher rates to minimize their risks, recoup costs, and make a profit. Consequently, the higher rates make the power purchase agreement less attractive to an agency.

Aligning the PPA with Federal Acquisition Regulations (FAR)

Along with the contract duration limitation, lack of alignment of the FAR with solar industry best practices has also impeded the realization of solar power projects. Some of the key issues are as follows:

1) Assignment and Novation. The Government doesn't allow a winning bidder to sell the contract to another entity. This regulation is a quality control safeguard meant to make sure that the party who won the bid does the work. However, a PPA requires that the developer immediately novate the contract to a limited liability corporation (LLC), which gets sold to a tax equity investor. This step is required because only the investor has the tax appetite to fully take advantage of all the tax credits.

2) Site Access. Site access has been another sticking point. A land use agreement is necessary to give permission to developers and owners to gain access to government property to build and maintain the system. Commercial PPAs typically contain a legal provision of "quiet use and enjoyment" of the property for the life of the agreement.

10. "Subpart 41.1—General," Part 41—Acquisition of Utility Services (Acquisition Central, Accessed June 2, 2011), https://www.acquisition.gov/Comp/Far/05-25-1/html/Subpart%2041_1.html.

11. "Services for Executive Agencies," Title 40 U.S. Code, Pts 501: 2011 (Findlaw.com, Accessed June 2, 2011), http://codes.lp.findlaw.com/uscode/40/I/5/I/501.

3) Take or Pay. Under a PPA, the host must agree to buy all the electricity generated by the system because the owner rarely has an alternative off-taker. If the agency changes the way it behaves (for instance, deploying troops thereby cutting electrical usage), the system owner still needs to be compensated for the electricity it produces. However, the Government operates on a just-in-time basis to ensure that it doesn't pay for things it doesn't use.

4) Termination for Convenience. This FAR allows federal agencies to terminate contracts for convenience, but this stipulation imposes too much risk on investors who would have to pay a significant tax recapture penalty if the contract is terminated within the first six years.

With that said, there has been movement in Congress to pass legislation allowing 30-year PPAs, and work is being actively pursued to create a Federal PPA template to align government and business practices. For instance, a termination value schedule (TVS) has been used as a solution to the termination for convenience clause. The TVS facilitates needed cost recovery to the investor without the uncertainty of a cost presentation process following termination for convenience. Essentially, the TVS assures the investor that it will be made whole by setting an annual value or cost to terminate. The set value is the amount that the Government would have to pay to terminate the agreement before the end of the full term. This mitigates investors' risk while preserving the Government's right to terminate at any time.

How Recent Federal PPA Projects Have Been Implemented

Despite obstacles, several federal agencies have trail-blazed a path that is making PPAs available for other agencies. Some notable Federal PPA projects include:

- 14.2 MW solar system at Nellis Air Force Base
- 6 MW solar system at the U.S. Air Force Academy
- 2 MW solar system at the U.S. Army's Fort Carson installation
- 500 kW solar system on the U.S. General Services Administration's (GSA) Sacramento Federal Building
- 40 MW from multiple solar systems on Marine Corps and Navy bases commissioned by the Naval Facilities Engineering Command Southwest

12. Federal Energy Management Program, Quick Guide: Power Purchase Agreements (U.S. Department of Energy, June 2010), http://www1.eere.energy.gov/femp/pdfs/ppa_guide.pdf, P1.

13. Naval Facilities Engineering Command Southwest, NAVFAC Southwest Solar Energy Contract Will Generate 40 Megawatts (Navy.mil. March 2, 2010), http://www.navy.mil/search/display.asp?story_id=51636

The Nellis Air Force Base and Fort Carson solar projects offer insights into the specifics of the PPA structure and how they moved forward.

