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Ms. Rajinder Sahota  
Chief, Climate Change Program Planning & Management Branch  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95812-2828

**Re: PG&E Comments on the Proposed 2017 Climate Change Scoping Plan Update**

Dear Ms. Sahota,

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide these comments to the Proposed 2017 Climate Change Scoping Plan Update (Proposed Scoping Plan) dated January 20, 2017. These comments supplement and incorporate by reference previous comments submitted to ARB on November 21, 2016, December 16, 2016 and January 12, 2016.

PG&E continues our longstanding commitment to help the state meet its climate change and clean energy goals -- including the state's 2030 greenhouse gas target -- while also maintaining a vibrant and growing economy. We believe these objectives are best met through policies that prioritize sustainable and cost-effective greenhouse gas (GHG) emissions reductions. By achieving these goals in a way that manages costs for Californians, we can ensure that our state continues to make substantive progress and creates model programs others will want to follow. We submit the following comments on the Proposed Scoping Plan with these overarching considerations in mind.

The key points of our comments are as follows:

- The Proposed Scoping Plan Option and Alternative 3 (All Cap-and-Trade), which both include well-designed direct measures as well as Cap-and-Trade, are the most suitable for adoption as the 2030 Scoping Plan.
- PG&E supports ARB's continued efforts to develop the Scoping Plan modeling to allow stakeholders and decision-makers to fairly evaluate the various policy alternatives.
- PG&E supports programs to improve local air quality; however, ARB's most recent modeling further demonstrates that using climate policy to improve local air quality may diminish the effectiveness of the climate policy without achieving meaningful air quality improvements.
- PG&E addresses natural gas and freight-related policy specifics related to the Scoping Plan scenarios.

## **I. Scoping Plan Scenarios**

PG&E has commented extensively on the Proposed Scoping Plan Scenarios, and incorporates those comments by reference here while focusing on the most critical issues related to the Scenarios in ARB's Proposed Scoping Plan Update.<sup>1</sup>

PG&E supports the inclusion of both Cap-and-Trade and well-designed and sustainable programmatic measures, such as the Low Carbon Fuel Standard (LCFS) and the Renewable Portfolio Standard (RPS), to help achieve the 2030 GHG reduction goals. In this respect, both the Proposed Plan and Alternative 3 are suitable to be considered for eventual adoption in the 2030 Scoping Plan, with appropriate modifications. It is worth noting that the Proposed Plan and Alternative 3 are among the most cost-effective options for reaching the state's 2030 goals according to the most recent ARB modeling.<sup>2</sup>

Cap-and-Trade provides flexibility in how and when GHG reductions are achieved, and the program helps ensure that reductions are achieved cost-effectively while still ensuring that GHG emissions stay under the cap. Cap-and-Trade also offers the opportunity for additional economic and environmental benefits through linkage with other carbon markets, and serves as a de facto environmental backstop should other program measures underperform.

The continuation of Cap-and-Trade post-2020 also avoids increased administrative burden that would be required to develop and implement entirely new regulatory programs as outlined in Staff's alternatives. Additionally, the existing policies are well-developed, and are already achieving meaningful GHG emissions reductions.

The post-2020 design of Cap-and-Trade, however, must be finely tuned to ensure that California reaches the 2030 emission reduction target cost-effectively and with flexibility, and PG&E welcomes the opportunity to work with ARB and Staff to implement market design refinements to help achieve this end. Adequate cost-containment measures, including a price collar – consisting of a hard price ceiling and continuation of the price floor - are particularly important considering the significant uncertainty in modeling and achieving emissions reductions to 2030 and beyond.

### **A. Proposed Scoping Plan Scenario**

As noted above, PG&E supports a Scoping Plan scenario in which Cap-and-Trade is the focal point that drives the emission reductions required to meet the 2030 target, combined with sustainable complementary measures, including the LCFS. With a well-designed Cap-and-Trade program in place, the inclusion of additional direct regulations is not necessary; instead, additional direct regulations will only increase overall costs of achieving the 2030 target and reduce compliance flexibility.

