Combined Heat & Power in California
Questions for Stakeholders

The following are the LADWP's written comments to the questions for Stakeholders, following the July 14, 2014 California Commission Combined Heat and Power (CHP) Staff Workshop.

I. Market Characterization and the Benefits and Costs of Combined Heat and Power

1. What benefits, if any, do existing small and large on-site and exporting CHP resources provide to electric utilities and the ISO?

Current CHP provide little value to the DWP. The generation is operated to the benefit of the owner. The utility has little to no capability to dispatch MW or MVAR for the benefit of the grid. Further, the utility is required to be the supplier of last resort if the customer loses or curtails their generation so the dependable capacity savings to the utility is reduced. CHP offsets most of an utilities variable costs but fixed costs of providing electricity service would still need to be recovered by the utility.

2. What benefits/attributes do grid operators want from new CHP resources? Under what circumstances can CHP provide those characteristics?

Grid Operators need the ability to integrate the generation with other resources. There should be a mechanism whereby increased or decreased generation can be ordered within the capability of the generator and its ability to provide needed heat. Full visibility of the resource must be available.

3. Access to useful operational and economic data from utilities and CHP system owners is often restricted.

a. What currently unavailable types and/or sources of data would allow for more complete and accurate analysis of the benefits and costs of CHP?

b. How should this data be collected, obtained, and/or distributed?

The cost/benefit determination is something that should be performed by the customer. If the customer would like the utility to help in said analysis in order to determine if utility power or CHP is better for them, they need to provide hourly energy production profiles of the CHP system, emissions and heat rate curves, and operational cost data including investment capital and borrowing costs, and on-going operation and maintenance cost data including fuel and labor. Determining any potential capacity savings is difficult without detailed hourly energy production data from the customer.

4. What CHP cost studies are needed to better understand and compare CHP resources to other resources?

Not Applicable (NA)

5. What other categories of CHP benefit and cost are relevant, and how should each be defined and/or quantified in ways that are meaningful to the system and the State?

Not Applicable (NA)

II. Economic Barriers & Regulatory Challenges to Combined Heat & Power

1. What are the most significant economic factors that contribute to the decision by a public or private developer to invest in CHP (e.g. upfront cost, ongoing operation and maintenance, electricity rates, price of natural gas, internal business decision making processes)?

Utilities may need to study the amount of resources available and what is the future need. It is also required to have a feasibility study to compare CHP's Installed Cost and O&M with the cost of other available options.

2. What impacts do departing load charges have on the viability of developing new CHP resources?

a. How do these impacts compare to the net impacts of CHP generation on ratepayers?
b. What analyses and/or studies are needed to fully quantify CHP impacts?

As utilities are working toward meeting RPS goals, it is necessary perform a feasibility study to look into what resources needed to integrate renewable energy. If additional resources are required, utilities will need to study the most suitable technology for renewable integration which is also cost benefit to add into the system. Those options will include but not limited to energy storage, or another simple cycle.

3. Are exit fee allocations that continue indefinitely, without transition or restriction, appropriate for CHP facilities? If not, how should exit fees be allocated over time?

Not Applicable (NA)

4. What regulatory challenges and barriers lead to new-CHP project delays or failure (e.g. interconnection process, financial incentives, contracting issues, cap and trade)? Please provide specific examples of how these challenges were, or were not, overcome.

The challenges to CHP project viability include CHP developer payment of non- bypassable charges to its local utility and cost of complying with local NOx emission standards, state GHG standards, and cap- and–trade. LADWP believes that the availability of Emission Reduction Credits (ERCs) is an additional challenge with respect to CHP penetration.

In areas that are in nonattainment of the National Ambient Air Quality Standards (NAAQS), major new emission sources are required to undergo the New Source Review pre- construction permitting process in order to obtain construction and operating permits. As part of the New Source Review process, these sources are required to offset any increases in emissions not in attainment of NAAQS.

The ability of these affected sources to procure the required offsets, or ERCs, of certain pollutants in the open market has/could be been a challenge for certain air basins in California. LADWP recommends that CEC work with the California air district to determine ERC system issues and as

appropriate, explore ways to improve ERC system which could include changes that will allow for the more efficient use of ERCs, reducing the time it takes to issue new ERCs and evaluating alternatives that would result in new ERCs.

5. What regulatory changes, if any, are needed to better balance utility interests, CHP developer interests, thermal host needs, and State GHG reduction targets?

Not Applicable (NA)

6. A key feature of AB 1613 is that it allows for export and payment of excess electricity.

a. Does the current AB 1613 feed-in tariff provide enough financial support to enable individual projects to be sized and developed with appropriate technology to meet the thermal load of the host facility?

b. How does the availability of the feed-in tariff affect your decision to pursue a CHP project in California?

c. Are there any deficiencies in the current implementation of AB 1613? Please explain.

d. What should be done to better inform project developers about the requirements of the ISO and utility interconnection processes for electricity export?

