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APPENDICES

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APPENDIX A
DISPROPORTIONATE IMPACTS OF CLIMATE CHANGE ON LOW INCOME HOUSEHOLDS

I. INTRODUCTION

On March 14, 2008, the Commission issued a decision that included preliminary recommendations regarding the use of proceeds from the auctioning of GHG emissions allowances allocated to the electricity sector.[1] The decision stated that "[a]n integral part of this auction recommendation is that the majority of the proceeds from the auctioning of allowances for the electricity sector should be used in ways that benefit electricity consumers in California, such as to augment investments in energy efficiency and renewable energy or to provide customer bill relief."[2]

On October 22, 2008, the Commission provided additional guidance in its Final Opinion on Greenhouse Gas Regulatory Strategies:

> We recommend that ARB require that all allowance auction revenues be used for purposes related to Assembly Bill (AB) 32, and that ARB require all auction revenues from allowances allocated to the electricity sector be used to finance investments in energy efficiency and renewable energy or for bill relief, *especially for low income customers*.[3]

Parties are directed to explain "the degree to which the anticipated costs to low income households resulting from cap-and-trade *and climate change* are recognized and addressed, given the state's and the Commission's longstanding commitment to protect vulnerable communities from adverse outcomes."[4] The Scoping Memo also wisely notes that "[j]ust as the costs of mitigation may disproportionately affect low-income households and communities, the costs of adaptation in response to the climate change that is likely to occur as a result of anthropogenic emissions will also be disproportionately felt by these groups, given their relatively limited

[1] D.08-03-018.
[2] D.08-03-018 at 9. *See also* at 98 – 99, Finding of Fact 30 and Ordering Paragraph 9.
[3] D.08-10-037.
[4] Assigned Commissioner and Administrative Law Judges' Joint Scoping Memo and Ruling ("Scoping Memo"), Attachment A (September 1, 2011) at A7(emphasis added).

access to capital."[5] Some of these disproportionate impacts include higher prices for basic necessities, increased risk of heat-related illness, increased pollution locally, and decreased resilience in the face of natural disasters.

II. THE CLIMATE GAP: CLIMATE CHANGE AND CLIMATE CHANGE MITIGATION POLICIES WILL HAVE A DISPROPORTIONATE IMPACT ON THE POOR

The California Public Utilities Commission's jurisdiction is one of the most ethnically and economically diverse in the country. As a result, the CPUC has a special responsibility to protect those who are least able to anticipate, cope with, and recover from the consequences of both climate mitigation policy and climate change itself. This includes both adaptation, meaning responses to the observed and predicted impacts of climate change, and mitigation, which refers to policies, strategies, and investments undertaken to reduce GHG emissions. As EAAC noted, "[i]t is important to consider the impact of AB 32 as a whole, not just the impact of the cap-and-trade component."[6]

Failure to meet that responsibility will exacerbate the rising cost of basic necessities, and the impacts of extreme heat waves and dirtier air in poor communities. Poor communities will also be among the hardest hit by natural disasters caused by climate change, in that they are least able to cover the cost of recovery from such an event, and are least likely to have insurance against such an event. A revenue allocation policy that fails to address equity concerns will only reinforce and amplify current and future socioeconomic disparities.

A. *Low-Income Families Will Spend an Increasingly Larger Proportion of Their Income on Food, Energy and Other Household Needs*

One of the major concerns with GHG reduction policies is that they will be regressive, because the burden of increased costs will fall disproportionately on lower-income households. For example, the Congressional Budget Office found that a program designed to cut carbon by 15 percent would cost 3.3 percent of the average income of households in the lowest income

[5] *Id* at A8.
[6] EAAC at 65.

bracket as opposed to only 1.7 percent of the average income of households in the top income bracket.[7]

In addition to mitigation costs, adaptation to climate change itself will increase the price of basic necessities such as food, water, and electricity. These increases will also disproportionately impact low-income people, who are already paying a higher proportion of their income for necessities.

