

## DOCKETED

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*Additional submitted attachment is included below.*

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**VIA ELECTRONIC FILING**

California Energy Commission  
Dockets Office, MS-4  
Docket No. 15-IEPR-04  
1516 Ninth Street  
Sacramento, CA 95814-5512

Re: Docket 15-IEPR-04: Comments of Pacific Gas and Electric Company on the AB 1257  
Natural Gas Act Report

## **I. Introduction**

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the Draft Assembly Bill (AB) 1257 Natural Gas Act Report (Report) which was presented at the California Energy Commission's (CEC) September 21, 2015 workshop. We congratulate Commissioners and staff on issuing this inaugural report, which highlights the multi-faceted role of natural gas as a fuel for use in Californians' homes as well as a clean transition fuel for electricity generation and transportation as our state works to incorporate greater levels of renewable energy.

As a dual gas and electric utility, PG&E is engaged in a majority of the topics examined in the report. The key points of PG&E's comments are that:

- California utilities and regulators are actively addressing gas and electric system coordination.
- The effects of new federal air, water, and energy regulations will likely be dampened in California because of the state's unique electric profile.
- PG&E's gas system is prepared to handle the effects of greater amounts of renewable electricity generation in the state, and the issues of system flexibility and system supply are distinct.
- The Report's definition of biogas must be consistent with existing legislation.
- The Report should consider synthetic natural gas, out-of-state biogas resources, and the possibility for expanded biogas use in existing facilities.
- Additional methane emission studies should be reflected in the Report.

## **II. Chapter 3: Natural Gas for Electric Generation**

### **A. California Utilities and Regulators Are Actively Addressing Gas and Electric System Coordination**

In recent years, the Federal Energy Regulatory Commission (FERC) has been active in addressing concerns about gas and electric system coordination. In recognition that natural gas will continue to be a significant part of the electric generation portfolio, especially with the forthcoming retirement of coal power plants, FERC has hosted multiple hearings, solicited public comment, and promulgated rules to increase understanding, awareness, and best practices of gas and electric system coordination.

In addition to FERC's efforts, the California Independent System Operator (CAISO) and California utilities have worked on communications protocols and other best practices to enhance coordination and real-time communication between the gas and electric systems to ensure the reliability of both.<sup>1</sup>

While the Report references the FERC rulemaking on this issue as a step towards further improved reliability, the CEC may wish to expand this section of Chapter 3 to fully characterize the extensive effort that FERC, CAISO, and the utilities have made to address gas and electric system coordination.

### **B. California's Electric Profile is Unique in the United States**

Chapter 3 of the Report discusses new federal air and water quality regulations that will likely increase demand for natural gas generation in most of the United States. It may be helpful to clarify that, while changes in neighboring energy markets could affect California's electric imports and exports, these regulations will likely have a dampened effect in California because of California's unique position of having minimal coal-fueled electric generation and decreased gas-fueled generation demand due to high and increasing levels of renewables.

### **C. Gas System Flexibility and Gas System Supply Are Distinct Issues with Regard to Renewables Integration in California**

The Report rightly notes that the addition of more renewable generation to the California electric system will have an impact on the gas system because the function of gas-fueled generating units will change. Higher levels of renewables will have numerous impacts, including:

- **Renewable Load Shape:** Higher levels of renewables, especially solar, will change hourly electric generation gas demand profiles to respond to the electric generation "duck curve". We refer to this as the "renewable load shape" issue.

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<sup>1</sup> California Independent System Operator. *ISO/RTO Panel Discussion on Winter Preparedness, Presentation to the Federal Energy Regulatory Commission* (September 2015). <http://www.ferc.gov/CalendarFiles/20150917104756-1-CAISO.pdf>

- **Supply Imbalances:** Higher levels of renewables may potentially cause mismatches between delivery and receipt of gas to the pipeline due to the need for gas generators to respond to unanticipated changes in renewable generation. We refer to this as the “supply imbalance” issue, which can be managed through operational flow orders (OFO) as noted in the report.

Although the Report recognizes both of these issues, they should be distinguished from one another to highlight how prepared the gas system is to handle each potential issue.

