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Summary of Legislative and Regulatory Activities:

Decarbonizing the Building Sector

Background:

A series of measures have been passed by the Legislature in pursuit of integrating a greater number of renewable energy resources into the energy supply and exploring avenues of reducing greenhouse gas emissions (GHG) in California. Importantly, the corresponding statutes provide direction for the development and implementation of regulatory processes that are vital to achieving the state's climate mandates. These efforts include the development of renewable gas to serve transportation and residential and non-residential uses as well as eliminating the use of natural gas. The most significant of these efforts being SB 100 which will eliminate the use of all fossil fuels for the production of electricity by 2045.

What is Renewable Gas? To date the state's primary efforts to develop renewable gas have been focused on biogas and biomethane which is also referred to as bioenergy. This includes gas produced from biomass wastes including forest and other wood waste, agriculture and food processing wastes, organic urban waste, waste and emissions from water treatment facilities, landfill gas and other organic waste sources. Biomass waste can be used to generate renewable electricity, liquid fuels and biogas. Current law defines "biogas" as a gas produced from the anaerobic decomposition of organic material. The result is a gaseous mixture composed primarily of carbon dioxide and methane. Depending on where it is produced, biogas can be categorized as landfill gas or digester gas. Landfill gas is produced by decomposition of organic waste in a municipal solid waste landfill. Digester gas is typically produced from livestock manure, sewage treatment or food waste.

From an environmental perspective, biogas has several advantages over conventional natural gas. Combustion of natural gas, including biogas, releases carbon dioxide (CO₂) into the atmosphere. However, the combustion of natural gas destroys methane, a gas that is a much more potent GHG than is CO₂. In addition to destroying methane, the combustion of biogas, for CO₂ accounting purposes, is considered carbon neutral. This is because the carbon in biogas, unlike the carbon in conventional natural gas, was so recently present in the atmosphere. In addition, biogas can be used to displace the use of fossil fuels, such as conventional natural gas, thereby further decreasing its

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carbon intensity. However, the use of renewable gas in power plants does create criteria pollutants.

Biogas can be used directly to produce electricity or can be converted to biomethane by removing carbon dioxide and other impurities. Biomethane that meets specified standards adopted by the CPUC can be injected into a common carrier pipeline. Biomethane can replace fossil sources of natural gas in homes and factories and compressed or liquefied as natural gas used in vehicles. Biomethane can also be used to produce renewable hydrogen in fuel cells. However, the use of renewable gas in power plants does create criteria pollutants.

Building Sector, End Uses – According to the California Air Resource’s Board (CARB), the building sector has tremendous cross-sector interactions that influence our health, well-being, affect land use, transportation patterns, energy use, water use and communities. The CARB’s Scoping plan identifies that, “Looking forward, there is a need to establish a path toward transition to zero net carbon buildings.”¹ As such, in 2018 the Legislature enacted three measures that specify regulatory actions that must be taken to enable the building sector to meet the GHG reductions that CARB has identified for that sector:

- SB 1477 (Stern, Chapter 378), instructs the California Public Utilities Commission (CPUC) to allocate \$50 million annually until 2023, to the Technology and Equipment for Clean Heating (TECH) and the Building Initiative for Low-Emission Development programs. Funding for the TECH comes from the carbon allowances received by gas corporations which were created to offset ratepayer costs associated with the increased charges associated with the carbon credit. Under the provisions of the bill, the CPUC is mandated to develop a statewide market transformation initiative to change the state's market for low-emission space and water heating equipment for new and existing residential and nonresidential buildings and to develop an incentive program to fund near-zero emission technology for new residential and commercial buildings. Among other incentives, this measure will provide for moving from gas to electric appliances.
- AB 3232 (Friedman, Chapter 373), requires the California Energy Commission (CEC) to assess the potential for the state to reduce the emissions of

¹ California’s 2017 Climate Change Scoping Plan, pg. 62

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greenhouse gases from the state's residential and commercial building stock by at least 40% below the 1990 levels by January 1, 2030.

