

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba
PACIFIC POWER & LIGHT COMPANY,

Respondent.

DOCKET UE-230172
(Consolidated)

In the Matter of

ALLIANCE OF WESTERN ENERGY
CONSUMERS'

Petition for Order Approving Deferral of
Increased Fly Ash Revenues

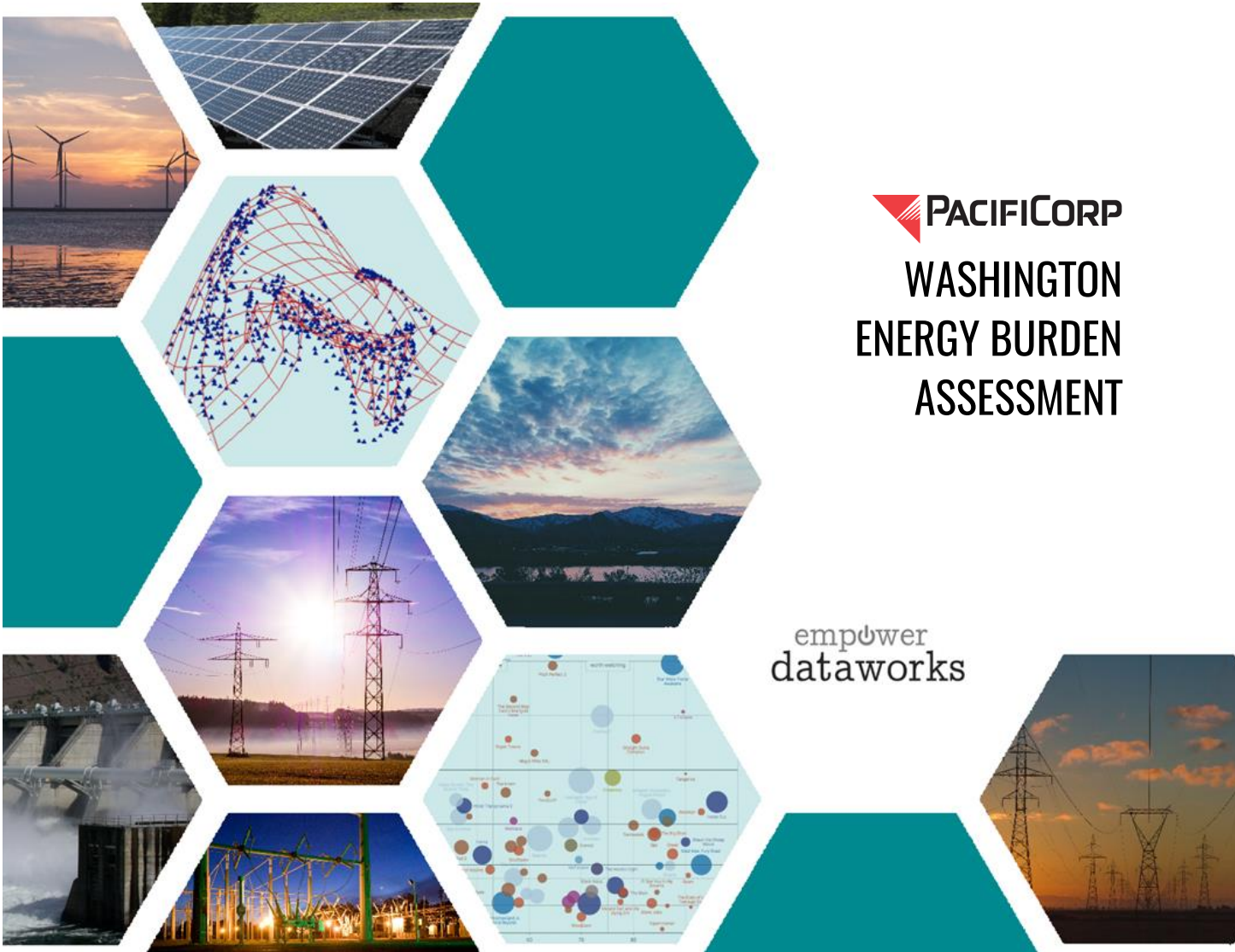
DOCKET UE-210852
(Consolidated)


EXHIBIT SNS-3

SHAYLEE N. STOKES

ON BEHALF OF THE ENERGY PROJECT

*Empower Dataworks, PacifiCorp Washington
Energy Burden Assessment (June 2022), provided
in response to WUTC Data Request 57*



 **PACIFICORP**
WASHINGTON
ENERGY BURDEN
ASSESSMENT

empower
dataworks

PACIFICORP WASHINGTON ENERGY BURDEN ASSESSMENT

JUNE 2022

PREPARED FOR

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PacifiCorp



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INTRODUCTION

This brief report presents the methodology and findings from PacifiCorp’s 2022 Washington energy burden assessment. The results of the assessment are contained in the web dashboard at <https://pacificorp-wa.empowerdataworks.com>.

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1. METHODOLOGY

1.1 GENERAL APPROACH

This energy burden assessment relies on collecting customer-level data, modeling missing attributes, then aggregating key metrics by geographic, demographic or building variables for analysis. The customer data comes from various sources as described in the rest of Section 1. Some demographic attributes were modeled or inferred using statistical techniques due to lack of primary data in the Customer Information System (CIS) or other sources. American Community Survey data was mainly used to sanity check aggregate statistics of customer-level data at the census tract level.

Three types of metrics were calculated:

- Metrics related to energy burden based on demographic and geographic characteristics
- Participation and funding in Energy Assistance Programs
- Customer energy use characteristics

The final dataset and results were packaged in a web dashboard for PacifiCorp staff.

1.2 DATA SOURCES

The data sources leveraged for the analysis are described in this section.

DATA PROVIDED BY PACIFICORP

Customer Information System (CIS): This data included monthly electricity bills for 24 months in 2019-20, account numbers and service addresses. A separate data extract included the dates and customer accounts that received late payment notices, allowing us to calculate the on-time payment rate for different customer segments.

Direct Assistance Program Data: We received a list of participating accounts in LIHEAP and the Low Income Bill Assistance (LIBA) program in 2019-20, along with discount amounts and dates. This allowed us to calculate the total assistance funding at the household level.

Energy Efficiency Program Data: We received a list of participating accounts in the low income weatherization program in 2019-20, along with installed measures, estimated kWh savings and funding. The deemed kWh

savings were used to estimate the annual bill impact based on average bill savings of 10.198 cents/kWh.

2021 Clean Energy Implementation Plan (CEIP): This gave a big-picture view of anticipated conservation targets for the general population in PacifiCorp's service territory and the named communities that are being prioritized through the CEIP.

DATA OBTAINED FROM OTHER SOURCES

Geocoding: All customer addresses were geocoded to a latitude/longitude pair to facilitate geographic analysis. In addition, we mapped the latitude/longitude pairs to census tracts, block groups and blocks in order to pull additional aggregate statistics.

County Assessor Data: We obtained publicly available assessor data from Yakima, Walla Walla, Columbia and Garfield counties. The assessor data included appraised values for homes, square footage, building year built, Washington state building use codes (residential, mobile homes, commercial and industrial), number of buildings on a land parcel, and other minor data points that were useful for performing general QA.

