

**BEFORE THE ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION
OF THE STATE OF CALIFORNIA**

In the Matter of:)	
)	
Preparation of the)	Docket No. 12-IEP-1D
2012 Integrated Energy Policy Report)	
(2012 IEPR))	
_____)	

**Comments of the California Cogeneration Council
on Combined Heat & Power Issues**

The California Cogeneration Council (CCC)¹ appreciates the opportunity to provide the following comments on selected issues related to the future of combined heat and power (CHP)² resources in California, as requested in the Commission's Workshop Notice dated February 2, 2012.

1. Comments on the ICF Report on *The Technical and Market Potential for New CHP in California*

The Workshop Notice first asks for comments on the recently-released report from ICF on *The Technical and Market Potential for New CHP in California* (ICF Report). The ICF Report provides an important update to the previous CHP market assessments that the CEC conducted in 2005 and 2009. The CCC submits that the new ICF Report, like the prior CHP market assessments, continues to provide strong support for the following conclusions:

- California has a significant technical and economic potential for additional development of new CHP facilities over the next 20 years.
- Further development of CHP resources will provide significant incremental reductions in greenhouse gas (GHG) emissions, particularly over the next decade as the state is moving to a much cleaner electric resource portfolio.
- There is a large range of possible future scenarios for CHP development in California, depending on policy choices that the state makes to encourage CHP development.

¹The CCC is an *ad hoc* association of natural gas-fired combined heat and power (CHP) facilities located throughout California, in the service territories of all three of California's major investor-owned electric utilities (IOUs) – Pacific Gas & Electric Company (PG&E), Southern California Edison Company (Edison), and San Diego Gas & Electric Company (SDG&E). CCC member facilities are certified as qualifying facilities (QFs) pursuant to the Public Utility Regulatory Policies Act of 1978 (PURPA), and CCC is a party to the QF/CHP Settlement that establishes a new state CHP Program. In aggregate, CCC members' more than 30 different CHP projects in California generate 1,300 megawatts (MW) of power, most of which is sold to the IOUs. The CCC represents a significant share of the distributed CHP projects now operating in California.

²The CCC uses the terms "CHP" and "cogeneration" synonymously throughout these comments.

The CCC notes that the ICF Report continues to support these conclusions even though several fundamental factors – such as today’s low natural gas price environment, reduced projections of economic activity, and the possible adverse cost consequences for CHP of the state’s regulatory regime for GHG emissions – have reduced moderately the economic potential for new CHP in the state, compared to the 2009 CHP assessment or to the California Air Resources Board’s 2010 *Scoping Plan* for achieving the AB 32 GHG emission reduction goals.

The CCC generally applauds ICF for its carefully considered and well-supported analysis of the technical and economic potential for new CHP development, and for its analysis of the impacts of important policy choices on CHP development. The CCC does have the following comments on several aspects of ICF’s work:

- **Lack of a High Gas Price Scenario.** ICF correctly recognizes the significant decrease in domestic U.S. natural gas prices experienced since 2008, largely resulting from reduced demand and shale gas development. Lower gas prices reduce the magnitude of the efficiency benefits from CHP. Notwithstanding today’s low gas prices, the long-term history of the natural gas industry is one of cyclical, volatile swings in prices, as shown in the long-term history of Henry Hub and California border natural gas market prices presented in the attached **Figure 1**. Today’s low natural gas price environment will inevitably produce a market response of increased demand and lower supplies, as a result of factors such as:
 - Higher gas demand due to the displacement of coal-fired generation in the U.S.;
 - Increased demand for gas as a transportation fuel, particularly given the fact that world and U.S. oil prices remain high;
 - Exports of liquefied natural gas from the U.S. to European and Asian markets where gas is priced on a par with oil;
 - Correction of the very substantial difference today between natural gas and oil market prices; and
 - Environmental constraints on shale gas development.

The CCC submits that the ICF report could be improved through the addition of a high gas price scenario for CHP development, and suggests a high gas price case that is 20% higher than that used by ICF. Such a scenario would underline the importance of CHP as a hedge against future unexpected increases in fossil fuel prices.

