

# Oracle Utilities Opower Digital Self Service - Energy Management Cloud Service

## Product Overview

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# Getting Started

The Digital Self Service - Energy Management documentation includes detailed descriptions of the following cloud services:

- **Digital Self Service - Energy Management Cloud Service:** *This cloud service is a prerequisite for all other cloud services listed on this page.* It includes web and mobile products that help customers better understand their energy use patterns, find actionable tips, and manage their account. The following components are available:
  - [Digital Self Service - Energy Management Web Portal](#)
  - [APIs](#)
  - [Inside Opower](#)
  - [Customer Service Interface](#)
- **Digital Self Service - Energy Management AMI Cloud Service:** This cloud service provides additional AMI data, energy use insights, and functionality to utility customers who are on the Digital Self Service - Energy Management cloud service. The following components are available:
  - [Bill Comparison - AMI Insights](#)
  - [Bill Forecast](#)
  - [Data Browser - AMI Insights](#)
  - [Green Button - Exporting AMI Data](#)
  - [Highest Use Energy Days](#)
  - [Smart Dashboard - AMI Insights](#)
- **Rates Engagement Cloud Service:** This cloud service enables customers to view energy cost insights and trends, learn about available rate plans, and view projected energy cost savings. See [Rates Engagement](#) for more information on what is included.
- **Rate Engine Plus Cloud Service:** This cloud service includes enhanced cost insights about customer energy use. See [Rate Engine Plus](#) for more information on what is included.

For an overview of all cloud services available from Oracle Utilities, see the *Oracle Energy and Water Cloud Service Descriptions* online at [Oracle Contracts - Cloud Services Service Descriptions](#).

Note that each cloud service comes with a set of requirements that must be met in order for customers to receive the Opower products. See [Requirements and Limitations](#) for details.

# Requirements and Limitations

There are multiple Oracle Utilities Opower Digital Self Service cloud services. Each cloud service comes with a set of data requirements and limitations. The requirements must be met for a utility and a customer to participate in the program.

## General Requirements

- **Cloud Service Requirements:** The Digital Self Service - Energy Management cloud service is a prerequisite for all other cloud services listed on this page. For an overview of all cloud services available from Oracle Utilities, see the *Oracle Energy and Water Cloud Service Descriptions* online at [Oracle Contracts - Cloud Services Service Descriptions](#).
- **Active Account:** Customers must be associated with a premise that has an active account with the utility. An active account means that the customer has signed up with the utility for at least one service point for one fuel type at an address.
- **Screen Resolution:** A minimum width of 320 pixels is required for devices to display widgets.
- **Supported Browsers:** The customer must use a supported web or mobile browser. Oracle Utilities Web products adhere to the [Oracle Software Web Browser Support Policy](#).

## Digital Self Service - Energy Management Cloud Service

### Utility Requirements

- **Cloud Service Requirement:** Utilities must purchase the Digital Self Service - Energy Management cloud service.
- **Data Integration:** Data must be sent to Oracle Utilities in the right schema and according to the established data specifications. Your Oracle Utilities Delivery Team will work with you to identify which data specifications are applicable to your situation.
- **Single Sign-On:** Oracle Utilities recommends that utilities use single sign-on (SSO), as outlined in the [Oracle Utilities Opower SSO Configuration Guide](#). See "Authentication" on page 11 for more information. If the utility uses SAML-based SSO, third-party cookies must be enabled on the customer's web or mobile browser to view Oracle Utilities Opower embedded web features. Third-party cookies authenticate the customer's account using a session identifier, which allows embedded widgets to display the correct data for the customer. Third-party cookies are not required for OpenID Connect-based SSO.

- **AMI Insights:** AMI insights can be enabled in various widgets and features if utilities purchase the Digital Self Service - Energy Management AMI cloud service. For more information about what AMI insights can be provided, see [Getting Started](#).

### Customer Requirements

- **Data History:** For most features to have meaningful insights, a customer must have more than one bill of historical billing data in the form of subdaily, daily, monthly, bi-monthly, or quarterly read data. Additional data requirements vary by feature.
- **Rates:** Utility rates must be modeled by Oracle Utilities for cost information to appear. If rates are not modeled, energy use information is displayed by default. If the utility chooses to display cost information, rate modeling is required during initial program setup for an additional fee. See [Rates Engagement](#) for more information.

## Digital Self Service - Energy Management AMI Cloud Service

### Utility Requirements

- **Cloud Service Requirement:** In order to purchase the Digital Self Service - Energy Management AMI cloud service, utilities must also purchase the Digital Self Service - Energy Management cloud service.

### Customer Requirements

- **Data History:** For most features to have meaningful insights, a customer must have more than one bill of historical billing data in the form of subdaily, daily, monthly, bi-monthly, or quarterly read data. Additional data requirements vary by feature.

## Rates Engagement

### Utility Requirements

- **Cloud Service Requirement:** In order to purchase the Rates Engagement cloud service, utilities must also purchase the following cloud services:
  - Digital Self Service - Energy Management
  - Digital Self Service - Energy Management AMI
- **Rates Data Transfer:** The utility must send rates data to Oracle Utilities in the correct schema and at the appropriate frequency. See [Oracle Utilities Opower Rates Data Transfer](#) for details.
- **Rates Modeling:** Rates modeling is required during initial program setup, and is not included in the cost of the cloud service. See [Rate Modeling](#) for more information.

## Customer Requirements

- **Billing Frequency:** Customers must be billed on a monthly, bimonthly, or quarterly basis.
- **AMI Data:** Customers must have daily or sub-daily AMI reads.

## Rate Engine Plus

### Utility Requirements

- **Cloud Service Requirement:** In order to purchase the Rate Engine Plus cloud service, utilities must also purchase the following cloud services:
  - Digital Self Service - Energy Management
  - Digital Self Service - Energy Management AMI
  - Rates Engagement
- **Rates Data Transfer:** Rates data must be sent to Oracle Utilities in the correct schema and at the appropriate frequency. See the [Oracle Utilities Opower Rates Data Transfer Standards](#) for details.
- **Rate Validation:** The utility must purchase a one-time fee to cover rate validation and related set up tasks. This process ensures that the Rate Engine Plus has correctly modeled rates for utility customers. To perform this process, Oracle Utilities compares energy cost information calculated by the Rate Engine Plus to customer utility bill amounts.

## Customer Requirements

- **Billing Frequency:** Customers must be billed on a monthly, bimonthly, or quarterly basis.
- **AMI Data:** Customers must have daily or sub-daily AMI reads.



# Digital Self Service - Energy Management Web Portal

The Digital Self Service - Energy Management Web Portal is a flexible web experience that provides utility customers with personalized energy data, insights, and recommendations on how to save energy. The experience is delivered through modular, mobile responsive widgets that are included in a standalone web portal or embedded in the pages of a utility's web site.

## Widgets and Requirements

The Digital Self Service - Energy Management Web Portal includes the widgets listed below. Most widgets and insights are available with billing data, while others require AMI and rates data. For a list of product-wide requirements, see [Requirements and Limitations](#). Additional requirements vary by widget.

**Note:** Utilities must purchase additional cloud services to enable AMI and rates-based features and insights. See [Getting Started](#) for more information.

## Responsive Layout

The layout and design of widgets is responsive so that the functionality can display correctly on mobile as well as desktop displays. This design allows for a single version of a website that automatically adjusts based on the customer's screen size and orientation. Note that the responsive design can cause user experience variations because the components of a widget may be hidden or adjusted. For example, separate navigation options can be combined into a single drop-down list on smaller screen sizes. The Digital Self Service - Energy Management Web Portal supports the use of media queries to implement the responsive design. For example, the responsive layout for a widget is defined using up to four screen size breakpoints.

**Note:** A minimum width of 320 pixels is required for devices to display widgets.

## Embeddable Widgets

An embeddable widget is any widget that can be included directly on an existing web page rather than requiring its own page. An embeddable widget can be included on a webpage in the standalone version of the Digital Self Service - Energy Management Web Portal, or

on a utility-hosted webpage. Utilities can improve the customer experience of their website by directly surfacing data and insights through embeddable widgets.

Most Digital Self Service widgets are embeddable, but not at all are. For a list of which widgets are embeddable, see [Guidelines for Embedding Widgets](#) in the [Oracle Utilities Opower Digital Self Service - Energy Management Embeddable Widgets Integration Guide](#). If a widget is listed under that page, then it is embeddable.

To embed a widget, JavaScript that calls the widget is provided to the utility. The JavaScript can be placed in the HTML of a web page, in the desired location. When a utility receives an updated widget, users automatically receive the latest version of the content when visiting the page that contains the embeddable widget. For more information on embedding widgets, see [Embedding a Widget Using Web Components](#).

Be aware that the width of widgets that are embedded in containers is restricted by the container. This can cause embedded widgets to switch to smaller, responsive layouts at larger, overall screen sizes as compared to widgets that can utilize the full width of the page.

## Account Center

The Account Center allows customers to view and change information about their utility account, their alert preferences, and the communications they receive from the utility.

### Manage Recipients and Preferences

The Manage Recipients and Preferences section allows users to manage recipient and alert preferences. Users can edit the primary recipient's information, add additional recipients to the account, edit recipient details, and select alert preferences for each recipient. Recipients are users who can be selected to receive communications and alerts related to the account. At a minimum, the section displays information for the primary recipient.

### Manage recipients and preferences

Create and edit contact details for recipients of your utility account's communications and alerts.

**Sarah Clark** Primary [Edit contact info](#)

✉ Sarah.V.Clark@gmail.com    📱 (650) 555-3745    🏠 (650) 555-3745

**Message preferences** [Details](#) ▼

**Benny Clark** [Edit contact info](#)

✉ Benny.Clark22@gmail.com    📱 (408) 545-3845    🏠 (408) 545-3845

**Message preferences** [Details](#) ▼

[+ Create new recipient](#)

## Manage Recipients

The details for each recipient are displayed, and can be edited. Recipients other than the primary recipient can also be removed. The primary recipient can not be removed from the account. Additionally, each recipient must have a name and at least one communication type (email or phone number). The communication type determines which communications and alerts a recipient can select to receive. For example, an email address is required in order for a customer to select to receive Email Home Energy Reports. Recipient details include:

- Name
- Email Address
- Phone Numbers for SMS text and voice messages

Be aware that the name that appears on communications is the name on the actual utility account, and not the name that is displayed here. If the primary recipient changes their name here, it will not change the name that appears on the communication.

This is an example of the primary recipient. Notice that you cannot delete this recipient.

**Manage recipients and preferences**  
 Edit contact information for you and other recipients

Edit contact info where your communications will be sent.

**Name**

**Email**

**SMS**  **Voice Message**

[CANCEL](#) [SAVE](#)

This is an example of an additional recipient. Notice that you can delete this recipient.

**Manage recipients and preferences**  
 Edit contact information for you and other recipients

Edit where copies of your communications will be sent.

**Name**

**Email**

**SMS**  **Voice Message**

[DELETE CONTACT](#) [CANCEL](#) [SAVE](#)

### Create New Recipient

Customers can specify other recipients to receive alerts. Basic validation is performed to ensure that the phone numbers and email addresses resemble real values, but these values are not tested or verified. Note that these recipients will receive *copies* of the communications sent to the primary recipient. This means that the communications will contain the name of the primary recipient, not the secondary recipient.

**Create new recipient**  
Add where copies of your communications will be sent.

**Name**

**Email**

**SMS**  **Voice Message**

[CANCEL](#) [SAVE](#)

## Manage Message Preferences

The Message Preferences section is displayed once for each recipient on the account, and provides a list of the available communications and alerts that the recipient can receive. This section of the widget can be expanded or collapsed by clicking Details.

The products and channels that are displayed for each recipient depend on:

- The products and reports that are available from the utility.
- The communication types included for the recipient. For example, do they have both an email and a phone number?
- Whether the recipient is the primary recipient on the account.

Each applicable channel can then be selected or cleared for each recipient of a product. Printed reports can be sent only to the mailing address for the primary account recipient. Additional recipients cannot select printed reports.

**Manage recipients and preferences**  
Create and edit contact details for recipients of your utility's communications and alerts.

**Sonali Dujari** Primary [Edit contact info](#)

foo@gmail.com (202) 555-9876

**Message preferences** [Details](#)

**Weekly Energy Updates**  Email  
Weekly updates on your energy use and ways to save.

**High Bill Alerts**  Email  SMS  
Alerts that let you know if your energy use is higher than usual.

**Peak Pricing Alerts**  Email  SMS  
Notifications about upcoming Energy Savings Days.

**Rate Coach Emails**  Email  SMS  
Weekly emails that help you track your energy use during peak hours.

## Behavioral Load Shaping

This section, which might also be called Rate Coach Emails, controls whether a customer receives Behavioral Load Shaping email communications. Behavioral Load Shaping communications are only available for the email channel. For more information, see the [Oracle Utilities Opower Behavioral Load Shaping Cloud Service Product Overview](#).

## Home Energy Reports

**Mail:** The mail option controls whether the customer receives a printed Home Energy Report. Home Energy Reports are an opt-out program only, so this option is only visible if the utility has determined that the customer is eligible to receive the report. Also note that print reports are only sent to the primary mailing address for the utility account. Additional recipients cannot receive paper HERs.

**Email:** The email option controls whether the customer receives an Email Home Energy Report. This option can be displayed whether or not the customer is already receiving email report. Additional recipients can choose to receive the email if they are eligible, and they provide a valid email address.

For more information about Home Energy Reports, see the [Oracle Utilities Opower Energy Efficiency Cloud Service Product Overview](#).

## Weekly Energy Updates

Weekly energy updates are email notifications compare the energy use for a premise to that of neighbors. For more information on Weekly Energy Updates, see the [Oracle Utilities Opower Proactive Alerts Cloud Service Product Overview](#).

## High Usage Alerts

High usage alerts are digital communications sent through email, SMS, and voice to inform customers when they are expected to receive a higher energy bill.

A personalized alert threshold is available to customers who have High Bill Alerts AMI. For information on the applicable Cloud Service, see the [Oracle Utilities Opower Proactive Alerts Cloud Service Product Overview](#). Depending on the characteristics of a customer's accounts, the customer is provided one of the following options to define an alert threshold:

- **Cost threshold:** The cost threshold allows customers to specify a dollar amount as their personalized threshold. When the cost threshold is set, the customer will only receive a high bill alert when their cost exceeds the cost threshold. All active utility accounts for a customer must have modeled rates and are not defined as budget billing accounts for the customer to define a cost-based threshold.

If a customer does not set their personalized threshold, they will only receive high bill alerts when they exceed the combined usage and cost threshold set by the utility. The recommended combined threshold is 30 percent.

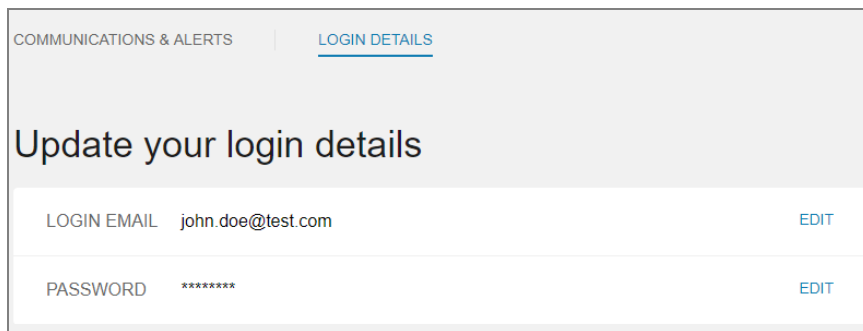
- **Usage threshold:** The usage threshold allows the customer to set a percentage-based personalized threshold. When the usage threshold is set, the customer will only receive an alert when their energy use exceeds that threshold for the same billing period the previous year. The default usage threshold is 30 percent. The usage-based threshold is available to customers who are ineligible to define a cost-based threshold. This applies to customers with at least one active account without modeled rates or defined as a budget billing account.

## Peak Pricing Alerts

Peak pricing alerts are digital communications sent through email, SMS, and voice to inform customers of peak pricing events. Customers can receive either Peak Time Rebate or Behavioral Demand Response communications. For more information on the applicable Cloud Services, see the [Oracle Utilities Opower Behavioral Demand Response Cloud Service Product Overview](#) and the [Oracle Utilities Opower Peak Time Rebates Cloud Service Product Overview](#).

## Login Details

For utilities that do not implement SSO authentication, customers can update their login email address and password.



The screenshot shows a web interface for updating login details. At the top, there are two tabs: 'COMMUNICATIONS & ALERTS' and 'LOGIN DETAILS', with 'LOGIN DETAILS' being the active tab. Below the tabs, the heading 'Update your login details' is displayed. There are two rows of input fields, each with an 'EDIT' link to its right. The first row is for 'LOGIN EMAIL' with the value 'john.doe@test.com'. The second row is for 'PASSWORD' with the value '\*\*\*\*\*'.