The addresses in this dataset were standardized to US Postal Service format, then matched with addresses in the CIS data. Some addresses existed in the CIS data but not in the assessor data (typically happens when multiple buildings occupy the same land parcel).

Customer Demographics: Data was purchased from a third-party data compiler that aggregates data from

public sources and credit bureaus. This data was mapped to the CIS dataset using customer addresses and included total household income, age of occupants, and homeownership status for a little over 63% of residential households. Demographic attributes for some customers were modeled due to lack of primary data in CIS or other sources. The modeling approaches are described in the next section.

American Community Survey (ACS): ACS data (2019 5 year estimates) was primarily used for QA to ensure that aggregate counts for various demographic attributes match the expected distributions from ACS.

USDA Rural Urban Commuting Area Codes: This data was used to assign urban/rural designations to the census tracts.

1.3 FINAL ATTRIBUTES AND METRICS

The calculation methods for the metrics and attributes used in this report are described in this section. For all attributes, we also captured metadata related to the source of data and the confidence in the value (for example, data from primary sources has a high confidence, while modeled data has lower confidence). All of the data is robust for aggregate analysis, while high confidence data is better suited to customer-level marketing and program targeting.

Household Income: Income data was only available for 63% of households in PacifiCorp's Washington service territory. To estimate the incomes for the remaining 37%, we used an iterative procedure.

Starting from the households for which we had income data, we applied an imputation model – this is a statistical method for filling in missing data by using the home's location, home value and building type. In other words, each household is assigned an income range based on the incomes of similar households in their area. This is the initial guess for that household's total annual income. Then, an iterative calibration procedure uses

those initial guesses and adjusts them to ensure that the overall income distribution within a census tract is similar to the overall income distribution from the ACS. The calibration iteratively takes a small sample of households (under 10%) and bumps them up or down by one income level within certain bounds until the modeled income distribution resembles the ACS income distribution.

Validation: From prior validation analysis, this modeling procedure yields fairly good results - it is able to reproduce the incomes accurately for a hold-out set of data from the original dataset, with errors under \$5k/year in household income for 85% of the test set and errors under \$20k/year in household income for the other 15%. Larger errors tend to happen for households with a larger income, which are not the focus of this study anyway. More importantly, the aggregate metrics related to energy burden (e.g. energy assistance need and overall burden) are very robust to errors in individual results because we are ensuring that overall distribution of

income is as accurate as possible, while the energy use does not change dramatically among similar households.

Poverty Status: The number of people living in a household cannot be easily obtained from any public data sources. This makes it difficult to identify a household's poverty status compared to the Federal Poverty Limit or the Area Median Income, both of which are defined by household size. The median household size in the four PacifiCorp counties varies from 2.2 to 2.95 and household size for income thresholds is a configurable parameter in the data dashboard (for sensitivity analysis).

Validation: According to the US Census Bureau, approximately 14.3% of households in counties served by PacifiCorp would fall under 100% of the Federal Poverty Limit. In this analysis, the range is between 12 and 18%, depending on assumed average household size.

Building type: Meters were classified into one of five building types: single family, mobile homes, multifamily apartments, commercial or master metered and unoccupied. Commercial meters were those tagged with a specific commercial use by the county assessor or that were on a commercial rate class (unless they were clearly

apartments). Additionally, we filtered out meters using in excess of 60,000 kWh per year as those are likely associated with commercial uses or are master metered. Meters that showed energy consumption less than 1200 kWh/year were flagged as potentially unoccupied. Seasonal homes flagged in the utility CIS system were also eliminated.

Overall, the number of household meters excluding commercial, seasonal and unoccupied meters was approximately 107,000. Addresses with multiple units or tagged as multifamily properties by the county assessor were flagged as apartments. Mobile homes were either labelled as such by the county assessor or were sited in a mobile home park. Non-multifamily homes with addresses but without an identified land parcel are usually accessory dwelling units, trailers or mobile homes – these were all included in the “mobile home/other” category.

Validation: The aggregate housing type counts (70% single family, 15% multifamily and 15% mobile/ ADU homes) are relatively similar to data from the DOE's LEAD tool for the four PacifiCorp counties (72% single

family, 15% multifamily and 13% mobile/manufactured/ADU homes).

Homeownership Status: Homeownership status (rent vs. own) was determined using two methods. The demographic dataset included homeownership for approximately 63% of customers. For the other 37%, households in multifamily apartments were tagged as “Likely Renters”, and households without any account changes during the two year analysis period were tagged as “Likely Homeowners”. Households with an account change and an accompanying sales record were also tagged as “Likely Homeowners”. This approach can potentially undercount long-term renters and tag them as homeowners. However, the accuracy of the approach seems sufficient for the purposes of large-scale aggregate analysis as in this study.

Validation: The owner-occupied housing rate from the American Community Survey varies from 62 to 76% in the various PacifiCorp counties. The homeownership rate from this analysis is up to 68% (48% confirmed and up to an additional 20% of either homeowners or long-term renters), so the two estimates fall within each other’s margin of error.

Load Disaggregation and Heating Type: A simple load disaggregation was applied for all households using their monthly energy bills. This involved taking the tenth percentile of monthly energy use (normalized by the number of days in a billing period) as the assumed base load. Then, the energy use that exceeded the base load in the winter months (October through April) was designated as “heating-related energy use”, while the energy use that exceeded the base load in the summer months (May through September) was designated as “cooling-related energy use”.

Homes with a heating-related energy use that exceeded 13% were flagged as potentially utilizing electric heat (primary or secondary), while homes with under 13% heating-related energy use were flagged as non-electrically heated homes.

Validation: The approach has been previously tested by Empower Dataworks vs. a variable-base degree day regression and it yields similar results but at a much smaller computational cost.

Energy Burden and Energy Efficiency Potential

thresholds: These thresholds were set as follows:

- Electrically heated:
 - High-burden threshold: Greater than 6%
 - High efficiency potential threshold: Greater than 14 kWh/sq.ft.
- Non-electrically heated:
 - High-burden threshold: Greater than 3%¹
 - High efficiency potential threshold: Greater than 7 kWh/sq.ft.

Energy Burden: Energy burden for a household is calculated simply by dividing annual electricity expenses by gross household income.

$$\text{Energy Burden} = \frac{\text{Annual Electricity Expenses}}{\text{Annual Household Income}}$$

Excess Burden: Excess burden is the portion of a household's energy burden in excess of the 6%/3% threshold.

$$\begin{aligned} \text{Excess Burden} &= \max(0, \text{Energy Burden} \\ &\quad - \text{High Burden Threshold}) \\ &\quad \times \text{Annual Household Income} \end{aligned}$$

On-Time Payment Rate: This is the proportion of all energy bills that did not require a late payment or disconnect notice to be sent out.

