Preventing Water Shutoffs for Low-Income Households:
A 10-City Pilot
Data Collection and Analysis Guide

About this Document

Water and wastewater utilities need a better understanding of water shutoffs, liens, and late fees—how many are occurring, why they occur, who is affected, and how they are affected—to ensure equitable water access. This means analyzing existing data as well as collecting more thorough data moving forward, in collaboration with affected communities themselves.

Analysis of these data can inform the development of strategies to prevent water shutoffs for low-income households. It can also help utilities create an early warning system for customers at risk of shutoffs, allowing them to intervene and provide targeted services and assistance.

The following guide helps utilities use baseline data to get an understanding the shutoffs challenge in their service area, making it possible to develop effective responses. It also includes suggestions for more in-depth research. Using this guide, utilities and their community partners can begin to answer these overarching questions:

- o Who in your city is most vulnerable to shutoffs?
- o What are the causes of vulnerability to shutoffs?
- o What are the impacts of shutoffs and unaffordable bills on vulnerable communities?
- o What are the impacts of shutoffs and unpaid bills on utilities?

Data Collection and Analysis Process

Identify Research Questions

First, it's important to determine what questions you want to answer about water affordability challenges. Here are a set of suggested research questions that can help utilities identify the kinds of datasets they need. It would be helpful to compare data from before and during the COVID-19 pandemic for all of these questions.

Water utilities may not be able to answer each of the questions detailed below based solely on the information they currently collect. The questions and suggestions presented here may help inform updates to utility data collection processes.

Baseline Data Questionnaire

Utilities should answer the following questions to inform their participation in the Pilot. Answering these will ensure that all strategies and solutions created in this project are guided by accurate and comprehensive data.

- How many shutoffs (or liens) occur annually due to nonpayment? Is there a monthly pattern of account delinquencies and related shutoffs (i.e., delinquencies and shutoffs occur more frequently in the summer)?
- How many accounts are currently unpaid? Can you use a standard accounts receivable report such as an "Aging of Accounts Receivable" to answer this question?
- How large are typical unpaid bills for accounts that get shut off?
- Are there indicators of the causes of unpaid bills? For example, do customers have large unpaid bills due to unusually high water usage or leaks? Are there customers with modest water usage who still struggle to pay their bills? Do customers start with small unpaid bills and accrue additional fees and fines?
- How many households experience repeated shutoffs vs. one-time shutoffs?
- How many of the customers that are shut off then actually pay off their bills?
- Do shutoffs cluster in particular geographies? Create a map of the distribution of shutoffs and unpaid accounts to determine which areas are most heavily impacted.
- What percentage of customers are eligible for existing customer assistance programs or payment plans? *See "Locate Existing Data" section below for sources of data on poverty to determine how many residents fall within your eligibility criteria.*
- What percentage of those eligible customers are enrolled in utility programs?

Further Research Questions
Utilities can use the following questions to inform more in-depth research during or after their participation in the Pilot.
- **Characteristics of areas affected by shutoffs:**
  - To understand how shutoffs are affecting different groups, overlay demographic data on the map of shutoffs and unpaid accounts. *See "Disaggregate by Race, Income, and Geography" section below for more details on analyzing demographic data.*
  - Use billing data to produce a map of residential accounts with usage 20 – 40 percent above the customer class average in order to better understand who is using more water and what factors might be contributing to these patterns (such as leaks or plumbing issues in neighborhoods with older housing stock).
- **Effects of shutoffs on customers:**
  - What are the fees customers accrue related to unpaid bills, such as late fees and reconnection fees? What do these fees represent as a share of utility revenues?
  - How much time do customers have to pay their bill before they are shut off (i.e., how much time after the bill is due, how much time after the last notice is sent)?
  - How long are households typically shut off for?
  - Is there evidence of public health issues related to water shutoffs and the inability to access water?
  - What percentage of households that are shut off or have liens placed on their homes end up losing housing due to eviction or foreclosure?
  - Is there a relationship between shutoffs and home vacancies (i.e., people abandoning homes due to shutoff notices or vacant homes with leaks)?
- **Effects of shutoffs on utility:**
  - What are the costs (direct and indirect) of shutting off a customer?
  - What are the costs (direct and indirect) of turning service back on?
  - How many of the customers that are shut off never end up paying their past-due bills? Are these accounts then written off as unpayable?
  - How many homes issued shutoff notices are vacant at the time of shutoff?

- o **Existing programs:**
    - o What is your utility's rate structure, (i.e inclining block, declining block, etc.) for residential accounts?
    - o How many customers were enrolled in customer assistance programs or payment plans before the pandemic vs. after the pandemic began? How many customers enroll each month?
    - o Does the utility maintain a waitlist of customers that are eligible for assistance but have not yet received it?
    - o Does the utility keep track of customers that express difficulty paying (for example, by logging customer calls that mention inability to pay)?

Locate Existing Data and Identify Data Gaps

Once your team has a set of research questions, you can determine what data the utility already collects. When you have compiled existing data from your utility, revisit your original research questions. Does the data you have answer these questions? What are the gaps?