These challenges are exacerbated by the fact that lower-income households are generally "less able to adjust consumption behavior to the degree that such changes require expenditures for new appliances, efficiency measures, etc."[8] Moreover, "lower income households may be disproportionately comprised of renters … and thus are less likely to be able to make structural changes that would mitigate carbon cost exposure."[9]

Households in the lowest income bracket use more than twice the proportion of their total expenditures on electricity than do those households in the highest income bracket.[10] Around the country, affordable energy is defined as roughly 6% of a household's annual income.[11] KEMA's California Low Income Needs Assessment projected that 43% of customers below 200% of the Federal Poverty Level have an average energy burden of 8.4%, even after receiving the CARE discount.[12] It should be noted that this data is pre-recession. As such, it is reasonable to believe that the affordability gap in some areas is substantially higher than this statewide average, given that many of the counties with the highest unemployment rates are also among those with the highest reliance on air-conditioning. The Commission should consider PIER funded research

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[7] Congressional Budget Office, Trade-offs in Allocating Allowances for CO2 Emissions, Washington D.C. (2007) at 2. *See also* P. Barnes, M. Breslow, *Pie In the Sky? The Battle for Atmospheric Scarcity Rents*, Political Economy Research Institute, University of Massachusetts Amherst (2001) (Exhibit 3); J. K. Boyce, M. Riddle, *Cap and Dividend: How to Curb Global Warming While Protecting the Incomes of American Families*, Political Economy Research Institute University of Massachusetts Amherst (November, 2007) (Exhibit 4); J. K. Boyce, M. E. Riddle, *Clear Economics: State-Level Impacts of the Carbon Limits and Energy forAmericas's Renewal Act on Family Incomes and Jobs*, Political Economy Research Institute, University of Massachusetts Amherst, (Revised July 2011) (Exhibit 5).

[8] Scoping Memo at 7.

[9] *Id.*

[10] R. Morello-Frosch, M. Pastor, J. Sadd, S. Shonkoff, The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap at 15. *Available at* http://dornsife.usc.edu/pere/documents/The_Climate_Gap_Full_Report_FINAL.pdf (Exhibit 1).

[11] Division of Ratepayer Advocates, Status of Energy Utility Service Disconnections in California, (March 2011) at 6-7. The basis for this definition assumes that 30% of income is reasonable to pay for shelter, and that 1/5 of the shelter cost is assumed to be reasonable to pay for home energy.

[12] Division of Ratepayer Advocates, Status of Energy Utility Service Disconnections in California, (March 2011) at 8, citing California Public Utilities Commission, Phase II Low-Income Needs Assessment, Final Report, September 7, 2007, at 5-12.

that examines projected increases in reliance on air conditioning[13], particularly in geographies where extreme climate coincides with socio-economic vulnerability. The 2010 Affordability Gap Analysis found that the estimate of average need per household per year is $592, while California's actual average benefit is $375.[14] In fact, over one-third of PG&E and nearly one half of SCE low-income customers can already be considered energy insecure.[15] Thus, California's pledge of energy affordability[16] is not being met.

With regard to water expenditures, there is nearly a threefold difference in the proportion of total expenditures between the lowest and highest income brackets.[17] NRDC estimates that between the years 2025 and 2100, the cost of providing water to the western states will increase from $200 billion to $950 billion dollars per year.[18] Much if not all of this cost will be passed on to consumers. Food represents the largest portion of total household spending, and shows a two-fold discrepancy between the lowest and highest income households.[19]

B. *Communities of Color and the Poor Suffer Disproportionately from Heat-Related Illnesses*

Extreme weather events, such as heat waves, droughts, and floods are expected to increase in their frequency and intensity in the next hundred years.[20] Naturally, this will result in an increase in heat-related health problems. During the 2006 heat wave, California's emergency rooms saw an increase of 16,166 visits in addition to 1,182 hospitalizations.[21] This translates into a six-fold increase in heat-related emergency room visits and a 10-fold increase in heat-related hospitalizations. Among the seven counties impacted by that heat wave, there was a nine percent increase in daily mortality for every 10°F increase in temperature, as well as significant