¹ The current CETA high energy burden threshold (6%) has been set through rulemaking based on total household energy expenses (gas + electricity + delivered fuels). There is currently no guidance on flagging high burden for non-electrically heated homes. The state of New Jersey uses a split high burden threshold by fuel: for customers with natural gas and electric service from different utilities, no more than 3% of income should be devoted to

each. We use this as a guideline for non-electrically heated homes in this assessment, recognizing that there could be different interpretations or methods for designating customers as “high-burden”. The dashboard allows for adjusting the energy burden thresholds, in order to test different reasonable thresholds.

Energy Assistance Funding: The dollar amount of funding flowing through energy assistance programs (including discount, donation and weatherization programs) through discounts or rebates.

Customer Bill Reductions (Avoided Burden): The total bill impact from energy assistance programs. This is the same as the assistance funding for direct assistance programs and is based on measure savings for energy efficiency programs as described in Section 1.2.

Avoided Need: The total bill impact specifically for customers flagged as “high-burden”.

Census Tract Statistics: Since each customer has been mapped to a census tract and block group, we are also able to match customers to census tract average statistics (e.g. highly impacted communities, presence of children, non-English speakers, education level, environmental pollution etc.).

Energy Assistance Need: This is the sum of excess burden across all customers.

1.4 SOURCES OF UNCERTAINTY

- **Household income** is a dynamic piece of data as residents move in and out of homes and income data can become outdated within a year or two.
- **Poverty status.** Since household size cannot be reliably captured through any available data source, household poverty status is subject to uncertainty. The Federal Poverty Limit and Area Median Income both use household size as a scaling factor. So, for any analysis, it is recommended to perform a sensitivity analysis with the household size assumption (this is facilitated through the web dashboard). In general, using 2 and 3 person household assumptions has been found comparable to statistics from income-verified programs.
- **Individual vs. aggregate data usage.** The underlying dataset has customer-level flags for data quality – data from primary sources is considered high quality while modeled data is considered medium or low quality, depending on the availability of supporting sources of information (example, home values and location). Higher quality data can be used for individual program targeting,

lower quality data can be used for program design and aggregate reporting.

- **Building types.** There is some uncertainty in the classification of building types as described in Section 1.3. This could result in misclassifying non-residential meters as occupied households or vice versa.
- **Achievable reductions in energy assistance need.** This analysis presents a *technical* energy assistance need based on energy burden. However, in our experience due to a variety of barriers like access to information, application process difficulties, stigma and lack of trust, many customers may not be willing to participate in programs, regardless of program design or available benefits. Understanding the *economically achievable* reduction in energy assistance need through utility programs would require a qualitative research of non-participants in a utility's service area.



2. PACIFICORP'S ENERGY BURDEN BASELINE

2.1 PACIFICORP WASHINGTON RESIDENTIAL SECTOR PROFILE

PacifiCorp's service territory in Washington state was composed of approximately **107,000 occupied households** (with a detectable energy use and not designated as shops, garages or commercial properties).

Ethnicity: According to the U.S. Census Bureau, approximately 49% of residents in PacifiCorp's service area are non-Hispanic white. Hispanic residents comprise 43% of the population, mostly concentrated in Yakima county.

Household Income: The median household income for residents in PacifiCorp's service area is approximately \$56,000, well below the state average of \$70,000. Approximately **14%** of households would fall under 100% of the federal poverty limit, **35%** of residents would fall under 200% of the federal poverty limit and **45%** of residents would fall under 80% of the Area Median Income.

Energy Bills: PacifiCorp residential electricity rates are about average for the region. Annual energy bills average approximately \$1,200/year with an average annual consumption of 14,300 kWh, with approximately 65% of customers using electricity as a primary or secondary heating fuel. Figure 1 shows the distribution of annual electricity bills; with about half of households paying more than \$1,050/year on their bills.

Home Vintage: Approximately 30% homes in PacifiCorp’s Washington service territory were built after 1980, 41% were built between 1940 and 1980², with the remainder built prior to 1940. Older homes have more opportunities for weatherization, while newer homes could benefit more from lighting, controls and efficient appliances.

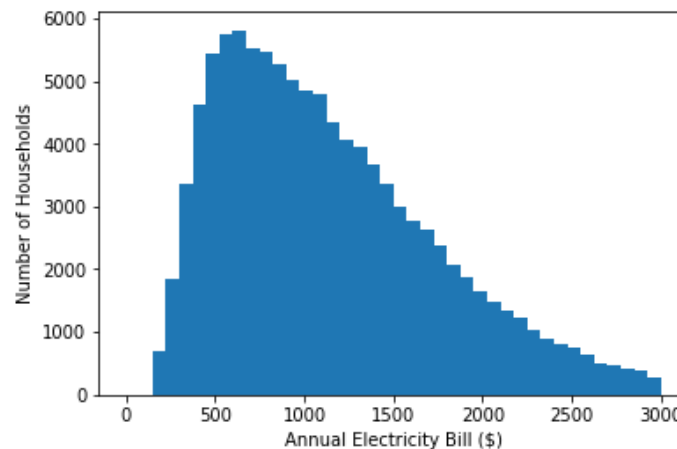


Figure 1. Household electricity bill distribution for PacifiCorp Washington residential customers

² County Assessor Data for Yakima, Walla Walla, Columbia and Garfield counties.

2.2 ENERGY BURDEN

PacifiCorp customers have an **average and median electricity energy burden of 4% and 2.2%**, respectively. Figure 2 compares PacifiCorp’s median energy burden to values published in other jurisdictions. The median burden is comparable to other regions in the Pacific Northwest.

The average household paid \$1,200/year in electricity bills in 2019-20. Of 107,000 identified households, **23,400 were deemed to have a high energy burden**, meaning that annual electricity bills exceeded 6% of their income for electrically-heated homes and exceeded 3% of their income for non-electrically heated homes. These high-burden customers paid an average of \$1,500 in annual electricity bills; the higher bill average reflects their higher likelihood to live in less efficient or older homes. **The total energy assistance need for PacifiCorp Washington is approximately \$15M**—the total reduction that would bring all customer electricity bills below the high burden threshold (6% of income for electric heat and 3% for gas heat).

