



Johns Manville

A Berkshire Hathaway Company



**Comments of Johns Manville and Nest on November 2016 Cap and Trade
Draft Funding Guidelines (Supplement) for FY 2016 – 17 GGRF Funds**

Johns Manville and Nest appreciate the opportunity to provide comments on the November 2016 Draft Funding Guidelines (Supplement), which provide interim direction to agencies administering GGRF Funds.¹

We submit these comments to highlight the success of a large-scale residential energy efficiency retrofit project in the Coachella Valley of eastern Riverside County, and to describe planning underway to expand that project to other geographic areas and to include additional efficiency features.

Further, based on our experience with this highly successful and cost-effective project, and in light of the clear and acknowledged need to dramatically increase the amount of energy efficiency retrofits in California in the next few decades,² we urge the Air Resources Board to view the development of the Funding Guidelines as an opportunity to work with and guide administering agencies to ensure that dollars spent from the state's cap and trade program most effectively support achievement of crucial climate, energy and air pollution reduction goals, especially in disadvantaged communities. An essential part of the Air Resources Board's effort is to help administering agencies understand that many existing programs being funded with GGRF have remained unchanged for years and are not optimized to both achieve agencies' mandates as well as maximum greenhouse gas emissions reductions.

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

¹ ARB, Funding Guidelines for Administering Agencies at <https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/fundingguidelines.htm>.

² 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."

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 has twice expanded the funding to a total of \$4.0 million so that by the end of 2016 approximately 2,100 homes will have been retrofitted.

To our knowledge, this project is the first project of its kind in the US 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, the work included air sealing the attic floor and adding loose fill fiber glass insulation to achieve R-38. None of the homes in the area had air sealing between the conditioned living space and the unconditioned attic. And the homes typically had degraded or poorly installed insulation to an effective level of only R-11.

Based on modeling with **EnergyPro** v5.1 software each home should achieve energy savings of approximately 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. 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.

The Coachella Project is a clear model of how California can cost-effectively invest GGRF dollars to bring energy efficiency upgrades to the older, poor performing homes in disadvantaged communities.

California has established aggressive goals for energy efficiency, air quality and climate change. State policymakers recognize the critical need for low-income Californians and disadvantaged communities in the state to participate in, and benefit from, the efforts to achieve these goals. A key component to ensuring this happens is finding ways to rapidly deploy cost-effective energy efficiency retrofits in the residential sector in significant volumes. This need not prevent other, perhaps costlier, approaches to effective energy efficiency and renewable energy financing, but it is clear that the approach we have taken in the Coachella Valley and are working to expand to other disadvantaged communities in the state must be a major element of California's efforts to meet these ambitious goals.

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.

Additionally, once a home is participating in a successful demand response program, it can also be part of the emerging energy storage effort. We are developing a concept for behind the meter, non-battery energy storage specifically for modest homes in disadvantaged communities. With some creative thought and new approaches, California can help make disadvantaged communities in the state a showcase for climate resilience and advanced energy technology.

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 construction and remodeling, 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 \$2.7 billion and holds leadership positions in many of the key markets that it serves. JM employs approximately 7,000 people and operates 44 manufacturing facilities in North America and Europe. 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.