**UNITED STATES OF AMERICA**

**BEFORE THE**

**FEDERAL ENERGY REGULATORY COMMISSION**

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| Implementation Issues Under the Public Utility Regulatory Policies Act of 1978 | Docket No. AD16-16-000<br><br>June 7, 2016 |

**CALIFORNIA COGENERATION COUNCIL TECHNICAL CONFERENCE OPENING STATEMENT**


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## I. INTRODUCTION

The California Cogeneration Council ("CCC") is an ad hoc organization representing operating combined heat and power ("CHP") facilities. It was formed in 1985 to coordinate efforts among businesses in California to develop and operate qualifying facilities ("QFs") under the Public Utility Regulatory Policies Act of 1978 ("PURPA"). Thirty-one years later the need to protect the viability of CHP QFs and the businesses they support continues.

The CCC requested participation in the Federal Energy Regulatory Commission's ("FERC's") technical conference to explain the devastating impact that the elimination of the remaining mandatory purchase obligation under PURPA would have on current operations and potential CHP development. Simply put, based upon the California experience, elimination of the mandatory purchase obligation under PURPA basically will render meaningless PURPA's policies and goals to encourage CHP development and operation and will undermine the significant contributions that this valuable distributed generation resource can provide as the nation modernizes its electric grid.

## II. THE ENACTMENT OF PURPA

Prior to PURPA, it was commercially infeasible for anyone other than a state franchised public utility to develop generation. The energy crises of the 1970s prompted Congress to encourage innovation by establishing a legal framework for non-incumbents to develop renewable and energy efficient generation technologies by requiring incumbent utilities to buy their output. The significance of PURPA was that it established three essential elements for non-incumbents to develop economically viable alternatives to incumbent utility generation. Those are (1) the mandatory purchase obligation, (2) avoided cost pricing, and (3) the requirement that incumbent utilities provide non-discriminatory backup, standby and maintenance services to QFs. These essential elements led to the successful development of competitive markets. That success, in turn allowed Congress in 2005 to authorize the Commission to relax the mandatory utility purchase obligation, provided the Commission can make the necessary finding that taking this step will not deprive QFs of meaningful opportunities to sell their power. That issue is the focus of the panel on the mandatory purchase obligation.

## III. CALIFORNIA THEN AND NOW

There is a long and exemplary history of support for CHP in the California legislature and at the California Public Utilities Commission ("CPUC"). In fact, starting in the early 1980s, California established standard offer agreements (now referred to as “Legacy PPAs”) to comply with PURPA’s mandatory purchase obligation. Decades of battles over avoided cost pricing under those Legacy PPAs followed. Without the mandatory put obligation and avoided cost pricing there would not have been a successful PURPA program in California.

As the Legacy PPAs expired the investor-owned utilities (“IOUs”) challenged their obligations to enter into new PPAs under PURPA, with the significant exception of PPAs for renewable QFs under California’s state-legislated renewable portfolio standard (“RPS”). RPS requirements did not apply to CHP resources, which made it particularly difficult for CHP owners to obtain new sales agreements with IOUs for their electricity. The CPUC ordered the IOUs to enter into short term PURPA agreements with QFs. However, the IOUs challenged contracting obligations and avoided-cost pricing at the CPUC and in the state courts. No long term PPAs were being executed. These challenges created an untenable business climate for QFs based upon the risk that a successful challenge of the CPUC decisions might result in termination of contracts and/or retroactive price reductions.

## IV. CHP SETTLEMENT OCTOBER 2010

Prompted by the CPUC, on October 8, 2010, the IOUs, the organizations representing CHP interests, and the state’s principal consumer groups entered into a comprehensive settlement agreement (“Settlement Agreement”). Among other things, it (1) resolved the legal challenges, and (2) set up a program for utility procurement from CHP QFs (the “CHP Program”). Under the CHP program there were two program periods: the Initial Program Period, with a 3,000 MW procurement obligation through CHP-only solicitations and bilateral contracting; and, a Second Program Period in which procurement was to be based on greenhouse gas (‘GHG”) reduction goals for CHP. The CHP fleet existing at the time of the Settlement Agreement was providing 1.67 million metric tons (“MMT”) of GHG reductions and the California Air Resources Board (“CARB”) had established a statewide goal for an additional 6.7 MMT reductions from CHP development by 2020. Notably, the CHP Program ends once targets are achieved, or by December 31, 2020, whichever comes first.