## Authentication

Authentication refers to the ways that a customer can access the Digital Self Service - Energy Management Web Portal securely. The two methods available are single sign-on (SSO) and stand-alone account management. Each utility chooses which one of these to implement when launching the Oracle Utilities Opower program. In addition, some CSRs may be able to access a customer's Digital Self Service - Energy Management Web Portal

accounts to help them troubleshoot issues they encounter. The authentication method in place depends on each utility's setup and configuration.

## Single Sign-On (SSO)

SSO allows customers to use the same username and password to access the web portal and any other web applications provided by a utility. All usernames and passwords are created, maintained, and updated on the utility's web site. Oracle Utilities uses Security Assertion Markup Language (SAML) 2.0 to implement SSO with utilities. Moreover, Oracle Utilities supports Identity Provider (IdP) Initiated and Service Provider (SP) Initiated SSO using HTTP POST binding. As part of the SSO implementation process, the utility must provide a SAML Metadata file and a SAML insertion with required information. This allows Oracle Utilities to identify the customer and authenticate the request. See the [Oracle Utilities Opower SSO Configuration Guide](#) for details.

SSO requires that all authentication is handled by the utility's website. After a customer has been authenticated using the utility website sign-in options, the customer has access to all features and pages of the Digital Self Service - Energy Management Web Portal. This can include individually hosted pages as well as content that has been embedded directly within the utility's website.

**Note:** Since SSO credentials are maintained by the utility's web site, customers cannot use the [Account Center](#) in the Digital Self Service - Energy Management Web Portal to change their password.

## Standalone Authentication

Standalone account management requires customers to create a Digital Self Service - Energy Management Web Portal account (including a user name and password) that is separate from any other utility-provided web applications or accounts. When stand-alone account management is implemented, customers can access the web portal by navigating directly to it and creating a new account once they get there.

### Account Creation

The landing page of the Digital Self Service - Energy Management Web Portal provides customers an option to create a new account. New customers are often directed to this landing page through communications such as [Home Energy Reports](#).

**Confirming the Customer's Account:** Customers creating a new account must provide their name and account number exactly as it appears on their Home Energy Report or utility bill. If a customer provides incorrect information, error messages are displayed which help guide the user in how to provide the information accurately.



**Entering an Email and Password:** After a customer provides accurate account information, they must provide an email and password for their new account. Passwords must be at least eight characters in length, and must not be or contain the customer's name or email address. Depending on the utility's setup and configuration, the following additional password requirements may apply:

- Minimum number of digits
- Minimum number of special characters
- Minimum lower case characters
- Minimum upper case characters
- Must be different than previous password

Completing this step sends a confirmation email to the email address the customer supplied, which the customer then uses to verify the email address.

### Account Sign In and Sign Out

Customers who have created their account can use their account email address and password to sign in from the landing page. A standard link is available throughout the Digital Self Service - Energy Management Web Portal for signing out. By default, the session lasts for 30 minutes before timeout, at which point the user is automatically signed out.

### Password Reset

Customers can request a password reset if they have forgotten their current password. To complete this process, a customer first selects the **Forgot password?** option included with the account sign-in options. The customer is prompted to enter their utility account email address, to which a reset password email is sent. The email includes a link that directs the customer to a reset your password page, which prompts the customer to create and confirm their new password.

**Note:** If a customer knows their password and wants to change it, they can use the Account Center rather than using the password reset feature. See [Account Center](#) for more information.

### Bill Comparison

The Bill Comparison allows customers to compare their current bill to their previous bill and to the corresponding bill from the same time period the previous year. A statement indicates whether the customer is spending more, less, or about the same as the compared bill. The feature also highlights factors (such as weather or rate plan changes) that may have contributed to differences between the compared bills.

## Requirements

### Utility Requirements

Category	Description
Required Cloud Service	Same as listed in the <a href="#">product-wide requirements</a> .
Scale	No applicable scale requirements.

### Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	<p><b>Billing Data:</b> Billed usage data from the utility is the minimum data requirement.</p> <p><b>Weather Data:</b> Weather data is required for the <a href="#">weather insight</a> to appear. The customer must have a minimum of nine months of historical AMI usage data with 75% coverage in order to calculate customer-specific rather than utility-wide heating and cooling coefficients.</p> <p><b>Peak Event Data:</b> Peak event data (day and time of the peak event, as well as rebate amounts) is required for the <a href="#">peak energy savings</a> insight to appear. The utility must also purchase the <a href="#">Peak Management: Peak Time Rebates</a> cloud service.</p> <p><b>AMI Data:</b> AMI data is required for AMI-based insights to appear. To use AMI data, utilities must purchase the Digital Self-Service Energy Management AMI cloud service. See <a href="#">Requirements and Limitations</a> for details.</p> <p><b>Rates Data:</b> The <a href="#">Rates Engagement</a> cloud service must be</p>

Category	Description
	purchased and customers' <a href="#">rates must be modeled</a> for rates insights (such as rate plan changes, time-of-use information, and appliance use insights) to appear.
Data History	The customer must have two historical bills to compare energy use between bill periods. Billing data from the previous year's bill period is required for the year-over-year comparison.
Data Coverage	100% coverage of billing data is required for the bill periods being compared. (There can be no null reads for the bill periods being compared.)
Supported Fuels	Electricity, gas, and dual fuel.  Water and Wastewater are also supported when the Bill Comparison is integrated as part of <a href="#">Digital Self Service - Transactions</a> .

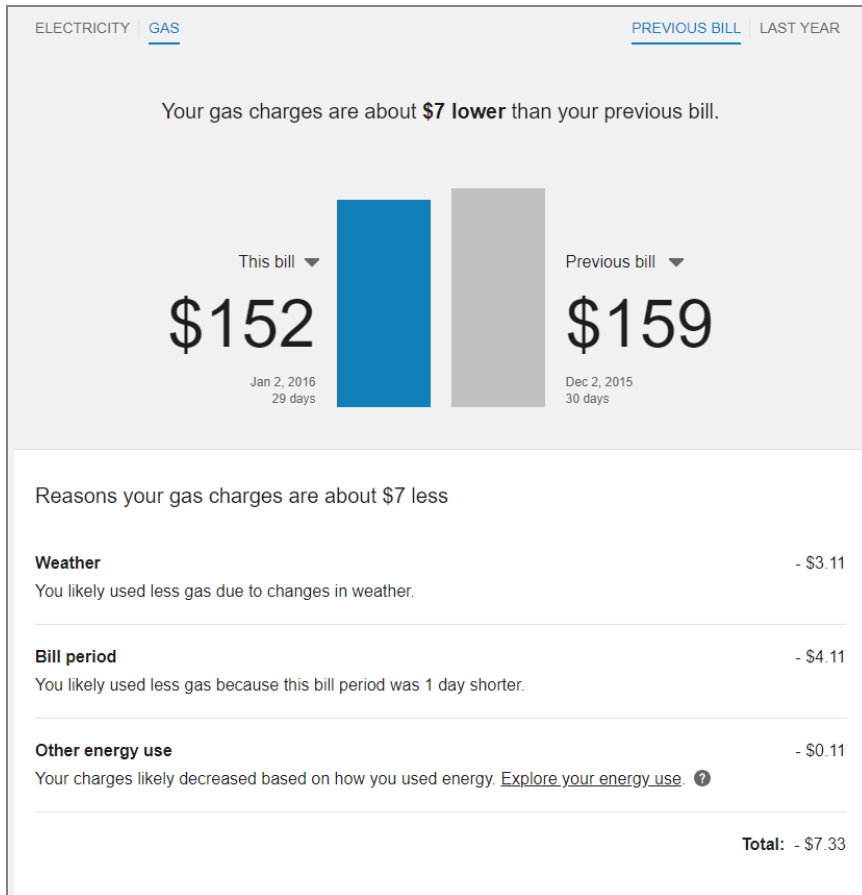
[Back to Top](#)

### Limitations

- **Quarterly Bills:** Utilities that use quarterly bills must send both energy use and cost data for the same billing period. The bill comparison will not work, for example, if monthly usage data and quarterly cost data are sent separately.
- **Estimated Bills:** If one of the compared bills was estimated (that is, if a bill is designated by the utility as "estimated" during the data transfer process), the bill comparison will still show the billed usage amount in the user interface. However, there will be no indicator in the user interface that the bill was estimated.

### User Experience

This section describes the user experience for customers who have a desktop screen, gas and electricity, and rates modeled.



## Fuel or Resource Menu

The fuel menu allows customers to select which fuel or resource to view a bill comparison for. By default, the **Electricity** fuel label and data is shown. An additional gas menu only appears for dual fuel customers.

## Time Menu

The bill comparison can show a comparison between the current bill against the previous bill, or the same bill period from the previous year. A time menu allows customers to select which comparison to use. If data from the previous year is not available, only the previous bill period can be shown. By default, the **Previous Bill** label and comparison is shown.

A bill period from the previous year is defined as the bill period that overlaps the most with the current bill period. Customers can also use the **This Bill** drop-down in the bar chart to select a historical bill to review a previous bill comparison.

## Insight Statement

Above the bar chart is an insight statement that explains whether the customer's bill is lower, higher, or about the same as the bill from the previous bill period, or from the same

bill last year. If data from the previous year is not available, only an analysis against the previous bill period displays. A bill period from the previous year is defined as the bill period that overlaps the most with the current bill period. The messaging varies depending on the results of the comparison.

The cost of the difference is displayed in bold within the insight statement, if applicable. In some cases, there is no significant cost difference, and so none is shown. The dollar figures are rounded to the nearest dollar. For example, \$1.51 would be rounded to \$2, \$1.50 would be rounded to \$2, and \$1.49 would be rounded to \$1.

## Bar Chart

The bar chart presents a visual comparison for customers so that they can see at a glance how their two bills compare. Annotations on the bars in the comparison graph identify the bill date, the number of days, and the cost amount of the compared bills. The bar for the current bill uses the "you" color, which is blue by default. The bar for the previous bill or last year's bill uses a gray color by default.

- **This Bill:** From this menu, customers can select a different historical bill to compare, if the data is available.
- **Previous Bill:** From this menu, customers to choose to view a comparison to the current bill, or to the same bill from the previous year.

## Reasons for Bill Differences

Comparisons for a higher or lower bill can include the most likely reason for the cost difference. Customers can view a list of insights explaining the difference, along with the contribution of each insight to the cost of the bill.

## Bill Length Insight

This refers to differences due to a different number of days in the bill periods being compared. For example, one bill period might be 6/1-6/30/2020, whereas the other might be 6/10-7/9/2019. A bill period that has fewer days in it usually costs less than a bill period with more days. The calculation for determining the cost impact of this difference is as follows:

$(\text{Reference Bill Length} - \text{Compared Bill Length}) / (\text{Compared Bill Length}) * \text{Compared Bill Amount}$

For example, suppose that the reference bill length (this month) is 29 days, and the compared bill length (the bill from last month or the same month last year) is 30 days. Let's also say that in the compared bill period, the customer's bill was \$105. This means the calculation would be:

$$(29-30)/30 * 105 = -3.49999$$

Rounding is then applied to the nearest hundredth decimal point, which in this case would bring the number to -\$3.50. This means the messaging would say that the customer used \$3.50 less in the reference bill period than in the compared bill period.

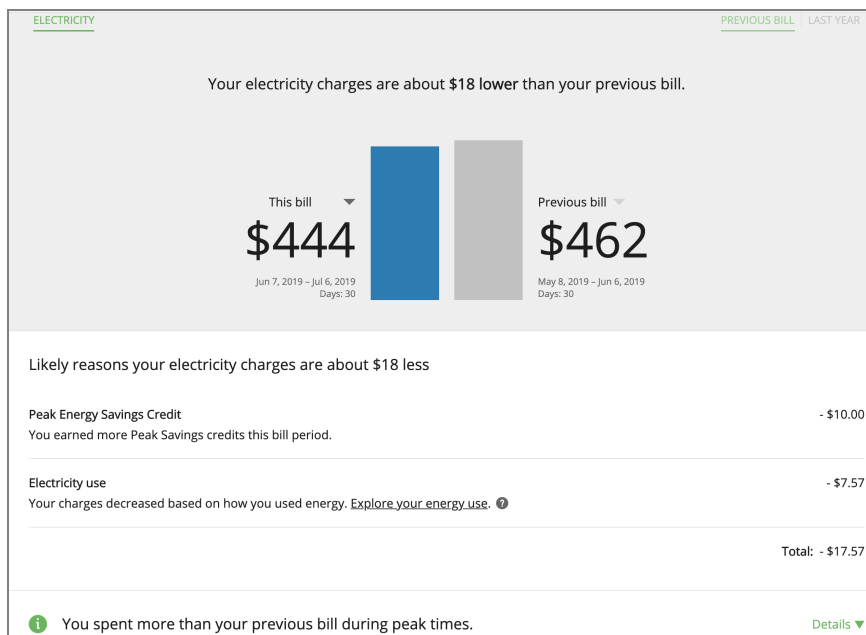
## Weather Insight

If sufficient weather data is available, the bill comparison can show differences due to changes in the weather. This insight only appears if weather data is available for both of the two periods being compared, and there is sufficient data to do weather normalization.

In the standard bill comparison experience, Oracle Utilities calculates the adjusted total usage for the compared bill periods using a weather normalization algorithm. The algorithm is based on Heating Degree Days, Cooling Degree Days, and weather sensitivity coefficients. See [Weather Insight Calculation](#) for details.

## Peak Energy Savings Insight

Rebates received during peak events can be included in the list of cost differences when comparing bills. Peak energy savings credits reduce the total bill and are displayed as a negative credit value. Due to the nature of peak events, it is common that only one of the compared bills includes a peak energy savings credit.



## Rate Plan Insight

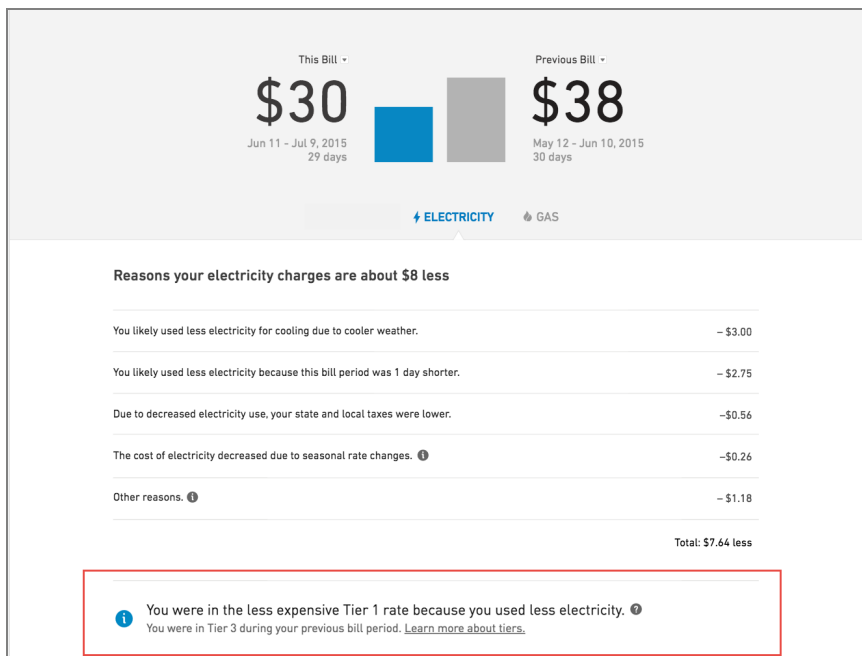
The rate plan insight highlights cost differences in bills due to the customer switching rate plans. This information can only appear if the customer's rate plan is different for the two bills, and both rate plans have been modeled in the [Rate Engine](#). The cost of the reference period's usage on the previous rate plan is calculated and subtracted from the

cost during the reference period on the actual rate plan to determine the difference. Note that differences in prices between bills charged on the same rate plan are not called out separately.

A rate plan in the Oracle Utilities Opower system has two parts: a base plan and one or more components added onto it. For example, a base plan may be an electricity plan for residential customers in a utility's territory, but different versions of that plan could be: (1) electricity residential customers on a community assistance program, and (2) electricity residential customers on a solar plan. The rate plan change insight can be triggered if a customer moves from one of these combinations to another, even though the base plan—electricity residential customer—is the same.

### Rate Tier Insight

For customers on a tiered rate plan, the bill comparison can display cost differences due to being on a cheaper or more expensive rate tier between bill periods. The switch between rate tiers depends on how much energy the customer uses.

