CALCULATION METHODS: RESIDENTIAL WATER USAGE DATA

The data used to provide the estimated water savings and energy savings for the "WE CAN/Podemos— San Joaquin Valley" Program proposal came from email exchanges and reports available from the City of Fresno Department of Public Utilities, the Reedley Public Works Department, the City of Clovis Public Utilities Department, and Pacific Gas and Electric Company. Most of the data available was not in the form required for the grant application, so a spreadsheet was developed to convert the available data into outputs required for the grant. Some assumptions had to be made based on the data and experience of staff working within the various jurisdictions. Those assumptions are as follows:

kWh per AF of Water Delivered:
City of Fresno had direct system data for total kWh per month for both their wells and surface water treatment plant. They also had an average kWh per AF for the entire system, which it was used for the grant spreadsheet. A copy of the pumping statistics report is supplied as back-up.
City of Reedley had to calculate the kWh value for delivery of an AF of water in their service area. The Director of Public Works, Mr. Russ Robertson, sent LGC staff an email explaining his calculation method and we have included a copy of that email as back-up.
City of Clovis data was not available, so LGC staff provided a conservative estimate based on data from neighboring Fresno locations.

AF of Water per Household
This data was available from each jurisdiction, but had to be calculated from monthly usage reports, Urban Water Management Plans, and internal analysis by the utilities.

% of Residential Water Use for Landscape
This data had to be calculated for each jurisdiction from the same sources as the average AF per household. Each jurisdiction had similar percentages and were reflective of the different water rates for customers. Fresno had the highest percentage and Reedley the lowest. Water rates are lowest in Fresno and Reedley has the highest rates.

Carbon Intensity for Electricity
Pacific Gas and Electric Company provided the carbon intensity per kWh of electricity, with measurements in pounds of carbon per kWh. It was then converted to kg per kWh using an on-line conversion calculator.

Estimated Water Savings per Household
LGC staff conservatively estimated the landscape renovation work would result in a 50% reduction in landscape water use based on the following:

- HERO program calculates the water savings from artificial turf installation at 55 gallons per sq. ft.
- According to this recent report on the City of Santa Monica Garden/ Garden Demonstration, the native and drought tolerant garden design uses 83% less water than a traditional lawn dominant landscape.

http://www.smgov.net/uploadedFiles/Departments/OSE/Categories/Landscape/garden-garden-2013.pdf
LGC staff estimates similar results will be achieved in the three target cities for the WE CAN/Podemos— San Joaquin Valley Program.

Life of Project
Residential landscapes are long-lived with many homes having the same landscape designs and plants for over 50 years. Artificial turf contractors advertise warranties on their products for up to 12 years with estimated life spans of 25+ years http://www.backninegreens.com/artificial-grass.html
LGC staff conservatively estimated the project life at 20 years.