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[13] *Climate Change, Extreme Heat, and Electricity Demand in California, Prepared for California Energy Commission Public Interest Energy Research Program*, Prepared by Lawrence Berkeley National Laboratory, Texas Tech University, University of California, Berkeley (August 2007) (Exhibit 2).
[14] DRA Disconnections Report at 8.
[15] DRA Disconnections Report at 16.
[16] DRA Disconnections Report at 16.
[17] *See* Chapter 1010, Stats. 1975, Miller-Warren Energy Lifeline Act, sec. 1(a), cf., Stats. 1982, ch.1541, section 1(d); *see also* California Public Utilities Code, Section 739(c)(2).
[18] Climate Gap at 15.
[19] Ackerman, F., and E. Stanton, The Cost of Climate Change: What Well Pay if Global Warming Continues Unchecked. NRDC: New York, New York (2008), at 15.
[20] Cordova, R., M. Gelobter, A. Hoerner, J.R. Love, A. Miller, C. Saenger, and D. Zaidi, Climate Change in California: Health, Economic and Equity Impacts, Redefining Progress: Oakland, California (2006).
[21] Knowlton, K., M. Rotkin-Ellman, G. King, H.G. Margolis, D. Smith,, G. Soloman, R. Trent, and P. English, The California Heat Wave: Impacts on Hospitalizations and Emergency Department Visits, Environ. Health Perspect. 117(1), (2009), at 61-67.

increases in cardiovascular impacts, acute renal failure, diabetes, electrolyte imbalance, and nephritis.[22] Another study found that for every 10°F increase in temperature, there is a 2.6 percent increase in cardiovascular death.[23] The correlated risk is even higher if a person is elderly or African American.[24]

Risk factors for heat-related illness and death are higher among low-income communities and people of color. For example, African Americans in Los Angeles are nearly twice as likely to die from a heat wave as other Los Angeles residents.[25] The disparity is caused in large part by social and economic conditions, such as housing quality, access to cooling centers, and lack of accessible transportation.[26] Agricultural and construction workers are even more at risk. Low-income individuals are more likely to lack access to technology, information, and other social resources that enable others to cope with such conditions.[27]

Low-income urban neighborhoods and communities of color are particularly vulnerable to higher temperatures because of the "heat-island effect."[28] There is a positive relationship, in any given region, between the proportion of people of color and the proportion of concrete and other heat-trapping materials.[29] Conversely, there is a negative relationship between the proportion of people of color and the amount of tree cover.[30]

In general, low-income families and people of color are less likely to have access to air-conditioning.[31] This has been linked to the disproportionate risk of heat-related illness and death among the urban elderly.[32]

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[22] Knowlton et al.
[23] Basu, R., and B.D. Ostro, A Multicounty Analysis Identifying the Populations Vulnerable to Mortality Associated with High Ambient Temperature in California. Am. J. Epidemiol 168(6) at 632-637.
[24] *Id.*
[25] *The Climate Gap* at 11.
[26] *The Climate Gap* at 8.
[27] Phelan, J.C., B.G. Link, A. Diez-Roux, I. Kawachi, and B. Levin, *Fundamental Causes of Social Inequalities in Mortality*: A test of the theory, (2004), J Health Soc Behav 45(3) at 265-285.
[28] The "heat-island effect" refers to the increased heat associated with a lack of tree cover in urban environments which is amplified by an abundance of concrete, asphalt, and other dark-colored building materials which absorb heat.
[29] *The Climate Gap* at 8, *citing* Morello-Frosch, R.A., and B. Jesdale. Unpublished impervious surface and tree cover data. Data for this analysis was derived from: U.S. Geological Survey's National Land Cover Dataset 2001. www.mrlc.gov/nlcd.php, accessed on June 20, 2007; and EsRI's ArcMap census boundary files www.census.gov/geo/www/cob/bdy_files.html, accessed June 6,2008.
[30] *Id.*
[31] English, P., K. Fitzsimmons, S. Hoshiko, T. Kim, H.G. Margolis, T.E. McKone, M. Rotkin-Ellman, G. Soloman, R. Trent, and Z. Ross, *Public Health Impacts of Climate Change in California: Community Vulnerability Assessments and Adaptation Strategies. Climate Change Public Health Impacts Assessment and Response Collaborative, California Department of Public Health Institute, Richmond, California, (*2007).

Often, low-income populations are stuck between a rock and a hard place as the hottest days of the year also result in higher levels of ozone and other pollution exposure. On one hand, they are instructed to stay indoors, yet many lack access to air conditioning. For the elderly or infirm, this could be a life or death decision.

