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Johns Manville & Nest Comments on Draft SB 350 Report

Please find attached comments from Johns Manville and Nest on the Draft SB 350 Report

Additional submitted attachment is included below.



Johns Manville

A Berkshire Hathaway Company



Comments of Johns Manville and Nest in response to the September, 2016 CEC Draft Staff Report: A Study of Barriers and Solutions to Energy Efficiency, Renewables and Contracting Opportunities Among Low-Income Customers and Disadvantaged Communities

These comments are submitted by Johns Manville (JM) and Nest Labs, Inc. (Nest) in response to the September, 2016 CEC Draft Staff Report: *A Study of Barriers and Solutions to Energy Efficiency, Renewables and Contracting Opportunities Among Low-Income Customers and Disadvantaged Communities*, (SB 350 Draft Report). We commend the Commission for its work to thoroughly identify both barriers and potential solutions to increase deployment of energy efficiency and renewable energy in disadvantaged communities in California.

The purpose of these comments is twofold. First, we describe our experience both with a large-scale residential energy efficiency retrofit project in the Coachella Valley of eastern Riverside County as well as the planning underway to expand that project to other geographic areas and to include additional efficiency features¹. Second, based on this experience, we respond to a number of issues identified in the SB 350 Draft Report.

1. Coachella Valley Project

The Coachella Valley Project described below successfully addresses many of the barriers identified in the SB 350 Draft Report.

The project is being 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 2,000 homes will have been retrofitted.

¹ JM and Nest previously submitted comments in response to CEC August 12, 2016 workshop describing Coachella Valley project

To our knowledge, this project is the first project 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 on each home, it was decided to perform a basic retrofit 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 also achieved annual emissions reductions in the utility sector 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.

This is not a traditional low-income weatherization project; rather, it is an effective way to bring energy efficiency upgrades to the older, poor performing homes of moderate-income families whose annual incomes may exceed the low-income threshold but who have insufficient funds to make their homes more energy efficient. This project also helped serve members of disadvantaged communities who are chronically under-served by traditional low-income programs because they do not or cannot provide the copious required income and other documentation. Some families may simply lack the documentation or knowledge of how to acquire it. Or for reasons such as immigration status they may simply prefer not to have detailed interaction with government agencies.

2. Comments on SB 350 Draft Report

Based on our results of the Coachella Valley Project and the expansion planning efforts we offer the following comments in response to the SB 350 Draft Report.

First, and most importantly, as an overarching suggestion, we strongly urge that the Commission recommend State policy makers and implementers focus initially on energy efficiency. Unlike renewable energy (especially community renewables such as solar gardens), energy efficiency makes the home less costly to cool and heat and also makes it more comfortable (and even safer given the extreme temperatures of the Coachella Valley). And making the home more energy efficient increases its value, which is especially important for many in disadvantaged communities where the home is frequently the family's largest asset and source of retirement savings.

Second, we urge the Commission to look beyond existing mature renewable technologies such as solar and wind and instead to consider disadvantaged communities as opportunities for deployment of emerging technologies such as residential demand response and residential energy storage. Energy efficiency done correctly can enable residential demand response because the more efficient a home's envelope is, the more successful a cooling demand response event will be. Most families in disadvantaged communities will likely never enjoy a solar feed-in tariff from rooftop solar. But if their home is made more energy efficient, they can even be paid extra money for saving energy via a demand response program.

Such demand response 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 for disadvantaged communities. And 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, we can make these communities a showcase for advanced energy technology.

A. Financial Barriers & Potential Solutions

As noted in the Draft Report, limited disposable funds create a significant barrier for low and even moderate-income Californians to access energy efficiency retrofits (p. 17). While true, this barrier can be effectively addressed as demonstrated by the success of the Coachella Valley project. We agree that the "clearest method of getting energy upgrades into low-income homes is through no-charge and low-charge direct install programs," (p. 34). For this reason, we specifically pursued this "no-charge" approach in undertaking the Coachella Valley project and were able to deliver significant energy efficiency (and other) benefits in an extremely cost-effective manner despite requiring no financial commitment of any kind by homeowners or tenants (as described above).

