Clean Coalition comments on proposed LADWP Feed-in Tariff Program

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The Clean Coalition is pleased to be able to provide feedback on the Los Angeles Department of Water and Power's (DWP) proposed feed-in tariff and competitive solicitation programs for renewable energy.

The Clean Coalition is a California-based nonprofit organization whose mission is to accelerate the transition to local energy systems through innovative policies and programs that deliver cost-effective renewable energy, strengthen local economies, foster environmental sustainability, and enhance energy security.

To achieve this mission, the Clean Coalition promotes the vigorous expansion of Wholesale Distributed Generation (WDG) — a market segment defined by renewable energy generation that connects to the distribution grid and serves local load. The Clean Coalition drives policy change to remove major barriers to the procurement, interconnection, and financing of WDG projects. Furthermore, to enable higher penetration of clean local energy generation, the Clean Coalition drives policy innovations that support the deployment of Intelligent Grid (IG) market solutions — such as demand response, energy storage, and advanced forecasting.

I. Discussion

a. The FIT program size should be increased to 150 MW

The Clean Coalition strongly recommends that the Bundled Project Group be eliminated and the MW allocation transferred back to the FIT program. As the CLEAN LA Solar Coalition (led by the Los Angeles Business Council) comments note, DWP sprung the idea of a separate 75 MW program with almost no notice

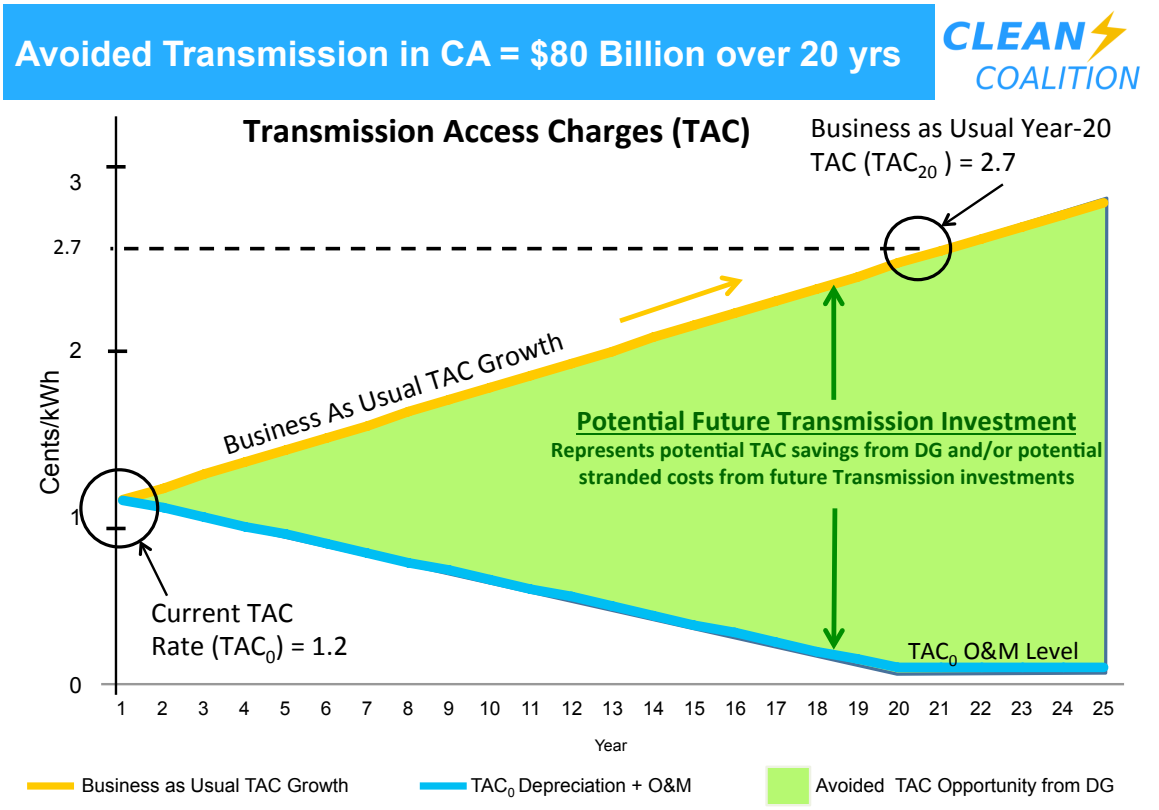
and directly contradicted the understanding of numerous parties involved in the process over the last 2-3 years that the program would be 150 MW. The Clean Coalition is a member of the CLEAN LA Solar Coalition and we strongly concur with this key point. We quote the CLEAN LA Solar Coalition's draft letter (to be submitted this week) here:

> While we value the LADWP's partnership in developing the program to date, we are deeply concerned by the revised FiT proposal as described in the LADWP FiT presentation prepared for October 17 and 18 workshops. The CLEAN LA Solar Coalition strongly opposes this untested "bundled project group" proposal, which was introduced without notice at a very late stage in the FiT development process. We believe such a "bundled" program is inconsistent with the 150 MW program approved by the Mayor and City Council in April 2012 and which the LADWP has promoted for our city.
>
> Not only is this untested proposal a deviation from the clearly stated wishes of our elected leaders, it also undermines a principal objective of the FiT program: to spur economic activity and generate new, private-sector in-basin jobs. Bundling a significant portion of the FiT program into the existing large-scale, utility-run solar program – some of which is generated outside the L.A. basin – threatens to drive away local jobs and the new investment our city needs.

DWP's economic rationale for the Bundled Project Program appears to be that utility-scale projects will be able to leverage economies of scale to provide solar power at rates significantly below the FIT pricing. However, ratepayers will have to realize substantial cost benefits to justify the delays in project development and reduced participation in DWP's solar program that will occur from pursuing only one or a few larger projects rather than many distributed solar projects. Larger projects fail to provide all the distributed solar benefits that the proposal itself accurately states will accrue from the FIT program – what we describe as "locational benefits."

For example, in-basin FIT projects will avoid all costs associated with transmission lines. The City of Palo Alto recently concluded, in creating its own FIT program, that the transmission-related costs amount to 3 c/kWh when levelized over the 20-year contract term. A good proxy for the actual cost of transmission lines for a public utility like DWP is the Transmission Access Charge assessed on ratepayers and paid to CAISO for the use of CAISO transmission lines. See Figure 1 for an illustration of these costs.

Figure 1. *Generalized TAC projections (Source: Clean Coalition and data from CAISO).*



Due to TACs and other "locational benefits," the full cost of energy projects is often overlooked, masking the superior value of Wholesale Distributed Generation. Figure 2 illustrates the superior value of smaller projects that arises from savings on transmission, etc., which collectively comprise "locational benefits." These are not exact figures, but are meant to illustrate the general point that transmission costs should not be overlooked in discussions regarding cost of energy for energy projects.

Figure 2. *Superior value of WDG (Sources: CAISO, CEC, and Clean Coalition; see full original analysis from July 2011 at www.clean-coalition.org/studies).*

	Distribution Grid					T-Grid
PV Project size and type	**100kW roof**	**500kW roof**	**1 MW roof**	**1 MW ground**	**5 MW ground**	**50 MW ground**
Required PPA Rate	**16¢**	**15¢**	**14¢**	**12¢**	**11-12¢**	**9-11¢**
T&D costs	**0¢**	**0¢**	**0¢**	**0¢**	**0¢**	**3-4¢**
Ratepayer cost per kWh	**16¢**	**15¢**	**14¢**	**12¢**	**11-12¢**	**12-15¢**

The Bundled Project Program is also far less certain than the FIT program in terms of project success due to the larger project size and the interconnection issues and permitting issues that come with larger projects. Historically, larger projects have had much higher rates of "contract failure" than smaller projects.

We recommend, instead of allocating half of what was supposed to be a FIT program to the Bundled Project Program, that DWP pursue larger solar project development on its properties independently of the FIT program.

We also recommend, if DWP decides to continue with a separate Bundled Project Program, to ensure that bids do not reflect unrealistic prices for these projects (which may then fail to be built), **that the bundled project bids should be compared on cost, taking into account TACs and other locational benefits, against comparable unbundled utility-scale and FIT procurement for the same installation schedule**.

b. The Clean Coalition generally supports DWP's pricing proposal for the FIT program

The Clean Coalition agrees that a 10% targeted Internal Rate of Return is appropriate and will help to ensure a viable FIT program. (Slide 20). We urge the DWP board to approve the pricing proposal, but with some modifications as described below. In particular, our support for the proposed pricing program is contingent on DWP including the "up ratchet" price mechanism discussed below, which will provide a mechanism to ensure that the program is effective.