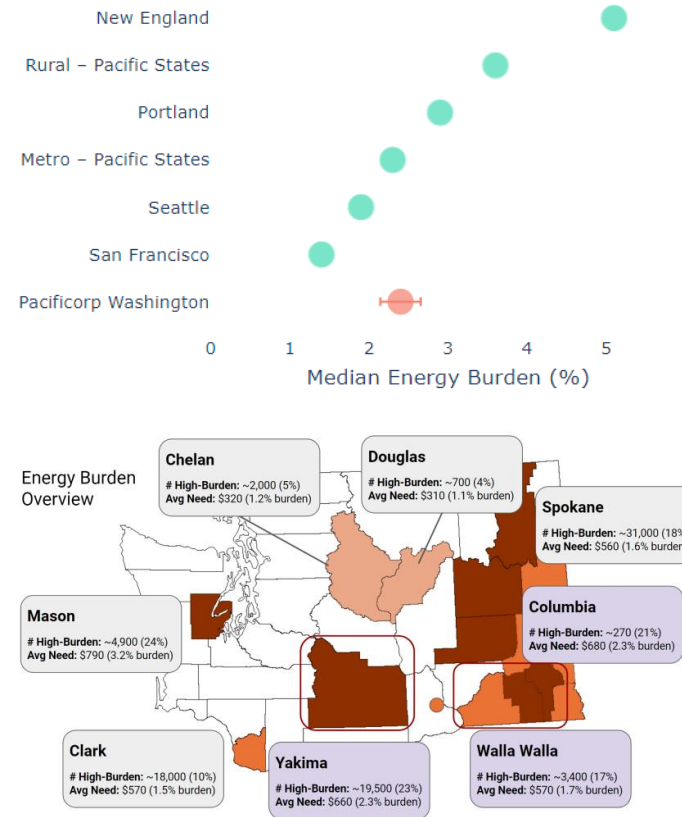


Figure 2. Energy burden benchmarking vs. other Washington counties

Although averages and medians give a general indication of energy burden across a service territory, the reality is that **energy burden is a customer-level metric** and its distribution is a better indicator of the burden that customers experience. The distribution of energy burden among PacifiCorp customers is shown in Figure 3. The blue dashed line represents the 3% high burden threshold for non-electric heat and the green dashed line represents the 6% high burden threshold for electric heat.

The goal of an effective energy assistance portfolio should be to prioritize the customers who most need the assistance, i.e. the customers to the right of the 6%/3% thresholds.

Approximately 73% of the energy assistance need is borne by single family households, with 18% in mobile homes and the remainder in multifamily homes. The highest concentration of need is in mobile homes, requiring more than \$710/household in assistance on average, compared to \$680/household for single family and \$410/household multifamily households.

Approximately 36% of the energy assistance need for PacifiCorp customers is among renters, indicating that

conservation programs targeted at high-burden customers will need to grapple with the split incentive problem between landlords and tenants, but energy burden among homeowners is the more significant category in general. Other customer segments can be investigated in more detail in the data dashboard.

Number of Households
~107,000

Low Income Households
 80% AMI (\$45k): **~49k**
 200% FPL (\$35k): **~38k**

Energy Burden
 (Electricity)
 Median: **~2.2%**
 Average: **~4%**

High Burden Households
~23,400

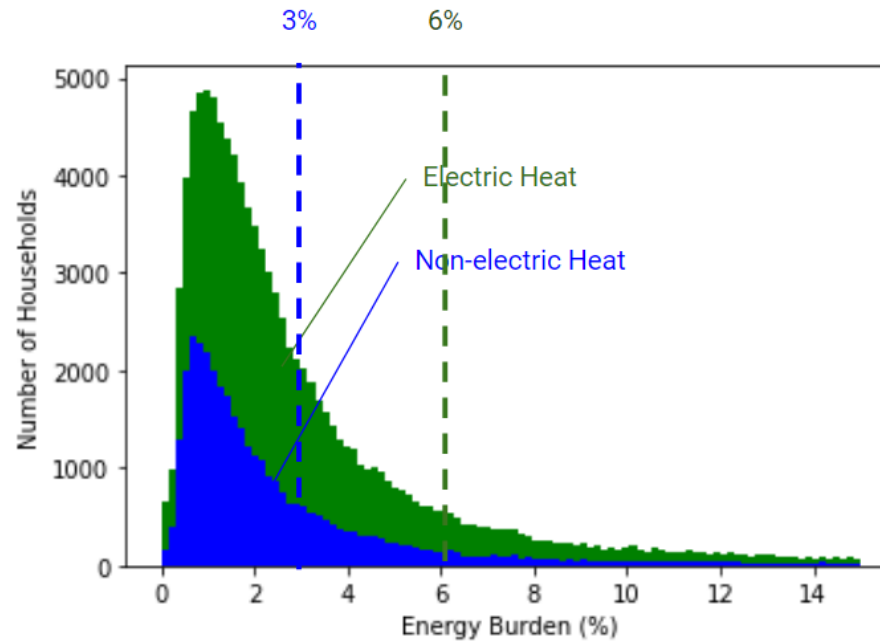


Figure 3. Distribution of energy burden among PacifiCorp Washington customers.
 Green line indicates 6% threshold of high energy burden for electric heat.
 Blue line indicates 3% threshold of high energy burden for non-electric heat.

2.3 CONSERVATION VS DIRECT ASSISTANCE

Figure 4 shows the distribution of energy burden and energy efficiency potential (defined through Energy Use Intensity thresholds) across all low-income residential customers. In a perfect world, the energy assistance portfolio would match these customer segments. For example:

- Conservation programs should primarily serve **high burden, high potential** households
- Direct assistance programs should primarily serve **high burden, low potential** households
- Crisis/emergency programs should primarily serve **low burden, low potential** households
- Traditional conservation programs with financing should serve **low burden, high potential** households

Aligning targeted customers with program strengths results are the most cost-effective pathway to energy burden reduction.

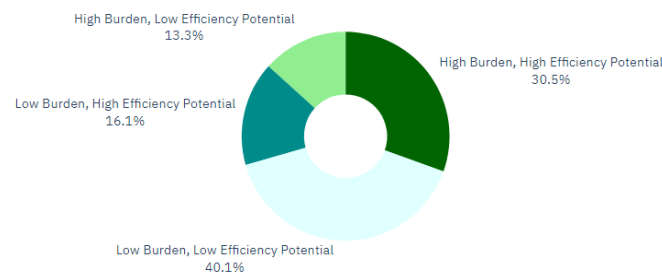


Figure 4. PacifiCorp Washington low-income customer segments by energy burden and energy efficiency potential.

Approximately 40% of PacifiCorp’s low-income customers are low-burden and low-efficiency potential. These customers’ energy bills may not be a huge expense relative to housing, medical and education expenses, and they should not be prioritized in the more intensive programs, such as weatherization.

31% of high burden customers also have a high efficiency potential indicating that the energy assistance program mix should equally prioritize sustained energy burden reductions through energy efficiency and weatherization.



3. KEY CUSTOMER SEGMENTS

3.1 OVERVIEW

This section presents statistics and profiles related to 9 key customer segments in PacifiCorp's Washington service area. These customer segments were selected for a combination of reasons:

1. Flagged in this assessment as having high overall burden or high prevalence of energy burden
2. Meets criteria for named communities through stakeholder feedback gathered in PacifiCorp's 2021 CEIP process
3. Identified as high priority through interviews with agencies
4. Identified as vulnerable through community needs assessments previously conducted by local community organizations

This analysis is primarily geographic, focusing on specific neighborhoods. The maps in the following sections display the level of energy assistance need in these areas as well as locations of social services for potential outreach.

These customer segments represent a big portion, but not the entirety of the high energy burden among PacifiCorp's customers, so they should be targeted for any new programs or initiatives in the future using lists of customers who live in the block groups identified below.

