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California Energy Commission
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Re: docket No. 11-IEP-1A
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 11-IEP-1A, California Clean Energy Future

Please find attached PG&E's comments on the July 6, 2011 Workshops on Metrics for California's Clean Energy Future. Should you have any questions or need additional information, please contact Valerie Winn at 415/973-3839

Sincerely,

Mark Krausse/VW

Enclosure

PACIFIC GAS AND ELECTRIC COMPANY
COMMENTS ON CALIFORNIA CLEAN ENERGY FUTURE METRICS
DISCUSSED IN JULY 6, 2011 WORKSHOPS

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide feedback on the proposed metrics for measuring achievement of California's Clean Energy Future. The discussion at the July 6, 2011 workshop highlighted the broad stakeholder interest in these issues. PG&E looks forward to further collaboration with the stakeholders on how best to measure activities that support California's energy policies and, where necessary, take corrective action so that the goals can be achieved in a way that ensures system reliability and achieves the low-carbon future at the least cost to customers. In that spirit, PG&E would like to offer the following comments on the topics and questions raised at the workshop. In summary, PG&E recommends that three metrics or overarching principles guide the development and reporting of all of California Clean Energy Future metrics: 1) Greenhouse Gas Emissions; 2) System Reliability; and 3) Cost to Customers.

A. California's Clean Energy Future

Since "California's Clean Energy Future: An Overview on Meeting California's Energy and Environmental Goals in the Electric Power Sector in 2020 and Beyond" ("the Plan") was issued in September 2010, at least two significant events have occurred: 1) Jerry Brown was elected governor and 2) the 33% Renewables Portfolio Standard (RPS) bill was signed into law. Numerous other energy programmatic updates have been issued. As a result, and as indicated at the workshop, it is necessary to update the Plan to reflect California's current energy policy outlook. Additionally, it will be necessary to periodically update the Plan. PG&E suggests that the agencies should consider updating the Plan annually. An annual update will allow more timely incorporation of new or modified policies or legislation and will ensure that the Plan does not get too stale between updates.

In addition to timely Plan updates, we need to ensure that all affected agency stakeholders are included in the discussion and that appropriate levels of resources are dedicated to the task. While it may not be desirable or necessary to include other agencies in each Joint Agency meeting on the Plan, certain issues (e.g., renewables) will require input from other agencies such as the Department of Fish and Game and/or federal agencies like US Fish and Wildlife Service. Inclusion of these agencies in discussions can help ensure all agencies are aligned toward achievement of the state's Clean Energy Future, while providing a forum for discussion of challenges that must be overcome. An example of a successful, multi-stakeholder process in the renewables arena would be the Desert Renewable Energy Conservation (DREC) Plan. Processes like these should be reviewed to determine their applicability longer-term in other arenas and to determine if there are any "lessons learned" that can be leveraged.

Streamlining of the processes and certainty in the regulatory process will be critical to attracting the investments needed to achieve our Clean Energy Future. It currently takes nearly 10 years to build a new transmission line in the state. Once a contract has been executed for a project, it can take more than five years for a developer to obtain permits, build the project, interconnect it to the grid, and begin delivering renewable energy. Investors will need more certainty as to the timing of the return of their investments if California is to attract the level of investment capital needed to achieve its goals.

Finally, it is of paramount importance to understand how the each metric links to other metrics. For example, plug-in electric vehicles at the level noted in Slide 27 (targeted 1 million by 2020) will have a significant impact on the amount of renewable electricity needed to achieve the 33% RPS requirement. In turn, the impact on renewables influences the Transmission Expansion metric.

Greenhouse gas emissions associated with the electricity sector could also fail to decrease as fast as desired because of greater electricity demand by the transportation sector. Policymakers should regularly evaluate the program goals and consider the impact of competing programs on customers. Regular evaluation and course correction to manage the impact on electric customers is essential.

B. Ensuring system reliability, while adding low-carbon resources at the lowest cost to customers

The staff of the agencies has proposed several metrics for measuring California's progress toward its Clean Energy Future. They are to be commended for identifying source material for each of the metrics that can be easily gathered from existing work streams and reporting processes, which will reduce the burden on complying entities. Stakeholders proposed additional metrics at the workshop that are also helpful ways of measuring the impact of California's energy policies.

A fundamental question, however, is how many metrics does one need to determine whether the state's energy policies are being achieved or whether course correction is needed. PG&E would suggest that three high-level metrics focus the debate: 1) Greenhouse Gas Emissions; 2) System Reliability; and 3) Cost to Customers. Each of the other proposed metrics could be given a weight for what it contributes to the high-level metric. For example, 33% RPS is expected to offer significant reductions in GHG emissions, so its contribution to the GHG emission metric would be significant. In terms of its contribution to the Cost to Customers metric, its weight for that metric may well be higher, given that renewables are currently more expensive measure than energy efficiency for reducing GHG emissions. On system reliability, renewables could be in the "need additional study" phase, given the need for integration resources for renewables is still being studied. Policymakers could then use this information to determine the best mix of policies or areas of focus for achieving the Clean Energy Future.

Furthermore, in their current state, the metrics, while helpful, do not contain any indication as to whether the metric is "on track", "experiencing difficulty", or "significant course correction needed". This status is sometimes characterized as "Red-Amber-Green", with a "Red" status indicating significant course correction needed. Once a status is determined, additional thought on how to identify the causes of delay and develop appropriate mitigation measures or course correction will be necessary. This information can then be incorporated into the future Plan updates.