c. Six-month periods should be reduced to three-month periods

The Clean Coalition also recommends that the six-month periods for each 15 MW increment be reduced to three months. We understand that the rationale for six months is to allow for market prices to continue to drop, and for ratepayers to benefit accordingly. However, based on our proposed pricing mechanisms below, we believe that DWP could deploy its full program in half the projected time, with about the same level of cost savings. All the benefits of solar development for DWP ratepayers would thus accrue in half the projected time.

d. Pricing changes should be clearly volumetric

We also urge DWP to degress prices based only on volume and not time periods ("volumetric degression"). Slide 15 (and 22) states: "Set price will only decline once 15 MW has been requested." It is not clear, however, from this statement whether DWP means to degress prices only once 15 MW have been claimed ("requested") in the beginning of the program or whether DWP means to follow a strict volumetric price degression in terms of 15 MW increments. Moreover, it is not clear whether, for example, the price for the second 15 MW increment will degress if only 14.7 MW, for example, was requested in the first increment – or if the full 15 MW increment must be claimed for degression to occur in the next increment.

The Clean Coalition has pioneered the concept of Volumetric Price Adjustment ("VPA") in the US. We have attached our best practices brief for more information. VPA refers to both downward and upward price adjustments based

on uptake volume. With respect to DWP's new FIT, we recommend a VPA as follows:

- Prices degress only when each 15 MW increment is fully claimed, regardless of when each increment is fully claimed. As such, the price degression may deviate from the regular stair-step chart on page 22. This is the case because, under our recommendations herein, each 15 MW increment may not be fully claimed in each six-month period or may be claimed earlier.
- We also recommend that an "up ratchet," i.e., an upward price adjustment mechanism, be included as part of the FIT program, instead of only a price degression mechanism. We recommend an up ratchet because there is no guarantee that the starting price is adequate to spur significant interest in the program, or that the recent trend in declining solar equipment pricing will continue, or that favorable tax treatment for solar projects will continue. New duties have been imposed by the federal government on some Chinese solar panels and the federal 30% ITC will expire at the end of 2016, declining to 10%, which are among many factors that may lead to an increase in price for solar power. Accordingly, for DWP to ensure the success of the program we recommend that an up ratchet be included as follows:
    - If less than 100% but more than 50% of the 15 MW increment is claimed in the three months after that increment is offered, that 15 MW increment will remain open and no price degression will occur
    - If less than 50% of the 15 MW increment is claimed in the three months after that increment is offered the price will increase by 5 percent (0.7 c/kWh) in the next three-month period, or until the 15 MW is fully claimed
    - If the extended 15 MW increment is 100% claimed before the end of the second three-month period, a new 15 MW increment will be offered at the beginning of the next month and the price will degress 5% (0.7 c/kWh)

An up ratchet price mechanism will require that DWP keep an application queue, as discussed below, in order to avoid having parties apply more than once to the program.

If DWP accepts our, and other parties', recommendation to increase the program size for the FIT, the up ratchet numbers should be adjusted accordingly.

e. A price cap should be included

To contain costs that may arise from an up ratchet VPA price mechanism, we also recommend that a price cap be included, set at 18 c/kWh. This price cap will ensure that ratepayers are not on the hook for program costs above a pre-established maximum level, while also ensuring that the program works as planned.

Slide 23 of the DWP presentation acknowledges as a limitation in the proposal that there is "no price increase mechanism."

f. Each 15 MW increment should remain open until fully claimed

The presentation is not entirely clear with respect to the treatment of unclaimed capacity in each increment. Slide 15 states: "Any unrequested MWs from an allocation will not carry over to any subsequent 15 MW allocation; pacing may need adjustments in future years for unrequested MW." However, if this is read literally the program could entail far less than 75 MW because allocation will not carry over to "any" later allocation.