3.2 YAKIMA NORTH

Census block groups: 530770003001, 530770003002, 530770002001, 530770002002

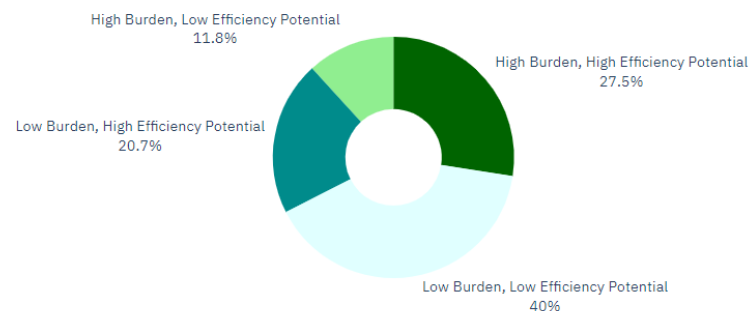
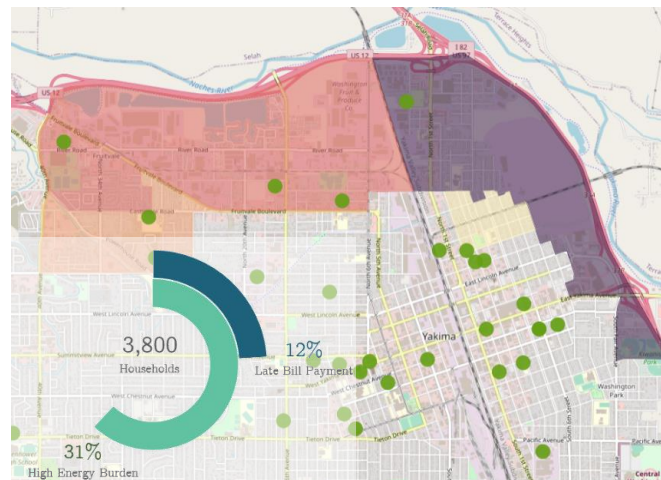
Total Assistance Need: **\$0.6M (4% of total)**

Total Assistance Funding: **\$0.4M (6% of total)**

Environmental Disparities Score: **10**

PROFILE: Customers in North Yakima are a highly impacted community that tend to be renters (60%) living in multifamily apartments, mobile homes or ADUs (39% Multifamily, 22% Mobile homes/ADUs). They are also more likely than the average customer to rely on electricity as a heating fuel. Approximately 10% of customers in this segment are limited English speakers. The area is partly industrial and has historically had a high crime rate.

RECOMMENDATIONS: This customer segment is urban and dense and can be effectively reached through social media as well as by connecting to trailer park managers and large property managers. On-site energy bill clinics could also provide a positive customer touchpoint for encouraging customers to apply to weatherization and assistance programs.



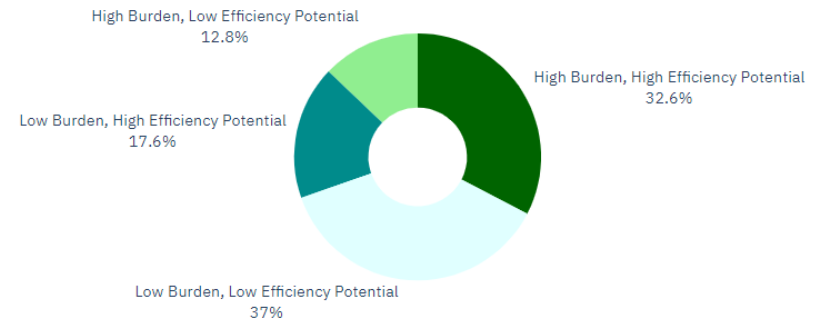
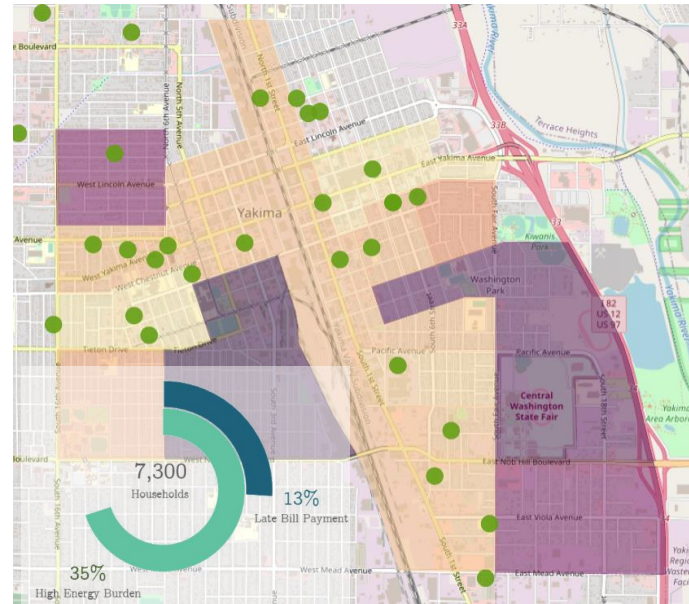
3.3 YAKIMA EAST

Census block groups: 530770006003, 530770015011, 530770015012, 530770015013, 530770015014, 530770015015, 530770015021, 530770015022, 530770007001, 530770007002, 530770007003, 530770007004, 530770001001, 530770001002

Total Assistance Need: **\$1.5M (10% of total)**
 Total Assistance Funding: **\$0.7M (11% of total)**
 Environmental Disparities Score: **10**

PROFILE: Downtown Yakima east of 16th Ave also has a high preponderance of rentals but mostly in older single family homes. Approximately 19% of customers in this segment are limited English speakers, but the areas has been historically well-served by existing programs.

RECOMMENDATIONS: This customer segment is also urban but more dispersed than North Yakima. There are numerous social services organizations spread throughout, which introduces an opportunity to build partnerships with local community organizations. All program information must be bicultural and bilingual.



3.4 UNION GAP

Census block groups: 530770013001, 530770013002, 530770014001, 530770014002

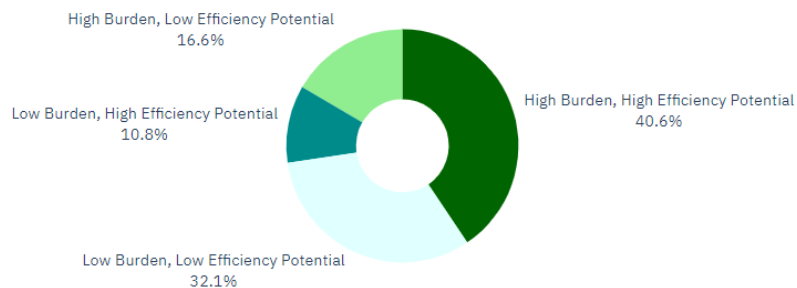
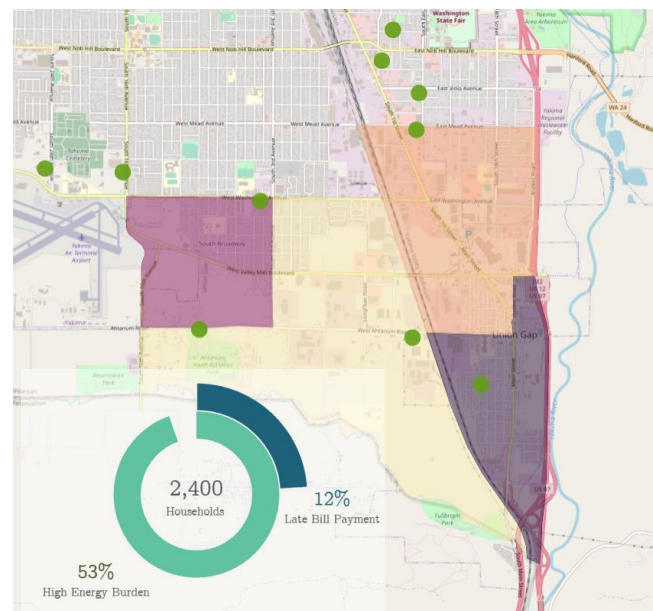
Total Assistance Need: **\$0.8M (6% of total)**