As to the LCFS, PG&E recommends that staff undertake further examination of potential 2030 carbon intensity reduction targets under this program. We are concerned that the proposed 18%

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<sup>1</sup> Pacific Gas and Electric Company, "Re: Discussion Draft 2030 Target Scoping Plan Update." Dec. 16, 2016 <https://www.arb.ca.gov/lists/com-attach/103-sp2030disc-dec16-ws-ViZTMIYIUGYBWABj.pdf>

<sup>2</sup> California Air Resources Board. Public Workshop on the 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. March 28, 2017. Presentation, p 23.

reduction target is too aggressive and the underlying feedstock and biofuel growth assumptions included in the Biofuel Supply Module (BSM) are overly optimistic.<sup>3</sup> In addition, an LCFS credit price much higher than \$80 would be needed to drive the low carbon fuel uptake necessary to meet the 18% carbon intensity target in 2030. PG&E suggests conducting additional analysis of more sustainable post-2020 options for the LCFS, such as a 2030 carbon intensity reduction target in the range of 15%.

### **B. Alternative 1: No Cap-and-Trade**

PG&E supports Staff's conclusions regarding the inadequacy of Alternative 1, and we do not consider this option feasible. As outlined in earlier comments on the Scoping Plan Update, there is broad consensus among environmental economists that market-based mechanisms that put a price on GHG emissions provide the most cost-effective path to lowering those emissions. Market-based mechanisms are ideally suited to respond automatically to unexpected changes in the market (including technology development and costs) and provide rational incentives for compliance entities to invest in least-cost abatement opportunities in real-time.

Alternative 1 includes no flexible, market-based mechanism and will be more expensive as entities work to comply on a prescribed timeline with administratively predetermined compliance requirements. This alternative suffers relative to a scenario with Cap-and-Trade in both its cost to the California economy - over \$15 billion more expensive in 2030 than the cost of the Proposed Plan according to ARB analysis<sup>4</sup> - and its inability to guarantee the desired level of emissions reductions.

The lack of compliance flexibility also increases the risk of GHG leakage as entities that could comply under Cap-and-Trade, but cannot meet the prescribed requirements cost-effectively, relocate out of state. Additionally, direct measures can fail to achieve their expected emission reduction goals. In the absence of an economy-wide cap like that provided by Cap-and-Trade, there is no backstop to ensure that the economy-wide emission goal is reached even if certain program measures fail to perform.

Finally, PG&E notes that Alternative 1 also lacks a mechanism for generating revenue that can be used for climate mitigation activities, like the Greenhouse Gas Reduction Fund that currently is funded by Cap-and-Trade and is earmarked for climate mitigation projects, including projects in disadvantaged communities.

### **C. Alternative 2: Carbon Tax**

PG&E supports Staff's conclusions regarding the inadequacy of Alternative 2, and consider a carbon tax at a disadvantage when compared to a scenario with Cap-and-Trade for California. A carbon tax does not set a limit on GHG emissions, and it is difficult to set a tax level that achieves a desired level of emission reductions. Given that California's climate policies are driven by long-term

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<sup>3</sup> For example, the BSM assumes a future annual growth rate for the biofuel industry of 41%, which is based on the average growth rate of biodiesel and ethanol during periods that had particularly favorable conditions, such as tax and production incentives. It is unrealistic to assume that this aggressive annual growth rate can be replicated despite the current absence of these policies.

<sup>4</sup> California Air Resources Board 2030 Target Scoping Plan, Appendix E. p. 17-19  
[https://www.arb.ca.gov/cc/scopingplan/app\\_e\\_economic\\_analysis\\_final.pdf](https://www.arb.ca.gov/cc/scopingplan/app_e_economic_analysis_final.pdf)

quantitative emission reduction goals, a quantity-based instrument (i.e., cap-and-trade) is a better fit than a price-based instrument (carbon tax) to deliver on California's objectives.

A carbon tax would preclude California's ability to link with other jurisdictions and thus deprive the state of the potential to reduce compliance costs and GHG emissions more broadly. It would also reduce the likelihood of consistent carbon pricing in the Western electricity market, potentially introducing distortions into the electricity market that would reduce the GHG reduction benefits of regional electricity market integration.

#### **D. Alternative 3: All Cap-and-Trade**

PG&E appreciates Staff's inclusion of a Cap-and-Trade focused alternative and the completion of detailed economic analysis thereof. PG&E reiterates strong support for the continuation of a well-designed and sustainable Cap-and-Trade Program post-2020. Indeed, the results of ARB's most recent modeling show that Alternative 3 could deliver emissions reductions and health benefits more cost-effectively than under the Proposed Plan. In the case that ARB conducts further modeling, PG&E recommends that Staff consider including an enhanced LCFS measure in this scenario with a target of 15 percent carbon intensity reduction. This scenario would maintain relative cost-effectiveness while spurring further emissions reductions from the transportation sector.