Nellis Air Force Base Paves the Way for Government PPAs

Nellis Air Force Base (NAFB) made headlines by commissioning one of the largest solar systems in the United States in 2007. The 14.2 MWdc solar project was structured as a 20-year PPA. Key features of the project at NAFB include:

- PPA price set below the utility rate
- RECs sold to Nevada Power (for state renewable portfolio standard (RPS) solar set-aside)
- Used utility service contract required under FAR Part 41
- Indefinite term with one-year termination notice (using FAR Part 41 PGI)
- 20-year ground lease under 10 USC 2667.

In this scenario, a strong market for renewable energy credits (REC) driven by state mandates was helped facilitate favorable economics for NAFB. Nevada's RPS requires the state to obtain 15% of electricity from renewable energy sources by 2013, and that was a key element creating the market for RECs. The size of the project also made it enticing to investors and developers, and available tax incentives further helped to offset costs. The end result is a solar system that annually saves the NAFB over one million dollars.

U.S. Army Fort Carson Teams With Western Area Power Administration (WAPA)

Established within Western Area Power Administration's (WAPA) jurisdiction, the U.S. Army's Fort Carson installation partnered with WAPA to execute a PPA. WAPA's power marketing authority allowed it to sign an extended power purchase agreement for Fort Carson, and consequently, the base now has a 2 MW solar power system. Some of the features of the project include:

- A fixed energy rate for the term of the PPA (no escalators)
- A 17-year contract with a 3-year option (via WAPA)
- Used 10 USC 2667 lease authority to set up a no-cost 20-year lease
- RECs sold to Xcel Energy (20-year contract)

A strong REC market and great solar resources helped make the solar project economically enticing to the investor, developer, and base. Subsequently, Fort Carson got a fixed energy rate for the term of the PPA, and with rising energy costs, this forecasts to be an increasingly beneficial financial position over the long-term. In this particular project, Fort Carson also turned a landfill into an asset. This created a winning scenario for the base, investor, and environment all through using a PPA.

Now that a path to engaging in a PPA is much clearer, the Government appears ready to take the next steps towards broader adoption of solar power. The next section explores the drivers that are further aligning businesses and the Government in realizing more solar projects.

19. U.S. Environmental Protection Agency, RE-Powering America's Land: Siting Renewable Energy on Potentially Contaminated Land and Mine Sites Fort Carson, Colorado Success Story (EPA, February 2009), http://www.epa.gov/oswercpa/docs/success_fortcarson_co.pdf.

20. Shah, P40.

WHY MOMENTUM IS GROWING FOR GOVERNMENT PPAS?

SECTION 4

Volatile energy prices and government mandates have made federal agencies seek out solar power projects, and PPAs have proven to be an excellent means to facilitate the realization of those projects in an economical way. As the demand for a federal PPA increases, more momentum is growing on the legislative front for a law that will make long-term PPAs accessible to all federal agencies and further align government regulations with solar industry best practices.

Cost-Cutting Necessities and Mandates Force the Issue

Cost savings and budget stability are compelling federal agencies to embrace solar power. According to the Pacific Northwest National Laboratory, "government agencies typically have long-term power requirements and can benefit from the budget stability a fixed power price provides." Additionally, the cost of that electricity usage is sizable. In Fiscal Year 2006, electricity consumption by federal buildings amounted to almost 25% of energy costs for all agencies. The total cost to the Government was approximately $4.3 billion, and the total electrical usage for the year was approximately 54.7 GWh. Furthermore, from Fiscal Year 2005 to 2006, the Government spent 8.6% more on electricity due to both increased usage and increased rates. Even with advances in energy efficiency, electrical consumption will continue to be significant for the Government, and solar power can help to stabilize the costs associated with it.

Along with rising electrical prices, government mandates have added additional pressure to agencies to find contracting mechanisms to realize solar power projects. The Energy Policy Act of 2005 mandated that federal agencies obtain 5% of their electrical needs from renewable energy sources as of 2010. That mandate increases to 7.5% of electrical energy needs by 2013. Federal on-site projects are encouraged because under EPACT, federal agencies are eligible for double credit in meeting renewable energy goals. Furthermore, executive orders and specific goals within departments like the DoD (e.g. the National Defense Authorization Act of 2007) are adding further incentives for federal agencies to find financial solutions to embrace renewable energy.

