COMMENTS OF CALIFORNIA CLEAN DG COALITION ON JOINT AGENCY SYMPOSIUM ON THE GOVERNOR'S GREENHOUSE GAS REDUCTION GOALS

August 7, 2015

1. Introduction.

The California Clean DG Coalition ("CCDC") appreciates the opportunity to provide comments on the Joint Agency Symposium on the Governor's Greenhouse Gas ("GHG") Reduction Goals. CCDC is an ad hoc group interested in promoting the ability of distributed generation ("DG") system manufacturers, distributors, marketers and investors, and electric customers, to deploy DG. Its members represent a variety of DG technologies, including combined heat and power ("CHP"), renewables, gas turbines, microturbines, reciprocating engines, and storage.[1]

CCDC supports the State's ambitious efforts to drive significant reductions in GHG emissions across various sectors, including the electricity sector. Climate change is appropriately viewed as one of the world's biggest challenges, and California is now an established leader in addressing it. AB 32, enacted in 2006, requires that GHG emissions be reduced to 80 percent below 1990 levels by 2050. Governor Brown's recent executive order sets an interim requirement that GHG emissions be reduced to 40 percent below 1990 levels by 2030. And, the State is considering increasing the amount of electricity generated by renewable resources from 33 percent to 50 percent. The coordinated efforts of the California Public Utilities Commission ("CPUC"), California Energy Commission ("CEC"), California Air Resources Board ("CARB") and California Independent System Operator ("CAISO") are vital to achieving these goals.

California will need to draw on a diverse set of GHG reduction measures to ensure successful integration of increased renewables. E3 has identified several integration solutions

[1] CCDC is currently comprised of Capstone Turbine Corporation, Caterpillar, Inc., Cummins Inc., DE Solutions, Inc., Etagen, GE Water & Power, Hawthorne Power Systems, Holt of California, NRG Energy, Penn Power Systems, Peterson Power Systems, Regatta Solutions, Solar Turbines, Inc., and Tecogen, Inc.

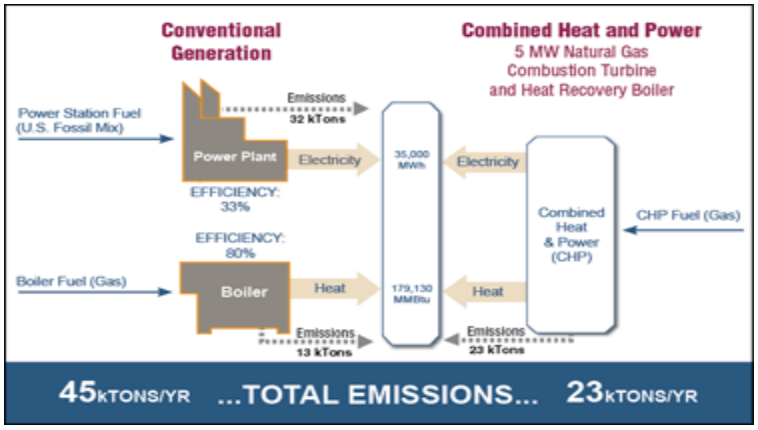
that are needed as more renewables come on line. According to E3, among other integration measures, CHP will have a role supporting renewables integration until at least 2050.[2]

CCDC does not view CHP and renewable energy as an either/or solution, but instead as complementary approaches toward a low-carbon future for California. Both renewables and CHP are supported by state goals and programs and both have a role in the delivery of clean, reliable power within California. CCDC recommends that the agencies remove barriers to CHP, as other states have done, and clearly define the important role clean CHP can provide in helping the state reach its goals.

2. CHP Provides GHG Emission Reductions.

CHP has long been recognized as an efficient technology because it uses a single fuel source to generate two products – electricity and thermal energy – required at industrial, commercial, institutional, and other facilities. This efficient use of fuel and generation of energy products means GHG emissions from CHP facilities are less than GHG emissions from the separate generation of electricity and thermal energy (from a conventional natural gas power generation facility and a boiler, for example).