For some, transportation to cooling centers and more favorable climates provide some respite from heat waves, but African Americans, Latinos, and Asians are more likely to lack access to adequate transportation. For example, in the Los Angeles Metro Area, higher numbers of African Americans (20 percent), Latinos (17.1 percent), and Asians (9.8 percent) lack access to a car, compared to White households (7.9 percent).[33]

C. *Communities of Color and the Poor Will Suffer Increasingly Dirtier Air*

Climate change will exacerbate California's air pollution existing problems. Increased temperatures accelerate interactions between nitrogen oxide, volatile organic gases and sunlight. This leads to increased ambient ozone concentrations in urban areas.[34]

California is home to five of the ten most ozone-polluted metropolitan areas in the country (Los Angeles, Bakersfield, Visalia, Fresno, and Sacramento).[35] Its residents already suffer from 18,000 premature deaths and tens of thousands of other illnesses each year as a result of its air pollution problem.[36] Additionally, five of the smoggiest cities are also the locations with the highest projections of ambient ozone increases associated with climate change, as well as the highest densities of people of color and low-income residents.[37]

The dirtiest sources that cause climate change and localized health problems are often concentrated in neighborhoods with the highest concentrations of low-income and people of color.

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[32] Kovats, R.S., and S. Hajat, *Heat Stress and Public Health: A Critical Review,* Annu Rev Public Health 29, (2008) at 41-55. *See also* Semenza, J.C., C.H. Rubin, K.H. Falter, J.D. Selanikio, W.D. Flanders, H.L. Howe, and J.L. Wilhelm, *Heat-related deaths during the July 1995 heat wave in Chicago,* N Engl J Med 335(2) (1996) at 84-90.
[33] *The Climate Gap* at 12, *citing* U.S. Census Bureau, *Current Housing Reports, American Housing Survey for the Los Angeles-Long Beach Metropolitan Area: 2003* (2004).
[34] Jacobson, M., *On the Causal Link Between Carbon Dioxide and Air Pollution Mortality*, Geophys Res. Let. 35 (L03809) (2008).
[35] Cordova, R., M. Gelobter, A. Hoerner, J.R. Love, A. Miller, C. Saenger, and D. Zaidi, *Climate Change in California: Health, Economic and Equity Impacts,* Redefining Progress: Oakland, California (2006). *See also* American Lung Association, *State of the Air: 2008* (2008).
[36] California Air Resources Board, *Methodology for Estimating Premature Deaths Associated with Long-term Exposure to Fine Airborne Particulate Matter in California*, (2008).
[37] *The Climate Gap* at 13.

Cap-and-trade may reduce GHGs and toxic emissions regionally. However, the communities with the dirtiest air are concerned that some polluters may maintain or increase their emissions. This would create localized dirty-air "hotspots" even if there are statewide greenhouse gas reductions. The CPUC must ensure that climate strategies do not leave out the most vulnerable Californians.

D. *Low-Income Communities Are Less Able to Recover from Extreme Weather Events*

Extreme weather events such as storms, floods, and wildfires are increasing in both intensity and frequency. As a result, the severity and the price tag associated with the damage and destruction, including property insurance losses, is also increasing. Between 1987 and 2004 property insurance losses due to natural disasters averaged $23 billion per year.[38] In 2005, losses rose to $83 billion, $60 billion of which was due to hurricanes Katrina, Rita, and Wilma.[39]

Low-income communities are generally underinsured. As extreme weather events increase in intensity and frequency, disaster insurance will become prohibitively expensive. As a result, low-income families face insurmountable barriers in recuperating and resuming normal living conditions after a disaster. Many may spend the rest of their lives struggling to recover from property damage related to extreme weather events.[40]

III. **CONCLUSION**

The objectives set forth in the scoping memo clearly indicate that the Commission is taking environmental justices issues into consideration. This proposal furthers not only the Commission's greenhouse gas reduction objectives, but also the critical policy goal of mitigating the disproportionate impact of climate change and climate policy upon underserved communities. Addressing the climate gap begins with a revenue allocation policy that doesn't leave our neediest communities even further underwater.