If there are questions that cannot be answered with the information on hand, you may need to expand utility data collection efforts. Other agencies such as public health departments, energy utilities, or housing departments may collect relevant data that they can share with utilities. Universities, research institutes, and nonprofits may also have data on shutoffs and affordability that could provide context or guidance to your work.

Guiding questions:
- o Which city departments or organizations in your city collect relevant data? How can you gain access to this data?
- o Is the data that your city collects cleaned and usable? Will it take staff capacity to clean and code this data?
- o Do you need to enlist the help of partners to add capacity to your data collection process?
- o Which outside data sources might be helpful to your research? Data sources that may be useful include:
    - o **American Community Survey (US Census):** Provides data on demographics, housing conditions, housing costs, employment, and other population characteristics
    - o **US Bureau of Labor Statistics (Consumer Expenditure Surveys):** Provides data on expenditures, income, and demographics of consumers
    - o **Household Pulse Survey (US Census):** 2020 survey data on the impacts of COVID-19 on households, including employment status, health, housing, food security, education, and other factors
    - o **National Equity Atlas:** Data tool that compiles indicators of racial and economic equity for the largest 100 cities and 150 regions in the US
    - o **Opportunity Nation's Opportunity Index:** Provides data on access to opportunity at the state and county levels, using indicators related to health, education, and economic factors
    - o **Populations at Risk:** Tool that generates customized socioeconomic reports about populations more likely to experience adverse social, health, or economic outcomes due to race, age, gender, poverty status, or other factors. Available at the census tract, metro area, county, and state levels
    - o **EPA EJ Screen:** Environmental justice mapping and screening tool that combines environmental and demographic indicators in maps and reports

        o   **MIT's Living Wage Calculator:** Tool for estimating the cost of living in different metro areas, counties, and states, based on typical expenses

Disaggregate by Race, Income, and Geography

Data should be disaggregated by race, income, and geography to determine to provide more insight into whether there are inequities in how shutoffs occur and whether the majority of customers who are being shut off are unable to pay. There may be racial inequities associated with water shutoffs, which can be related to longstanding structural injustices like mass incarceration, the legacy impacts of redlining, and other barriers to building generational wealth in communities of color.

Guiding questions:
- What is the average household income of your customers disaggregated by census tract, census block group, zip code, or neighborhood?
- Which areas contain majority low-income communities? If your state has its own poverty guidelines, use these to determine how many customers fall within the low-income category. If it does not, the federal poverty guidelines and accompanying census data reporting can be used.
- What is the racial demographic makeup of your customers disaggregated by census tract, census block group, zip code, or neighborhood?
- Which areas contain majority Black, Indigenous and other People of Color (BIPOC) communities? Be sure to disaggregate this by each racial group and not group together all BIPOC communities.
- Use census income data to determine the following:
    - How many households in your service area would pay more than 2.5 percent of their income if charged an average residential bill?
    - How many households in your service area would pay more than 4.5 percent of their income if charged an average residential bill?

To understand all the reasons that vulnerable households may be struggling to pay their water bills, we must think holistically about other expenses and stressors. This can help identify factors that might signal the vulnerability of a household to fall behind on payments or be shut off. Utilities can analyze the following variables to learn more about customers who are struggling with bills.

Potential Factors Contributing to Affordability Challenges
- Housing cost burden
- Electric/gas utility cost burden
- Medical cost burden
- Transportation cost burden
- Household expenditures (if available for your area via the Bureau of Labor Statistics)
- Increased cost of access to virtual platforms during COVID (hardware, software, broadband, etc)

Potential Factors in Household Vulnerability to Shutoffs
- Families
- Single-parent homes
- Linguistic isolation
- Renters
- Senior citizens
- People on a fixed income or making less than a living wage
- Unemployed members of household
- Households that experienced changes to employment status during COVID-19 pandemic

Create a Culture of Collaboration with Community
Collaborating with communities to conduct quantitative and qualitative research will provide important insights into the causes and effects of shutoffs. Data collection and analysis is complex, and collaboration can extend utility capacity and ensure that data is meaningful and accurate. City teams are encouraged to expand upon this guide with their community partner. Working with community partners allows utilities to validate whether their initial data findings reflect the lived experience of communities.

Guiding questions for community-based organization partner:
- How do you typically collect data from your community members?
- What data does your organization collect that might be relevant to this project (i.e. residents requesting help with water bills, residents enrolled in other assistance programs, residents on fixed incomes, etc)?
- Does your organization collect any spatial data that would be helpful to overlay with the shutoffs map created by the utility?
- What other determining factors do you believe are relevant to communities impacted by shutoffs?
- Are there neighborhoods, districts, or other geographic areas that need further data analysis?
- After reviewing utility data:
  - Do any of these findings appear to contradict your understanding of the challenges that communities face? How can we work with the community to determine their validity?
  - Where might qualitative research (such as interviews, focus groups, or surveys) provide more insight into affordability challenges?