- **Caveats on Marginal GHG Emissions after 2020.** The ICF Study shows that the GHG reductions from CHP may decline after 2020 – in other words, GHG emissions from CHP may increase statewide emissions – because CHP emissions to serve on-site loads will be higher than the GHG emissions associated with a much cleaner California grid after 2020.³ The CCC notes ICF’s recognition that this result assumes the success of the

³ ICF Study, at Figure ES-6.

state's other GHG reduction efforts in the electric sector, such as the Renewables Portfolio Standard (RPS) program.⁴ California clearly has taken a "portfolio" approach to meeting its GHG reduction targets in the electric sector; thus, if one measure such as the RPS falls short, the GHG savings from other programs such as CHP may be higher than projected by ICF, offsetting the smaller reductions from the RPS. Thus, CHP is a GHG reduction program that complements and hedges other electric sector efforts such as the RPS. The CCC observes that ICF's projections show significant GHG reductions until 2020, even if RPS targets are met, particularly from CHP units that export power to the utilities. ICF also notes that CHP may be less costly than other GHG reduction measures.⁵ California will be re-visiting its GHG scoping plan periodically as 2020 approaches, and can adjust its CHP goals for the period after 2020 based on the success of the whole portfolio of AB 32 efforts in the electric sector and on the relative cost-effectiveness of CHP compared to other electric sector measures.

- **Limited Purpose of the CHP Market Assessment.** The ICF report states that, "[t]he contribution of CHP to statewide reductions in greenhouse gas emissions is the principle motivation for this market assessment and identification of policy measures that will increase CHP market penetration."⁶ California's regulatory authorities recognized the benefits of CHP long before California adopted AB 32 and associated GHG emissions reduction policies. Section 372(a) of the California Public Utilities Code states: "*it is the policy of the state to encourage and support the development of cogeneration technologies as an efficient, environmentally beneficial, competitive energy resource that will enhance the reliability of local generation supply, and promote local business growth.*" Consequently, while GHG benefits are an important consideration, the CCC urges the Commission to continue to support CHP generation for the other benefits it brings to the resource mix and the industrial base of California. Section 1 of the CHP Program Settlement Term Sheet describes the Settlement goals, and in particular, Section 1.2 describes the Policy Objectives of the new State CHP Program, including, "*[t]he purpose of the State CHP Program is to encourage the continued operation of the State's Existing CHP Facilities, and the development, installation, and interconnection of new, clean and efficient CHP Facilities, in order to increase the diversity, reliability, and environmental benefits of the energy resources available to the State's electricity consumers.*"⁷

The Workshop Notice also asks which of the policy measures modeled in the ICF Report the state should pursue, and why. The CCC notes that the CHP economic potentials in ICF's Medium and High cases are much higher than the Base Case, largely as a result of a substantial increase in new CHP projects that export power. The policies that will particularly encourage

⁴ *Ibid.*, at 11.

⁵ *Ibid.*

⁶ ICF Study, at page 7.

⁷ Section 1.2.1.3 QF CHP Program Settlement Agreement Term Sheet at page 5.

export CHP include:

- **Pricing for new generation.** The Medium and High cases include pricing that reflects the costs of new gas-fired combined-cycle capacity, such as the CPUC's market price referent (MPR), which is set at the full, all-in costs of a new combined-cycle gas turbine built in California. SRAC pricing as established in the QF/CHP Settlement is well below the MPR, and thus will not be adequate to support new CHP projects. In contrast, a continuing program of CHP targets and CHP-only solicitations will allow new CHP projects to secure adequate pricing to allow development. The QF/CHP Settlement provides for such well-defined targets and solicitations until 2015. The Commission should encourage the CPUC and ARB to maintain well-defined CHP targets, and require the IOUs to continue to solicit CHP export generation, beyond 2015, especially in the 2016-2020 period.
- **Stable and predictable markets.** The ICF report shows that CHP development will be encouraged if there is a "reduction in perceived market risk" and a "higher market response for paybacks less than 5 years." The CCC believes that these conditions are most likely to be realized if California creates a stable and predictable market for long-term contracts with the state's utilities, much as the RPS has created for renewable generation. Again, this will require a continuing program of CHP targets and CHP-only solicitations through at least 2020.
- **Avoided T&D costs.** ICF's High Case suggests payments of \$50 per kW-year for avoided transmission and distribution (T&D) costs for CHP projects smaller than 20 MW. The CPUC has adopted avoided T&D costs of roughly this magnitude to evaluate both energy efficiency and distributed generation (DG) programs.⁸ The CCC recognizes that whether CHP projects larger than 20 MW, which tend to interconnects at transmission voltages, avoid transmission costs is highly site-specific. However, the Commission should encourage the CPUC also to recognize that large CHP sited in major load centers can allow the utilities to avoid the transmission upgrade costs required to import power from out-of-state or remote generation resources.
- **Equitable recovery of GHG costs.** The CCC observes that the ICF Report highlights the question of whether new CHP contracts will allow a CHP unit to recover its GHG allowance costs. Although the SRAC formula in the QF/CHP settlement provides existing CHP with some assurances of GHG cost recovery through 2014 for the emissions associated with export power, there is much less certainty of GHG cost recovery in subsequent years. As the amount of reduced carbon or carbon-free energy increases on the California grid, the likelihood that a base load CHP can recover those

⁸ For the avoided T&D costs of DG programs, see D. 09-08-026, at pages 34-36. Since 2005, the Commission has included avoided T&D costs in its evaluation of energy efficiency programs. See D. 05-04-024, at pages 16-17 and 35-36.

costs from the market price of electricity will continue to diminish, because there will be a growing number of hours in which the marginal heat rate will not be set by a gas-fired resource. Also, given the static nature of the benchmarks used to allocate free GHG allowances to energy-intensive, trade-exposed (EITE) sectors, the addition of CHP in the future for EITE entities will increase their GHG compliance obligations with no increase in free allowances. These circumstances underline the importance of a reasonable PPA market for CHP that will allow CHP projects to recover their GHG costs on a long-term, assured basis.

2. Questions for CHP Representatives

The CCC addresses below the questions posed in the Workshop Notice for CHP representatives such as the CCC.

The standard planning assumptions in the 2010 LTPP included continued operation of existing CHP, and 1,872 MW of new CHP (1,522 MW in the IOU service territories) that operates at very high capacity factor and evenly divides its output between on site use and export.

1) Are existing QF resources that meet the double benchmark likely to be more or less competitive than new projects in CHP RFOs?

The CCC anticipates that existing, efficient QF CHP resources that have operated for many years will be strong competitors in the CHP RFOs, because they are likely to have lower fixed costs than new projects. That said, it is difficult to generalize in this regard, because each CHP project is unique, with different operating efficiencies, capital needs, and maintenance requirements. Some existing facilities may seek to expand or repower their existing facilities to improve efficiency or to meet changed thermal needs; such changes can involve substantial capital investments that must be recovered over many years.

2) Is it reasonable to expect that existing resources that fail to meet the double benchmark will continue to operate without a PPA?

The CCC expects that less efficient CHP will have difficulty operating on market revenues alone, without a PPA and the associated capacity payments, particularly given the lower market heat rates seen in the CAISO markets in recent years. Again, however, each CHP project faces different circumstances – for example, a project whose output serves a significant on-site load may be better positioned to continue to operate without a utility PPA than a project which depends heavily on export revenues.

3) What conditions are/might be necessary to realize this quantity of new CHP? What is the likely impact of failing to get a long-term contract for exports on development?