Conventional Generation vs. CHP: CO_2 Emissions[3]



This diagram illustrates the CO_2 emissions output from power and thermal energy generation for two systems: (1) a separate heat and power system with a fossil fuel-fired power plant (emissions based on the U.S. fossil mix) and a natural gas-fired boiler; and (2) a five

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[2] California PATHWAYS: GHG Scenario Results, California Climate Policy Modeling Dialogue, Energy+Environmental Economics (February 23, 2015), pp. 41-42 (available at: http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf).

[3] United States Environmental Protection Agency, Combined Heat and Power Partnership, http://www.epa.gov/chp/basic/environmental.html (last updated on February 13, 2015).

megawatt ("MW") combustion-turbine CHP system powered by natural gas.[4] The separate heat and power system emits a total of 45 kilotons of CO_2 per year (13 kilotons from the boiler and 32 kilotons from the power plant), while the CHP system, with its higher efficiency, emits 23 kilotons of CO_2 per year.[5] As more renewable generation sources are developed in California, CHP can replace older, high-emitting emission sources that will likely not be upgraded or retired.

In recognition of the efficiency and environmental benefits of CHP, California law memorializes "the policy of the state to encourage and support the development of cogeneration as an efficient, environmentally beneficial, competitive energy resource that will enhance the reliability of local generation supply, and promote local business growth."[6] CARB recognizes CHP's potential to reduce GHG emissions and has targeted CHP for an additional 4,000 MW of capacity and 6.7 MMT CO_2e reduction in GHG emissions by 2020 in the Climate Change Scoping Plan.[7] The Governor's Clean Energy Jobs Plan calls for 6,500 MW of new capacity by 2030.[8] In Energy Action Plan II, CHP continues to be identified as a preferred resource in the long term procurement of energy resources.[9] And, the recently issued PATHWAYS report shows that CHP will have a role supporting renewables integration until at least 2050.[10] The most recent CHP Market Assessment Report prepared for the CEC shows that the market potential for new CHP exceeds the Governor's and CARB's goals.[11]

The President also supports CHP. In 2012, President Obama issued an executive order promising $20 billion of federal funding to increase the number of combined heat and power

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4 *Id.*

5 *Id.*

6 Cal. Pub. Util. Code § 372(a).

7 *See, e.g.*, CARB Climate Change Scoping Plan (December 2008), p. 44, Table 7 (*also see* CARB First Update to the Climate Change Scoping Plan (May 2014). (Available, respectively, at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm and http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.)

8 Clean Energy Jobs Plan, ¶ 7 (available at: http://gov.ca.gov/docs/Clean_Energy_Plan.pdf).

9 Energy Action Plan II, p. 2 (available at: http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF).

10 California PATHWAYS: GHG Scenario Results, California Climate Policy Modeling Dialogue, Energy +Environmental Economics (February 23, 2015), pp. 41-42 (available at: http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf).

11 Combined Heat and Power: Policy Analysis and 2011 – 2030 Market Assessment, ICF International, CEC-200-2012-002 (February 2012) (available at: http://www.energy.ca.gov/2012publications/CEC-200-2012-002/CEC-200-2012-002.pdf).

plants in the United States by 50 percent by 2020.[12] The United States Environmental Protection Agency ("USEPA") estimates that meeting administration's goal of increasing CHP by 50 percent would provide an additional 40 gigawatts, save one quadrillion Btus of energy, and reduce over 150 million metric tons of carbon dioxide emissions annually.[13] USEPA further estimates that this order, if attained, would save all energy users about $10 billion per year, increase $40 to $80 billion in new capital investment that would create jobs, and achieve GHG reductions equivalent to removing 25 million cars off the road.[14]

3. The Agencies Should Remove Barriers and Define a Clear Role for CHP.

While CHP was not discussed at the recent Joint Agency Symposium, CCDC appreciates the recognition by a commenter that increased flexibility from CHP is beneficial. As E3 has demonstrated, there is no single solution for achieving California's GHG emission reduction goals. While it is clear increased renewable generation will be needed, overgeneration and other issues require that diverse technologies and measures be deployed to support increased renewables. For the reasons discussed above, CHP is ideally suited to provide such support.