PG&E’s current natural gas system is sufficiently flexible to address the renewable load shape issue. This results from the close proximity of many gas-fired generators to the system’s large diameter, high-pressure pipelines as well as the connection of gas storage facilities to large diameter pipelines. Even under the most constrained circumstances (peak periods of gas demand on cold winter days), studies have shown that electric generation is a small share of total gas demand during peak periods, and that fluctuations in linepack do not substantially change from historical operations.<sup>2</sup> The reduction in demand for gas generation during the day affords the pipeline operator the flexibility to manage evening ramps with existing physical tools such as linepack and storage, even under high demand conditions during the winter season.

PG&E’s current natural gas system has sufficient flexibility to effectively manage the renewable load shape issue as long as the system is not in a supply imbalance situation. The Report should add clarity around these two related, but distinct, topics.

### **III. Chapter 8: Natural Gas and Biogas as Low Emissions Resources**

#### **A. The Definition of Biogas Must Be Consistent with Existing Legislation**

The Report initially defines biogas as “the raw, untreated gas generally produced during the anaerobic decomposition of biomass,” but later states that biogas can “be produced by standalone facilities either directly through biochemical conversion processes (anaerobic digestion) or indirectly through gas reformation of producer gas from thermochemical conversion processes.”

These two definitions are inconsistent with one another and with the existing legislative definition of biogas. Assembly Bill 1900 defines biogas as “gas [...] produced from the anaerobic decomposition of organic material.”<sup>3</sup> The Report should use the definition consistent with AB 1900, from which it follows that the discussion of biogas should focus on gas produced from anaerobic digestion.

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<sup>2</sup> Western Interstate Energy Board/Energy + Environmental Economics. *Natural Gas Infrastructure Adequacy in the Western Interconnection: An Electric System Perspective Phase 2 Report* (July 2014): pages 103 and 113.

[http://westernenergyboard.org/wp-content/uploads/2014/07/E3\\_WIEB\\_Ph2\\_Report\\_full\\_7-28-2014.pdf](http://westernenergyboard.org/wp-content/uploads/2014/07/E3_WIEB_Ph2_Report_full_7-28-2014.pdf)

<sup>3</sup> Assembly Bill 1900, Gatto. 2011-2012. Ch. 602.

[https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201120120AB1900](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201120120AB1900)

## **B. The Report Should Consider Synthetic Natural Gas**

A number of studies show that synthetic natural gas (SNG) could one day become a valuable low emission fuel.<sup>4</sup> The Report should consider including details on SNG production processes and preliminary resource potential estimates.

## **C. California's Biomethane Potential Includes Possible Importation and Greater Use in Existing Facilities**

The Report presents an annual biomethane potential for California but does not investigate the potential of importing biomethane from out-of-state resources. California does have access to out-of-state biomethane resources, and while there may be limitations on the ability to use out-of-state biomethane for Renewable Portfolio Standard (RPS) purposes, these limitations do not extend to its use more broadly for electricity generation, as a transportation fuel, or as a natural gas alternative.

The Report should also discuss the expanded use of biomethane resources beyond electricity generation. For example, the net biomethane resource estimates developed in the report take into account uses for electricity generation, but other biomethane uses must also be considered. Existing projects that produce biomethane (e.g., some anaerobic facilities, including municipal solid waste and landfill gas facilities) use their biomethane production to operate heavy vehicle fleets. Therefore, focusing only on the use of biomethane in the electricity generation arena may overlook other important uses.

In the same vein, the Biogas and Biomethane Production section of the Report should reflect that biomethane can be used for the same end-use applications as natural gas, including water and space heating, and as a transportation fuel.

## **IV. Chapter 9: Greenhouse Gas Emissions and the Natural Gas System**

### **A. More Methane Emission Studies Should Be Included In the AB 1257 Report**

Estimating fugitive methane emissions is an emerging area of study and the conclusions of the studies to date have varied significantly. To ensure the robustness of the Report's discussion on this important topic, PG&E suggests the CEC review and incorporate additional research on this topic to present a balanced assessment of the issues.