We urge DWP to clarify this language and to, instead, keep each 15 MW increment open until fully claimed. Additionally, prices should not degress, as discussed above, until each 15 MW increment is fully claimed – regardless of the timing.

g. DWP should consult with SMUD on interconnection procedures

We also urge DWP to consult with SMUD on interconnection procedures.[1] SMUD's 120 MW FIT program has been a model for the nation in terms of

[1] *See* Presentation for the California Solar Energy Collaborative, May 11, 2010, Presented by Gary Lawson of Sacramento Municipal Utility District (SMUD), "Hypothesis: A Utility Can Procure UtilityScale PV for 14.4¢/kWh. SMUD's Feed-In Tariff…A Summary to Date," available at http://solar.ucdavis.edu/files/publications/presentations/smud-feed-in-tariff.pdf.

interconnection, with just two SMUD engineers completing interconnection studies for the full program allocation in only two months. SMUD uses a modified Rule 21 for interconnection and we urge DWP to emulate SMUD in terms of speed and clarity of interconnection procedures.

h. An online application portal should be developed

We recommend that DWP create an online portal for applications to be submitted, with fillable forms and/or an uploadable Excel template to ensure standardization and easy processing of FIT and interconnection applications. This mirrors current best practices by many utilities around the country, including PG&E here in California.[2]

i. An application queue should be created

We agree with Ecoplexus's comments that an application queue should be added to the FIT program, as is the case with the new SB 32 program for investor-owned utilities (Re-MAT, pursuant to D.12-05-035), with certain minimum criteria for being able to enter the queue, such as a deposit. However, we do not support requiring any interconnection or site control criteria to be placed into the queue, as the need for these kinds of criteria have not been demonstrated in other comparable programs. Rather, the application queue should serve primarily as a way to avoid requiring applicants to submit applications more than once. If a party submits an application at the start of the FIT program but is denied a PPA, it shouldn't have to re-apply for the next window. Rather, the applicant, if certain minimum criteria are met, will be placed in the queue and will have a chance to accept a PPA in the next program increment offered by DWP, based on the principle of first-come, first-serve.

[2] http://www.pge.com/mybusiness/customerservice/nonpgeutility/generateownpower/wholesalegeneratorinterconnection/request/temp/.

II. Conclusion

The Clean Coalition urges DWP to accept our program recommendations and we look forward to seeing DWP implement a highly successful program.

Respectfully submitted,

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Volumetric Price Adjustment – Policy Mechanism Brief

The success of an energy procurement program often hinges upon determining the appropriate fixed price paid for energy. A Volumetric Price Adjustment (VPA) is an effective and easy-to-implement market-responsive mechanism that addresses the critical need to set the correct price at which energy is purchased, while also lowering risk to ratepayers. When purchasing electricity wholesale from an independent generator, utilities offer the VPA price in long-term power purchase agreements (PPA) and based on the volume of response to the offer, the price adjusts upward or downward for future PPAs. The Clean Coalition believes that Volumetric Price Adjustment has emerged as a best practice for maintaining the appropriate fixed price of energy over the duration of an energy procurement program.

Background

Fixed-price, long-term contracts are proven to be the world's most effective policy to facilitate the development of small to medium scale energy generation projects that sell energy directly to a utility. This type of contract guarantees the essential cash flow for the seller, while providing cost certainty to the utility. Since renewable energy generation facilities have zero fuel costs but high upfront costs, these facilities benefit from long-term contracts to amortize the initial investment and attract lower financing rates.

Determining the appropriate fixed price paid for energy is a major challenge in designing fixed-price, long-term contracts. Historically, the most widely used mechanisms to set a price for energy have been administrative, top-down price setting and auctions. However, both of these mechanisms have been criticized on several fronts. Administratively set fixed-prices are only successful if the set price matches the market. If the price is set too low, there is insufficient participation in the program, and if the price is set too high, then a "gold rush" may ensue and the buyer will overpay for energy. Auctions — another popular mechanism for energy pricing — also have design flaws. Auctions do not send clear and consistent pricing signals to the market, in the form of a predictable price, necessary for investment and development of energy projects. Additionally, the high cost for bid preparation and qualification, combined with low certainty of success, discourages participation. These factors allow manipulation of the auction process, including speculative "low-ball" bids prone to high failure rates, which lead to higher energy prices over time due to increased risk and uncertainty in procurement.

VPA Overview

A Volumetric Price Adjustment allows the price offered to developers to adjust as the market responds to the program. This policy mechanism has been proven as a worldwide best-practice for designing wholesale procurement programs. A VPA is based around Market Response Tiers, which are blocks of generating capacity that can be contracted at a given price. VPA designers must determine the capacity for each Tier, the magnitude of price adjustments, and the length of the time in each Tier to gauge market response before the price is adjusted. In each Tier, if very few generators take the price after the predefined period, then price automatically adjusts upwards in the Tier. Conversely, if a full Tier is contracted at the offered price, then the offered price automatically adjusts downward for the next Tier. The price offered continues to adjust for each Tier until the full capacity of the procurement program is contracted. This market responsiveness allows programs to find and offer the best price for developers and ratepayers, and adjust as market conditions change.