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[38] Swiss Re, *Natural Catastrophes and Man-made Disasters 2005: High Earthquake Casualties, New Dimension in Windstorm Losses*, (2005).

[39] *Id.*

[40] Fothergill, A., and L. Peek, Poverty and Disasters in the United States: A Review of Recent Sociological Findings, Natural Hazards Journal 32(1): 89-110; See also Blaikie, P., T. Cannon, I.Davis, and B. Wisner, At Risk:Natural Hazards, People's Vulnerability, and Disasters, Routledge, New York (1994); See also Thomalla, F., and T. Downing, E. Spanger-Siegfried, G. Han, and J. Rockstrom, Reducing Hazard Vulnerability: Towards a Common Approach Between Disaster Risk Reduction and Climate Adaptation, Disasters 30(1): 39-48.

APPENDIX B
ILLUSTRATIVE LOCAL GOVERNMENT PROGRAMS

I. INTRODUCTION

Local governments are essential partners in achieving California's goals to reduce greenhouse gas emissions. They have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts and municipal operations. Many of the proposed measures to reduce greenhouse gas emissions rely on local government actions. A portion of the revenues from the sale of allowances should be used to fund, in whole or in part, unique local government programs for which there are currently no revenue streams or there are insufficient funds to carry out the programs. These programs benefit all rate payers and are also in furtherance of achieving AB 32 targets and goals. There are critical revenue shortages in the budgets of local government that prevent implementation of effective programs to help achieve AB 32 goals. This list is not exhaustive, but is illustrative of creative local government programs that have far reaching impacts and would be appropriately funded through allowance revenues.

II. ILLUSTRATIVE LOCAL GOVERNMENTS PROGRAMS THAT WOULD BE APPROPRIATELY FUNDED THROUGH ALLOWANCE REVENUES

A. *Water Use Efficiency Programs*

Nearly 20% of energy consumption in California is used to pump, treat and use water and to dispose of wastewater. Local agencies administer water use efficiency programs that cut water consumption in California, thereby also reducing energy consumption. For example, sanitation agencies in Sonoma County implemented a program to offer direct installation of high efficiency fixtures in local homes and businesses. The program installed 5,134 high efficiency toilets most at no cost to the owners. Total water savings, as verified from metered data, was 40 million gallons per year; the total GHG reduction was estimated at 50 metric tons per year. These programs are proven to reduce both water and energy consumption, but the cost savings do not cover the cost of the fixtures and installation. Carbon Trust revenues should be used to

make these programs financially viable, resulting in both decreased energy and water consumption.

B. *Green Business Program*

This program, initially formed in partnership with the California EPA, helps local businesses comply with environmental regulations and take action to reduce energy consumption, conserve resources, prevent pollution, minimize waste, and reduce their carbon footprint. The regional and local programs are funded by Bay Area counties and their partners. The counties collaborate to develop regional standards that businesses must meet to qualify. These include complying with relevant regulations and implementing a specified number of measures to conserve energy and water, and prevent waste and pollution. The program is currently underfunded and exists in only a few jurisdictions. With additional revenues, the program can be expanded and easily replicated in more locations throughout the state.

C. *Green Building Labeling*

Allowance revenue could be used to fund this program relating to commercial building energy efficiency. Under this initiative, all buildings would be assigned a label (or score) indicating the level of energy efficiency. These scores would be disclosed at certain milestone events (e.g., sale of property, upgrade requiring a permit, remodeling) and a property owner would be required to upgrade to a minimum score (or level of efficiency) and/or be provided incentives to do so. Building labeling is currently done on a jurisdiction by jurisdiction basis through adoption of codes or ordinances. Funds could be used to develop technical standards and software tools, provide training to contractors and property owners, acquire widespread building energy use data to determine market potential, provide outreach and education to real estate stakeholders (agents, brokers, lenders, MLS, etc.), provide incentives for market pilots, provide funding to develop and administer pilots, etc.

D. *Green Stacks*

This is an example of a small scale program that could easily and inexpensively, be replicated in jurisdictions across the state, and provide an effective educational tool regarding energy efficiency and steps to reduce personal resource consumption. The “Green Stacks”

program, currently implemented in San Francisco, gives users information and tools for living a greener life, such as reducing home energy use. Public events are held, and reading lists and resources for sustainability are made available. The program educates patrons about climate change and how personal behavior can help slow the effects of the crisis. Every local government has one or more libraries and other neighborhood-serving facilities that can be utilized to educate the citizenry about climate change and promote end use programs.

