**To: Cai Steger, NRDC**

**From: Sarah Lehmann, BW Research**

**Date: October 2017**

**Re: Energy Efficiency Jobs, Economic Inclusion Data 2017**

# Summary & Key Findings

The following memo presents the final data for the NRDC Energy Efficiency Economic Inclusion study. In general, it was found that energy efficiency-related employment is found across all types of communities, advantaged and disadvantaged alike.[[1]](#footnote-1) However, the highest-paying jobs, which are typically found in architecture and engineering are most highly concentrated in advantaged—high-income, educated, White, non-Hispanic, predominantly homeowner and English-speaking communities, while lower-wage energy efficiency jobs in construction and extraction or installation, maintenance, and repair are most often found in disadvantaged communities with lower education and a higher prevalence of ethnic and racial minorities or non-English speaking residents. It should be noted that while these are the general trends seen across states and MSAs, there is some variation by geography.[[2]](#footnote-2)

**The highest-paying energy efficiency jobs—architecture and engineering—are more likely to be concentrated in high-income, non-Hispanic, educated neighborhoods.** Across all 12 states, energy efficiency-related architecture and engineering jobs are at least one and a half times more likely to belong to residents who live in high-income neighborhoods. The overall contrast is most striking in California, where high-wage energy efficiency jobs are two to three times more likely to be concentrated in “advantaged” communities (Figures 1 through 3). A similar trend is apparent across major metropolitan areas (Figure 4).

**At the same time, low-wage energy efficiency jobs across construction and installation trades are most likely found in disadvantaged communities.** Energy efficiency workers living in low-income neighborhoods are most likely to work in construction and installation, particularly in California, Georgia, New York, and Virginia (Figures 5 and 6). The difference is even more notable across undereducated neighborhoods in the 10 MSAs. Houston, for example, is four times more likely to have energy efficiency construction workers that reside in predominantly undereducated communities (Figure 7).

Figure . Architecture and Engineering in High-Income Communities by State

Figure . Architecture and Engineering in Non-Hispanic Communities by State

Figure . Architecture and Engineering in Educated Communities by State

Figure . Architecture and Engineering in White Communities by MSA

Figure . Construction and Extraction in Low-Income Communities by State

Figure . Installation, Repair, and Maintenance in Low-Income Communities by State

Figure . Construction and Extraction in Undereducated Communities by MSA

# Methodology

## Community Definitions

This section details data assumptions and definitions for “advantaged” and “disadvantaged” communities based on several metrics—income, demographics, educational attainment, language, and housing characteristics. “Communities” are based on census tract data; all census tracts for a given definition are combined to create a single community (for example, a low-income versus a high-income community).

**Income:** Low-income and high-income communities are defined by comparing a region’s median income to the county-specific Living Wage standard. Median income was used as it better accounts for uneven income distributions, where averages could be skewed to either the high or low end of earnings. The living wage was derived using the MIT Living Wage Calculator for two adults (one working) and two children.[[3]](#footnote-3) This is the most common household type in the United states and the living wage is nearly identical to that of one working adult and one child, another common family unit. This living wage provided the most coverage for a greater percentage of households. A high-income community would be one that has a higher median wage compared to the county living wage, while a low-income community has a lower median wage in relation to the living wage.

**Demographics:** There are two comparative groups based on demographics: (a) White communities vs. some other race (African American, American Indian, Asian, Hawaiian and Pacific Islander, and Other), and (b) Hispanic communities vs. non-Hispanic. The threshold to determine “predominantly” White or “predominantly” Hispanic were based on state-specific averages. This ties each community definition to a regionally-specific distribution. A blanket definition would have over- or undercounted ethnically diverse communities; the same is true of using a national average, as there is significant state-by-state variation by ethnicity. A predominantly White community would have a higher proportion of White individuals compared to the statewide average.

**Education:** Similar to demographics, region-specific baselines were used to identify communities with a higher proportion of either (a) individuals with less than or equal to a high school diploma or equivalency, or (b) individuals with a Bachelor’s degree or higher.

**Language:** As with demographics and education, community definitions are derived using statewide averages. A predominantly non-English-speaking community would have a higher proportion of individuals that “speak English less than very well” compared to the statewide average, while a predominantly English-speaking community has a higher proportion of individuals that speak only English compared to the statewide average.

**Housing:** Comparative communities are those that consist of either (a) majority homeowners, or (b) majority renters.

## Economic Inclusion Index

The index was generated by comparing resident employed concentration of architecture and engineering occupations, construction and extraction occupations, and installation, maintenance, and repair occupations from the U.S. Census Bureau’s American Community Survey. Employment estimates by occupational category were collected for each census tract within the geographies used. Concentration of employment was compared between each set of measures (high income vs. low income, English vs. non-English, etc.) for aggregated census tracts. The index measures the comparison of each measure to its opposite category. For example, a 5% employment concentration for architecture and engineering occupations for all employed residents in aggregated high-income census tracts compared to a 2% employment concentration for architecture and engineering occupations for all employed residents in aggregated low-income census tracts would result in a 2.5 index score for aggregated high-income census tracts for that geography.

HIGH INCOME = .05/.02 = 2.5 INDEX – 2.5 times more concentrated in high-income neighborhoods

1. Please see Methodology, Community Definitions for detail on the definition of advantaged and disadvantaged communities. [↑](#footnote-ref-1)
2. This memo, as well as the featured charts, are meant to be an overview of overall key findings. Please refer to the full data file along with this memo for full detail on states and MSAs. [↑](#footnote-ref-2)
3. <http://livingwage.mit.edu/> [↑](#footnote-ref-3)