Not Applicable (NA)

III. Meeting California's CHP Goals

1. Is there adequate economic and technical potential for CHP resources to achieve State goals set out in the Governor's Clean Energy Jobs Plan (6,500 MW of new CHP capacity by 2030) and the Air Resource Board's Scoping Plan for AB 32 (6.7 MMTCO$_2$E annual emissions reduction by 2020)?

According to ARB, certain amount of CHP was included in the scoping plan (4000 MW CHP by 2020 building to 6500 MW by 2030) which equates to 6.7 MMTCO2e reductions annually. Yet ARB isn't seeing those emission reductions. So ARB stipulates that it would reserve the option of mandating those reductions through future control measures. If this is an indication of a utility mandate to procure CHP, LADWP doesn't see any difference from the challenge faced now with SB 1139 (Hueso) that is pushing for a geothermal mandate requiring utilities to procure baseload energy that isn't needed. CHP is not dispatchable by the utility, so it's not considered a resource that we can plan for.

2. How should the State meet these goals?

Not Applicable (NA)

3. Should the State set CHP procurement targets to address specific CHP facilities, projects, or technology types (e.g. existing efficient CHP, bottoming-cycle CHP, renewably-fueled CHP, new highly-efficient CHP)?

Not Applicable (NA)

4. Do the eligibility requirements of existing CHP programs align with market needs? If not, what changes are needed to stimulate market participation?

Not Applicable (NA)

IV. Technology Innovation to Overcome Combined Heat & Power Barriers

1. What are new opportunities and applications for on-site and exporting CHP resources both large and small (e.g. CHP coupled with Carbon Capture Utilization and Sequestration technologies, energy storage for excess electricity, and thermal storage for excess thermal energy)? How should the state encourage these technologies (e.g. bottoming-cycle/waste heat to power, use of renewable fuels, microgrids)?

Not Applicable (NA)

2. Which technologies, systems, components, and applications should RD&D prioritize to advance the capabilities and opportunities of both small and large CHP?

Not Applicable (NA)

V. Electrical Generation Unit and Reference Boiler Efficiency

Double Benchmark accounting is a methodology for determining fuel savings when a CHP system displaces thermal and electrical energy that would have been generated separately. This method requires energy conversion efficiencies for the displaced thermal and electrical resources, usually given in the form of a reference boiler efficiency and an effective grid heat rate. Determining these efficiencies is a complex problem, and the best method for doing so remains an open question.

1. How should CHP systems be categorized, if at all, for the purpose of comparing them to separate heat and power (e.g. size, technology type, application)?

CHP should be separated by technology type, i.e. Fuel Cell, Microturbine, etc.

2. What method(s) should be used to determine the effective heat rate of displaced grid electricity? What key factor(s) should be considered (e.g. operational capabilities, time of day, line losses)?

Use an averaging method based on the overall electrical systems resource composition at the time (updated annually and used for new entries) and on a 24 hour basis. A site specific determination will be too ambiguous, costly to implement and easy to challenge.

3. What method(s) should be used to determine the efficiency of displaced thermal resources? What key factor(s) should be considered (e.g. thermal load size, thermal utilization level, historical equipment purchases/performance, new technologies)?

Same as above consider using an averaged and adjust on an annual basis for new additions.

4. How can the State measure and quantify thermal utilization for the purposes of determining

the GHG emission reduction benefits of CHP? Should all CHP facilities be required to meter useful thermal output and report that information to state agencies?

Keep it simple and use data collected as implemented under recommendations 2 and 3.

VI. Energy Commission Staff Proposed Methodology for Estimating Fuel Displacement

1. **Is the Energy Commission staff's approach to estimating fuel displacement reasonable? If not, please explain why.**

   YES

2. **Is the Energy Commission staff's approach to the treatment of renewable energy appropriate? If not, please explain.**

   YES

3. **How could the method be applied across programs so that it creates beneficial comparison without interfering with existing program-specific displacement metrics?**

   By a clear definition of applicability

4. **Is the use of annual heat rate values (versus seasonal values) sufficient given the purpose and scope of the method? If not, please explain and propose an alternative.**

   YES

5. **Is the use of a single, state-wide heat rate projection appropriate? If not, please explain and propose an alternative.**

   YES

6. **Is the use of two heat rates categories (peaking and load following) adequate? If not, please explain and propose an alternative.**

   YES

7. **Does the approach sufficiently address the issue of imported electricity? If not, please suggest ways that it could be improved.**

   YES

8. **Do you agree with the line loss factor used? If not, please explain and propose an alternative.**

   YES

9. **Do you agree with the heat rate floor used? If not, please explain and propose an alternative.**

   YES