Taking a different approach to this effort is the development of renewable gas (aka bioenergy) for injection into natural gas pipelines to serve end uses in the state such as space and water heating as well as natural gas plants. Legislation and agency work includes:

- *CPUC Biomethane Standards and Subsidies* – Current law directs the CPUC to adopt policies and programs that promote the in-state production and distribution of biomethane which is considered to be a renewable gas. In response to statutory mandate, the CPUC, in 2014, adopted health and safety standards that limit the amounts of certain constituents determined to be harmful to either human health or pipeline integrity in pipeline injected biomethane. The standards were to address the reluctance of gas corporations to inject biomethane into natural gas pipelines.

The CPUC acknowledged that its biomethane standards would increase the costs of a biomethane producer who seeks to inject biomethane into pipeline system. In response to these concerns and legislative mandates, the CPUC adopted a \$40 million ratepayer-funded program to offset a portion of gas producer costs of connecting to utility pipelines. As modified by 2016 legislation, program funding will pay up to 50 percent of a biomethane project's interconnection cost, up to \$3 million per project. The CPUC noted that the capped subsidy would "limit the financial exposure of utility ratepayers." Biomethane pilot projects are still in development and implementation.

- *Short-Lived Climate Pollutants (SLCPs)* – In 2016 the Legislature adopted landmark legislation to develop a comprehensive strategy to reduce SLCPs in the state to achieve, from 2013 levels, a 40% reduction in methane, a 40% reduction in hydrofluorocarbon gases, and a 50% reduction in anthropogenic black carbon, by 2030.

The effort included direction to the CEC which developed recommendations for the development and use of renewable gas, including biomethane and biogas, as part of its 2017 Integrated Energy Policy Report. Those recommendations were released in April, 2018. The CEC identified cost-effective strategies and considered priority end uses of renewable gas in relation to existing state policies

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and climate goals. The primary recommendation of the CEC was to:

Focus on cost-effective strategies to develop markets for renewable gas produced from anaerobic digestion used as a transportation fuel in near-zero emission, heavy-duty vehicles is the most likely near-term solution.

- In 2018 the Legislature (Hueso, Chapter 89) also required the CPUC, in consultation with CARB, to consider adopting biomethane procurement targets or goals divided proportionately between the gas corporations if the CPUC finds that the targets or goals are a cost-effective means of achieving reductions in short-lived climate pollutants and other GHG emissions reductions according to developed CARB strategies.

Current Legislation:

AB 1143 (Quirk): Proposes to allocate \$50 million per year over four years to gas corporations to provide incentives to residential: 1) customers or 2) developers who choose or are required to purchase renewable gas to reduce emission of greenhouse gases from the building sector. The funding source for the program would come from the natural gas carbon allowance revenues that is now going back to ratepayers to offset additional cost associated with the IOU carbon consignment.

Outstanding Questions relating to AB 1143:

- Does AB 1143 jump ahead of and preempt processes the Legislature recently set into motion: AB 3232 (Friedman, 2018, Chapter 373) which requires the CEC, by January 1, 2021, to assess the potential for the state to reduce the emissions of greenhouse gases from the state's residential and commercial building stock by at least 40% below 1990 levels by January 1, 2030?
- Does AB 1143 jump ahead of SB 1440 (Hueso, 2018 Chapter 89) which calls upon the CPUC to consider establishing procurement targets or goals for biomethane procurement?

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- Given that the CEC's recently approve IEPR determined that the role of renewable gas in decarbonizing buildings "is likely to be constrained by limitations on renewable gas availability, cost, and ongoing methane leakage concerns," (2018 IEPR Update vol. 2, p.28.) is this the highest and best use of public funds?
- How would this program function? Would a building owner or developer be given a credit for free or reduced cost renewable gas on their bill? How would one building owner be selected over another for this direct subsidy?
- What buildings would qualify? The use of the term "developer" implies *new* buildings; it would contradict the CEC's 2018 IEPR Update to encourage new buildings to invest in gas system connections; there is significant risk of stranded assets that should not be further subsidized.
- How will "renewable gas" be defined? The cost and incrementally of the GHG savings provide by the use of renewable gas vary widely between sources of renewable gas. This bill is vague as to what sources it includes, and lacks any requirements for cost effectiveness and the additionally of GHG emission reductions.