Current Paths to Long-Term PPAs

The aforementioned factors have encouraged agencies to look for intermediaries and innovative solutions to engage in PPAs. Agencies under the DoD have used the Secretary of Defense's authority to engage in long-term agreements. DoD 10 USC 2922a allows the Secretary of Defense to delegate the authority to sign agreements of up to 30 years in length. WAPA also brokers PPAs since it has the authority to engage in extended term PPAs for federal agencies. One limitation for WAPA, however, is that its authority spans only 15 states.

While there have been a few solar projects completed under Energy Saving Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs), DoD agencies appear to be moving towards the 2922a solution as their go-to authority in setting up PPAs.

Increasing Optimism for Federal Legislation

Growing commitment from Congress to extend PPA terms to 20 or 30 years in length also indicates that the PPA may become readily available to civilian agencies as well. In 2009, the U.S. Senate Committee on Energy and Natural Resources passed the American Clean Energy Leadership Act. Provisions in S. 1462 expanded federal PPA authority to allow agencies to enter into PPAs for renewable energy for up to 30 years.

The U.S. House of Representatives passed a similar provision in 2009 under H.R. 2454, giving federal agencies 20-year authority. Both bills would require the "Secretary of Energy, through the Federal Energy Management Program, to publish a standardized renewable energy purchase agreement that contains commercial terms and conditions that Federal agencies may use to acquire electricity generated from a renewable energy resource." This "PPA template" would help to resolve FAR challenges and ultimately realize more projects.

Final Hurdles to Congressional Approval

The remaining challenge to get a long-term PPA through Congress is the budget score it received. Scoring is a way that the Congressional Budget Office (CBO) estimates the financial cost of a bill, and the PPA portion of the Senate bill has a score of over $890 million for federal civilian agencies. Unfortunately, the score doesn't take into account key benefits from the PPA such as long-term utility savings. With budgetary concerns weighing heavily on politicians' minds, any measure appearing to be costly has its work cut out for it.

The challenge in the coming years will be to show lawmakers that the PPA's CBO score doesn't tell the full story. Explaining how PPAs will benefit the economy through solar power jobs and how PPAs offer a way towards national energy independence are two critical points that will need to be highlighted. Civilian agencies' growing need for a clear financial solution to obtain renewable energy should also encourage action on the legislative level.

With so much momentum and growing demand for solar power, federal agencies need to be ready to start a solar project. The first steps for initiating a PPA are outlined in the following section.

1. Culligan and Botkin, 2007, "Impact of Tilt Angle on System Economics for Area Constrained Rooftops", European Photovoltaic Energy Conference Proceedings, 2007

HOW TO PREPARE FOR A SOLAR POWER PURCHASE AGREEMENT

SECTION 5

There are a number of intricacies to be aware of when engaging in a solar power purchase agreement (SPPA). While solar developers manage much of the heavy-lifting for realizing a project, there are essential steps to follow to make sure that the solar system is delivered in a timely manner and produces the maximum energy benefit.

Selecting Members for a Core Project Team

Key members to include on a core project team include a champion, decision-maker, energy manager, facilities manager, contracting officer, attorney, solar power expert, and electrical engineer as well as subject matter experts regarding the budget, real estate, environment, sustainability, safety, and other issues. According to the Power Purchase Agreements for Renewable Energy presentation, a small team is ideal as it offers flexibility, a sense of project ownership, and an ability to respond quickly.

Establishing roles and responsibilities early on is essential as well as outlining goals such as maximizing energy output or highest net present value (NPV). A champion is crucial as this person drives the project and gets buy-in from management. It is also necessary to determine if there are non-federal stakeholders (other than the utility) who will have an interest in the project and need to be included.