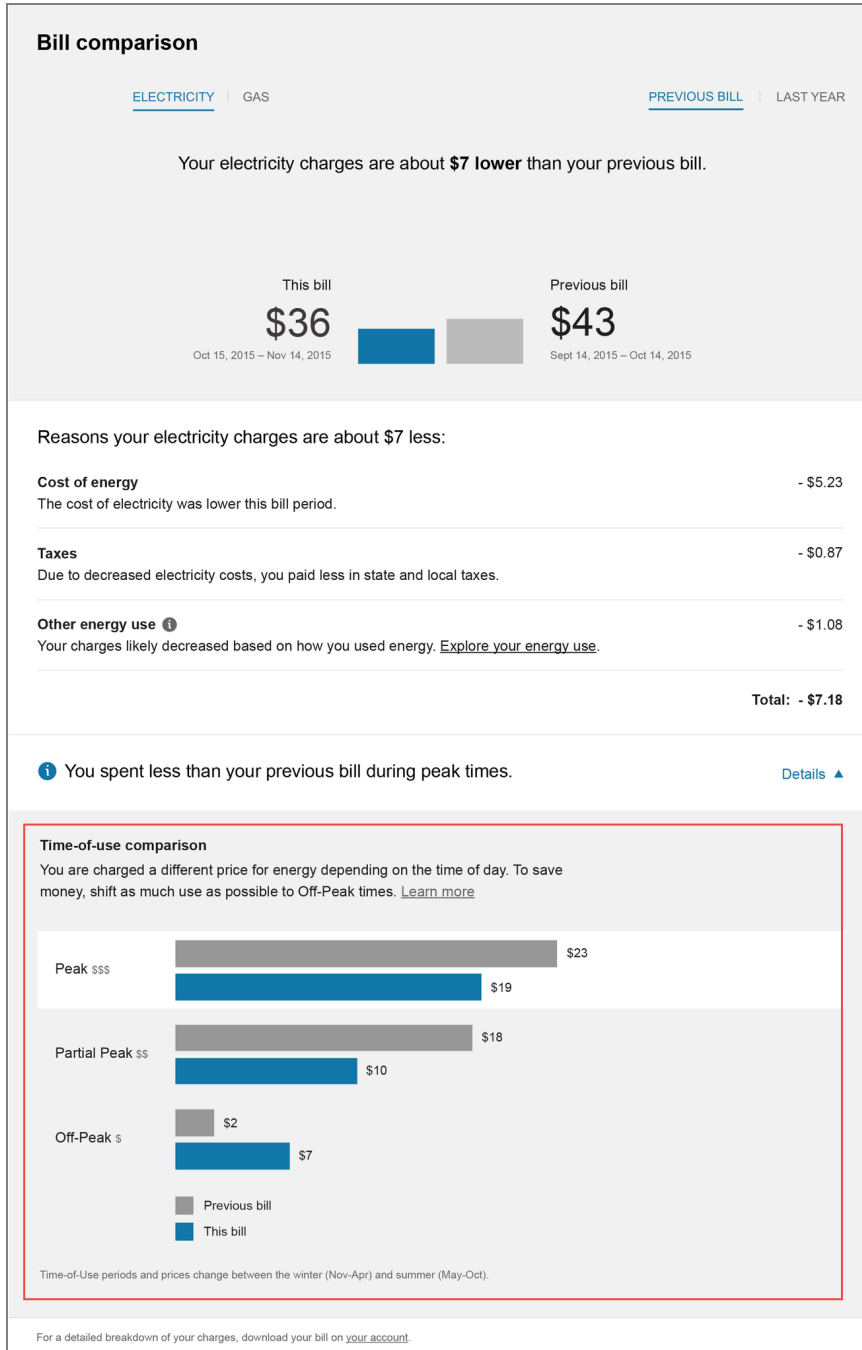


### Requirements:

- Rates must be modeled. See [Rate Modeling](#) for details.
- The rate plan structure must not be substantially different from those which the tool already supports. [Contact your Delivery Team](#) for more information.
- The customer's tier has changed between the bills being compared.

## Time of Use Insight

Information about a customer's energy costs due to time-of-use rates can be displayed below the cost difference information, if a utility applies different rates during different times of day.



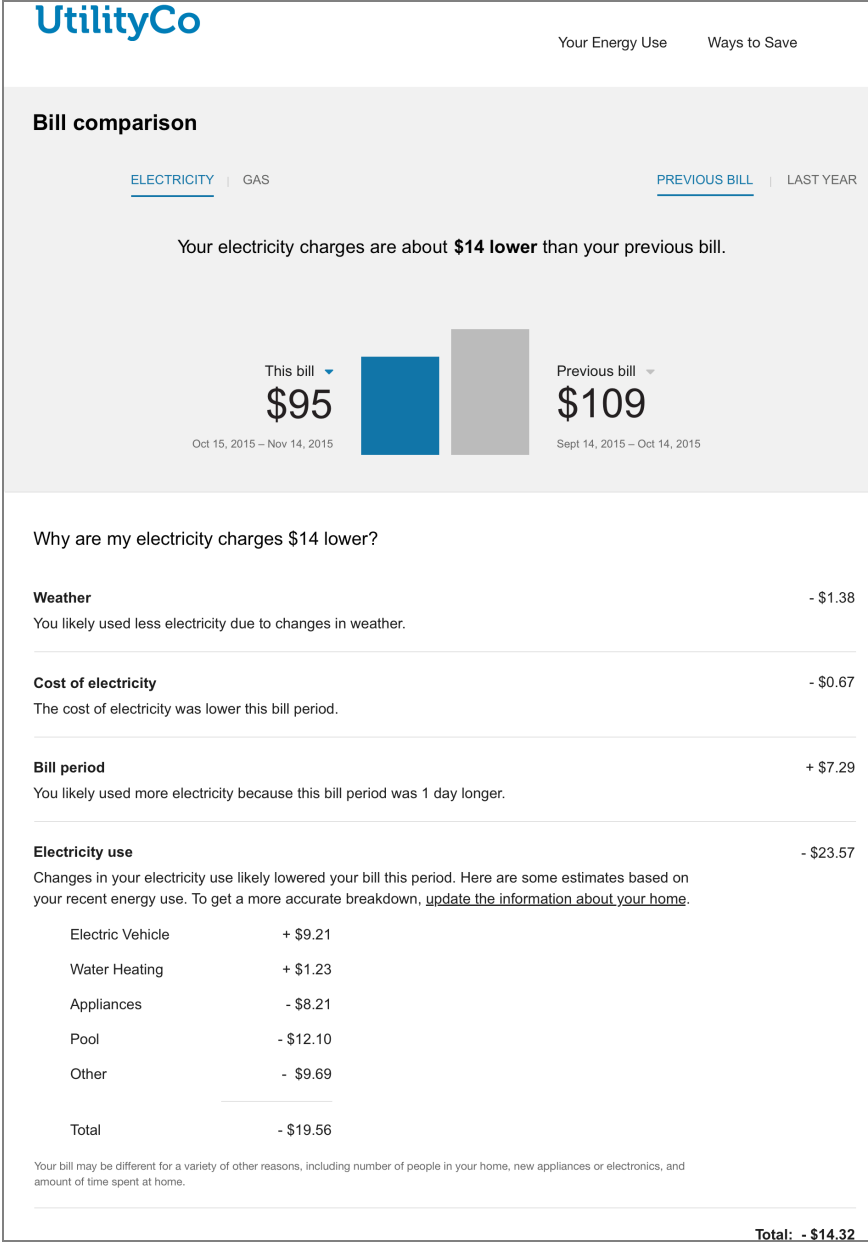
## Requirements:



- Rates must be modeled. See [Rate Modeling](#) for details. For more information and examples about modeling a time of use (TOU) rate plan, see [Rates Data File Specifications - Time of Use Rate Plan](#).
- The rate plan structure must not be substantially different from those which the tool already supports. [Contact your Delivery Team](#) for more information.

### **Appliance Disaggregation Insight**

Appliance Detection and Disaggregation insights can be displayed below the cost difference information. These insights explain how much of the cost difference between bills was due to changes in large appliance use (such as electric vehicle charging, water heating, or HVAC systems). This allows customers to better understand how their behavior affects their utility bill. Customers can increase the accuracy of the cost comparison by completing the [Home Energy Analysis](#).



**Requirements:** Appliance disaggregation insights require more data in addition to the base data requirements. For example, for the year-over-year comparison, 13 months of historical AMI data is required. Other requirements as well as setup and configuration apply. [Contact your Delivery Team](#) for more information.

**Solar Insights**

Differences due to the use of solar technology. While negative bills can be shown in the interface whether or not a customer has solar technology, additional solar insights can be displayed if the utility has purchased the Distributed Energy Resources cloud service. See [Solar Messaging in Bill Comparison](#) for details.

## Critical Peak Pricing Insights

For customers who are part of a critical peak pricing program, information about critical peak pricing charges and credits can be displayed below the cost differences section of the feature. This information may explain to customers how they can save energy on certain critical peak days in order to earn credits on their bills. Additionally it can display a bar chart that summarizes the customer's charges and credits in the current and previous bill periods.

### Requirements:

- Rates must be modeled. See [Rate Modeling](#) for details.
- Peak event data (day and time of peak event, as well as rebate amounts) is required.
- The rate plan structure must not be substantially different from those which the tool already supports. [Contact your Delivery Team](#) for more information.

## Non-Usage Insight

Differences due to changes outside of a customer's normal energy consumption, such as taxes, flat fees, and adjustments. This information allows the Bill Comparison to better match the amounts that customers see in their bills. Displaying this information may require additional setup and configuration. [Contact your Delivery Team](#) if you have any questions.

## Other Factors

Differences due to factors not explained by the above reasons. Such reasons could include being on vacation, buying a new appliance, or having additional people at home. A call-to-action link is included with this insight, directing customers to the interactive [Data Browser](#).

## Customer Feedback Module

A customer feedback module is displayed at the bottom of the Bill Comparison. See "Customer Feedback" on page 81 for more information.

## User Experience Variations

### Locale

This feature can display locale-appropriate language and units of measure. Additionally, this feature may compare [quarterly bills](#) as opposed to monthly or bi-monthly bills, since quarterly bills are more common in non-US locales.

## **Mobile Experience**

The experience of the bill comparison for smaller mobile screen sizes consists of the same components as the desktop experience. However, the layout changes to fit the smaller screen size by stacking the components vertically.



## Bill comparison

Gas



Previous bill



Your gas charges are about  
**\$38 higher** than your previous  
bill.



This bill

**\$90**

Nov 15, 2015



Previous bill

**\$52**

Oct 14, 2015

### Reasons your gas charges are about \$38 higher:

**Weather** + \$32.23

You likely used more gas due to cooler weather.

**Taxes** + \$3.16

Due to increased gas costs, you paid more in state and local taxes.

**Other energy use** ⓘ + \$2.67

Your charges likely decreased based on how you used energy. [Explore your energy use.](#)

**Total: + \$38.06**

## Multiple Accounts

The multiple accounts experience varies depending on whether the feature has been configured for a standalone implementation or an embedded implementation.

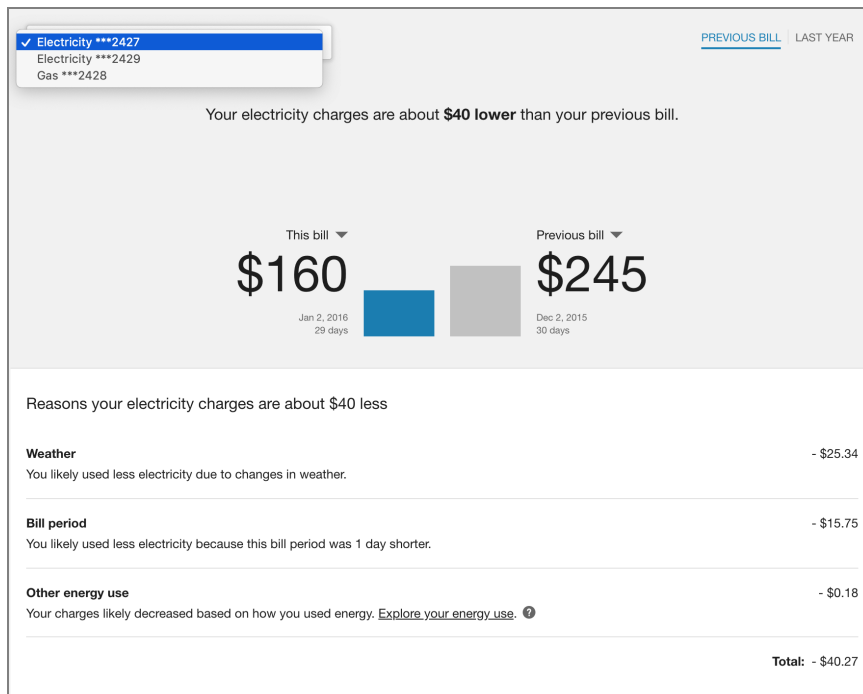
In a standalone implementation, the Bill Comparison shows a drop-down list that allows customers to choose which account to view. This drop-down list replaces the fuel type toggle.

In an embedded widget implementation, the account drop-down is hidden since the utility site is expected to have its own account selection tools. In this case, customers can switch between their accounts by logging into their utility account using single sign-on, and then clicking an account selector hosted on the utility website. All embedded widgets are then reloaded with data for the specified account.

## Multiple Service Agreements

A drop-down menu is displayed if there are multiple service agreements for a billing account. If your customer has multiple service points (that is, multiple meters) for a single service agreement, the drop-down menu will not display.

The example below shows a case where a customer has a single gas service agreement and two electricity service agreements.



## Negative Bill

Customers with a negative bill are shown the negative bill value, along with a message that explains the reason for the negative bill. The bar for the negative value uses a green color. A common cause of a negative bill is a utility applying a credit to the customer's account. Or, customers with solar technology might have produced more electricity than they used.

## Quarterly Reads

If a customer has quarterly reads, the comparison will be between quarterly bills, with each bar representing a three-month period. The labels under the bars will show the start and end dates of the bill period, which will be in separate months. The cost and usage values will likely be higher because of the longer bill period. Furthermore, the feature will take longer to display data for a new quarterly-billed customer, because the feature requires two bill periods (or 6 months of data) before a comparison can be shown.

## Single Fuel

If a customer only has one fuel type (such as electricity but not gas), then the Bill Comparison widget displays the label for the fuel type by default. However, utilities can choose to hide this label during the setup and configuration process.

## Water and Wastewater Customers

When integrated as part of [Digital Self Service - Transactions](#), water and wastewater customers can use the Bill Comparison widget to compare their water or wastewater bills in many of the same ways that customers can compare electricity and gas bills, providing a consistent bill comparison experience.

Insights for water and wastewater customers include a **Days in Bill Period** insight and **Other Water Use** insights. Other insights, such as weather and rate plan insights, are not currently available for water and wastewater services.

## Calculations

### Bill Comparison

The bill comparison calculation compares a customer's energy use and/or cost against the previous bill period, or against the same period from the previous year. At a high level, the calculation involves the following steps:

1. Identify the start and end date of the selected bill.
2. Identify the amount of energy consumed in the billing period, as well as the cost of the bill.

3. Identify the average temperature during the selected bill period (if weather data is available).
4. Check whether there was a change in the customer's rate plan.
5. Retrieve the same information for the compared bill.
6. Compare the information and generate a statement about how the customer is doing, as well as reasons why there may be a difference between the billing periods.

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## Weather Insight

The Bill Comparison feature estimates how much the customer *would* have spent during each compared bill period if weather conditions had been identical. The bill costs are adjusted as a result, and the likely impact of weather is the difference in cost between the two adjusted bills. This difference is then displayed as the [weather insight](#).

**Note:** The weather normalization calculation does not use the Oracle Utilities Opower [Rate Engine](#) to calculate the dollar amount attributed to weather, even if rates are modeled at a given utility. Instead it relies on bill charges and energy usage amounts for both the selected and reference bills.

More specifically, the feature calculates the adjusted total for each compared bill period using a weather normalization algorithm. The weather normalization algorithm is based on the following inputs:

- **Cooling Degree Days (CDD):** A measure of how *warm* a location is over a period of time relative to a base temperature, specifically 65°F. You get CDDs when the average temperature of a day is over 65°F. For example, if the average temperature for a single day is 67°F, then the CDD for that day is 2, since it is two degrees over the base temperature. CDDs are proportional to the amount of cooling energy usage. The more CDDs, the more energy is used to cool a home or building.
- **Heating Degree Days (HDD):** A measure of how *cold* a location is over a period of time relative to the same base temperature, 65°F. For example, if the average temperature for a single day is 55°F, then the HDD for that day is 10, since it is ten degrees under the base temperature. HDDs are proportional to the amount of heating energy usage. The more HDDs, the more energy is used to heat a home or building.
- **Weather Sensitivity Coefficients:** These coefficients are defined on a per-utility, per-fuel-type, and per-dwelling-type (if available) basis. If enough customer data is available, then the Bill Comparison can use *customer*-specific heating and cooling coefficients rather than *utility*-wide coefficients. Customer-specific coefficients result in more accurate and personalized assessments of how much money a customer



spent or saved on their bill due to variations in weather. At minimum, nine months of historical AMI usage data and 75% data coverage are required for customer-specific coefficients. If there is not enough data, the feature will fall back to utility-wide coefficients.