Parties to the Settlement Agreement also agreed to support IOU applications at FERC to terminate the mandatory purchase obligation for QFs above 20 MW. In theory, the state’s RPS, the CHP Program, and the energy market (operated by the California Independent System Operator) would provide viable alternatives for the larger QFs. For QFs of 20 MW and below, the mandatory purchase obligation was maintained. The Settlement Agreement included a new standard offer agreement for these purchases. There was not a specific requirement for renewable energy procurement in the Settlement Agreement as that was covered by California’s RPS legislation, although renewables could take advantage of the new 20 MW or below standard offer.

## V. THE OUTCOME OF THE CHP PROGRAM

Unfortunately, the CHP Program has not preserved viable purchase option for QFs over 20 MW. First, in their initial solicitation under the CHP Program the IOUs focused on the procurement of non-CHP products. Southern California Edison ("SCE") and Pacific Gas & Electric Company ("PG&E") procured 340 MW of resource adequacy ("RA") capacity under RA-only PPAs that essentially acquired capacity with no associated energy. The CPUC subsequently eliminated RA-only PPAs from the CHP Program. Second, in the Initial Program Period, the IOUs procured more than 1,000 MW[1] from utility prescheduled facilities ("UPFs"), which, as provided under the Settlement Agreement, were CHP QFs that would convert to exempt wholesale generator ("EWG") status, no longer being subject to QF operating and efficiency standards and thermal use requirements. EWG facilities can be freely dispatched and scheduled. Converting CHP resources from the PURPA to the EWG regime means that the dual thermal-electric efficiency of CHP is lost.

Worse yet, CHP QFs that were awarded contracts often offered differing levels of dispatchability, even if this compromised efficiency. Companies bidding new greenfield CHP developments in the RFOs were not successful. The prospects for the Second Program Period are even more dire. PG&E has met its MW and GHG emissions reduction target for the CHP Program, leaving no further procurement options for new or existing CHP greater than 20 MW. SCE and San Diego Gas & Electric Company are in the midst of CHP solicitations, but have no obligation to procure additional MW before the 2020 target deadline. Further, the IOUs are advocating before CARB to remove CHP as a GHG emissions reduction strategy, which would eliminate the GHG target envisioned in the Settlement Agreement for the Second Program Period.

With (1) the termination of the mandatory purchase obligation for QFs above 20 MW, (2) IOU procurement focused in the Initial Program Period on RA-only and UPF agreements and (3) little to no procurement obligation in the Second Program Period, the CHP Program has not provided a meaningful alternative to the mandatory purchase obligation. As the remaining Legacy Agreements or Initial Program Period agreements (which had terms of just 7 years) expire, CHP QFs greater than 20 MW will have no viable options for the sale of excess energy.

The second option considered by FERC in terminating the mandatory purchase obligation for QFs above 20 MW was the perceived opportunity to sell power into California's markets. For two reasons, this has not proven to be a viable option. One, there is no capacity market in California and the only thing close is RA contracting which is limited in availability and

[1] Joint Investor Owned Utilities preliminary CHP Semi-Annual Report, April 1, 2016, CPUC R.16-02-007

duration. In other words, there simply is no market for CHP baseload firm capacity. Two, the economy energy markets that exist do not provide the certainty needed to support baseload energy generation. CHP facilities may not get dispatched in the day ahead or real time markets and prices are uncertain. If the CHP operations had the option to curtail operations in response to dispatch and price signals, that uncertainty might be manageable. However, CHP QFs serve the baseload thermal requirements of their hosts, which means that no such curtailment flexibility exists.

Based upon limited IOU procurement of CHP products in the CHP Program and the absence of viable market options, industrials and manufacturers are responding by shutting down CHP facilities and installing conventional boilers to meet ongoing or increasing thermal requirements.[2] Contrary to the ongoing goal of PURPA, they are reconfiguring to pre-PURPA operations where waste heat is vented without the production of valuable electric energy. Further, to the CCC's knowledge, since the start of the CHP Program there has been no new CHP exceeding 20 MW developed in California.

## VI. CHP IN CALIFORNIA IF THE REMAINING MANDATORY PURCHASE OBLIGATION IS RETAINED

Retaining the mandatory purchase obligation for small QF resources means a federally mandated purchaser for the excess electric output from CHP QFs. This is particularly important in California as existing contracts terminate and the CHP Program expires in 2020. As a preliminary matter, the continued operation of CHP QFs will support the energy efficiency and supply goals of PURPA. The relevance of this is highlighted by the shutdown of the San Onofre nuclear plant and conventional gas-fired steam generation using once through cooling, as well as the potential reliability consequences for both electric and natural gas customers due to the unavailability of the Aliso Canyon natural gas storage facility. Similarly, as California and other states encourage the introduction of ever greater amounts of renewable energy resources into their power markets, there is a growing need to balance those variable and peaking resources with baseload resources. Continuing the mandatory QF purchase obligation for small QFs will help to further these goals.