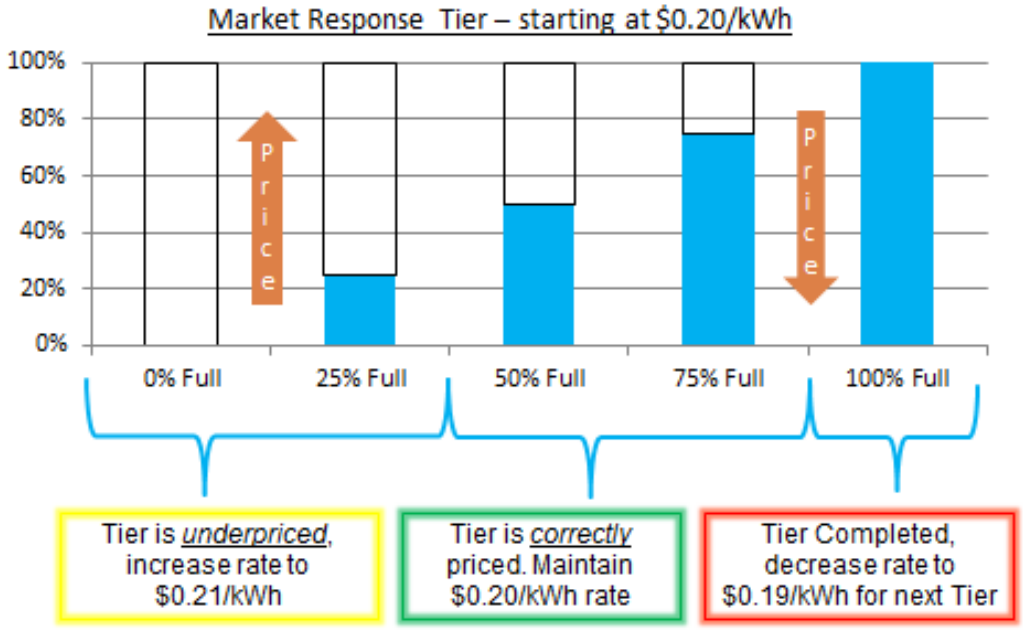
Advantages

There are several advantages of Volumetric Price Adjustment over competing pricing mechanisms and methods. A VPA allows the contract price offered to developers to adjust as the market responds, which enables a program to efficiently meet its procurement target without administrative recalculation to estimate the correct price. Pricing with a VPA is also fully transparent, resulting in market efficiency and driving towards to lowest viable prices, while also limiting risky speculation. Another key advantage of VPAs is driving competition between sellers, which results in predictable reductions in the price of energy. A VPA results in a lower project failure risk when compared to an auction mechanism, as generators are not trying to win a bid, and are far less likely to contract at a price that is highly speculative or too low for the project to succeed. Finally, a VPA offers visibility and control over program costs. Market Response Tiers limit the amount of energy/capacity contracted at the offered price, so policymakers are able to control the rate of uptake, the maximum price paid for energy, and total expenditures for purchased energy.

Mechanism Design

There are several important characteristics of a well-designed VPA. Policymakers implementing the mechanism must decide the total generation capacity desired for each market segment, defined by a combination of technology and project size. Next, the market segment must be divided into Market Response Tiers, with equal amounts of capacity in each Tier. A Market Interest Queue is created for each market segment, and generators can submit an application to the program to be placed in a first-come, first-served queue to be offered a contract.

Using a Volumetric Price Adjustment means the starting price does not need to be precisely right. A program launches with a starting price for each segment set to match the applicable avoided cost to the utility. At the end of each month or period, for each segment, the utility reviews the amount of capacity in the current Tier that has been contracted in order to determine future pricing. If less than 50% of the current Tier has been contracted, and the Queue has a high number of interested parties, the current Tier remains open and the price for new contracts is increased by 5%, effective immediately. If 100% or more of the current Tier has been contracted, the current Tier is closed and the price for new contracts is decreased by 5% for the next Tier, which is opened immediately. Finally, if between 50% and 100% of the current Tier has been contracted, the current Tier remains open and the price for new contracts is unchanged.