The CCC observes that the amount of new CHP in 2020 estimated in the 2010 LTPP (1,872 MW) is somewhat larger than the amount of new CHP projected in the ICF Base Case (1,499 MW in 2020).⁹ The ICF Base Case is based on policies already in place, including the QF/CHP Settlement, the AB 32 GHG regulatory program, the AB 1613 program for small CHP, and the existing Self-Generation Incentive Program.¹⁰ Thus, the LTPP CHP assumptions would seem to be readily achievable with only modest additional policy incentives. The CCC urges the Commission to support an even more supportive environment for CHP: as shown in Figure ES-6 of the ICF Report, substantial GHG reductions from CHP will be achieved only with more supportive policies as outlined in the Medium and High Cases.

New CHP that exports significant amounts of power to the grid will not be developed without a stable and predictable means to obtain long-term PPAs for power exported to the utilities. This has been the case since the first CHP QFs were developed in California in the early 1980s. The availability of a reasonable market for long-term PPAs appears to be the fundamental characteristic of the ICF Medium and High Cases which accounts for the significantly larger amounts of CHP development in these scenarios compared to the Base Case.

4) If large quantities of new CHP are developed, is the assumption of a 50/50 split between on-site use and export a reasonable one? If not, what might a more reasonable split be?

The CCC observes that the ICF work shows a relatively even split between on-site and export CHP in the forecasted market penetration of CHP in the Medium and High Cases.¹¹ Thus, this LTPP assumption is not unreasonable assuming a supportive policy environment for CHP. The Base Case, which does not assume a stable PPA market for export CHP, shows that in such circumstances the development of export CHP would be far less than on-site development.

3. General Observations

The Workshop Notice asks some additional questions.

1. Should the state create incentives or penalties to ensure the achievement of CHP GHG reduction targets?

The CHP Program established in the QF Settlement is structured around MW and GHG emissions reduction goals (as it applies to the IOUs, ESPs and CCAs) and a detailed process to track progress toward this goal will be implemented by the IOUs and audited by the CPUC. These regular reports will reveal whether a procurement program combining a competitive

⁹ ICF Report, at Table ES-2.

¹⁰ *Ibid.*, at 4.

¹¹ *Ibid.*, at Table ES-3.

solicitation process for facilities greater than 20 MW, with a mandatory “must-take” obligation for facilities less than 20 MW (AB 1613 and PURPA PPAs) is the correct mechanism for successfully achieving CHP GHG reduction targets. If not, alternative procurement options will need to be developed and implemented.

2. What are the near-term and long-term actions needed to achieve 6,500 MW by 2030?

The ICF Report shows that a goal of 6,500 MW of new CHP by 2030 will require comprehensive and sustained policy support, as ICF shows that CHP development will reach only 6,100 MW in 2030 even in the High Case. The CCC supports the Governor’s long term goal because it sends a strong signal to the investment community that clean and efficient CHP is a preferred resource in the state, consistent with the loading order articulated in the state’s Energy Action Plan. As outlined above, the CCC will support the efforts of policymakers to develop the policies needed to reach this “stretch” goal, and suggests there may be a number of other actions to consider, for example

- The Commission should encourage the CPUC and ARB to maintain well-defined CHP targets, and require the IOUs to continue to solicit CHP export generation, beyond 2015, especially in the 2016-2020 period;
- Develop coordinated long term CHP policy in statute to provide certainty;
- Enable CHP facilities to “self-wheel” power to other owned or affiliated sites;
- Ensure GHG policies do not disincentivize CHP development; and
- Ensure interconnection processes, costs, and fees do not become a barrier to the installation of new CHP.

3. What can be done from, a regulatory standpoint, to reduce uncertainty for CHP development?

Ultimately statutory provisions provide greater certainty than CHP programs with “targets” and “goals” that are not enforceable. A key element of such a program must be the availability of long-term power purchase agreements (PPAs) for export CHP with economically viable pricing. Whether the CHP program embodied in the Settlement delivers that economic certainty is still to be seen. The uncertainty around the long-term GHG target and whether PPAs will be available in the second program period from 2016-2020 increases the risks for new CHP development.

Comments of the CCC on CHP
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The CCC appreciates the opportunity to present these comments.

Respectfully submitted,



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Figure 1