Unfortunately, the many barriers to CHP mean that California has not realized the benefits of CHP. For example, pending revisions to the Self-Generation Incentive Program may carve clean, GHG reducing CHP out of the Program. Departing load charges continue to be a significant economic barrier. Interconnection costs and processes are prohibitive. Standby charges recognize only the costs to the utility of a highly improbable emergency outage of all CHP systems at once; they fail to recognize the benefits that highly efficient distributed generation systems provide, including increased system reliability and power quality, and reduced distribution losses. As the agencies consider CHP's role in California's clean energy future, and to begin to address some of the barriers, they should look to the successful regulatory and incentive programs of New York, Maryland, and other states.

New York's CHP Acceleration Program (PON 2568) was established to help develop and transform the marketplace for CHP systems in the size range of 50 kilowatts to 1.3 MW. New

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[12] Executive Order 13624, Accelerating Investment in Industrial Energy Efficiency (available at: https://www.whitehouse.gov/the-press-office/2012/08/30/executive-order-accelerating-investment-industrial-energy-efficiency).

[13] Combined Heat and Power, A Clean Energy Solution (Aug. 2012), US Department of Energy and USEPA, pp. 3-4 (available at: http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf).

[14] *Id.*

York State Energy Research and Development Authority ("NYSERDA") recognizes the value CHP systems provide in system resiliency and grid congestion relief through add-on bonus incentives. NYSERDA compiled a vetted catalog of pre-qualified CHP equipment and created and validated rules-of-thumb for simplifying the analysis used to determine the size needs of a given site. The focus on pre-packaged CHP modules that include all major components reduces the need for (and thus the costs and opportunities for errors during) equipment-integration engineering and assembly. It also allows NYSERDA to streamline their responses to applications for the incentive. The program provides a Critical Infrastructure Bonus of 10 percent for CHP systems that support critical infrastructure (systems and assets essential to the functioning of society and the economy), including official facilities of refuge. There is also a Targeted Zone Bonus of 10 percent for sites within a Consolidated Edison established CHP Targeted Zone.

In support of the EmPOWER Maryland Energy Efficiency Act, Baltimore Gas & Electric ("BGE") offers an incentive for CHP that targets the upfront costs and longer timeline required for the design and installation of a CHP project. BGE offers a design incentive subsequent to a signed commitment letter and acceptance of minimum requirements document, an installation incentive subsequent to commissioning the CHP system and a BGE inspection, and a production incentive subsequent to review of metering data at the end of the sixth, twelfth, and eighteenth months.

Similarly, Pepco seeks to help its customers improve energy efficiency and reduce operating costs through their CHP incentive. Pepco offers a capacity incentive where 30 percent is paid when the customer provides a signed contract for installation and 70 percent is paid when the system has been installed and commissioned, and a production incentive that is paid over 18 months following system commissioning.

As noted in a recent article in *Forbes* magazine, "Cleaner and highly versatile natural gas best complements a well-diversified supply structure, offering us the essential ability to make fuel choices based on availability and price, while also cutting greenhouse gas emissions."[15] The intermittency of wind and solar capacity generation typically increases the need for more of the flexible capacity that natural gas provides. Natural-gas fueled CHP contributes to California's GHG emission reductions goals and the state's requirement for reliable and resilient baseload power.

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15 *See*, http://www.forbes.com/sites/judeclemente/2015/07/12/why-california-is-a-natural-gas-state/.

4. Conclusion.

In sum, CCDC does not view CHP and renewable energy as an either/or solution, but instead as complementary approaches toward a low-carbon future for California. Both renewables and CHP are supported by state goals and programs and both have a role in the delivery of clean, reliable power within our State. CCDC looks forward to working with the CPUC, CEC, CARB and CAISO to remove barriers to CHP, as other states have done, and define a clear role for CHP in helping the state reach its GHG emission reduction goals.