Total Assistance Funding: **\$0.2M (4% of total)**

Environmental Disparities Score: **10**

PROFILE: The area surrounding Union Gap has a severe level of energy burden, with over half of customers experiencing high energy burden. Union Gap has been previously ranked as the least safe city in Washington state due to a high level of property crime. 28% of customers live in mobile homes or ADUs and the area appears to be slightly underserved by existing programs.

RECOMMENDATIONS: Homes around Union Gap are older (almost 80% built prior to 1960) and much less energy-efficient than elsewhere in Yakima. The area should be prioritized for weatherization or lighter touch energy efficiency (e.g. energy savings kits, thermostats and air sealing), as 40% of customers have both a high energy burden and a high energy savings potential. A conversation with the City of Union Gap could also help identify potential for collaboration with PacifiCorp.



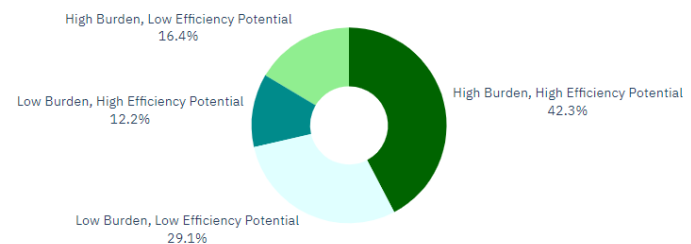
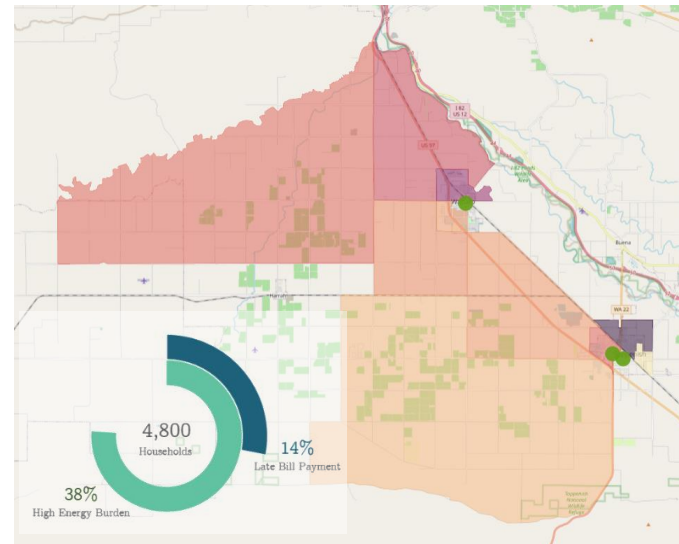
3.5 WAPATO-TOPPENISH

Census block groups: 530779400012, 530779400014, 530779400015, 530779400022, 530779400023, 530779400042, 530779400043, 530779400051, 530779400061, 530779400062

Total Assistance Need: **\$1.4M (9% of total)**
 Total Assistance Funding: **\$0.8M (13% of total)**
 Environmental Disparities Score: **9-10**

PROFILE: The Wapato-Toppenish segment borders the Yakima Indian Reservation and approximately 38% of customers experience a high energy burden. The rural towns of Wapato and Toppenish are surrounded by agricultural land with poor quality housing. There is a large number of Spanish speakers in the area. 14% of bills are sent to area residents and 21% of bills sent to high-burden customers are not paid on time.

RECOMMENDATIONS: As rural areas, traditional mass communications may not be effective at reaching this customer segment. Collaborating with local schools and churches may be more effective. Door-to-door canvassing has been successful based on feedback from the local agency. After initial contact, phone calls or SMS should work for targeted follow-ups. The Northwest Community Action Center is located in Toppenish, which is an asset.



3.6 MABTON-SUNNYSIDE

Census block groups: 530770027012, 530770020011, 530770020013, 530770020023

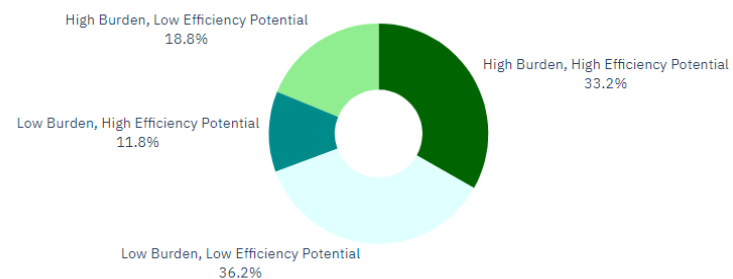
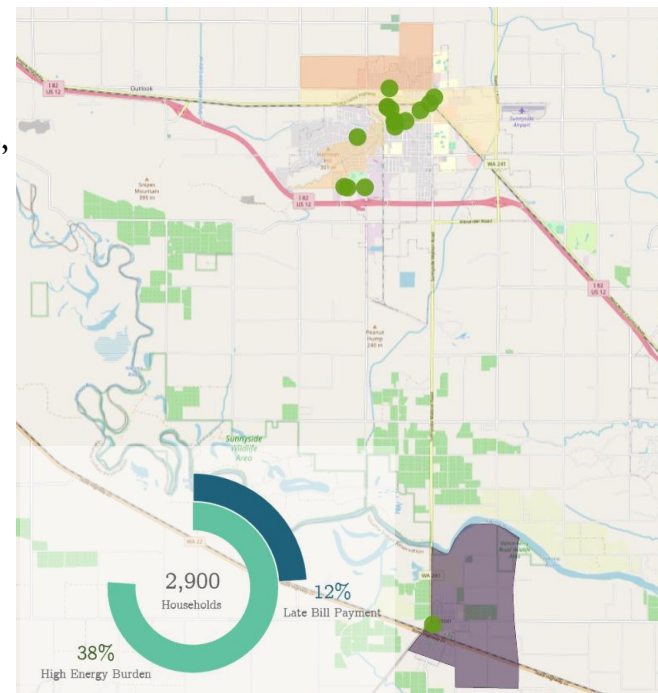
Total Assistance Need: **\$0.7M (5% of total)**

Total Assistance Funding: **\$0.4M (6% of total)**

Environmental Disparities Score: **6-8**

PROFILE: The Mabton-Sunnyside segment is mostly rural, although Sunnyside is more densely populated and appears to have many services intended for low-income customers. 18% of customers are limited English speakers.