Using these inputs, the weather normalization calculation performs the follow high-level steps:

1. Get the average temperature on each day of the *current* period and each day of the *comparison* period.
2. Derive the average heating degree days (HDD) and cooling degree days (CDD) for each period.
3. Calculate the difference in HDD and CDD between the periods.
4. Use the difference in HDD and CDD, along with utility-specific heating and cooling coefficients, to calculate an "adjustment factor."
5. Multiply the adjustment factor by the amount of energy usage from the bill period in question. The resulting "adjusted" usage data (or "normalized" usage data) can then be displayed to customers.

With weather normalization, the comparison between bill periods is more fair than making an unadjusted comparison, since it accounts for differences in weather conditions. The calculation automatically corrects for differences in bill length.

## Bill or Usage Forecast

The Bill or Usage Forecast shows residential AMI customers their energy use or cost so far in the billing period, projected total energy use or cost for the period, and typical energy use or cost for the period based on their past energy use. The forecast informs customers before the end of the billing cycle if they are likely to have high energy use or cost compared to the same time period the previous year.

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#).

## Customer Requirements

Category	Description
Billing Frequency	Monthly or bimonthly.
Data Delivery Frequency	Utilities must be able to deliver customer data to Oracle Utilities Opower within 48 hours from the time of the last data read.
Data Requirements	<p><b>Billing Data:</b> Billed usage data from the utility is required.</p> <p><b>AMI Data:</b> Daily, hourly, or subhourly AMI data is required. AMI data requires the Digital Self-Service Energy Management AMI cloud service. See <a href="#">Getting Started</a> for details.</p> <p><b>Rates Data:</b> The <a href="#">Rates Engagement</a> cloud service must be purchased and customers' <a href="#">rates must be modeled</a> for cost information to display. Otherwise, usage information will be displayed.</p>
Data History	<p>The customer must have at least one historical bill in order for the forecast to be calculated. A year's worth of billing history is required to show the customer how their forecast compares to their typical usage from the same time last year.</p> <p>If the customer does not have a year's worth of billing history, they are still shown their current and projected usage or costs.</p>
Data Coverage	<p>The customer must have AMI data going back to the beginning of the current billing cycle. By default, at least 75% of the possible reads for the current billing cycle are required to calculate a usage forecast.</p> <p>For cost forecasts, at least 95% of AMI usage reads must have rates modeled in order to ensure an accurate forecast.</p>
Supported Fuels	Electricity and gas. Water and wastewater are also supported when Bill Forecast is integrated as part of <a href="#">Digital Self Service - Transactions</a> .

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## Limitations

**Rate Plan Switch:** If a customer switches rate plans from a modeled to an un-modeled rate in the middle of the bill period, there may be a brief span of time during which the cost forecast will be inaccurate.

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## User Experience

The user experience described in this section is for customers who have a desktop screen, gas and electricity, and rates modeled.

**Fuel Drop-Down Menu:** The fuel drop-down list allows customers to select which fuel to view a forecast for. By default, the Electricity fuel label is shown. Gas is the second label. A fuel drop-down only appears for dual fuel customers and is hidden for single fuel customers.

**Bill Forecast** Electricity ▼

✓ **Your projected bill is \$122.**  
DEC 1 – DEC 31


That's about **the same** as last year. You've spent **about \$6** so far this bill period.

[HELP LOWER MY BILL](#)

---

Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.

---

Was this information helpful?  

**Forecast Amount:** The forecast amount is a projection of how much the customer's bill could be if they continue their current energy-spending behavior through the end of the billing period. The forecast is an estimate, not an exact amount, and is based on the estimated length of the bill. It is rounded to the nearest \$5 to reinforce the fact that it is an estimate. Depending on your setup and configuration, the forecast may show a cost range instead of a specific cost.

**Normative Icon:** The normative icon provides a visual indication of how well the customer is doing and shows whether or not their cost or energy use is unusual compared to their typical cost or energy use.

A threshold controls which icon displays. By default, the threshold that causes the high alert icon to display is when a customer's energy use or cost increases by more than 30% above their baseline. *Baseline* in this case refers to the customer's usage or cost from the same bill period last year. The threshold may vary for each utility depending on what is configured during the setup and launch process.

Condition	Normative Icon
Customer is using less than or equal to 30% above their baseline	Check mark
Customer is using more than 30% above their baseline	Exclamation point
Customer will see a forecast calculated in <i>n</i> days	Information icon
Customer does not have a baseline or estimated bill period	Information icon

See [Cost Forecast Variations](#) below for visual examples of how the normative icon and other components of the forecast display in different scenarios.

**Billing Period Date Range:** The billing period shows the start and end date that the forecast covers. It comes from the average bill period length that is estimated based on a customer's AMI data and bill period end date.

This component may be hidden if there is not enough AMI data to estimate the average length of a customer's billing periods. For example, there may be two days of AMI data for the customer, but not enough historical AMI data to know how long their average bill period is throughout the year.

**Comparison Message:** The comparison message explains how much the customer is on track to spend compared to the same bill period from the previous year. The message varies slightly depending on the customer's performance and the data that is available.

**Spent So Far:** A message explains the cost for energy already used in the current billing period, which is the basis for the projection.

**Help Lower My Bill:** This link directs customers to energy efficiency tips designed to help them save money and energy. See [Ways to Save](#) for more information.

**Disclaimer about Estimated Bill:** The widget includes a brief disclaimer about how the forecast is estimated and can vary from a customer's final bill amount.

**Customer Feedback:** A customer feedback module is displayed at the bottom of the forecast. Customers can give feedback to help lead to feature improvements. See [Customer Feedback](#) for more information.

## User Experience Variations

### Budget Billing Experience

Budget billing is a type of billing in which the customer pays a set amount of money each bill period for their energy use. This amount may be adjusted each year depending on factors such as inflation and the customer's overall energy use patterns.

For budget billing customers, the Bill Forecast includes an additional message encouraging them to lower their usage since their future budget billing amount may increase if they use more than usual.

**Bill Forecast** Electricity

✓ Your projected usage is **432 kWh**  
NOV 30 - DEC 30

That's about **23% less** than last year. Your budget billing amount may increase in the future if you use more energy than usual.

[HELP LOWER MY BILL](#)

Your projected use is an estimate. Your actual energy use may vary.

Was this information helpful?

### Combined Fuel Bill Forecast

The Bill Forecast for dual fuel customers can show a forecast for combined gas and electric costs. In this case, the forecast displays a drop-down menu which includes a bill forecast of a customer's total gas and electricity costs. This is meant to match how dual fuel customers often think of their utility bill as one entity, as opposed to separate gas and electricity charges.

**Bill forecast** Total bill ▼

✓ Your projection bill is **\$33**

DEC 1 - DEC 31



That's about **the same** as last year. You've spent **about \$33** so far this bill period.

[HELP LOWER MY BILL](#)

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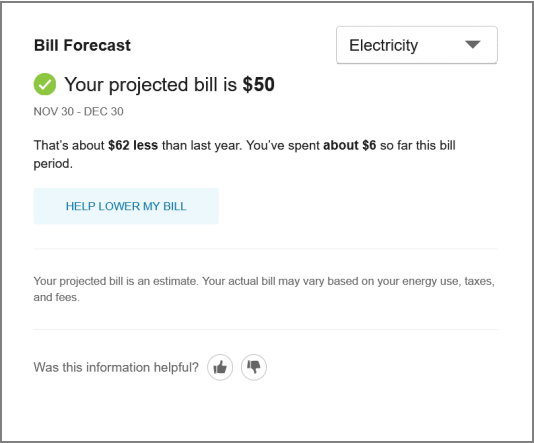


Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.

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Was this information helpful?  

**Cost Forecast Variations**

The table below describes user experience variations of the Bill Forecast for customers who are dual fuel (gas and electricity) and have rates modeled. *Baseline* in this case refers to the customer's cost from the same bill period last year.

Variation	Screenshot
<p><b>Low Cost Forecast</b></p> <p>The customer has a cost baseline and an estimated bill period date range, and is using <i>less than</i> their baseline.</p>	 <p><b>Bill Forecast</b> <span>Electricity ▼</span></p> <p>✓ Your projected bill is <b>\$50</b></p> <p>NOV 30 - DEC 30</p> <p>That's about <b>\$62 less</b> than last year. You've spent <b>about \$6</b> so far this bill period.</p> <p><a href="#">HELP LOWER MY BILL</a></p> <hr/> <p>Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.</p> <hr/> <p>Was this information helpful?  </p>

## Variation

## Screenshot

### High Cost Forecast

Customer has a baseline cost and estimated bill period date range, and is using *more than 30% above* their baseline.

**Bill forecast** Electricity ▾

! Your projection bill is **\$93**

MAR 3 - APR 1

That's about **\$34 more** than last year. You've spent **about \$50** so far this bill period.

[HELP LOWER MY BILL](#)

Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.

Was this information helpful?

### Similar Cost Forecast

Customer has a baseline cost and estimated bill period date range, and is using *0 - 30% above* their baseline. This means that the customer is projected to use about the same as their baseline cost.

**Bill Forecast** Electricity ▾

✓ Your projected bill is **\$122.**

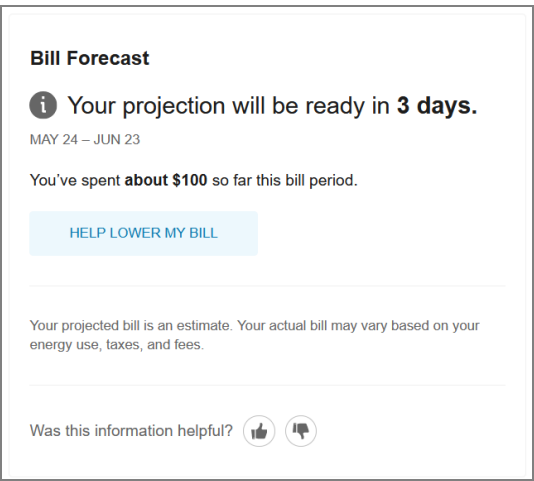
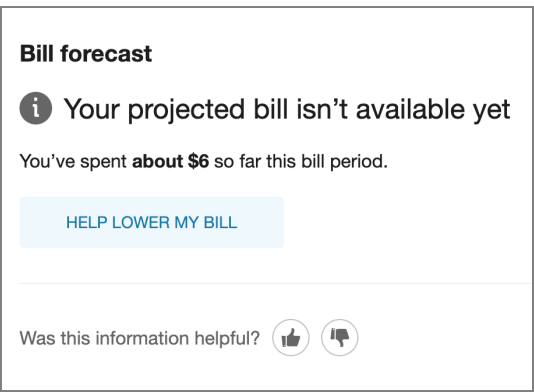
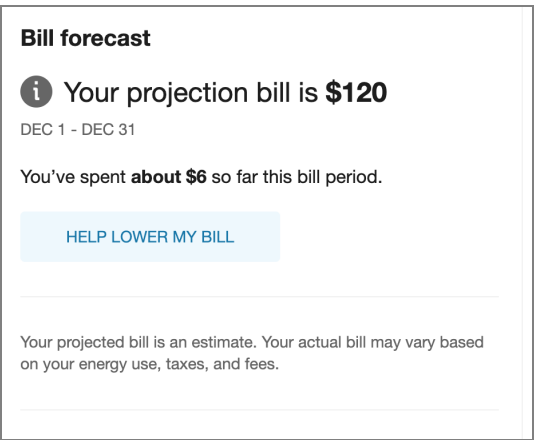
DEC 1 - DEC 31

That's about **the same** as last year. You've spent **about \$6** so far this bill period.

[HELP LOWER MY BILL](#)

Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.

Was this information helpful?

Variation	Screenshot
<p><b>Days Until Forecast Ready and Cost to Date</b></p> <p>Customer sees a message that their cost forecast will be available soon and is shown their cost-to-date in the meantime. A forecast is not shown in this case because seven days in the bill period have not yet passed. This is done to avoid a forecast based on too little data.</p>	
<p><b>Cost to Date</b></p> <p>Customer does not have a baseline or an estimated bill period length. A cost to date is shown because some AMI data is available for the customer. However, there is not enough data to determine the average length of the customer's bill period and calculate a forecast.</p>	
<p><b>Cost Forecast But No Baseline</b></p> <p>Customer does not have a baseline. However, the customer has an estimated bill period date range and enough AMI data for a cost forecast to be calculated, as well as the customer's cost to date.</p>	

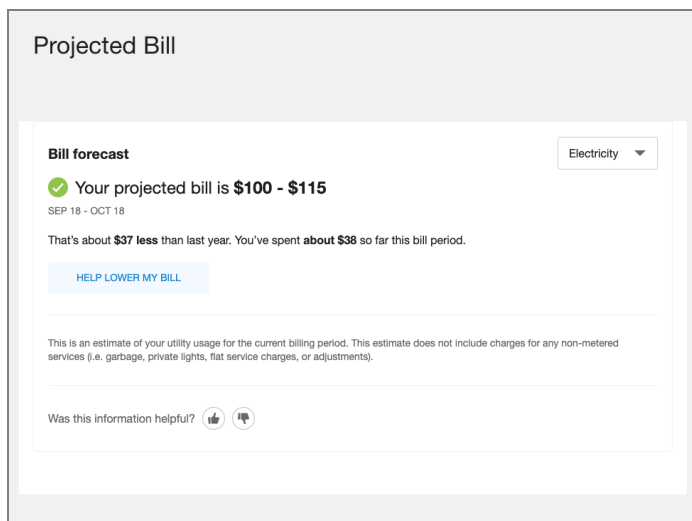


Variation	Screenshot
<p><b>Error State</b></p> <p>Customer is eligible for a forecast but there is a problem with retrieving the data for it.</p> <p>It is possible for a user to see forecast for one fuel type but an error state for another. If not enough data can be retrieved for either fuel type, the same error message is shown in both views. If data is available for only one view, the widget defaults to that view and shows the error message if the customer switches to the other fuel.</p>	<p>An error message is shown stating that the forecast information is not available.</p>

### Cost Forecast Displayed as a Range

Utilities can display a numeric range rather than a single value for the forecast. For example, if a customer's projected bill is \$100, and the cost range is configured to be 15%, then the range would display as \$100-\$115.

**Note:** A range can only be displayed for cost forecasts. A range cannot be enabled for usage forecasts.



## Forecast Lower Than Cost to Date

There may be a case where a customer's cost forecast is rounded down to the nearest five and becomes less than the customer's cost to date as a result.

For example, imagine it is late in the billing period and the customer's cost to date is \$41. If the widget calculates a cost forecast of \$42, then it would round this number down to \$40. However, this would be a confusing user experience, since the forecast would say \$40, whereas the cost to date would say \$41. Therefore, for these situations, the widget contains logic to keep the original \$42 forecast, instead of rounding down to the nearest five. This is the only case in which the widget will round to the nearest whole number instead of the nearest five.

## Mobile Experience

The Bill Forecast is designed to adapt smoothly to both mobile and desktop screen sizes. When the screen size changes, the layout of the feature changes dynamically to reduce the size of the elements and keep them stacked vertically.

## Multiple Accounts

The multiple accounts experience varies depending on whether the feature has been configured for a standalone implementation or an embedded implementation.

In a standalone implementation, the Bill Forecast shows a drop-down list that allows customers to choose which account to view.

In an embedded widget implementation, the account drop-down is hidden since the utility site is expected to have its own account selection tools. In this case, customers can switch between their accounts by logging into their utility account using single sign-on, and then clicking an account selector hosted on the utility website. All embedded widgets are then reloaded with data for the specified account.

For more information about embedding widgets, see the [Oracle Utilities Opower Digital Self Service - Energy Management Embeddable Widgets Integration Guide](#).

## Multiple Service Agreements

A drop-down menu is displayed if there are multiple service agreements for a billing account. If your customer has multiple service points (that is, multiple meters) for a single service agreement, the drop-down menu will not display.

The example below shows a case where a customer has a single gas service agreement and two electricity service agreements.

## Bill forecast

✓ Your projection bill

DEC 1 - DEC 31

That's about **\$32 less** than last year. You've spent **about \$6** so far this bill period.

[HELP LOWER MY BILL](#)

▶ [More details](#)

Your projected bill is an estimate. Your actual bill may vary based on your energy use, taxes, and fees.

Was this information helpful?  

✓ Electricity \*\*\*2427  
Electricity \*\*\*2428  
Gas \*\*\*2425

## Solar Customers

Customers with negative usage or bill forecasts will see negative numbers in the feature, regardless of whether the Oracle Utilities Opower [Distributed Energy Resources cloud service](#) has been purchased. However, if a utility has purchased the Distributed Energy Resources cloud service, then additional solar insights are displayed. For information about the solar customer experience, see [Solar Messaging in Bill Forecast](#) in the *Distributed Energy Resources Cloud Service Overview*.