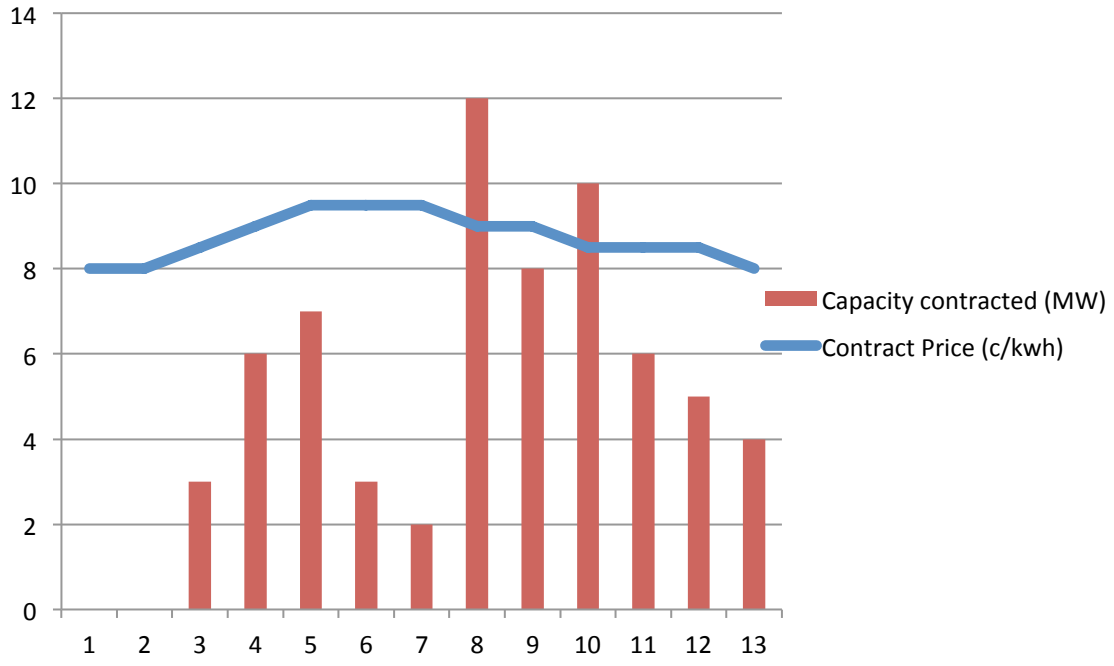


Design Considerations

Key considerations must be taken into account when designing a Volumetric Price Adjustment. The number and size of the Tiers should be balanced so that there are a sufficient number of adjustment opportunities, but also more than a handful of projects per Tier. Additionally, the percentage change per adjustment depends on the speed at which the program should change to find the market price. For example, if the starting price is very low and adjustment sizes are small, the program may not be sufficiently dynamic to respond to the market, and there may be low interest in the program for many months. Alternatively if the price is very high and adjustment sizes are small, then the utility will overpay a significant amount. Program designers should also incorporate a price floor to discourage risky speculation, and a price ceiling to limit the rise in contract prices. Finally, a stable period should be designated in the VPA timeline within which the price does not change, preventing the price from fluctuating up and down at every time period.

The below chart demonstrates how the contract price and capacity contracted in an energy procurement program utilizing a VPA change over time. Each month (marked on the X-axis), the price (blue line) is adjusted based the capacity contracted from the previous month (red bars) within a 20 MW Market Response Tier, and this process continues through the duration of the program.

VPA Mechanism – Dynamic Price Changes



Price changes in this example (20 MW Tiers):

- Months 1-4, less than 10 MW contracted so price rises
- Months 5-6, total MW contracted over 10 but below 20 MW so price holds steady
- Month 7, first Tier is completed and price decreases
- Months 8-9, second Tier is filled up and price decreases again
- At third Tier price, takes 3 months to complete before price decreases

Summary

A Volumetric Price Adjustment (VPA) is a policy mechanism that allows the price offered in fixed-price power purchase agreements to adjust according to the market, and has emerged as a worldwide best-practice for designing wholesale energy procurement programs. The key feature is responsiveness to market volume, which enables programs to find the best price for developers and ratepayers by rising and falling as market conditions change without administrative recalculation. Finally, a VPA can be customized and tailored to program and community objectives, through setting appropriate sizes for the overall procurement program, Tiers, adjustment levels, and adjustment time periods.