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[2] For example, according to comments filed in September 2014 by CHP advocates (CAC-EPUC) in the CPUC Long Term Procurement Plans proceeding (R.13-12-010) considering CHP issues, the oil and gas industry in California, despite the CHP Settlement, chose to install or modify steam generators instead of developing CHP. Over the period of July 2010 through August 2014, the San Joaquin Valley Air Pollution Control District issued air permits to enhanced oil recovery steam generators rated at over 4,700 MMBtu/hour. This represents approximately 1,600 MW of unbuilt CHP capacity in this single area of the State.

For California, the importance in retaining the PURPA mandatory must take obligation for QFs of 20 MW and below cannot be overstated. Specifically, two contracts are available for CHP QFs no larger than 20 MW and both are based on PURPA: (i) a PURPA PPA (available to new and existing QFs) and (ii) an AB 1613 PPA available for new highly efficient CHP QFs.[3] By maintaining the current PURPA mandatory purchase obligation smaller CHP QFs would continue to have a viable option for sales of excess electrical power. Also, larger CHP QFs could recertify at 20 MW or below to take advantage of the remaining mandatory purchase obligation. Even though downsizing can compromise energy efficiency and thermal/electrical balance, limited CHP is certainly better than no CHP.

## VII. CHP IN CALIFORNIA WITH ELIMINATION OF THE REMAINING MANDATORY PURCHASE OBLIGATION

If the remaining mandatory purchase obligation is eliminated, so too will be "beyond the fence" CHP operations and the benefits of CHP QFs, to the detriment of California and its citizens. While some CHP QFs could reconfigure their operations so that all of the generated thermal and electrical power would be used on site, large thermal requirements routinely support large CHP QFs and the generation of excess electrical power. Providing cogenerators a purchaser for this excess electrical power is critical and goes to the very essence of PURPA.

The negative impact on California associated with the termination of the mandatory purchase obligation for QFs of 20 MW and below includes the following:

1. California will forfeit the grid-related benefits associated with CHP as an exemplary distributed generation resource. Elsewhere, CHP is considered the backbone of successful microgrids and is fully supported.
2. The 1.67 MMT of GHG reductions from CHP that existed when the Settlement Agreement was signed will continue to erode and California will not realize incremental GHG reductions from new CHP.
3. Thermal and energy demand for host businesses will have to be served from alternative resources. Gas, which remains on the margin in California, will be independently burned to produce the thermal and electrical energy needed by host business resulting in increases of GHG emissions.
4. Businesses (industrial, manufacturing, institutions) will be economically harmed, increasing costs to be recovered in the price of goods, services, and tuitions funded by the State. The compromises in competitiveness associated with loss of CHP-related savings

[3] In FERC Order 133, the Commission clarified that the CPUC was implementing Assembly Bill (AB) 1613 pursuant to the provisions of PURPA. *California Public Utilities Commission,* 133 FERC ¶ 61,059 (2010).

are real and meaningful, especially for businesses that compete nationally and internationally.

In sum, if the remaining mandatory purchase obligation is not retained, there will be no viable option for CHP QFs in CA to the disadvantage of the State, its electric and gas ratepayers, consumers, the environment and the competitiveness of California business.

## VIII. THE TECHNICAL HEARING ON PURPA IMPLEMENTATION BEFORE FERC

As a preliminary matter, it is important to note that the rationale for PURPA is as compelling today as in 1978. PURPA was passed as a contribution to preserving national security through energy independence to be achieved through increased conservation, energy efficiency and energy supply from domestic resources, including cogeneration and renewables. While there has been some evolution in the original rationale, energy independence, conservation, energy efficiency, and domestic supply remain front and center in the nation's energy policy. With the abundance of fossil fuels in the United States, the preservation of fossil fuels is not necessarily a driver, but conservation resulting in the most efficient use of fossil fuels is key in meeting the nation's climate change and sustainability goals. The generation of energy from QFs not only conserves fossil fuels but also preserves the environment. Further, deployment of CHP distributed generation is widely accepted as a key component of infrastructure improvement and grid modernization.

### A. Mandatory Purchase Obligation

Without retention of the remaining mandatory purchase obligation for QFs of 20 MW and below, effectively there will be no CHP QF development under PURPA. As demonstrated by the experience in California after termination of the mandatory purchase obligation for QFs above 20 MW, at least for CHP QFs, PURPA provides the only vehicle for the sale of capacity and surplus electrical energy.