## Usage Forecast

If rates are not modeled for the customer, then an energy use forecast is shown instead. The variations of the energy use forecast are identical to those of the [cost forecast variations](#). The energy use forecast is shown in a kilowatt-hour (kWh) value. To provide context, the comparison message includes the percentage that this value represents.

### Bill Forecast

Electricity ▼

✓ Your projected usage is **432 kWh**

NOV 30 - DEC 30

That's about **23% less** than last year. You've used **about 5 kWh** so far this bill period.

[HELP LOWER MY BILL](#)

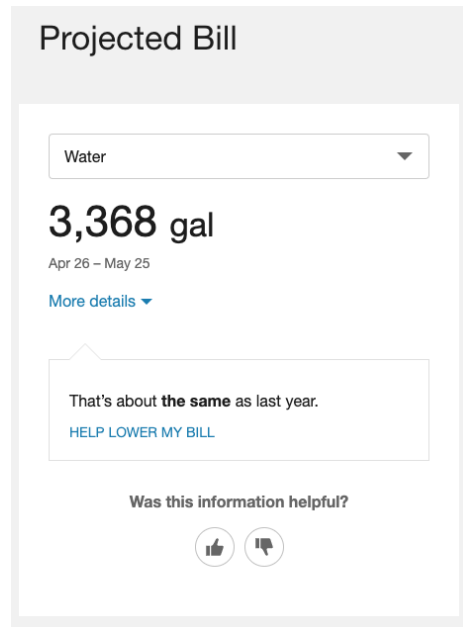
Your projected use is an estimate. Your actual energy use may vary.

Was this information helpful?  

## Water and Wastewater Experience

**Note:** This experience is only available when the Bill Forecast is integrated as part of [Digital Self Service - Transactions](#).

In this experience, customers can see a forecast of their water and wastewater service. The options to view water and wastewater are included for selection in a drop-down menu. If rates are not modeled, customers are presented with a usage forecast, as shown in the example image below.



Projected Bill

Water ▼

**3,368 gal**



Apr 26 - May 25

[More details ▼](#)

That's about **the same** as last year.

[HELP LOWER MY BILL](#)

Was this information helpful?

## Calculations

### Bill Forecast

At a high level, the Bill Forecast calculation involves the following steps:

1. Calculate the baseline cost and energy values using the customer's bills from the previous year.
2. Estimate the customer's billing period end date.
3. Calculate how much energy the customer has used to date.
4. Take the customer's energy use and project it forward to the estimated billing period end date.
5. Convert the resulting energy use values to cost values, based on the customer's rate plan. The output is an actual cost value (to date) and a projected cost value (going forward). Note that the projected cost can also be [displayed as a range](#), depending on the configuration.

## Bill Guide

The Bill Guide is a unified dashboard of billing insights that helps customers better understand their most recent bill and upcoming bill. It includes a Most Recent Bill section, which displays a bill breakdown, weather insight, neighbor comparison, top end-use categories, and an energy efficiency tip. It also includes an Upcoming Bill section, which displays a forecast, an energy efficiency tip, and an insight about the weather in the bill period so far, as well as an insight about the remainder of the bill period.

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#). Additionally, utilities that plan to use Bill Guide for embedded implementations (as opposed to standalone implementations) must be on the latest technical framework available from Oracle Utilities Opower. See [Bill Guide](#) in the *Oracle Utilities Opower Embeddable Widgets Integration Guide* for embedding guidance.

### Customer Requirements

Billing data is required for most Bill Guide features. Other data requirements apply depending on the feature and whether the [new or legacy data transfer](#) specification is used. See the links to individual feature descriptions under [User Experience](#) below for more information.

## Limitations

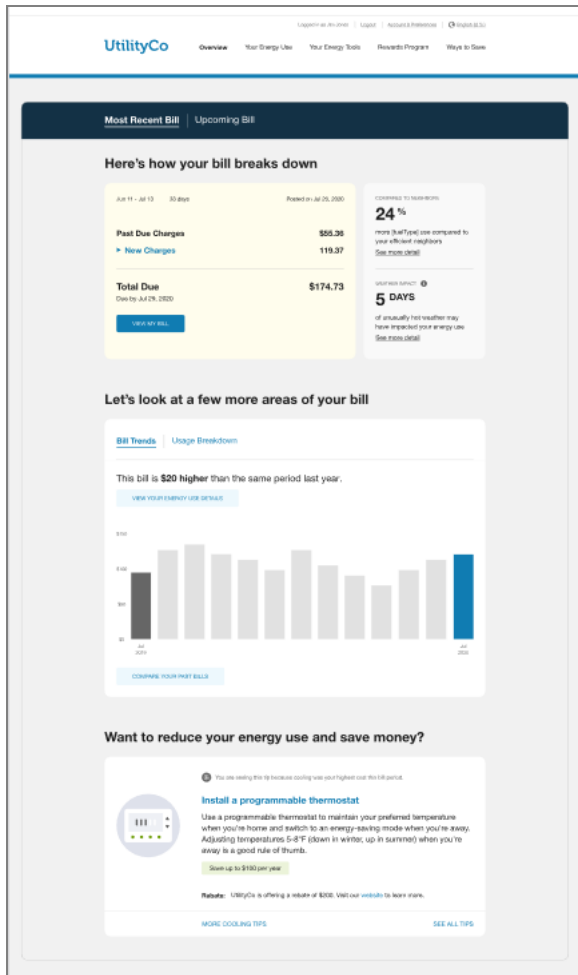
- **US English Only:** The Bill Guide is currently available in US English only.
- **Non-Supported Billing Frequencies:** The Bill Guide only supports customers on monthly bills. Bimonthly and quarterly bills are not currently supported.
- **Non-Supported Customer Types:** The following customer types are not currently supported:
  - Budget billing customers
  - Non-AMI customers
  - Small and Medium Business (SMB) / Commercial and Industrial (C&I) customers
  - Solar customers
  - Water and wastewater customers

## User Experience

The user experience is organized into two major tabs—Most Recent Bill and Upcoming Bill—each of which contains different types of data and insights. The level of detail displayed in each tab depends on a variety of factors, such as the customer's available data and whether [rates have been modeled](#) for the utility.

### Most Recent Bill

The **Most Recent Bill** section presents information and insights about the last bill a customer received.



**Bill Breakdown:** A detailed look at the components of the customer's most recent energy bill, including the date range, specific charges, total amount due, and a link to a copy of the bill.

**Neighbor Comparison:** A brief insight showing how a customer's energy use from their most recent bill compares to that of their neighbors.

**Weather Insight:** A display of the number of extreme weather days that occurred in the most recent bill period.

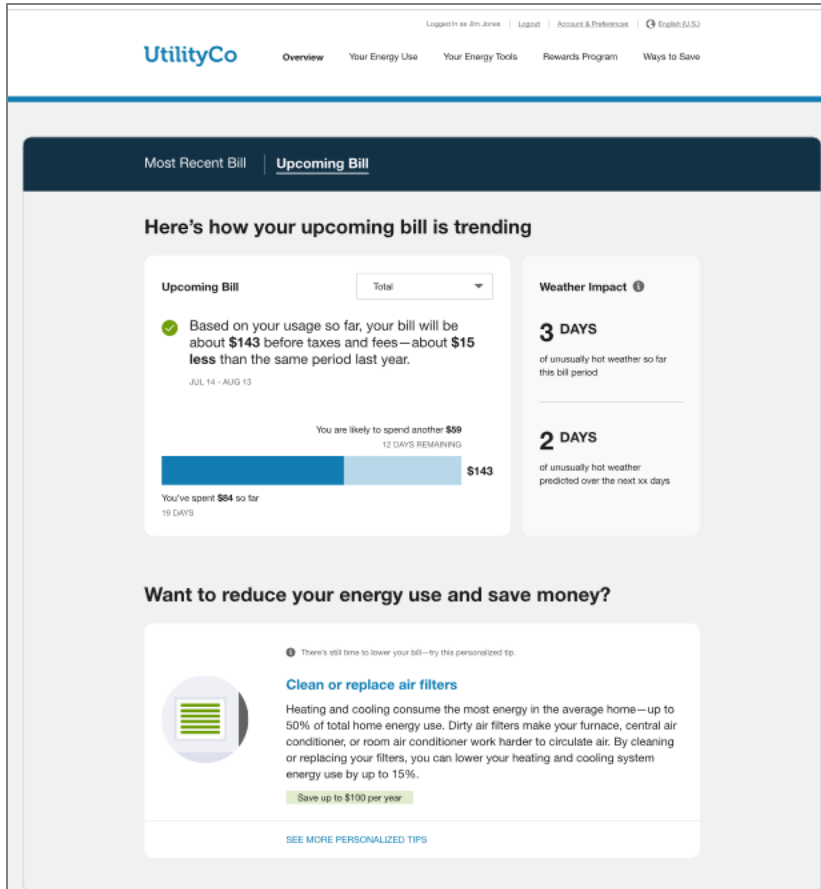
**Bill Trends:** An overview of a customer's bills over time.

**Usage Breakdown:** A more granular view into the categories where a customer spent the most energy.

**Top End-Use Tip:** An energy efficiency tip based on the customer's highest end-use category from the most recent bill period.

## Upcoming Bill

The **Upcoming Bill** section presents insights about the next bill customers will receive so they can take preventive action.



**Upcoming Bill:** A summary of the customer's current usage or cost, their projected usage or cost, and how that compares to their typical usage or cost.

**Upcoming Bill Tip:** An energy efficiency tip to help customers take action before the current bill period is over.

**Weather Insight:** A display of how many unusually hot or cold days have already occurred in the customer's bill period, and a forecast of how many more extreme weather days may occur.

## User Experience Variations

The Bill Guide user experience varies based on multiple factors such as the customer's available data, which Oracle Utilities Opower [data transfer specifications](#) the utility is using, and whether rates [have been modeled](#). Two feature-wide user experience variations are summarized below. See individual widget descriptions for more information about how the user experience can change.



## New Versus Legacy Data Transfer

Several features in the Bill Guide show variations in the user experience depending on whether the latest [billing data transfer](#) specification or [legacy billing data transfer](#) specification is in use. The latest billing data transfer specification can support more data and features than the legacy data transfer specification. These variations are described in more detail in the individual widget descriptions, such as the [Bill Breakdown](#). [Contact your Delivery Team](#) if you have questions.

## Multiple Premises

If there are multiple addresses or premises associated with a customer's web account, a selector appears in the title bar of the Bill Guide. This selector can appear when either the **Most Recent Bill** and **Upcoming Bill** tab is selected. The selector is hidden if there is only one address associated with the account.

## Bill Guide Bill Breakdown

The Bill Breakdown presents a detailed view of a customer's most recent energy bill, including the date range, specific charges, and total amount due. This information is meant to educate customers about their bill, reduce calls to the utility support center, and motivate customers to take preventive steps to lower their energy use before their next bill. The user experience varies slightly depending on which data transfer specification the utility uses.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

### Customer Requirements

Category	Description
Billing Frequency	Monthly.
Data Delivery Frequency	Monthly.
Data	<b>Billing Data:</b> Billed usage data from the utility is the minimum

Category	Description
Requirements	<p>data requirement. Utilities can use one of two billing data specifications to transfer data to Oracle Utilities Opower:</p> <ul style="list-style-type: none"> <li>▪ <a href="#">Legacy Billing Data Transfer</a>: In this case, utilities must send data in the <code>usage_charge</code> field described in the <a href="#">Usage Fields</a> specification. (Normally, this is an optional field.) Fields such as non-usage charges cannot be displayed.</li> <li>▪ <a href="#">Billing Data Transfer</a> (preferred): Utilities that use this specification can display the following additional information: Posted on date, past due charge, non-usage charges (such as taxes and fees), total due, and due date.</li> </ul> <p><b>Rate Plan Names:</b> <a href="#">Rates modeling</a> through the <a href="#">Rates Engagement</a> cloud service is required to display rate plan names.</p>
Data History	The customer must have at least one historical bill.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

**Limitations**

The feature supports bill amounts that were estimated. However, there will be no indicator in the interface that the bill was estimated.

**User Experience**

This section describes the user experience for customers who are dual fuel, whose rates are modeled, and who are using the latest [Billing Data Transfer](#) specification in order to display non-usage charges. The breakdown shows past due charges on one line, and shows new charges by fuel type.

**Here's a summary of your charges**

Jun 11 - Jul 13    33 days    Posted on Jul 20, 2020

**COMPARED TO NEIGHBORS**  
**24%**  
 more [fuelType] use compared to your efficient neighbors  
[See more detail](#)

**WEATHER IMPACT ⓘ**  
**5 DAYS**  
 of unusually hot weather may have impacted your energy use  
[See more detail](#)

**▼ New Charges on This Bill**    **\$119.37**

**New Electricity Charges**    **\$75.32**  
 You are on a Tiered (E-1) Electricity Rate Plan  
[Learn more about rate plan options](#)

Usage Charges    \$61.76  
 All Other Charges    \$13.56

**New Gas Charges**    **\$44.05**  
 You are on a Tiered (G-1) Gas Rate Plan  
[Learn more about rate plan options](#)

Usage Charges    \$37.23  
 All Other Charges    \$6.82

For a detailed breakdown of taxes, fees, credits and late payment charges, view your bill.

**Rolled Over from Previous Bill**    **\$55.36**

**Total Charges**    **\$174.73**

[VIEW MY BILL](#)

For up-to-date payment status, view your [account dashboard](#)

**Title:** A title appears above the widget telling customers that the following information presents a detailed picture of their bill or usage.

**Date Range:** A date range for the bill period is displayed at the top of the breakdown so that customers have a time-based reference. The number of days in the bill period is also shown to give a more specific reference, and to help indicate why the bill might be lower or higher than their previous bill.

**Posted On:** This refers to the date on which the customer's bill was generated and posted to their account.

**New Charges:** This section displays money owed for energy use during the most recent bill period. For dual fuel customers, new charges for electricity and gas are displayed on separate lines. Within each new charges section, the following details are available:

- **Usage Charges:** Charges for energy consumed during the most recent bill period.
- **All Other Charges:** Charges that are not related to usage, such as taxes and fees.
- **Rate Plan Names:** If the customer's rates are modeled and rate plan information is available, each new charge summary displays the name of the rate plan that the

customer is on. This is followed by a link to the [Rate Comparison](#) where customers can learn more about available rate plans that they can switch to.

- **View Bill Statement:** A statement appears at the bottom of the new charges section to encourage customers to view their bill for a more detailed breakdown of taxes, fees, credits, and other charges.

**Rolled Over Charges:** This section displays outstanding amounts not paid on the account. Rolled over charges may include any fees or penalties the customer incurred, or remaining or unpaid bill amounts. If the rolled over charge is zero, then zero is shown in the interface.

**Total Due:** This amount refers to the customer's current balance. It is a sum of past due charges (if applicable) and new charges. It includes the date on which payment is due.

**View My Bill:** This is a configurable link to take users to a utility-hosted system for presenting billing information. It requires discussion between the utility and the Oracle Utilities Opower Delivery Team to configure.

## User Experience Variations

### Legacy Billing Data

If the utility is using the [Legacy Billing Data Transfer](#) specification, then menus for **Electricity Usage Charges** and **Gas Usage Charges** from the most recent bill period are shown. These sections are followed by a New Usage Charges section, which displays a total of the gas and usage charges, as well as a disclaimer about how taxes and fees are excluded. The breakdown does not include the following information: Posted On, Past Due Charges, All Other Charges, Total Due, and Due Date.


Jun 11 - Jul 13 33 days

▶ Electricity Usage Charges	\$50.00
▼ Gas Usage Charges	\$69.37

You are on a Tiered (G-1) Gas Rate Plan  
[Learn more about rate plan options](#)

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**New Usage Charges** **\$119.37**

 Usage charges do not include additional taxes, fees, non-usage charges, or true-up adjustments. Please review your bill for total amounts due.

[VIEW MY BILL](#)

### Multiple Service Agreements

If a customer has multiple service agreements for a fuel type, the breakdown shows additional information about each service agreement. A statement is displayed to show the customer how many service agreements they have. When the **See more** option is expanded for each charge, customers will see each service agreement listed. This state is available for single and dual fuel customers.

Jun 11 - Jul 13      33 days


**Electricity Usage Charges** **\$97.32**  
 You have 2 electricity service agreements  
[▼ See more](#)

**Electricity Usage Charges \*\*\*2334** **\$49.37**  
 You are on a Tiered (E-1) Electric Rate Plan  
[Learn more about rate plan options](#)

**Electricity Usage Charges \*\*\*2335** **\$47.95**  
 You are on a Tiered (E-1) Electric Rate Plan  
[Learn more about rate plan options](#)

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**New Usage Charges** **\$97.32**

 *Usage charges do not include additional taxes, fees, non-usage charges, or true-up adjustments. Please review your bill for total amounts due.*

[VIEW MY BILL](#)

The details displayed for each agreement vary slightly depending on whether the utility is on the latest Billing Data Transfer specification or the Legacy Billing Data Transfer specification. For example, if the utility is using the legacy specification, then the charges shown for each service agreement will not include taxes and fees. If the utility is using the latest specification, then customers will see a breakdown of usage charges and other all other charges.