E. *Steam Boiler Program*

Current IOU programs do not provide incentives for replacement of low-pressure cast iron steam boilers operating at 50-60% efficiency. While steam boilers are no longer installed, there are thousands of operating steam boilers that are in excess of 50 years old, particularly in older core cities such as San Francisco and Los Angeles. Owners tend not to replace them because they are still operational, they are expensive to replace, and codes have changed requiring code upgrades to install new equipment. San Francisco has recently concluded a very successful ARRA funded program to retrofit operating steam boilers. The primary purpose of the program was to reduce energy use. The successful program resulted in significant reductions in natural gas and GHG emissions. This type of program could be replicated across the state, resulting in significant GHG reduction.

F. *District Energy Systems*

Local governments plan and permit new developments and re-development of whole tracts of land. These projects often provide perfect opportunities for district energy systems serving multiple properties and provide centralized heating and/or cooling utilizing waste heat from localized electric generation. These systems can create significant GHG reductions, yet require substantial planning and cooperation among property owners, developers, planning and permitting agencies, and utilities. Local governments are uniquely positioned to plan and develop district energy systems.

G. *Integrating Efficiency*

Local governments, through their planning and building inspection functions, have the opportunity to help residents and businesses integrate energy efficiency into other projects. For

example, home remodeling projects are already mobilizing money, a contractor, and a time commitment from the homeowner. By educating homeowners, training remodeling contractors, and encouraging partnership with home performance contractors, local governments can facilitate the integration of Energy Upgrade California (EUC) home energy upgrades into the remodeling project. All of the most populous counties in California are already actively engaged in marketing EUC using ARRA funds. When those funds run out, the market development work can be continued using additional funds.

APPENDIX C
EXPANDED MULTIFAMILY RESIDENTIAL ENERGY EFFICIENCY PROGRAMS

I. INTRODUCTION

Making energy efficiency improvements to the existing multifamily housing sector must be a critical component of California's ambitious goals to reduce energy use and related greenhouse gas emissions. California's Strategic Plan requires that existing residential buildings consume 40% less energy by 2020.[41] The multifamily residential sector offers significant energy efficiency potential. Households in multifamily dwelling units represents approximately 30 percent of all households and 44 percent of low-income households in California.[42] According to a 2009 report by the Benningfield Group, California's multifamily sector's energy efficiency potential by the year 2020 is over 2,250 GWh and nearly 90 MTherms.[43] Unlike single-family homes, multifamily buildings have greater potential to reach multiple residential units, or the whole building, though coordination with the property owner/manager—representing significant administrative efficiencies.

II. BARRIERS TO IMPROVING ENERGY EFFICIENCY IN MULTIFAMILY BUILDINGS

A. *Unique Characteristics*

The multifamily residential sector is different from the single-family and commercial sectors in fundamental ways—it is "[n]either this nor that."[44] Multifamily buildings have a wide range of building types based on factors including number of units, size, system types, and mixes uses. Factors include:

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[41] *See* California Energy Efficiency Strategic Plan January 2011 Update, Section 2.1.3 Goals and Goal Results ("Energy consumption in existing homes will be reduced by 20% by 2015 and 40% by 2020 through universal demand for highly efficient homes and products."). Available at http://www.cpuc.ca.gov/NR/rdonlyres/ A54B59C2-D571-440D-9477-3363726F573A/0/CAEnergyEfficiencyStrategicPlan_Jan2011.pdf

[42] Source: 2009 American Community Survey 1-Year Estimate, Public Use Microdata Sample Housing Record

[43] Benningfield Group, Inc., "U.S. Multifamily Energy Efficiency Potential by 2020," Prepared for the Energy Foundation, p. 13, October 27, 2009, http://www.benningfieldgroup.com/docs/Final_MF_EE_Potential_Report_Oct_2009_v2.pdf (accessed December 28, 2011).