With regard to the climate impact of natural gas power plants versus coal power plants, emission percentage thresholds for the full life cycle impact of a facility are much higher than the immediate climate impact. A 2015 MJ Bradley study shows that life-cycle emissions from natural gas power plants are less than coal plants if fugitive emissions are below six percent.<sup>5</sup>

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<sup>4</sup> California Air Resources Board. *Assessment of the Emissions and Energy Impacts of Biomass and Biogas Use in California*. (January 2015). <http://www.arb.ca.gov/research/rsc/1-30-15/item6dfr11-307.pdf>

<sup>5</sup> Western Interstate Energy Board/MJB&A. *Methane Emissions in the Natural Gas Life Cycle* (2015): 51-52.

In discussing recent assessments of methane emissions, the Report cites many Environmental Defense Fund (EDF) studies which elucidate the topic. The Report should be updated to reflect two additional EDF studies on fugitive methane.

The first study is a 2015 EDF/Washington State University study that found that emissions from the gas distribution system are 36 to 70 percent less than the 2011 United States Environmental Protection Agency (US EPA) inventory due to significant upgrades at gas metering and regulating stations and improvements in leak detection and maintenance activities.<sup>6</sup> PG&E was one of 13 participants in that study.

The second study is a 2015 EDF/Carnegie Mellon University study of methane emission levels from natural gas gathering and processing facilities. The study found that emissions were less than 1 percent, however, and it presents evidence that a small number of gas gathering and processing facilities are responsible for a majority of methane emissions.<sup>7</sup>

Moreover, the Report explains that the results of the various methane emission studies vary because they use “different methodologies, data, and device counts, as well as difference in the components of the natural gas system that are either included or excluded.”<sup>8</sup> However the Report then notes “Some peer-reviewed studies suggest, however, that these emissions may be underestimated,” which may give the impression that all of the studies underestimate methane emissions. PG&E recommends this sentence be stricken because some studies also suggest the emissions may be overestimated.

Finally, PG&E would like to commend staff for providing an excellent overview of the natural gas system in Chapter 9 of the Report, including how each phase of the system can contribute to fugitive emissions.

## **B. Assembly Bill 1496 Complements Previous Air Resources Board Emissions Initiatives**

The Report lists state efforts to address methane emissions in California. This section should include Assembly Bill 1496, which requires the Air Resources Board (ARB) to monitor methane emissions using best-available, cost-effective methods.<sup>9</sup> ARB’s actions under AB 1496

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<http://www.mjbradley.com/sites/default/files/MJBradley-WIEB-NG-Methane-Emissions-Phase-2-Final.pdf>

<sup>6</sup> Laboratory for Atmospheric Research at Washington State University and associated authors. “Direct Measurements Show Decreasing Methane Emissions from Natural Gas Local Distribution Systems in the United States” (March 2015). <http://pubs.acs.org/doi/full/10.1021/es505116p>

<sup>7</sup> Department of Mechanical Engineering at Carnegie Mellon University and associated authors. “Measurement of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants: Measurement Results” (February 2015). <http://pubs.acs.org/doi/abs/10.1021/es5052809>

<sup>8</sup> California Energy Commission. *AB 1257 Natural Gas Act Report: Strategies to Maximize the Benefits Obtained from Natural Gas as an Energy Source, Draft Staff Report* (September 2015): 90.

[http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-04/TN206126\\_20150916T124857\\_AB\\_1257\\_Natural\\_Gas\\_Act\\_Report\\_Strategies\\_to\\_Maximize\\_the\\_Benef.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-04/TN206126_20150916T124857_AB_1257_Natural_Gas_Act_Report_Strategies_to_Maximize_the_Benef.pdf)

<sup>9</sup> Assembly Bill 1496, Thurmond. 2015-2016.

[https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201520160AB1496](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB1496)

complement previous ARB initiatives like the Short Lived Climate Pollutant Strategy mentioned in the report.

## **V. Conclusion**

We appreciate this opportunity to comment on the Draft AB 1257 Natural Gas Act Report, and we again commend the Commission on their hard work in creating this inaugural draft.

Sincerely,

/s/

Nathan Bengtsson