### Rates Not Modeled

If the customer's rates are not modeled, then the name of the customer's rate plan will not be displayed, and there is no link to learn more about rate plans.

### Single Fuel

If the customer is single fuel, then the following differences apply depending on which data model is in use:

- If the utility is on the latest [Billing Data Transfer](#) specification, there will be one subsection under **New Charges** for the customer's single fuel type.

- If the utility is on the [Legacy Billing Data Transfer](#) specification, there will only be one **[Fuel Type] Usage Charges** section.

## Bill Guide Neighbor Comparison

The Neighbor Comparison in the Bill Guide is an abbreviated version of the standard [Neighbor Comparison](#). It is designed to motivate customers to save energy based on how they see themselves in relation to their neighbors. Rather than show a bar chart, the Bill Guide Neighbor Comparison displays a percentage, a short evaluative statement, and a link to the more detailed neighbor comparison.

### Requirements

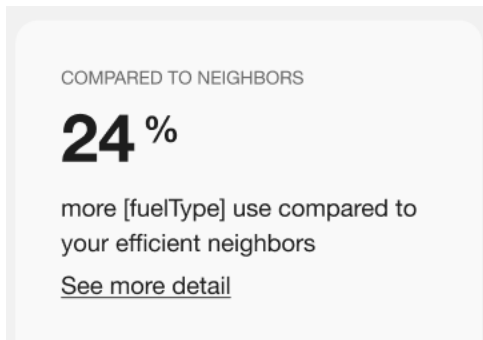
Same as described in the standard [Neighbor Comparison](#), except that the Neighbor Comparison shown in the Bill Guide currently only works with monthly billed usage data.

### Limitations

Same as those described in the standard [Neighbor Comparison](#).

### User Experience

The user experience described in this section is for customers who have gas, electricity, or both.



**Percentage Insight:** A percentage is displayed to show how much more or less energy the customer used in their most recent bill compared to their neighbors. If the customer uses about the same as their neighbor, the percentage is replaced by a house icon.

**Insight Statement:** An evaluative insight statement explains how the customer's energy use compares to neighbors or efficient neighbors. Efficient neighbors are defined as the most efficient 20% of the customer's neighbors. The possible states are shown below. The insight statement that displays is based on either (1) how much more or less the customer used compared to their "efficient neighbors" or (2) how much more or less the customer used compared to "all neighbors". The `fuelType` portion of the insight displays "electricity", "gas", or "energy" based on whether the customer is electric-only, gas-only, or dual fuel.

State	Insight
Customer uses more than efficient neighbors	"more [fuelType] use compared to your efficient neighbors"
Customer uses more than neighbors	"more [fuelType] use compared to your neighbors"
Customer uses about the same as neighbors	"about the same [fuelType] use as your neighbors"
Customer uses about the same as efficient neighbors	"about the same [fuelType] use as your efficient neighbors"
Customer uses less than efficient neighbors	"less [fuelType] use compared to your efficient neighbors"
Customer uses less than neighbors	"less [fuelType] use compared to your neighbors"

**Note:** If similar homes language is used in the widget, then all instances of the term "neighbors" are replaced with "similar homes." This configuration depends on your setup and configuration. [Contact your Delivery Team](#) if you have any questions.

**See more detail:** This link takes customers to the standard [Neighbor Comparison](#), which contains more details such as energy use amounts and how neighbors are defined.

## User Experience Variations

### Similar Homes

If similar homes language is used, then all instances of the term "neighbors" in the feature is replaced by "similar homes."

### Bill Guide Most Recent Bill Weather Insight

The Most Recent Bill Weather Insight highlights how many unusually hot or cold days may have impacted the customer's energy use in the previous bill period. The goal is to help



customers better understand the factors influencing their bill. The insight includes a tooltip to define what counts as an unusually hot or cold day.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

### Customer Requirements

Category	Description
Billing Frequency	Monthly.
Data Delivery Frequency	Monthly.
Data Requirements	Not applicable. Weather data is obtained from a third-party weather service.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

## User Experience

The user experience described below is for customers who have gas, electricity, or both.



WEATHER IMPACT ⓘ

**5 DAYS**

of unusually hot weather may have impacted your energy use

[See more detail](#)

**Title:** The title of the widget reflects a focus on the impact of weather on the customer's bill.

**Tooltip:** A tooltip icon appears next to the title to explain what is meant by weather impact. When selected, it displays a short description of an "unusually hot day" or "unusually cold day" (whichever is applicable). For example, the tooltip may define an "unusually hot day" as a day with temperatures above 95 degrees Fahrenheit, and an "unusually cold day" as a day with temperatures below 20 degrees Fahrenheit.

**Number of Days:** A number is displayed to show how many days in the bill period were unusually hot or cold, and which may have had a significant effect on the customer's energy use. If there were no unusually hot or cold days, the insight displays 0 DAYS.

**Insight Statement:** An insight statement briefly explains that the weather may have impacted the customer's energy use. The possible variations of the statement are shown below.

State	Insight Text
Some unusually hot or cold days	"[X Days] of unusually [hot or cold] weather may have impacted your energy use"
No unusually hot or cold days	"[X Days] of unusually [hot or cold] weather—no impact on your energy use"
One unusual weather day	"[X Day] of unusually [hot or cold] weather—no impact on your energy use"

**See more detail:** This link takes users to the [Data Browser](#), which contains a more detailed picture of the weather and the customer's energy use over time. It opens the **Bill view** of the most recent completed bill period (as opposed to an in-progress bill period), in keeping with the theme of the "Most Recent Bill" tab of the Bill Guide. The **Energy Use** or **Energy Costs** view may be displayed depending on which view has been set as the default for the utility.

## Calculations

### Extreme Weather Days

The number of extreme weather days is calculated as follows:

1. Identify the days that can be classified as unusually hot or cold. The following criteria are used:
  - The day must be actually hot or cold (for example, above 20 degrees Celsius, or below 16 degrees Celsius).
  - The mean temperature for the day must be eight degrees above (for hot days) or below (for cold days) the mean temperature during the same date range from the previous year.
2. Sum up the days that meet above criteria.

**Note:** For customers who are billed for multiple premises, the extreme weather days number can be an aggregate from across those premises. For example, if a customer has three premises, and one premise had one extreme weather day and another premise had three, then the calculation would add these days together and display four (4) days as the number in the widget.

## Bill Guide Bill Trends

The Bill Trends widget displays the most recent bill period's cost in comparison to that of the same bill period last year. When used in the Bill Guide, it provides more context to customer about their bills over time. It is identical to the [Energy Use Overview](#), except that it does not use any energy use analogies (for example, it does not show any statements like, "That's enough energy to blast the AC for X hours").

## Requirements

### Utility Requirements

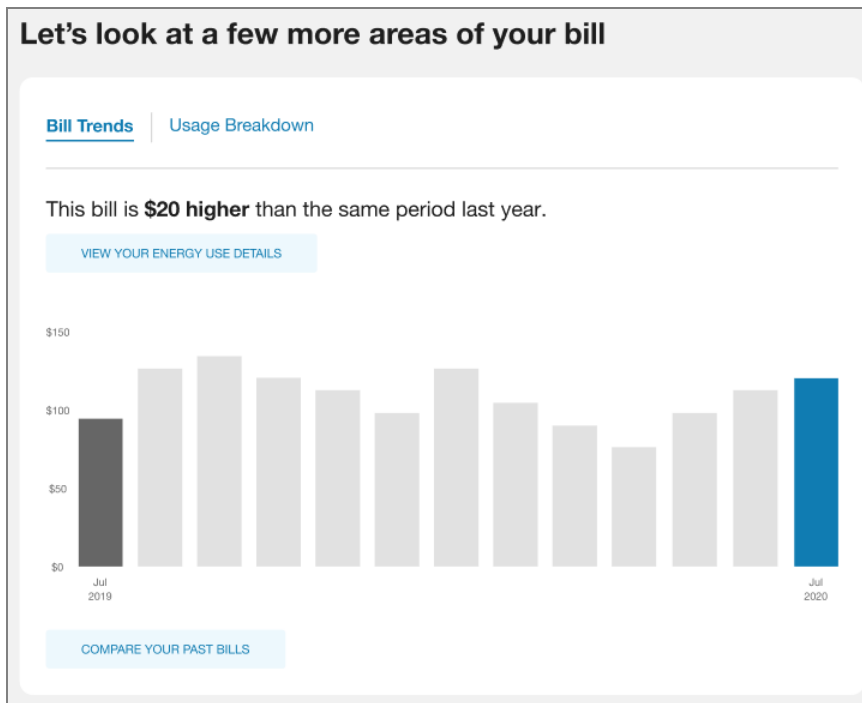
Same as described in [Bill Guide](#).

### Customer Requirements

Same as described in [Energy Use Overview](#), except that the Bill Guide version currently only works with monthly billing data.

### User Experience

The user experience described below is for dual fuel customers. The Bill Trends widget displays the most recent bill period's cost in comparison to the same bill period last year. Billing information for dual fuel customers is displayed as combined bills and energy units.



**Tab Name:** The tab name of the widget, Bill Trends, reflects its focus on energy patterns over time.

**Insight Statement:** An insight statement above the bar chart tells customers whether their most recent bill is higher, lower, or about the same as the same period last year. The exact amount is shown in bold to draw the customer's attention to the comparison. If there is no historical bill from the same period last year, the insight statement simply shows the cost of the present bill period, without any comparison.

- **Threshold:** The default threshold that controls the statement is 6%. For example, if the customer's usage is 6% above or below the compared period, then the appropriate message will display. If the customer's usage does not exceed the threshold, then the message states that the customer's usage is about the same as the same period last year.
- **Data States:** The insight statement is different depending on how much energy the customer used.

State	Insight
Cost compared to past period is lower	"This bill is <b>\$X lower</b> than the same period last year."

State	Insight
Cost compared to past period is higher	"This bill is <b>\$X higher</b> than the same period last year."
Cost compared to past period is about the same	"This bill is <b>about the same</b> as this period last year."
Cost of current bill period without any comparison to a previous bill period	"This bill is <b>\$X.</b> "

**View Your Energy Use Details:** A link appears beneath the insight statement and directs customers to the [Data Browser](#).

**Bar Chart:** The bar chart highlights the most recent bill in a blue color, and the previous comparison period in a dark color. Other bill periods that occurred between those points are shown in a light color. The y-axis shows the bill amount, and the x-axis shows the month and year of the bill period.

- **Hover:** When hovering over a bar in the bar chart, both the associated dollar amounts and energy units for the bill period are displayed in a tooltip above the bar. The bill amount should match the bill amount for the same bill period shown in the [Bill Breakdown](#). The energy units resolve to electricity-only, gas-only, or combined energy units depending on whether the customer is single or dual fuel.
- **Data States:** The bar chart displays differently based on how many bills are available.

Data State	Bar Chart Display
12 or more bills	The most recent bill period is highlighted and compared with the same bill period from the previous year.
2 to 12 bills	The most recent bill period cost is highlighted and displayed. Previous bill periods are displayed but grayed out. There is no comparison to the same bill period from the previous year.

Data State	Bar Chart Display
1 bill	The bill period cost is displayed. There is no previous bill period shown, and no comparison to the same bill period from the previous year.

**Compare Your Past Bills:** A link appears below the bar chart and directs customers to the [Bill Comparison](#). This button is disabled if there is only one historical bill available and there are no past bills to compare against.

**Single Fuel Customers:** For single fuel customers, the widget displays information for a specific fuel type (gas or electricity). By contrast, dual fuel customers see information for combined energy units, and do not have a menu to switch between trends for an individual fuel type.

## User Experience Variations

### Single Fuel

For single fuel customers, the widget displays information for a specific fuel type (gas or electricity). By contrast, dual fuel customers see information for combined energy units, and do not have a menu to switch between trends for an individual fuel type.

### Bill Guide Usage Breakdown

The Usage Breakdown presents the customer's top three categories of energy use during the last bill period. The goal of the insight is to educate customers about where they use the most energy, and to motivate them to save in those areas on their next bill.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

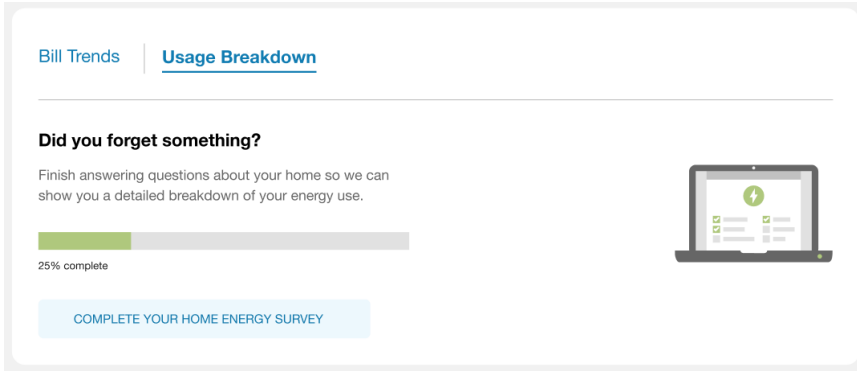
### Customer Requirements

- At a minimum, average energy use data for households in a utility's region is required. The Home Energy Analysis survey then uses the customer's responses to adjust the average energy use values and yield personalized results.
- The recommended minimum is to use weather data and at least six historical bills, as this will lead to more accurate disaggregation results.

- There are additional AMI data requirements to show advanced insights such as appliance-level disaggregation and insights about a customer's always-on usage. [Contact your Delivery Team](#) for more information.

## User Experience

This section describes the user experience for dual fuel customers whose rates are modeled and who must take the [Home Energy Analysis](#) survey in order to receive a personalized breakdown.



**Tab Name:** The tab name of the widget, Usage Breakdown, reflects its focus on giving customers a more detailed view into how they consume energy.

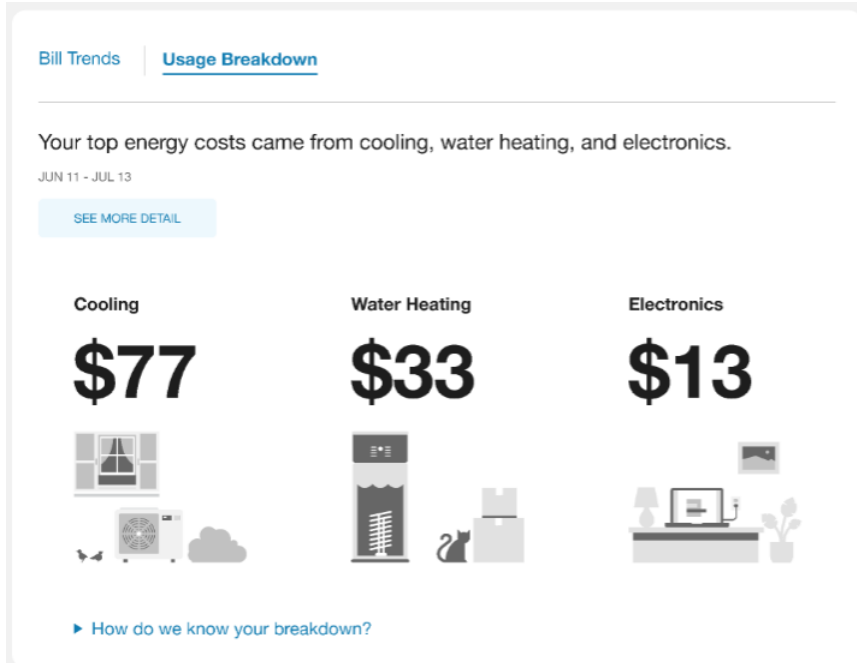
**Survey Prompt:** If customers select the feature tab but have not yet completed the HEA survey, they will see a prompt to complete it. The prompt changes based on whether the survey has not been started or is in progress. If the survey has not been started, the prompt includes a message and a link to start it. If the survey has been started but not yet completed, the prompt includes a message, a status bar, and a link to the survey. The status bar is dynamic and will change to show an appropriate length and percentage based on how many questions out of the total number of survey questions have been answered.

**Insight Statement:** An insight statement appears above the breakdown explaining where the customer used the most money or energy.

**Date Range:** A date range is displayed at the top of the breakdown to communicate that the breakdown applies to a specific bill period.

**See More Detail:** A link appears beneath the insight statement and directs customers to the survey results of their [Home Energy Analysis](#).

**Personalized Breakdown:** The personalized breakdown can show up to three top end-use categories.



Each category includes the following elements:


- **Category Name:** Each category includes a name, such as Cooling, Water Heating, or Electronics. The categories available depend on the utility's available data, setup, and configuration. [Contact your Delivery Team](#) for more information.
- **Category Cost:** Each category shows a cost rounded to the nearest whole dollar. The costs represent the major portions of a customer's entire energy use, and are not meant to add up to the customer's total bill. The breakdown can also show percentages if cost information is not available. It can also show two categories instead of three. See [User Experience Variations](#) below for details.
- **Category Icon:** Each category is paired with a graphic so that customers have a visual reference and can more quickly understand the meaning of the category.
- **Category Order:** The categories are shown from left to right, in the order of most expensive to least expensive. If the cost of two or more categories is the same, there is system logic to determine which ones are displayed, and in what order.