The CCC respectfully presents below its position on the issues presented for Panel 1 that are relevant to CHP and that have the greatest impact on its members:

#### 1. <u>Market Access:</u>

For several reasons, QFs of 20 MW and below do not have non-discriminatory access to competitive organized wholesale markets. First and foremost, there are no organized wholesale markets for the products inherent to base-load CHP QF operations; mainly firm capacity and the associated energy. Specifically, pricing in an economy energy market is for different products than those offered by CHP QFs and the pricing does not support the operation of a baseload capacity and energy facility, never mind the development of a new facility. For example, while there is the CAISO short-term economy energy market, there is no capacity market and the

CAISO's economy energy market is too uncertain, and the prices therein do not reflect the true long-term value of the CHP-related energy product.

Second, CHP QFs are not energy companies; they are institutions and widget manufacturers, who, for most part, must focus on their core business rather than focusing on selling their energy by-product into the economy energy markets. These companies often lack the expertise to optimize wholesale power sales and revenues in the same way that a market-oriented power seller can. Moreover, these businesses need the baseload thermal energy, which restricts the flexibility of the CHP electrical output.

**2. QF Curtailment:**

The majority of efficient CHP QFs run 24x7 to meet thermal requirements of host facilities. Curtailing CHP QFs for reasons dictated by over-generation or least-cost, short-term electricity dispatch conflicts with the commercial needs of the steam hosts. This was precisely one of the rationales behind the mandatory purchase obligation. Supply curtailments should be unnecessary because there is always baseload demand on the electric grid system and to the extent it is served with generation from gas-fired facilities, it should first be served from CHP which provides the duel efficiency of thermal and electric production.

Curtailing CHP QFs for reasons dictated by least-cost electricity dispatch is also inappropriate. For example, the CAISO's energy-only spot market is stacked against CHP generation since least-cost dispatch gives no value to long-term capacity and energy efficiency. PURPA and the Commission's regulations require QFs to be paid for the value of the capacity they provide; that value is captured only through PURPA's must-purchase requirement, not the competitive short-term energy market.

**3. Impact of Utility Contracting Practices:**

As discussed above, without the mandatory purchase obligation (and the standardized agreements), there would not have been a successful implementation of PURPA in California. More recently, the Settlement Agreement was intended to resolve several years of litigation over utility obligations to purchase electricity from CHP resources and the avoided cost rates to be paid for that electricity. PURPA provided the foundation to require the IOUs to enter contracts with competitors of their natural monopolies. While many states subsequently enacted RPS standards or requirements for the contractual purchase of energy from renewable QFs (and other products like energy efficiency, demand-response and, recently, storage), no analogous contractual requirements exist for the purchase of capacity and energy from CHP QFs.

Absent the mandatory QF purchase obligation, there is no reason to believe that traditional utilities will voluntarily enter into long-term power purchase agreements with owners of CHP resources. The CCC does not advocate that the mandatory purchase obligation be maintained only for CHP QFs. It should be maintained for all QFs. Similar to California, states can enact programs to manage renewable QF development but the backstop of PURPA remains critical. Without that, states, in violation of PURPA, would be free to discourage renewable development as is being attempted in several parts of the country.

### 4. <u>Impact of Interconnection Practices:</u>

CHP resources interconnect with their host utilities primarily to sell excess power and to receive electric service to support commercial operations. Current interconnection practices are routinely lengthy, costly, and often are an impediment to QF development. Further, CHP resources rarely connect for the purpose of making firm wholesale power sales to buyers beyond their utility service provider. To participate in competitive wholesale power markets and have the theoretical option of contracting with buyers beyond the host utility would require CHP owners to undertake the burden and expense of requesting capacity resource interconnection service from the regional transmission grid operator and paying for network upgrades needed to provide that higher level of interconnection service. CHP owners, however, are not primarily in the wholesale power sales business. They thus face the conundrum when current power sales contracts expire of taking on a greater financial burden in the hope of participating in markets or winning competitive solicitations beyond those offered by their host utilities. The need to navigate the interconnection process and incur added (unrecoverable) costs is a barrier to entry for CHP resource owners, particularly those with smaller assets.

### 5. <u>Obligation to purchase "as available power":</u>

This is certainly not as critical an issue for CHP QFs as it is for renewable QFs who are producing an intermittent energy product. However, due to swings in thermal requirements at some locations, the electric generation from CHP facilities may vary. Thus, some CHP facilities provide both firm and as available capacity for sale. Having a committed off taker for the excess energy generated from CHP facilities whenever it is operating (whether baseload or as-available) is absolutely critical.