Investigating Solar Technologies, Economic Viability, and the PPA Process

Many different technologies are available just in the photovoltaics segment of solar power, so reviewing a variety of technologies is essential. The cheapest solution may not be the best. Risks associated with different solar power solutions should be evaluated in the context of creating a reliable, long-term energy solution. Developing a timeline for this research and the overall scope of the project should be a priority. Regular meetings will help the project to stay on track. Some important financial aspects to investigate include:

- PPA power cost
- REC cost/income
- O&M costs
- Standby tariff costs
- Tax incentives and rebates
- Construction costs

RECs are particularly important to understand. Many times, an agency allows the developer to retain solar RECS (SREC) to help lower the PPA rates. In so doing, "it is important to note that selling a project's SREC denies the owner the right to claim environmental benefits, including counting them toward the federal renewable energy requirements." However, if an agency is in an area where it can buy back cheaper RECs, then this will ensure that the agency receives full credit and in some cases double credit against federal goals.

Researching State, Municipal, and Local Utility Laws and Regulations

Section 591 in Title 40 of the U.S. Code states that federal agencies may not "purchase electricity in a manner inconsistent with state law governing the provision of electric utility service." However, there are exceptions that allow a department head leeway when a decision influences energy savings for the agency. Additionally, the use of the 10 USC 2922a authority appears to nullify this obstacle. Needless to say, it's important to perform due diligence on the laws of each state and municipality.

Involving the local utility company early on is important not just for legality, but for the logistics regarding interconnection as well. There are also concerns for insuring the system. "While many governmental entities may be able to self-insure, it is important to investigate the minimum insurance required by your utility's interconnection rules."

Reviewing Potential Sites for Development

An agency should analyze solar potential at different sites. Sites will need to be reviewed for environmental impact under the National Environmental Policy Act (NEPA) and gain clearance. The developer will perform various surveys including geotechnical, hydrological, and others before and during the project. Finding the right land use agreements will be important to ensure that the system owner has site access for construction and maintenance, respectively.

Developing and Soliciting Proposals

Large-scale solar projects can improve the economics and feasibility for all parties by attracting more potential investors and getting the most competitive bids. Projects less than 1 MW are typically less attractive to developers, investors, and agencies because the transaction costs are so high. Coupled with the additional costs of NEPA, contracting with the Government requires large projects to carry these fixed costs. According to the NREL, "if the aggregate demand is significantly less, then it may not receive sufficient response rates from developers or it may receive responses with expensive electricity pricing." Aggregating multiple smaller sites together into one proposal can be a way to address this issue and make a winning situation for all parties.

These are the initial steps to prepare for a solar PPA. Further steps will involve contract development, permitting, and project oversight. The developer will perform project design, procurement, construction, and commissioning. With a dedicated core project team and the right solar partner, a federal agency can realize a solar power project expediently and cost-effectively.

CONCLUSION

Solar power and PPAs have captured the attention of private industry and the federal government. For all sectors, research company, Gartner predicts "the North American market for PV solar systems under a PPA contract or a FIT contract will reach 2.9 gigawatts (GW) in PV generation capacity in 2013, for an estimated $8 billion in capital expenditure." Clearly, solar PPAs look to be headed towards broad implementation in the coming years. Government agencies in WAPA's jurisdiction and those under the Department of Defense can already obtain solar projects through long-term PPAs. Pioneers like Nellis Air Force Base and Fort Carson have proven the feasibility of the PPA for large-scale solar projects. Furthermore, they demonstrate the financial wisdom of having a cost-control mechanism that locks in electricity rates for 20 or 30 years. PPAs protect agencies from performance risks and maintenance costs, and they require little to no upfront expenditures. Now, federal agencies have a viable financial vehicle to meet goals without having to become experts in solar power.

As energy prices rise, solar technology costs decline, and federal mandate pressures mount, more and more federal agencies are turning to PPAs. Locking in a predictable electricity rate for years to come makes too much financial sense. The time for the federal power purchase agreement has arrived.

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37. Jim Hines & Al Velosa, The North American PPA Market Is Recovering and Getting Ready for Massive Changes (SEMI PV Group - The Grid, August 2010), http://www.pvgroup.org/NewsArchive/ctr_039446.

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