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 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 goals².

B. Structural Barriers & Potential Solutions

Structural barriers including buildings of older vintage, low home ownership rates, and split incentives can be addressed to a significant degree through deployment of models such as the approach taken in Coachella Valley.

For example, approximately 20% of the homes that were successfully retrofitted in Coachella Valley were occupied by renters, and thus required permission from the landlord before they could be insulated. This permission was relatively easy to get because homeowners – whether they lived in the home or not – easily recognized the property value enhancement that straightforward, minimal-hassle, no-cost energy efficiency upgrades provided them.

Further, the Draft Report notes that many existing programs tend to avoid older homes because they are more likely to have structural or design issues that make extensive energy efficiency retrofits difficult, costly, or unviable (p. 21). However, our experience was that in most cases the older vintage homes actually served as the best candidates for the retrofits that we performed. As described above, a few basic and highly cost-effective measures like air sealing and attic insulation delivered approximately 10% annual energy savings per home. When coupled with additional cost-effective measures, including installation of the Nest Learning Thermostat, we estimate homes of older vintage in places that share similar climate zones to Coachella (like many areas in Southern California and the Central Valley) could reap annual energy savings of as much as 30% for around only \$3000 in total.

C. Policy and Program Barriers and Community Access Barriers and Potential Solutions

The Draft Report identifies several very important approaches to overcoming barriers that fall within the policy, program and community access realm.

First, the report rightly notes that a “fuller accounting of non-energy benefits” is needed both to provide better cost-effectiveness evaluations of various approaches and to more effectively account for the “multifaceted needs” that energy retrofit programs are intended to address (pg. 30). As we noted in previous comments submitted that are referenced in the Draft Report on this issue, the Coachella Valley project we undertook has effectively been able to account for

² For example, See ARB 2015 Scoping Plan Update, p. 24: “Deploying affordable and effective energy efficiency improvements in all of California’s diverse buildings will be a major challenge. **Millions of energy upgrades need to be initiated in existing buildings to meet the state’s efficiency and GHG reduction goals**, which will involve sizeable investments and program coordination for all building types in all regions of the state.” (Emphasis added)

not just energy efficiency benefits, but also air quality (PM2.5) and climate (CO2) benefits, which is why SCAQMD funded the project in the first place. This is increasingly important as the state moves ahead with a focus on ensuring that the many Californians that live in disadvantaged communities are able to access energy efficiency retrofit programs that can also improve local air quality.

Second, in regard to income eligibility, the report highlights the fact that many households in low-income or disadvantaged communities are unwilling to “take on the considerable paperwork burden” of applying for many of these programs (pg. 31). The report also notes the fact that “determination of income eligibility on a dwelling unit by dwelling unit basis” leads to inefficiencies in program implementation that can dramatically increase cost and significantly dissuade program participation (pg. 42). We strongly agree and appreciate the Draft Report’s recognition that utilization of the CalEnviroScreen method for designating disadvantaged communities can in many instances serve as the most efficient, equitable and cost-effective way to determine program eligibility (pg. 43). Many people who live in disadvantaged communities may not meet certain “low-income” eligibility requirements, but still are not able to afford even a basic energy efficiency retrofit and most have older, pre-Title 24 energy inefficient homes. Utilizing the disadvantaged community designation approach both increases the number of homes that qualify but also reduces program costs both by eliminating the need to do the income qualification and by allowing work crews to do adjacent houses instead of driving from one distant home to another.

Third, the Draft Report rightly states “mass installation of modest efficiency measures should be pursued wherever possible,” (pg. 46). We fully agree. Quite simply, absent such a commitment backed by effective program design and implementation, California will not get close to achieving the ambitious and extremely important energy efficiency and climate change goals it has established, including ensuring that the state’s most disadvantaged communities share equally in the benefits that meeting these goals can deliver. The successful project we undertook in Coachella Valley can and should serve as a model to be replicated and expanded upon in many parts of the state.

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 \$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, 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.