Comments of Johns Manville and Nest on August 2017 Draft Funding Guidelines for Cap and Trade Auction Proceeds.

Johns Manville and Nest appreciate the opportunity to provide comment on the August 2017 Draft Funding Guidelines, which provide direction to agencies administering California Climate Investments. We previously submitted comments on the November 2016 Draft Funding Guidelines.

California has a unique opportunity to invest greenhouse gas reduction funds in ways that will support the state's overall efforts to drive down greenhouse gas emissions and advance a range of additional pollution reduction and social equity goals. In order to capitalize on this opportunity, it is imperative that funds be invested in programs and projects that strategically and cost-effectively result in greenhouse gas emissions reductions. As the Air Resources Board and the California Energy Commission have acknowledged, **cost-effective and scalable energy efficiency retrofit approaches in the residential sector are a critical part of this effort**.[1]

To date, GGRF funds have been utilized by administering agencies for many important purposes. However, in light of the clearly acknowledged need to dramatically reduce energy use in existing residences throughout California as part of the state's effort to cost-effectively cut greenhouse gas emissions, there must be greater focus on ensuring that California Climate Investments are effectively used for this purpose.

The Draft Guidelines rightly identify that the primary purpose of California Climate Investments is to "facilitate GHG emissions reductions and further the purposes of AB 32."[2] Furthermore, the Guidelines are correct to specify that "when designing California Climate Investments programs, including which project types to fund, administering agencies should focus funding on the types of projects that achieve the greatest GHG emission reductions and are needed to

[1] See **ARB, 2015 Scoping Plan, Electricity & Natural Gas Working Paper**, pg. 23, "In addition to savings from efficiency standards for new construction, there is significant opportunity for savings in existing buildings. Of California's 13 million existing buildings, more than half of residences and more than 40 percent of commercial buildings were built before 1978, when the state first implemented the [Title 24] Building Energy Efficiency Standards. This leaves open opportunities to significantly decrease energy use in the existing housing market using energy efficiency measures," and **CEC 2016 Low Income Barriers Study**, pg. 35, "Scaling up no-charge and low-charge direct install programs may be the most straightforward method for increasing access to energy retrofits within the low-income sector."

[2] See pg. I-5; Figure 1-8, pg I-27; V.A.I, pg I-27.

meet climate goals."[3] **We urge the Air Resources Board to work with administering agencies to ensure that they are, in fact, optimizing their existing programs or establishing new programs so they utilize funds from the state's cap-and-trade program in ways that align with the Guidelines and deliver the greatest GHG benefits.**

As described below, we completed a successful and cost-effective large-scale residential energy efficiency retrofit project in the Coachella Valley of eastern Riverside County that squarely aligns with each of the six "Guiding Principles for Investment" described in the Guidelines. This is precisely the type of project that California should be investing greenhouse gas reduction funds in.

The Coachella Valley Project is a prime example of a cost-effective residential energy efficiency retrofit project that delivers significant greenhouse gas reduction benefits, a range of other "co-benefits," including air quality improvements, consumer energy cost savings, and improvements in the health and safety of home occupants in disadvantaged communities.

The project was funded by the South Coast Air Quality Management District (AQMD) under the mitigation funds made available under AB 1318 (Perez) for the Sentinel Power Plant. The purpose of those funds was to implement projects that would help offset the air emissions of that new plant, there being no emission reduction credits available.

JM installation partner ***Add Insulation*** was initially awarded $3.25 million in late 2013 to perform basic efficiency retrofits on homes in either the AQMD-designated environmental justice area or in the disadvantaged communities in the Coachella Valley. The AQMD twice expanded the funding to a total of $4.0 million so that by the end of 2016 approximately 2,100 homes were retrofitted.

This project is the first of its kind in that it was funded and overseen by an air quality regulator for the purpose of emissions reductions and disadvantaged community benefits that can be achieved via energy efficiency, and not just for the sake of saving energy. The Coachella Valley project has been successful enough that it is now formally part of the AQMD's Air Quality Management Plan: Control Measure No. ECC-02 ("CO-BENEFITS FROM EXISTING RESIDENTIAL AND COMMERCIAL BUILDING ENERGY EFFICIENCY MEASURES [NOX, VOC]").