[44] Multifamily Subcommittee of the Home Energy Retrofit Committee, "Improving California's Multifamily buildings: Opportunities and Recommendations for Green Retrofit & Rehab Programs," p. 11, April 11, 2011, http://www.multifamilygreen.org/wp-content/uploads/2011/02/MF-HERCC_Multifamily-Program-Design_Final_04112022.pdf (accessed January 2, 2012), Attached as Exhibit 7 to the Supplemental Materials Filed in Support of the Revised Comments of the Joint Parties, filed concurrently herewith.

- Number of units—small developments of fewer than five units generally have very different energy efficiency opportunities compared to larger developments of 20 or more units;

- Construction type and height—garden apartments with multiple two- or three-story buildings with individual entrances, low-rise buildings (four or fewer stories) mid-rise (five-eight stories, and high-rise of eight or more stories);

- Single vs. Multiple Uses—residential only or mixed use with residential, commercial, education and public meeting spaces;

- Central vs. Individually metered utility systems —commercial meters for certain loads and individual tenant meters for others; including various combinations of central and individual tenant heating and hot water systems.

B. *Challenges*

In addition to the above, the multifamily sector is distinct from the single-family sector in that multifamily buildings often have complex financial underpinnings. While multifamily property owners/managers often have more finance experience and skill than single-family owners, the decision making process to make energy efficiency improvements is still a challenge. Multifamily buildings (both market-rate and affordable (rent-restricted) housing) are often financed with several different sources, limiting (or, at a minimum, making more complex) the ability to incur additional debt needed to finance energy efficiency improvements. Affordable housing has highly restricted rents that limit the use of rent increases to service additional debt. When a market-rate building makes enough revenue to exceed the operating costs of the building, a large percentage of those profits must be reinvested in high-priority capital improvements (such as roof repairs and unit refurbishments). As a result, energy efficiency improvements are often considered non-essential luxuries. This complexity is compounded by the greater cost of energy efficiency improvements in multifamily buildings as compared to single-family houses and the "split incentive" barrier where the occupants pay for energy (and water) costs generated by appliances and systems controlled by the property owner/manager.

Recognizing and addressing the unique aspects of multifamily properties is critical to ensuring greater participation from multifamily buildings in reaching California's energy efficiency and greenhouse gas goals. "Multifamily buildings cannot be shoehorned into

programs designed for single-family or commercial buildings."[45] Yet, much of California's energy efficiency programs have simply expanded single-family programs to include multifamily sector component. For example, the current Energy Savings Assistance Program (ESAP or ESA Program) approaches low-income multi-family housing unit-by-unit (not the whole building) and does not address the deeper efficiency savings from the common system and common area measures.[46] Ironically, "[t]he single largest and most consistent opportunity in multifamily housing is reducing the energy consumed to heat domestic water, particularly when central systems are present."[47]

Existing rebates and incentives tend to focus only on the replacement "trigger event" when an owners intends to replace a measure (e.g. when a measure is at or near failure) and thus offers an incentive or rebate only on the difference between an efficient measure and what is required by code.

The Multifamily Subcommittee of the California Home Energy Retrofit Coordinating Committee (MF HERCC) was formed to address the application of residential energy and green building programs to the unique needs of the multifamily and affordable rental housing sectors. In April 2011, MF HERCC issued its findings in a report, "Improving California's Multifamily Buildings: Opportunities and Recommendations for Green Retrofit & Rehab Programs."[48] The report identified several key challenges including: 1) A lack of coordination among existing energy efficiency programs; 2) the absence of a whole-building performance-based approach for multifamily housing; and 3) barriers to accessing resources for measures identified through a whole building energy audit.

[45] Ibid., p. 13.
[46] D.08-11-031 at p. 39. In addition, the federal low-income Weatherization program (WAP) suffers from an unpredictable and extremely low funding level due to the nature of the current federal appropriations process. The current FY 2012 funding for the federal Weatherization program for the who country is $68 million (of which, $3 million is for training and technical assistance). See P.L. 112-74 and H.R. 2055 Conference Report, Jt explanatory statement of the Committee Conference on p. 25 and p.41a.
[47] MF HERCC, Improving California's Multifamily Buildings, p. 20.
[48] See http://www.multifamilygreen.org/wp-content/uploads/2011/02/MF-HERCC_Multifamily-Program-Design_Final_04112022.pdf