C. Specific Comments on "Overview and Metric Review" Presentation

Again, staff is to be commended for the helpful presentation used to guide the discussions. PG&E offers a few comments on the presentation. These comments are not exhaustive but are meant to highlight where additional discussion may be needed.

1. Slide 7 – CCEF elements – Under the 33% renewables target, it is indicated that "a significant fraction of the renewables will have dispatch capability." More renewables are being added to system today; however, most technologies being added in significant quantities (e.g., wind and solar) are intermittent in nature and do not have dispatch capability. Is additional analysis available to support the conclusion that "a significant fraction" of renewables will be dispatchable?

Also, under "Natural gas generation" it is noted that the "thermal fleet will be modified to support renewable integration". It is unclear what, if any modifications are needed, although many accept that natural gas facilities may run in less-than-optimal fashion (i.e., they will emit more greenhouse gas emissions than if run efficiently) in the future because of increased cycling to integrate renewables. More information is needed to understand this comment.

2. Slide 8 – Additional Supporting Processes – The slide notes "Emerging technologies" as an additional supporting process to achieving California's Clean Energy Future. However, emerging

technologies generally need support through subsidies or through partnership on demonstration projects. While discussions on extending the Public Goods Charge are currently underway, if emerging technologies are to play a role in the Plan, investor-owned utilities must have research, development, and demonstration budgets to partner with firms that can bring these emerging technologies out of the lab and into a pilot program. Without demonstration projects and utility participation, it will be challenging for emerging technologies to participate in achieving the state's goals.

Emerging technologies have also been supported through the offering of customer incentives (e.g., the California Solar Initiatives). It will be important to track the true cost of support to emerging technologies against the "Cost to Customers" metric.

3. Slide 9 -- Updates to CCEF – Develop 6,500 MW of CHP -- Additional assessment through a public process is necessary to discuss the CHP potential that reduces GHG emission and appropriate level of CHP additions in any goal. This public process should consider, among other issues:

- *What is the relationship of CHP additions to Renewables Integration?* Integrating renewables will be a key challenge and will drive resource additions in California. The 2009 IEPR found that while "60 percent of potential host sites for large CHP are located" in Southern California, developing large amounts of CHP in Southern California would be difficult due to limited supply of emission offset credits, could lead to over-generation problems, and might not be the "optimal compliance pathway" to 33% renewables.[1]

- *How do we measure if CHP reduces GHG emissions?* PG&E supports CHP that reduces GHG emissions. However, there is considerable uncertainty about the ability of large amounts of CHP to meet the required efficiency criteria and with fewer emissions than the alternative of using a boiler in combination with electricity from the grid. More study is needed to determine the appropriate comparison for CHP and GHG reductions.

- *What is CHP Potential?* A 2009 ICF report has been cited previously as a basis for the reasonableness of the addition of 6,500 MW.[2] Further discussion of the appropriate level is needed.

PG&E is happy to participate in a public, transparent process to discuss appropriate assumptions for CHP potential that reduces GHG emissions.

4. Customer impact: On Slide 11, a data reference for "system average rate" is noted. While tracking the system average rate can be a useful metric for whether rates are trending with inflation, it may not be the best indicator of customer impact, given no one actually pays the system average rate. It may be useful to track the impact of California's clean energy policies on low-usage and high-usage residential customers as well as other customer classes. This will allow for better understanding of the affordability of California's electric policies. The impact on manufacturing and energy-intensive industries can also be monitored to determine how energy costs are influencing job creation activities in the state.

3. Slide 13 – CCEF Metrics/Greenhouse Gas Emissions – It will be important to understand why metrics may change from year to year. This understanding will inform whether additional actions should be taken or if there are other extenuating factors that are contributing to what might be considered an anomaly in the results. For example, hydroelectric production will have an impact

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[1] California Energy Commission, *2009 Integrated Energy Policy Report*, Final Commission Report, December 2009, CEC -100-2009-003-CMF, pages 191-193.
[2] Darrow, Ken, Bruce Hedman, Anne Hampson. 2009. Combined Heat and Power Market Assessment. California Energy Commission, PIER Program. CEC-500-2009-094-D

on greenhouse gas emissions statewide. A drought year may cause emissions to increase in that year; however, corrective action may not be needed in subsequent years because of the temporary nature of the drought.

4. Slide 19 – Renewables Integration Metric – If renewables are being added more rapidly than California's electricity system can accommodate them, there will be more periods in which prices in California's wholesale electricity markets are zero or negative. During such periods, California customers may be paying for renewable energy through long-term contracts, and exporting it for free to other areas in the Western Electricity Coordinating Council. PG&E suggests a metric to track the number of hours and amount of electricity traded at zero or negative prices.[3]

D. Conclusion

PG&E appreciates the opportunity to submit these comments and looks forward to continuing the robust discussions on California's clean energy policies.

[3] PG&E's proposed metric is discussed on pp. 8-9 of Exhibit PG&E-1 in CPUC Rulemaking 10-05-006, also called Track 1 "System Resource Plan" of the 2010 Long Term Planning Proceeding. The Exhibit is dated July 1, 2011.