State Technical Assistance – New Mexico Conservation Management Division Report

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Problem Statement

- The New Mexico Energy and Conservation Management Division (ECMD) wanted to better understand energy costs and energy burden across utilities within the state.
- The Low-Income Energy Affordability Data (LEAD) Tool provides energy cost and burden at the census tract level for a variety of incomes and other household characteristics.
  - The LEAD Tool includes electric utility boundaries from the U.S. Energy Information Administration, but those boundaries are too imprecise for the needed data in New Mexico.
- NLR has access to more accurate utility boundaries, which can be used to provide more accurate estimates of energy costs and burden in each utility.

Solution and Work Completed: Setup and Script

- Using proprietary utility geospatial data files, NLR compiled a list of electric and gas utilities in New Mexico and the census tracts that overlap with them.
  - Each file contains rows with a utility ID, a census tract ID, and the percentage of overlap between them.
- NLR developed a Python script that can ingest the utility/census tract files as well as raw data files from the LEAD Tool 2022 public datasets to produce energy costs and energy burden on a per-utility basis.
  - The Python script uses the same methodology and calculations as the online version of the LEAD Tool. A weighted average is completed for census tracts that are grouped by the utility and any selected filters.
  - The Python script is versatile and can produce output for any state or geographic boundary, not just utilities, provided the geospatial data and census tract overlaps exist.

Solution and Work Completed: Customization

- The Python script can be run by anyone with access to Python 3.
  - Note: This script requires Python 3.8 or above.
  - The script allows New Mexico to rerun the code and generate new output as needed.
  - Within the code, the README.md file contains details on setting up and running the script.
- The script has a configuration file that can be edited by the user.
  - This file includes options to change input or output files.
  - Users can set a threshold for a census tract to be excluded from a utility. For example, if only 3% of Census Tract 123 overlaps with Utility XYZ then changing the threshold to be 4% coverage or greater will prevent that tract from being included in the utility costs.
  - Users can add multiple filter groups that each produce a different output file.
    - Users can create a filter group for multiple options such as income, building age, and so on. Those groups are each used to separately calculate output for each utility.

Solution and Work Completed: Output

- Each filter group in the configuration file produces a separate output file (CSV).
- Output files contain one row per utility.
  - There are separate files for gas and electric utilities.
  - Each row contains the weighted average for yearly energy costs and burden, broken out by electricity, gas, and other costs, as well as household income.

Next Steps and Use Case

- New Mexico ECMD can continue to rerun and reuse the Python script as needed for various filters to find groups of households within each utility with higher costs and burden.
- The Python script can be shared with other states and communities as needed.
    - To access this script or other LEAD tool resources, contact: lead.tool@nrel.gov.
- New Mexico ECMD can use this information to assess the success of their programs across different utility service areas.

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