**Breakdown Explanation:** Beneath the breakdown is a link to more details about how the customer's breakdown is determined. This is meant to educate customers about the method behind their breakdown. The explanation varies slightly based on whether billing data or AMI data was used to generate the breakdown.

If the customer has AMI data, the message explains that smart meter data is used to read certain energy signatures, which help determine the customer's major energy use categories.



▼ How do we know your breakdown?



### How do we know your energy breakdown?


Thanks to data from your smart meter, we can read certain energy signatures to get an idea of how energy is being used in your home.

Using advanced data science algorithms, we match those energy signatures to types of use, such as water heater, refrigerator, and more.

Combined with your past energy use, we're then able to show you a breakdown of your usage so you know where to focus and save.

If the customer does not have AMI data, the message explains that meter data is used to identify energy use patterns and match them to certain types of use, such as heating and cooling.

▼ How do we know your breakdown?



### How do we know your energy breakdown?

Thanks to data from your meter we can identify energy use patterns and match them to certain types of use in your home, such as heating and cooling.

Combined with your past energy use, we're then able to show you a breakdown of your usage so you know where to focus and save.

## User Experience Variations

### Always-On Insight

If enough AMI data is available and the proper configuration has been completed, an insight about always-on usage can display below the breakdown. The insight provides the estimated energy use in a bill period for devices that do not get unplugged, such as game consoles and security systems. It includes a **Learn More** link, which directs customers to a page with detailed information about always-on devices. The insight will display if there is enough data for the data model to generate a result.

▶ [How do we know your breakdown?](#)

**Your Always-On Use**

About 15% of your electricity costs came from always-on energy use—the small amount of power appliances and electronics draw simply because they are plugged in. [Learn more.](#)

## Appliance-Level Insights


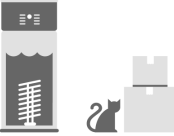
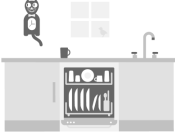
If enough AMI data is available and the proper configuration has been completed, the usage breakdown can display specific appliances as top end-use categories, rather than a general "Appliances" category. For example, the breakdown could include appliances such as a dishwasher, refrigerator, or oven. The list of appliances available varies depending on your setup and configuration. [Contact your Delivery Team](#) for details.

Bill Trends | [Usage Breakdown](#)

Your top energy costs came from cooling, water heating, and dishwasher.

JUN 11 - JUL 13

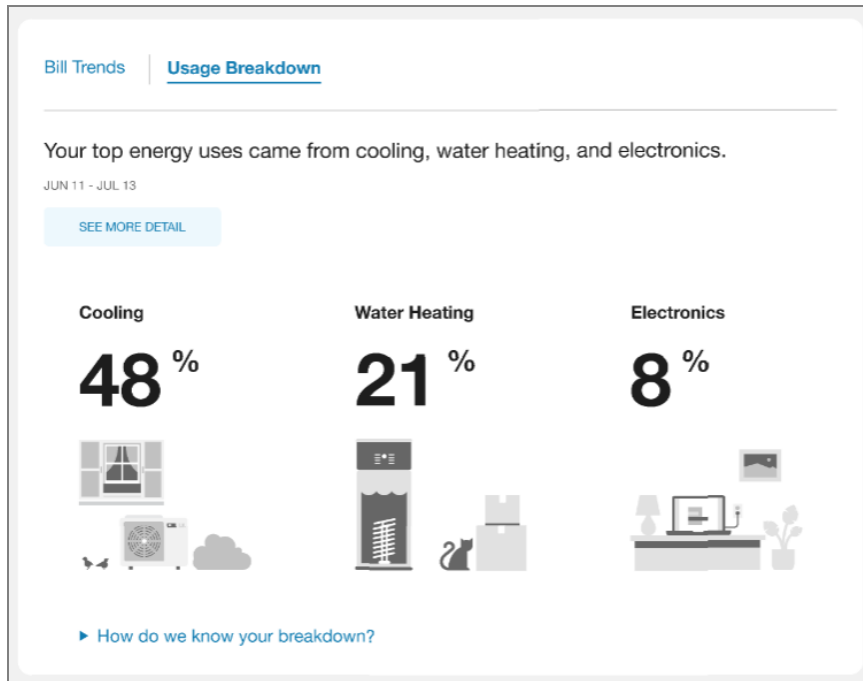
[SEE MORE DETAIL](#)

<p><b>Cooling</b></p> <p><b>\$77</b></p> 	<p><b>Water Heating</b></p> <p><b>\$33</b></p> 	<p><b>Dishwasher</b></p> <p><b>\$13</b></p> 
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▶ [How do we know your breakdown?](#)

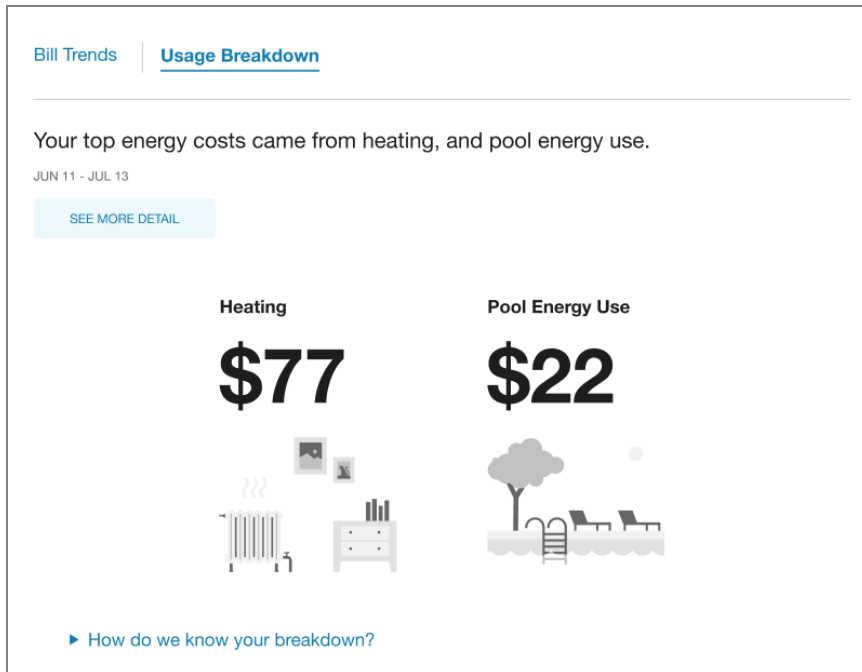
## Percentage-Based Breakdown

If cost information cannot be calculated for the top three categories, then the feature falls back to a percentage-based personalized breakdown. In this case, the insight shows percentage values, and the insight statement emphasizes where the customer's top energy uses came from. The percentages represent the major portions of an customer's entire energy use, and are not meant to add up to 100%.



## Two Categories

If customers complete the [Home Energy Analysis survey](#) but there is still not enough information to determine their energy use in three top categories, then two top categories can still be shown. This experience is only the case for gas-only customers, since the number of end-use categories that can be displayed for gas is much shorter than for electricity. If there is only enough data for one category or less, an error message is displayed.



## Bill Guide Top End Use Tip

The Top End-Use Tip gives customers actionable information about how to save energy in the area where they spent the most money in the last bill period. The tip is directly tied to the top category of use displayed in the [Bill Guide Usage Breakdown](#). For example, if the usage breakdown displays cooling as the customer's highest category of usage, then the top end-use tip displays a tip related to cooling. The message includes a brief explanation of how to do the tip, a savings estimate, and a link to more details.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

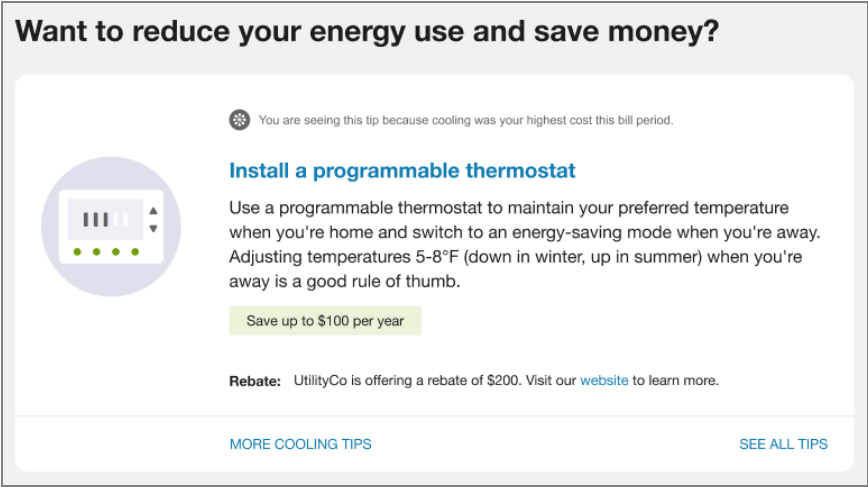
### Customer Requirements

Category	Description
Billing Frequency	Monthly.
Data Delivery	Monthly.

Category	Description
Frequency	
Data Requirements	Results from the <a href="#">Home Energy Analysis</a> survey or utility-wide averages for energy use across available categories. This information is used to determine which category of energy use is highest for customers so that an appropriate tip can be highlighted.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

**User Experience**

This section describes the user experience for customers who are dual fuel and who see a rebate offer as part of the tip message.



**Widget Header:** The widget is preceded by a heading that emphasizes how the customer can take action to lower their usage.

**Tip Insight Message:** At the top of the widget is a small icon and tip insight message indicating that the tip is based on the customer's highest cost end-use category in the last bill period. The format of the message is: "You are seeing this tip because [category] was

your highest [cost] this bill period." The term [category] is replaced by whichever end-use category was the customer's highest cost. The category mentioned in the insight message matches the top end-use category displayed in [Bill Guide Usage Breakdown](#). The term [cost] is replaced by [use] if the usage breakdown displays usage percentages instead of dollar amounts.

**Main Tip Message:** The main tip message is a summary of the actions that a customer can take to save energy. The message includes:

- An illustration that allows customers to quickly recognize the concept or purpose of a tip.
- A short title that describes the tip. The title is a link that leads to a more detailed description of the tip. See [Ways to Save - Tip Details](#) for more information.
- A summary of the meaning of the tip and actions the customer can take.
- The estimated annual savings if the customer completes the tip.

**Rebate:** If applicable, the tip includes a message about a rebate offer from the utility. The message includes a link to where the customer can learn more about the rebate. If there is no applicable utility rebate offer, then no rebate information will be displayed.

**More [Category] Tips:** This link leads to a tip guide containing tips related to the top end-use category. See [Ways to Save - Tip Guides](#) for more information. For a list of all available tip guides, see [Ways to Save Design and Configuration](#).

**See All Tips:** This link leads to the landing page of [Ways to Save](#).


## User Experience Variations

### No Rebate

If there is no applicable utility rebate offer, then no rebate information will be displayed.

### Fallback Tip

There may be cases where a top end-use category tip is not available. For example, a customer may have marked all tips related to a specific end-use category as "Done" or "Won't Do." In these cases, a generic fallback tip is shown, along with a link to a list of all available tips.



**Talk with your household members about your energy savings plan**

Talk with your household members and neighbors about how they approach saving energy. This can help you identify additional things you can do in your home to save. You may discover hidden energy costs, figure out how to eliminate them, and learn from each other's good habits.

[ALL TIPS](#) ↗

## Calculations

### Top Tip Selection

The top tip is selected using [Intelligent Tip Targeting](#), an programmatic process which filters out irrelevant tips and then generates a prioritized list of tips related to the customer's top end-use category. The tip with the top score is shown.

### Bill Guide Upcoming Bill

The Upcoming Bill shows customers their current usage or cost so far in the billing period, their projected usage or cost for the billing period, and how that compares to their typical usage or cost for the period based on their past usage. The purpose is to inform customers before the end of the billing cycle if they are likely to have high usage or cost, and to help them take action to reduce their consumption before the billing period ends.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

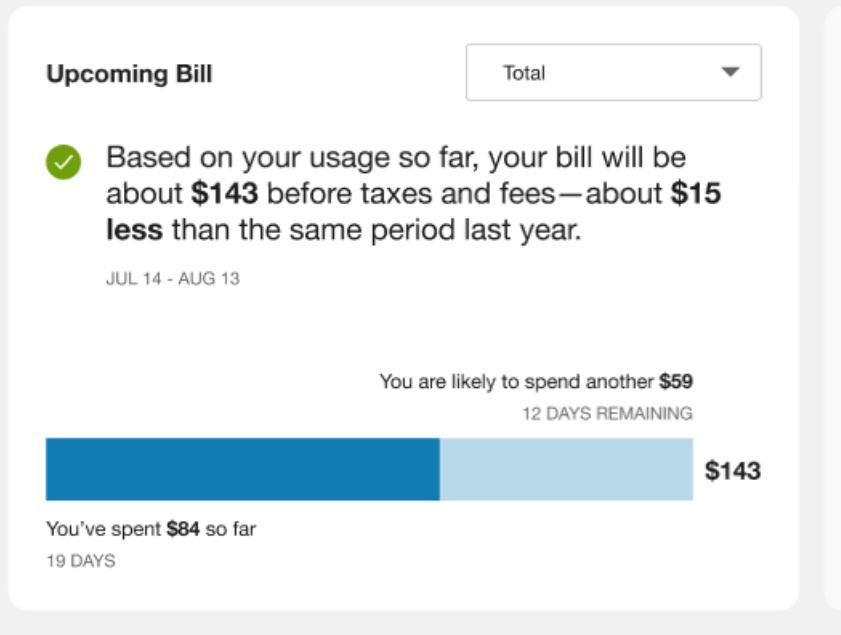
### Customer Requirements

Same as the standard [Bill or Usage Forecast](#), except that the Bill Guide version currently only works with monthly billing data.

### User Experience

This section describes the user experience for customers who are dual fuel and can see cost information.

## Here's how your upcoming bill is trending



**Heading:** The heading above the widget suggests that the information below it will provide customers with a sense of how they are doing so far in the bill period.

**Title:** The title of the widget, Upcoming Bill, reflects its focus on providing a forecast of a customer's usage or cost.

**Fuel Drop-Down Menu:** The fuel drop-down allows customers to select which fuel to view a forecast for. By default, the Total combined fuel label is shown. Gas is the second label.

**Normative Symbol:** The normative symbol adds meaning to the forecast by providing a visual indication of how well the customer is doing and showing whether or not their cost or energy use is unusual compared to their typical cost or energy use. A threshold controls which icon displays. The default threshold is that the customer must use more than 30% above their baseline to see an high bill alert.

Condition	User Experience
Customer is using <i>less than or equal to</i> 30% <b>above</b> their baseline	Check mark
Customer is using <i>more than</i> 30% <b>above</b> their baseline	Exclamation point



Condition	User Experience
Customer will see a forecast calculated in $n$ days	Information icon
Customer does not have a baseline or estimated bill period	Information icon

**Forecast Message:** The forecast message is a projection of how much the customer's bill could be if they continue their current energy-spending behavior through the end of the billing period. The forecast is an estimate, not an exact amount, and is based on the estimated length of the bill. The cost is rounded to the nearest whole dollar. The message explicitly states that taxes and fees are not part of the estimate. A minimum of seven days of data is required to show a forecast.

**Comparison Insight:** The comparison message explains how much the customer is on track to spend compared to the same bill period from the previous year. The message varies slightly depending on the customer's performance and the data available. If there is insufficient historical data to compare a customer's forecast against the same bill period last time, then the comparison message will not be shown.

Data State	Message
Customer's usage is low (less than their baseline)	"Based on your usage so far, your bill will be about <b>\$X</b> before taxes and fees—about <b>\$Y more</b> than the same period last year."
Customer's usage is high (more than 30% <b>above</b> their baseline)	"Based on your usage so far, your bill will be about <b>\$X</b> before taxes and fees—about <b>\$Y less</b> than the same period last year."
Customer's usage is about the same as last time (between 0-30% <b>above</b> their baseline)	"Based on your usage so far, your bill will be about <b>\$X</b> before taxes and fees—about <b>the same</b> as last year."

**Bill Period Length:** The bill period length shows the start and end date that the forecast covers. It comes from the average bill period length that we estimate based on a customer's AMI data and bill period end date.

**Spent So Far:** A message explains the cost of energy used to date, which is the basis for the projection. This number is calculated by summing up the cost of energy each day so far in the bill period using the [Rate Engine](#).