#### **E. Alternative 4: Cap-and-Tax**

PG&E supports Staff's conclusions regarding the inadequacies of Alternative 4 and does not consider this option feasible.

As noted under Alternative 1 above, the lack of a flexible, market-based mechanism will be significantly more expensive to California as entities work to comply on a prescribed timeline with administratively predetermined and restrictive compliance requirements. This is borne out by ARB's most recent modeling; Alternative 4 is orders of magnitude more costly than any other Scoping Plan scenario.

PG&E supports Staff's conclusions that this alternative would negatively impact the California economy with no environmental gain relative to the alternatives with Cap-and-Trade. The lack of a trading mechanism reduces compliance flexibility and increases the risk of GHG leakage as entities that could comply under Cap-and-Trade but cannot meet the prescribed requirements cost-effectively relocate out of state.

Finally, and similar to a carbon tax in Alternative 2, a Cap-and-Tax approach would also preclude California's ability to link with other jurisdictions and thus deprive the state of the potential to reduce compliance costs and GHG emissions more broadly.

## **II. Modeling and Modeling Analysis**

We recognize ARB's efforts to thoroughly evaluate the Scoping Plan alternatives. In particular, we support ARB's incorporation of uncertainty into its evaluation – we agree that this points toward an approach that includes the Cap-and-Trade Program. We also thank ARB for providing its estimate of the average cost-effectiveness (in dollar per metric ton) of Scoping Plan measures in Table III-3. We believe this metric provides important information for evaluating individual complementary measures and for evaluating complementary measures relative to GHG reductions achieved through

the Cap-and-Trade Program. In particular, ARB's analysis supports its proposal to include the Cap-and-Trade Program in its proposed plan – the program offers GHG reductions at significantly lower costs per metric ton than many of the candidate prescriptive measures. We also support ARB's approach to presenting \$/metric ton ranges for many of the measures – in fact we encourage ARB to do so for all measures. As ARB recognizes, many of the factors that will affect the \$/metric ton cost are uncertain (e.g. fossil fuel prices, technology costs), and providing a range of \$/metric ton costs is appropriate.

We support ARB's proposed approach in Table II-3 to present sector emission ranges that account for the impacts of proposed prescriptive measures separately from the planned emission reduction ranges from Cap-and-Trade. Until ARB has developed and publicly vetted modeling capabilities to represent sectoral abatement responses to Cap-and-Trade prices, we discourage it from incorporating the effects of Cap-and-Trade into the proposed sectoral emission ranges. This is particularly important for the electric sector as a result of California's new Integrated Resource Planning (IRP) process.

We encourage ARB to provide additional information as part of the AB 197 Measure Analysis - to provide the necessary context for interpreting the significance of the tons per day estimates of avoided criteria and toxics emissions and to clarify its methods and assumptions for estimating avoided emissions. For example, ARB should include a summary of its current state emission inventory for pollutants listed in Table III-1 prior to presenting Table III-1 to give the context necessary for interpreting Table III-1. In addition, we encourage ARB to provide additional detail on its methods and assumptions for determining the avoided criteria and toxics emissions presented in Table III-1. In particular, we seek to understand the avoided emission rates assumed for the key sectors and the sources for those rates.

For electric sector measures, ARB should clarify whether and how it is considering effects on electricity imports (e.g., are all of the electricity measures assumed to reduce in-state fossil generation only? If not, are avoided emissions in other states included in Table III-1?). This additional information is particularly important as ARB's results for electric sector measures are not intuitive. For example, ARB appears to show diminishing returns to avoided criteria pollutants for RPS measures (i.e., while the estimated avoided GHG reductions are similar, the estimated avoided criteria pollutant emissions are lower for the 60% RPS increment), while it shows the opposite for energy efficiency measures (i.e., the 2.5x AAEE appears to provide 6 to 10 times more NOx and PM2.5 reductions than the 2x AAEE despite providing similar GHG reductions). These draft findings deserve a more detailed explanation.

Finally, we encourage ARB to present and evaluate higher RPS and rooftop solar PV policies separately as part of the AB 197 measure analysis. These resources are supported by separate state policies and have different resource costs. By evaluating them separately, ARB can provide its estimates of the benefits and costs of each measure and provide additional insight into least-cost GHG reduction approaches in the electric sector.