Rather than perform a deep efficiency retrofit with advanced diagnostics, it was decided to perform a basic retrofit on each home so that more homes could be completed at lower cost and in a relatively short period of time. Given the vintage, architecture and condition of the modest homes in the Coachella Valley's disadvantaged communities, none had air sealing between the conditioned living space and the unconditioned attic. And each home typically had degraded or poorly installed insulation to an effective level of only R-11. Accordingly, the work included air sealing the attic floor and adding loose fill fiber glass insulation to achieve R-38. .

[3] See pg. I-28.

Based on modeling with ***EnergyPro*** v5.1 software each home should achieve energy savings of roughly 10%, which is approximately 1,560 kWh and 35 therms per home per year. Using US EPA-approved attribution methods these energy savings should also achieve annual aggregate emissions reductions both in the utility sector and on-site **of 1,630 tons of GHG** and 90 pounds of fine particulates.

In order to keep the cost per home under $2,000, some new installation techniques and products were used. For example, clustering installations in a single block each day enabled the installers to employ continuous flow process methods and labor specialization. And using local crews to reach out to the community enabled us to limit the amount of funds spent on education, marketing and outreach to under 1.5% of the total project cost.

Furthermore, energy efficiency done correctly can also enable residential demand response because the more efficient a home's envelope is, the more successful a cooling demand response event will be. This is achieved with the use of advanced home energy management systems such as the ***Nest Learning Thermostat***, which can be one of Silicon Valley's greatest innovations that can be widely and cost-effectively put to work for disadvantaged communities.

California has established aggressive goals for energy efficiency, air quality, and climate change. State policymakers recognize the critical need for lower-income Californians and disadvantaged communities in the state to participate in, and benefit from, the efforts to achieve these goals. The investment of funds from the state's cap-and-trade program is a key opportunity to rapidly deploy cost-effective energy efficiency retrofits in the residential sector in significant volumes that will cut greenhouse gas emissions and deliver a range of additional benefits.

We appreciate the opportunity to submit these comments and would be happy to provide additional information.

About Johns Manville

Johns Manville, a Berkshire Hathaway company (NYSE: BRK.A, BRK.B), is a leading manufacturer and marketer of premium-quality products for building insulation, mechanical insulation, commercial roofing, and roof insulation, as well as fibers and nonwovens for commercial, industrial and residential applications. JM serves markets that include aerospace, automotive and transportation, air handling, appliance, HVAC, pipe and equipment, filtration, waterproofing, building, flooring, interiors and wind energy. In business since 1858, the Denver-based company has annual sales of approximately $3.0 billion and holds leadership positions in many of the key markets that it serves. JM employs approximately 7,000 people and operates 43 manufacturing facilities in North America, Europe and China. JM's two manufacturing plants in California have over 300 employees. Additional information can be found at www.jm.com.

About Nest

Founded in 2010, Nest is dedicated to reinventing home products like the thermostat and smoke alarm, harnessing advanced technology to create a thoughtful home that takes care of the people inside it and helps address societal challenges like energy consumption, life safety, and home security. Nest products are sold in the United States, Canada, United Kingdom, Ireland, France, Belgium, and the Netherlands, and are installed in more than 120 countries. Nest is an Alphabet Inc. company (NASDAQ: GOOG) based in Palo Alto, California and employs over 700 people in California.

Nest manufactures the Nest Learning Thermostat, a smart thermostat equipped with sensors (for example, temperature, humidity, and motion sensors), Wi-Fi capability, and processors running software to help customers consume less energy. The Nest Learning Thermostat combines inputs such as household temperature preferences (based on manual adjustments), occupancy patterns, and advanced algorithms to learn a household's temperature preferences, adjust the heating or cooling when the house is empty, and automatically lower air-conditioning runtime when humidity conditions permit, helping people lower their energy use without sacrificing comfort. Additional information can be found at www.nest.com.