RECOMMENDATIONS: Collaborating with local schools and community organizations (e.g. Nuestra Casa, Inspire Centers) improves program access for this customer segment. Partnership between YVFWC and the local housing authorities is working well, as evidenced by the high level of assistance provided to apartment dwellers in the area.



3.7 DOWNTOWN WALLA WALLA

Census block groups: 530719205001, 530719205002, 530719206002, 530719206003

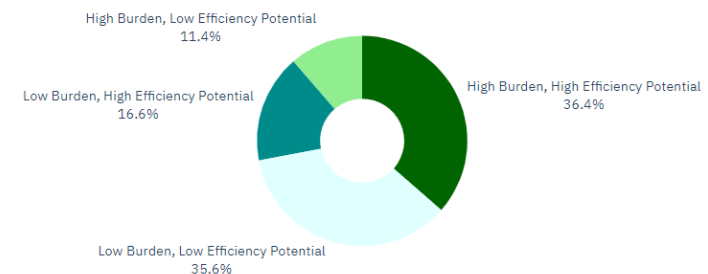
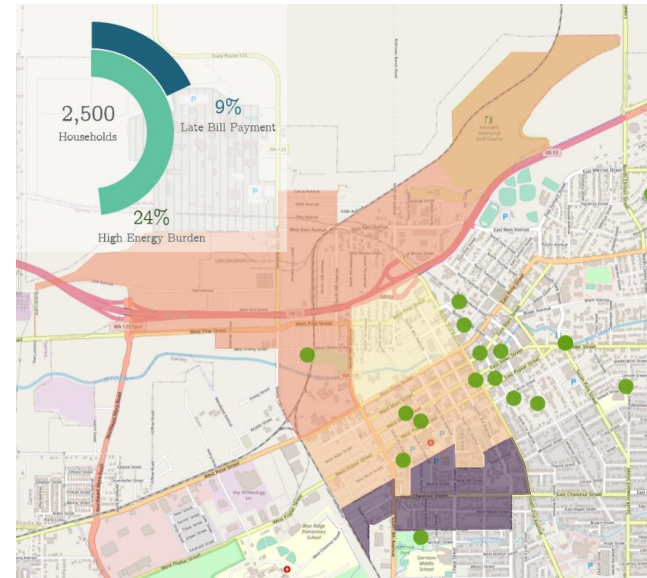
Total Assistance Need: **\$0.4M (2% of total)**

Total Assistance Funding: **\$0.2M (3% of total)**

Environmental Disparities Score: **7-8**

PROFILE: Downtown and North Walla Walla are mostly inhabited by working-age families with up to 23% limited English speakers. A large proportion of homes (40%) appear to rely on non-electric heat. The level of energy burden is significantly lower than in Yakima county, however, families face other burdens (housing and cost of living).

RECOMMENDATIONS: Social media is very effective at reaching customers in this area. The local agency also received good feedback about program advertising in the local movie theater. Continued collaboration with Blue Mountain Action Council should ensure that this customer segment remains adequately served by PacifiCorp’s assistance programs. There are also significant energy efficiency opportunities in these homes.



3.9 WAITSBURG

Census block groups: 530719201004

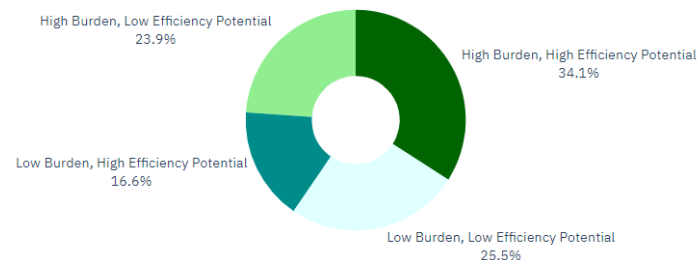
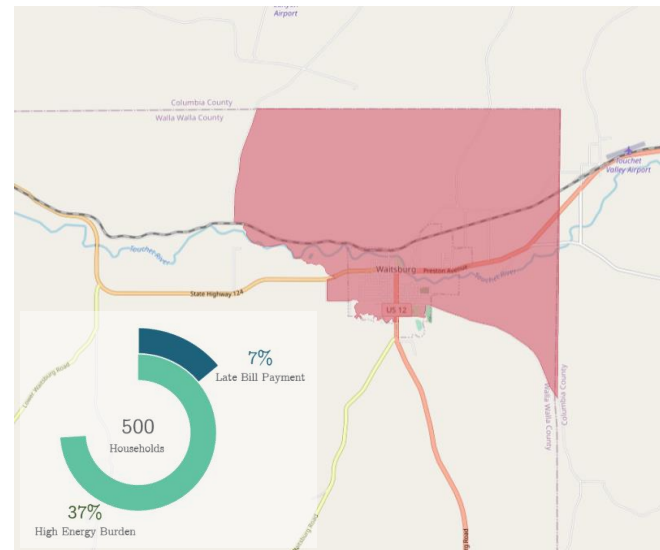
Total Assistance Need: **\$0.1M (1% of total)**

Total Assistance Funding: **\$0.1M (1% of total)**

Environmental Disparities Score: **2**

PROFILE: The area around Waitsburg includes many customers with a high level of energy burden. Bill payment does not appear to be a major issue even though upwards of 80% of households appear to have electric heat. A large portion of homes are occupied by senior citizens.

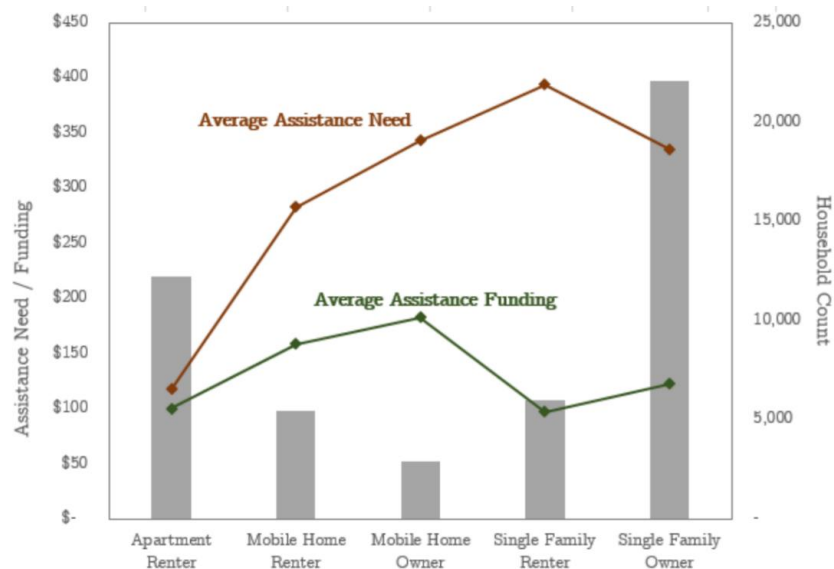
RECOMMENDATIONS: Traditional mass communications may not be effective at reaching customers in these rural areas. However, word of mouth appears to be the primary means for customers to hear about the programs. Blue Mountain Action Council has a satellite office in nearby Dayton, which helps with referring customers to the energy assistance programs.