### **III. Environmental Justice Considerations**

#### **A. Facility-Specific GHG Emissions Reductions Measures Provide Little Benefit, Significant Drawbacks**

PG&E recognizes that the current debate around California climate policy has come to encompass climate change and local air quality concerns, two important but distinct issues that both deserve serious attention. Indeed, since AB 32, California policy has explicitly recognized the need to ensure that the state's climate programs maximize air pollutant co-benefits, where feasible, and ensure that local air quality does not suffer at the expense of GHG emissions reductions.

However, conflating these two issue areas runs the risk of developing solutions that are misguided and unhelpful. Some of the solutions proposed to improve air quality in disadvantaged communities utilizing climate policy (e.g. those encompassed in Alternatives 1 and 4) will diminish the effectiveness of the State's climate programs, likely without meaningfully improving local air quality.

To underscore this likelihood, ARB's recent Scoping Plan modeling indicates that mandating GHG emissions reductions at stationary sources to achieve additional reductions in local air pollutant emissions is ineffective. Moreover, the air quality and health benefits associated with each Scoping Plan scenario produce very similar results; however, the macroeconomic cost of Alternatives 1 and 4 are 10 – 30 times the cost of the Proposed Scenario in 2030.<sup>5</sup> Indeed, a majority of the air quality co-benefits associated with each Scoping Plan alternative come not from prescriptive, stationary source measures, but from mobile source emissions reductions, which account for the vast majority of criteria pollutant emissions in the state.

The data show that maintaining the Cap-and-Trade Program results in roughly the same aggregate health benefits as alternative policies while avoiding increased costs to California households and likely economic and emissions leakage that would occur with the alternatives.

#### **B. Stationary Source GHG Reductions and Local Health Benefits**

The aggregate air quality benefits from each scenario are very similar. That being said, PG&E understands that the primary concern of environmental justice (EJ) advocates is with health impacts in specific, localized areas. PG&E does not dispute that the disproportionate presence of covered entities in low-income communities and communities of color contributes to relatively lower air quality in such areas.<sup>6</sup> However, the assumed contribution to health disparities from the power sector and other industry stationary source GHG emissions requires further examination.

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<sup>5</sup> California Air Resources Board. Public Workshop on the 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. March 28, 2017. [Presentation, p 9-23](#).

<sup>6</sup> [Proposed 2017 Scoping Plan Update](#), p 20

ARB data from 2016 concludes that criteria pollutant emissions in California—almost all from transportation sources (Diesel PM, NO<sub>x</sub>, PM<sub>2.5</sub>, CO, ozone)--have declined greatly from 1990 to 2014. For example, NO<sub>x</sub> concentrations in environmental justice communities have declined, on average, from about 30 ppm in 1990 to about 11ppm in 2014, while declining from about 15ppm to 5ppm in non-EJ communities.<sup>7</sup> While disparity in air quality remains, local air quality throughout the state continues to be improved through current air quality regulations.

Additionally, the air quality regulations that prompted the power sector to invest heavily in reducing its criteria pollutant emissions -- well in advance of newer GHG reduction legislation -- have yielded greatly improved air quality in all communities, but particularly in EJ communities. Based on data from ARB and the Air Districts it is likely that these efforts will continue to reduce inequity without explicit conjoining of GHG reduction considerations with those of local air pollutants. Moreover, the data suggests that, given the dramatic improvement in air quality in all communities--but particularly in EJ communities--the continuing health disparities are being driven by factors other than local air pollution from stationary sources.<sup>8</sup>

While we firmly believe that the power sector should continue to minimize emissions of GHGs and criteria pollutants, it must be noted that the sector is a comparatively lesser contributor. It is highly unlikely that requiring direct, facility-specific GHG reductions by the power sector will yield significant local criteria pollutant reductions, and therefore is unlikely to yield notable public health benefits.

PG&E recommends that the Scoping Plan explicitly recognize that GHG-reducing mobile source measures will provide the greatest air quality co-benefits, and urges ARB to carefully consider the relative tradeoffs between GHG emissions reductions, local air pollutant reductions, unrealized public health benefits, and costs to California households when ultimately adopting the Scoping Plan.