### 6. <u>Obligation to sell supplemental, back up and maintenance power:</u>

This issue is critically important to the operation of CHP facilities. Regardless of why the CHP facility is not operating, the thermal and electrical energy needs of the host must continue to be met on an uninterrupted basis. Thus, these services must continue to be provided by the servicing utility under non-discriminatory rates and conditions so they are not used to impede CHP development and operation.

### 7. **<u>Obligations to purchase pursuant to legally enforceable obligations, particularly as to new and emerging markets:</u>**

FERC has held that requiring QFs to win periodic solicitations does not give them an opportunity to obtain legally enforceable obligations to sell their power in compliance with PURPA's mandatory purchase obligation.4 Thus, eliminating the mandatory purchase obligation for 20 MW and smaller QFs so that they have to rely on IOU solicitations does not comport with PURPA. The experience in California discussed above calls into serious question whether any CHP resources that are 20 MW or smaller will be able to obtain long-term contracts for their output through RFOs or otherwise once their current contracts expire. It also casts doubt on the prospects for new CHP resources which will not be built unless firm commitments to sell excess electricity are likewise in place.

### 8. **<u>Impact of Emerging Energy imbalance market on the mandatory purchase obligation:</u>**

The energy imbalance markets that are emerging in the West will not impact the need for continuance of the mandatory purchase obligation. Imbalance market pricing reflects the short-run marginal cost of generation, and thus does not provide the price signals necessary to encourage long-term investments in CHP resources. In theory, the expansion of regional markets should help address the over generation issues illustrated by the CAISO's "duck curve", but it will not resolve the issues that CHP QFs will confront without the PURPA mandatory purchase obligation.

## B. Avoided Costs:

Although the CCC is not a participant on the avoided cost panel, the evolution of avoided cost pricing is a key issue for its members. As was discussed above, going back to the 1980s controversy surrounded avoided cost pricing under California's standard offer PPAs. While the original avoided cost pricing was determined through production simulation modeling of the purchasing utility's generation and procurement costs, over time the concept and practice shifted significantly. Avoided cost pricing gave way to competitive bidding among QFs and other independent power producers. Bid results determined energy, and when relevant, capacity pricing rather than the purchasing utility's avoided cost. Meanwhile, for PURPA avoided cost contracts, the CPUC updated capacity prices for new contracts and moved energy pricing for existing and new contracts to market-based indexes.

Avoided energy cost pricing is often held as simply a proxy for spot energy market prices, and thus fails to capture true long-run avoided costs as represented by the capacity and efficiency contributions of CHP. Experience in California has shown that economy energy

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[4] *Hydronamics, Inc.*, 146 FERC ¶ 61193 (2013).

prices are not fully reflective of the purchasing utilities' avoided energy costs and there is a wide range of capacity prices being paid to various generators. Likewise, QFs selling under California's RPS are paid differently than QFs selling under the PURPA mandate. The protection of the ratepayer remains paramount, but often states are ignoring PURPA and the FERC's implementing regulations in setting avoided cost prices and contract terms and conditions. The term of the PURPA PPAs are being drastically reduced in some states, size limits are being imposed, and pricing structures often do not reflect the purchasing utility's avoided costs. If PURPA is to continue to have a meaningful impact on our nation's energy future, FERC should consider revisiting the calculation of avoided cost rates to ensure that rates paid by utilities truly reflect long- and short-run avoided capacity and energy costs as opposed to short-run spot market energy prices.

## IX. CONCLUSION.

The lessons learned from the California experience clearly show that termination of the mandatory purchase obligation for QFs of 20 MW and below will have a devastating impact on PURPA and particularly CHP QFs. As set forth above:

1. Removal of mandatory purchase obligation for QFs greater than 20 MW has resulted in the shutdown of CHP operations, conversions to EWG facilities, and no new CHP development.
2. Removal of mandatory purchase obligation for QFs of 20 MW and below will lead to the same result.
3. Retention of the mandatory purchase obligation for QFs of 20 MW and below is critical as it represents the only viable option for the future development and operation of industrial CHP. This is especially true for industries that cannot leave California, e.g. mineral processing, enhanced oil recovery, and large institutions such as universities.
4. CHP development in California for CHP facilities of 20 MW and below has stalled in significant part due to adoption of methodologies that have dramatically lowered avoided cost pricing. With FERC's guidance, California and other states must update the avoided cost pricing for PURPA contracts,
5. The renewable QF problem in other states that led to the legislation in Congress last summer and to this inquiry is not the fault of PURPA. With the mandatory purchase obligation in place, states can decide how to establish state programs to implement PURPA as has been done in California and other states. Without the mandatory purchase obligation, states not favoring alternative energy will be at liberty to stifle QF development regardless of the fact that PURPA and its mandate to encourage QF development would still exist.