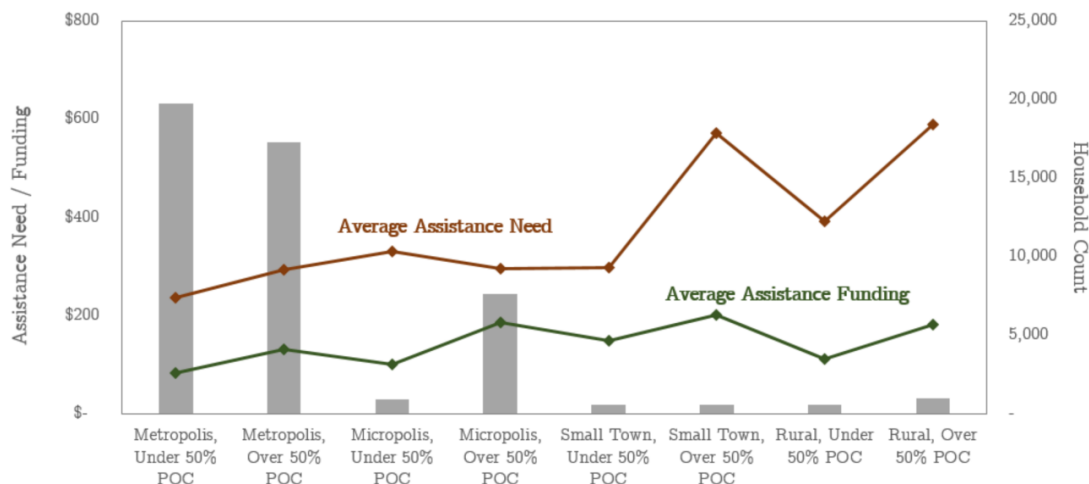
3.10 SINGLE FAMILY RENTERS

PROFILE: The figure to the right shows the energy assistance need and average energy assistance funding for all low-income customers in PacifiCorp’s Washington service area, categorized by housing type and homeownership. In general, it appears that apartment dwellers are relatively well-served by existing programs as the gap between average need and average funding is very small. On the other hand, the least well-served segment appears to be renters living in single family homes. This is a harder to reach segment, because tenures in single family rentals can be short and unlike apartments or trailer parks, there are no centralized locations where these customer can be reached.

RECOMMENDATIONS: In addition to building partnerships with local schools, churches and community organizations, it is recommended to develop targeted energy assistance marketing campaigns (direct mail and email) for these customers through the dataset developed in this assessment. Onerous program application requirements are also a big barrier to participation for this customer segment.



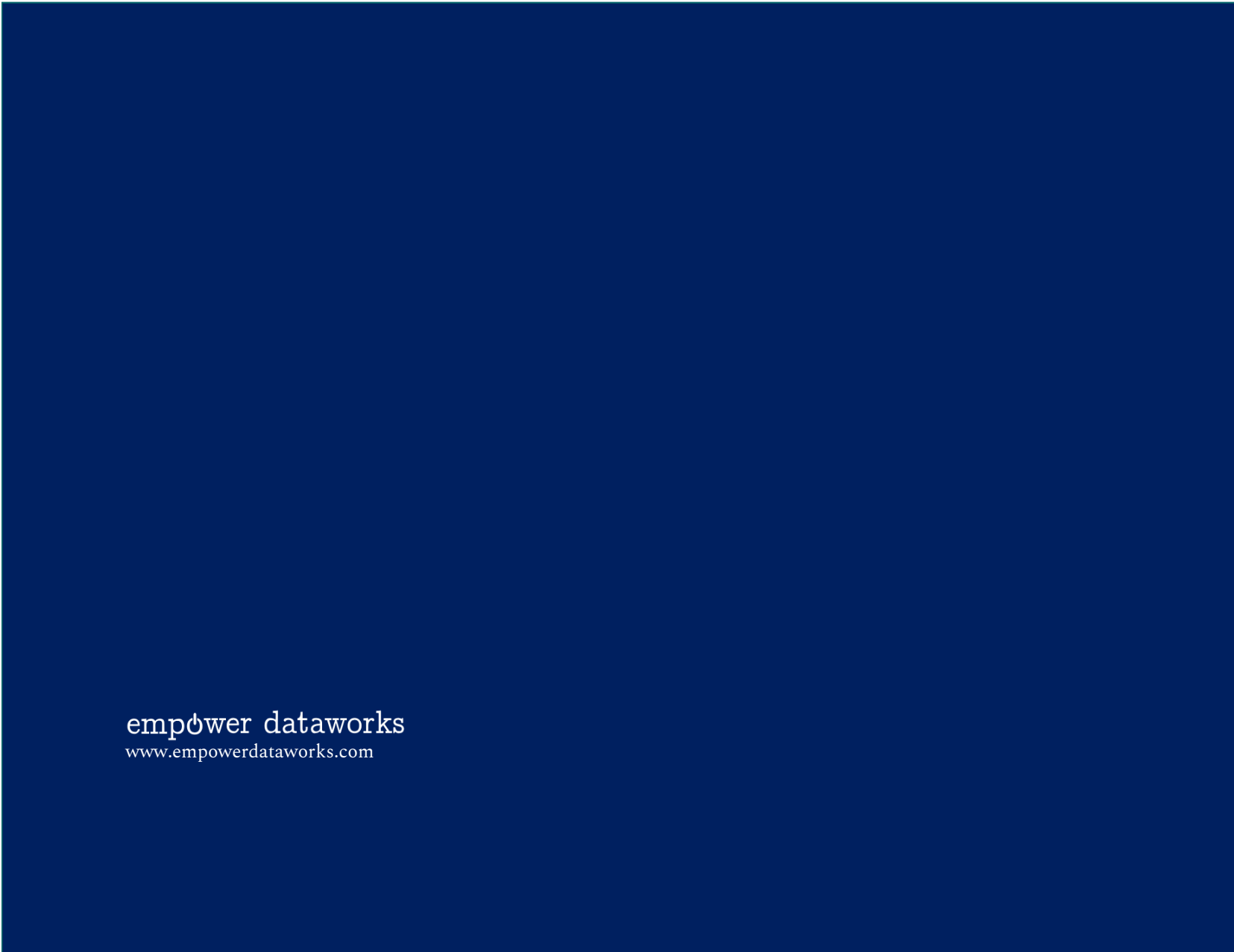
3.11 CUSTOMERS IN RURAL AREAS



PROFILE: The figure above shows the energy assistance need and average energy assistance funding in all census tracts in PacifiCorp’s Washington service area categorized by the USDA urban/rural designation and whether the proportion of people of color (POC) exceeds 50%. In general, it appears that both need and funding are higher in census tracts with a higher proportion of people of color, but there are no clear issues with program equity. The biggest gaps between need and funding are in small towns and more rural areas,

although these categories represent a very small number of households.

RECOMMENDATIONS: Local presence is an important factor for rural customers and satellite offices of agencies or local community-based organizations can be very effective at reaching these customers. Consideration of an online application process or making program information easier-to-find online can also be helpful in facilitating customer applications, even though internet connectivity may not be guaranteed in these locations.



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