### **C. GHG Emission and Local Air Pollutant Emission Correlations Are Highly Variable**

PG&E generally supports ARB's analysis of the air quality and health benefits of the Scoping Plan options, and understands the necessity of using reasonable assumptions in pursuit of timely analysis. However, it cannot be overstated that ARB's assumption of a one-to-one correlation between changes in GHGs, criteria pollutants, and toxic air contaminants is for the purpose of the Scoping Plan only. As acknowledged in Table III-1, the correlation between GHGs and other types of pollutants is highly variable and facility-specific.

It is critical that California's regulatory agencies rely on accurate scientific data in order to create policy that effectively addresses climate issues and local air quality. Assuming a one-to-one

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<sup>7</sup> California Air Resources Board. "Air Quality Progress in California Communities." June 2016.

<sup>8</sup> A review of several studies suggests that between 3-20% of health disparities are related to the ambient environment. *Health Affairs: Health Policy Brief*: "Relative Contribution of Multiple Determinants of Health Outcomes," August 21, 2014. p.4 [http://healthaffairs.org/healthpolicybriefs/brief\\_pdfs/healthpolicybrief\\_123.pdf](http://healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_123.pdf)

correlation between GHG and other emissions for any purpose other than very high level estimation of impacts could lead to misdirected resources and ineffective policies.

#### **IV. Scenario Policy Specifics**

##### **A. Natural Gas Sector Issues and Opportunities**

The Scoping Plan Update notes that natural gas (NG) emissions have remained roughly constant since 2000 (4MMT CO<sub>2</sub>e). PG&E maintains that this conclusion is based on an analysis that uses outdated emissions factors, and that emissions have in fact decreased due to efforts by PG&E and gas providers in the state. We request that staff look at reporting information contained in SB 1371 Annual Reports for a more accurate accounting of emissions and emissions reductions.

PG&E is actively pursuing opportunities to provide renewable natural gas (RNG) and to participate in efforts to demonstrate pathways for economically sustainable RNG. We support continued research and a data driven approach to evaluating these pathways and for developing targets, per SB 1383. PG&E also believes a rigorous analytical process should help ARB and the state to prioritize actions, including how Greenhouse Gas Reduction Fund (GGRF) funding could best be used to promote such programs. We also look forward to engaging with UC Berkeley and UCLA as they evaluate these issues.

To accelerate the development of RNG, however, PG&E agrees with staff that additional incentives and policy development are needed to reduce rate impact and create stronger economic signals. Specifically, as to the LCFS, PG&E supports efforts to reduce variability in that market. The transportation sector will be a primary offtaker of RNG, and we support the LCFS as a tool to help diversify transportation fuels, including RNG. PG&E also supports efforts to look for nearer term opportunities to use NG in the transportation sector. For example, in the heavy-duty arena, we believe that utilizing NG (and RNG if there are appropriate incentives) to achieve near term emissions reductions is a sound approach as research and development of battery and fuel cell technologies continues.

##### **B. Sustainable Freight**

As noted in the Sustainable Freight Action Plan (SFAP), the deployment of zero-emission vehicles in the freight sector is essential to achieving California's climate and air quality goals. On January 20th, PG&E filed an application with the CPUC requesting to advance the utility's support for transportation electrification. The filing includes a five-year \$211 million program called FleetReady to support the non-light-duty transportation electrification (TE) market through investments in make-ready charging infrastructure - the supporting electric upgrades and infrastructure required up to, but not including, chargers - for commercial customers adopting electric vehicles for their fleets. This includes medium- and heavy-duty vehicles like delivery trucks and transit buses, as well as non-road technologies like forklifts and truck refrigeration units. The aim of the program is to reduce upfront infrastructure costs associated with conversion of commercial vehicles to electric fuel, thereby accelerating widespread TE and directly contributing to the SFAP's goal of deploying over deploying



100,000 zero-emission capable freight vehicles.

#### **IV. Conclusion**

PG&E continues to be confident that California and the ARB will provide the necessary leadership to address climate change in a way that achieves our emissions reduction targets while also minimizing costs to our customers and all Californians. The development, and continued revisiting, of a thorough and well considered 2030 Target Scoping Plan is crucial to putting our state on a path to meet the SB 32 goal of reducing GHG emissions in California to 40 percent below 1990 levels by 2030. Thank you for considering these comments on the Proposed 2017 Scoping Plan Update.

Sincerely,

Nathan Bengtsson  
Sr. State Agency Relations Representative  
Pacific Gas and Electric Company

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