**Bar Graph:** A simple bar graph is displayed to give customers a visual representation of how much they have spent so far in relation to their project cost for the bill period. The shading in the bar is dynamic, based on the proportion of what has been spent and what is projected. This means that the shading will change as time passes.

**Likely to Spend:** This statement gives customers an estimate of how much they are likely to spend by the end of the bill period. The number is calculated by subtracting how much the customer has already spent from the projected bill total.

**Days Remaining:** The number of days remaining in the billing period is shown to reinforce the idea that the customer still has time to save energy. The number is calculated by subtracting the days that have already passed from the actual length of the bill period. The length of the bill period is based on historical information (for example, the length of the bill period from the same time in the previous year).

## **User Experience Variations**

### **Single Fuel**

For customers who are single fuel (gas or electricity), the fuel selector drop-down is hidden.

### **Usage-Based Forecast**

When cost information is not available, the forecast falls back to fuel-specific usage projections. In this case, there is no disclaimer about taxes and fees, and a percentage value is used instead of a cost value.

### **Past Comparison Not Available**

When there is not enough historical data to compare the customer's usage against the same bill period last year, the forecast omits the past comparison statement.

**Upcoming Bill** Total ▼

✓ Based on your usage so far, your bill will be about **\$143** before taxes and fees.

JUL 14 - AUG 13

You are likely to spend another **\$59**  
12 DAYS REMAINING

**\$143**

You've spent **\$84** so far  
19 DAYS

### Forecast Not Yet Available

If less than seven days have passed since the beginning of the bill period, a message will display saying that a forecast is not yet available. However, the customer's cost or usage to-date can still be shown.

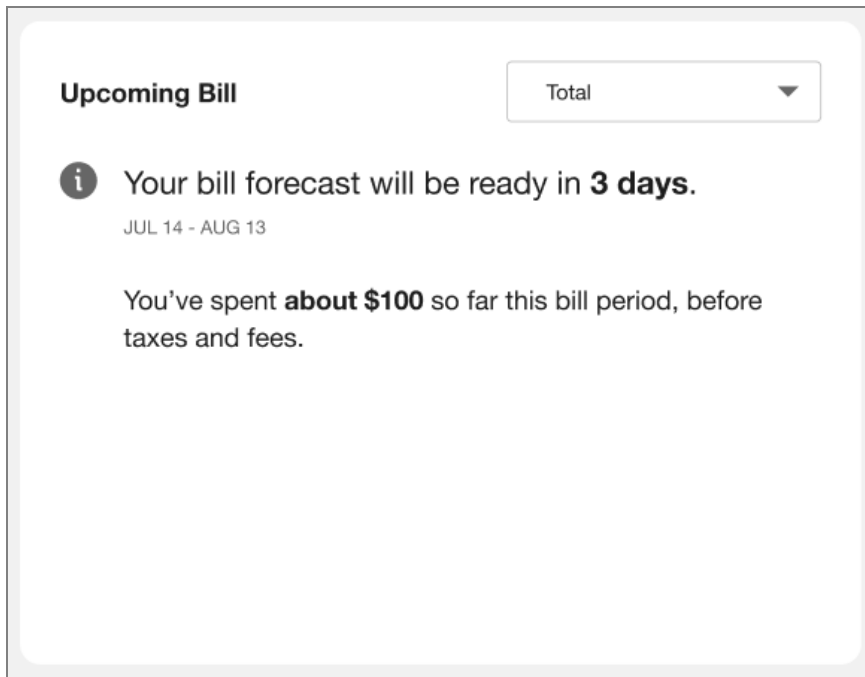
**Upcoming Bill** Total ▼

i Your bill forecast isn't available at this time.

JUL 14 - AUG 13

You've spent **about \$100** so far this bill period, before taxes and fees.

If less than seven days have passed since the beginning of the bill period, but there is enough historical data to establish an average bill period length for the customer, then the widget can display a counter of how many days it will be until the forecast is ready.



### Bill Guide Upcoming Bill Tip

The Upcoming Bill Tip gives customers actionable information about how to save energy before the bill period is over. The message includes a brief explanation of how to do the tip, a savings estimate, and a link to more details.

### Requirements

#### Utility Requirements

Same as described in [Bill Guide](#).

#### Customer Requirements


Category	Description
Billing Frequency	Monthly.
Data Delivery	Monthly.


Category	Description
Frequency	
Data Requirements	The customer must have a bill or usage forecast in the <a href="#">Upcoming Bill</a> widget. <a href="#">Intelligent Tip Targeting</a> is used to select an appropriate tip for the customer. Tips are selected that can be done before the end of the billing period, and which can help the customer make a meaningful difference in lowering their bill.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

## User Experience

This section describes the user experience for customers who are dual fuel and who do not see a rebate offer as part of the tip message.

**Want to reduce your energy use and save money?**

 There's still time to lower your bill—try this personalized tip.



**Clean or replace air filters**

Heating and cooling consume the most energy in the average home—up to 50% of total home energy use. Dirty air filters make your furnace, central air conditioner, or room air conditioner work harder to circulate air. By cleaning or replacing your filters, you can lower your heating and cooling system energy use by up to 15%.

Save up to \$100 per year

[SEE MORE PERSONALIZED TIPS](#)

**Widget Title:** The widget is preceded by a title that invites the customer to reduce usage and save money.

**Tip Insight Message:** At the top of the widget is a small icon and tip insight message indicating that customer still has time to lower their bill. It also uses language to communicate that the tip is personalized for the customer.

**Main Tip Message:** The main tip message is a summary of the actions that a customer can take to save energy. The message includes:

- An illustration that allows customers to quickly recognize the concept or purpose of a tip.
- A short title that describes the tip. The title is a link that leads to a more detailed description of the tip. See [Ways to Save - Tip Details](#) for more information.
- A summary of the meaning of the tip and actions the customer can take.
- The estimated annual savings if the customer completes the tip.

**Rebate:** If applicable, the tip includes a message about a rebate offer from the utility. The message includes a link to where the customer can learn more about the rebate.

**See More Personalized Tips:** This link leads to the landing page of [Ways to Save](#).

## User Experience Variations

### Includes Rebate

If applicable, the tip includes a message about a rebate offer from the utility. The message includes a link to where the customer can learn more about the rebate.

## Calculations

### Tip Selection

The tip is selected using [Intelligent Tip Targeting](#), an programmatic process which narrows down the tips that are applicable and selects the one with the highest score. This is usually a tip that can be completed before the end of the billing period, and which can help the customer make a meaningful difference in lowering their bill. Other criteria are used for the selection as well, such as whether the customer saw the tip recently. [Contact you Delivery Team](#) if you have any questions.

## Bill Guide Upcoming Bill Weather Insight

The Upcoming Bill Weather Insight highlights how many unusually hot or cold days have already occurred in the customer's bill period, and predicts how many more extreme weather days may occur in the remaining days. The goal is to help customers prepare to use less energy on those days. It includes a tooltip to define what counts as an unusually hot or cold day.

## Requirements

### Utility Requirements

Same as described in [Bill Guide](#).

## Customer Requirements

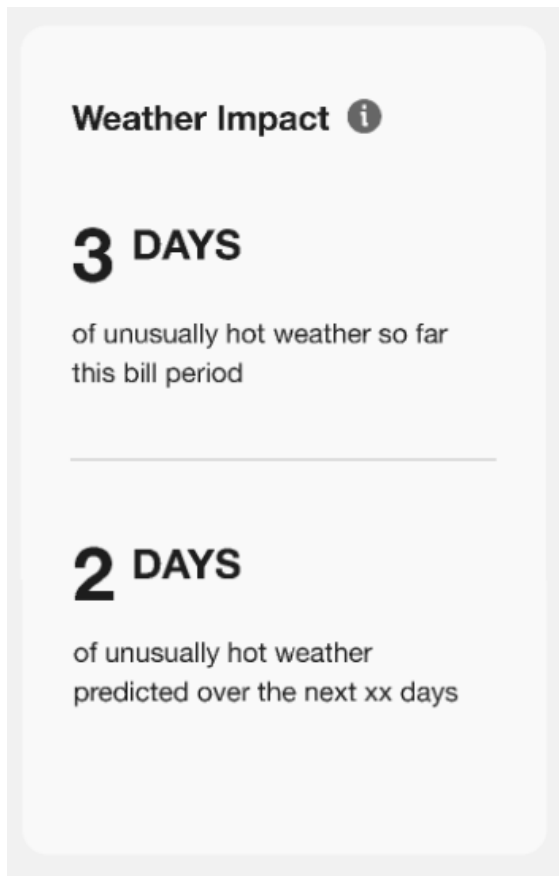
Category	Description
<b>Billing Frequency</b>	Monthly.
Data Delivery Frequency	Monthly.
Data Requirements	Daily weather data is required to know the temperatures of days that have already occurred in bill period. Historical weather data from the same time period in the previous year is required to predict the number of extreme weather days that may occur in the remainder of the bill period.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

### Limitations

If there is a mix of unusually hot and unusually cold days in the same bill period, the widget will show whichever number was higher. It will not show two separate numbers. See [Insight Statement](#) below for details.

### User Experience

This section describes the user experience for customers who are single fuel or dual fuel.



**Title:** The title of the widget reflects a focus on the impact of weather on the customer's bill.

**Tooltip:** A tooltip appears next to the title to explain what is meant by weather impact. When clicked, it displays a short description of an unusually hot day or unusually cold day (whichever is applicable). For example, the tooltip may define an unusually hot day as a day with temperatures above 95 degrees Fahrenheit, and an unusually cold day as a day with temperatures below 20 degrees Fahrenheit.

**Number of Days:** The widget shows two numbers to customers. The top number shows how many days in the bill period so far were unusually hot or cold, and which may have already had a significant impact on the customer's energy use. The bottom number shows many days are predicted to be unusually hot or cold in the days ahead. If there are no unusually hot or cold days in either category, the insight displays "0 Days".

**Insight Statement:** An insight statement briefly explains that the weather may have impacted the customer's energy use. The possible variations of the statement are shown below.



State	Insight Text
Unusually [hot or cold] days in look back and look forward periods	<p data-bbox="764 317 1295 390">"[X Days] of unusually [hot   cold] weather so far this bill period"</p> <p data-bbox="764 417 1295 491">"[X Days] of unusually [hot   cold] weather predicted over the next xx days"</p>
No unusually [hot or cold] days in look back and look forward periods	<p data-bbox="764 554 1312 627">"0 Days of unusually [hot   cold] weather so far this bill period"</p> <p data-bbox="764 655 1276 728">"0 Days of unusually [hot   cold] weather predicted over the next xx days"</p>
One unusual weather day in look back or look forward periods	<p data-bbox="764 791 1299 865">"1 Day of unusually [hot   cold] weather so far this bill period"</p> <p data-bbox="764 892 1284 966">"1 Day of unusually [hot   cold] weather predicted over the next xx days"</p>

**User Experience Variations**

The user experience varies slightly depending on how many unusually hot or cold days have occurred so far in the bill period, and how many are predicted to occur for the rest of the bill period. See [Insight Statement](#) above for details.

**Calculations**

**Extreme Weather Days**

A simple set of steps and weather criteria are used to calculate the number of extreme weather days. See [Extreme Weather Days](#) in the Most Recent Bill Weather Insight description for details.

**Confirmation Message**

The Confirmation Message displays web content to customers who respond to a feedback prompt (such as [Customer Feedback](#)) or a question-based module (such as [Mini Home Energy Analysis](#)) in an email communication. The content of the Confirmation Message varies depending on which feedback prompt or question is selected. Customers may be thanked for their input, asked a follow up question, or presented with targeted offers that enable deeper personalization in future experiences.

Customers do not need to enter a username or password to view the Confirmation Message. A pre-authenticated link is used to associate the customer's answer with their account and keep a record of the answer.

## Requirements

Same as listed in the [product-wide requirements](#). Additional notes:

- Current or historical energy use data is not required for this feature. The message displayed is based on parameters passed in the URL when a customer clicks on a question or feedback prompt in an email.
- Some configuration is needed to enable this feature. If you are interested in using it, [contact your Delivery Team](#).

## Limitations

The Confirmation Message is available as an embeddable widget or as part of the standalone Digital Self Service - Energy Management web portal. When using the embeddable widget, there may be some technical limitations about where the message content is hosted. [Contact your Delivery Team](#) to discuss the details of your situation.

## User Experience

The user experience varies depending on which email module is used to collect a response from the customer, as well as which confirmation user experience is configured for the utility. The available user experiences are:

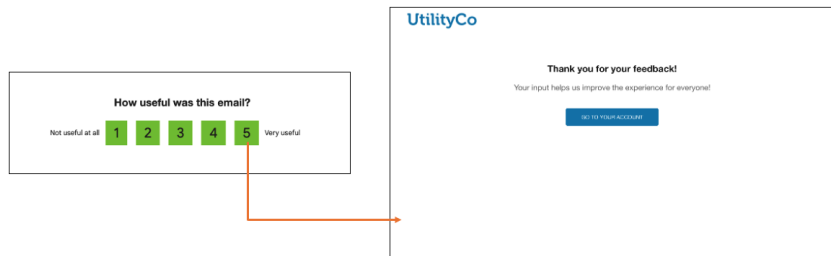
- [Customer Feedback Confirmation](#)
- [Mini Home Energy Analysis \(HEA\) Confirmation](#)

### **Customer Feedback Confirmation**

The Customer Feedback Confirmation flow is used for customers who respond to a [Customer Feedback](#) module in their outbound communication. The version varies depending on which flow has been configured. The URL clicked by the customer includes parameters that determine which version to display.

### **Thank-You Message Flow**

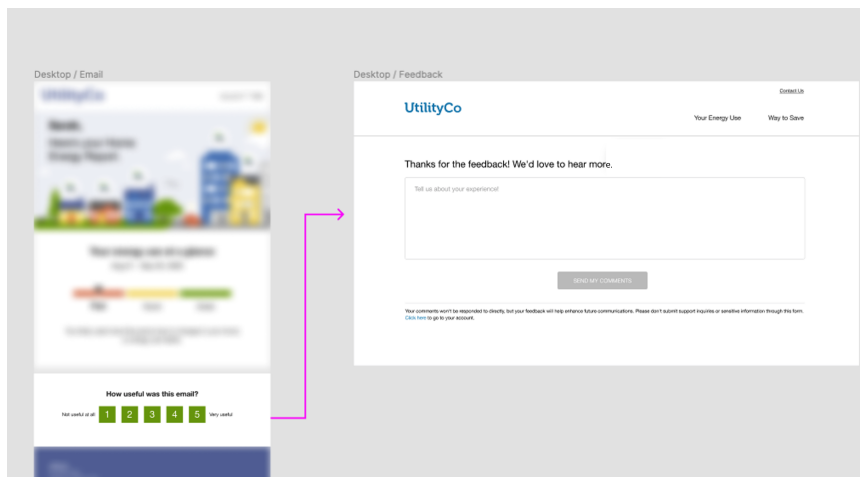
In this experience, customers who respond to the [Customer Feedback](#) module in a communication are taken to a simple thank-you message.



A button is included below the thank-you message to take the customer to the login page for their account. If the utility is using the standalone web portal, then clicking the button redirects customers to the [Welcome](#) page. If the utility is using embeddable widgets, then clicking the button redirects customers to a utility-hosted account login page.

### Open-Ended Feedback Flow

In this experience, customers who respond to the [Customer Feedback](#) module in a communication are taken to an open-ended feedback form where they can enter a detailed description. This information informs future product decisions and improvements.



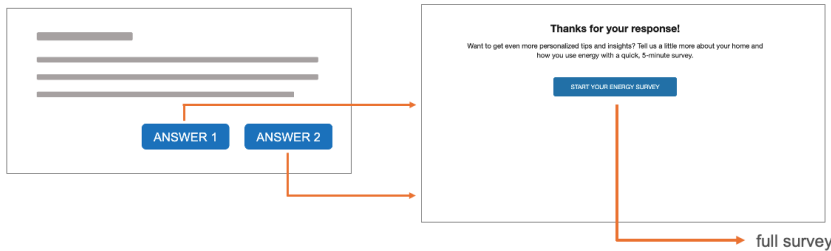
A button below the form allows customers to submit their feedback. A disclaimer message is also included below the form to warn customers not to include any personal information, such as a phone number or email address. The disclaimer message can include a link for customers who wish to sign in to their account.

### Mini HEA Confirmation

The HEA Confirmation flow is used for customers who respond to Home Energy Analysis (HEA) questions in an email module (such as in the [Mini Home Energy Analysis](#) module). The version varies depending on which flow has been configured. The URL clicked by the customer includes parameters that determine which version to display.

## Link to Full Survey Flow

In this experience, customers are directed from a HEA question in an outbound communication to a confirmation page that prompts them to take the [full HEA survey](#).



## Targeted Offer Flow

In this experience, customers are redirected from a HEA question in an outbound communication to a confirmation page that presents targeted promotions or recommendations. The confirmation message thanks customers for their response and presents a promotion depending on the customer's answer.

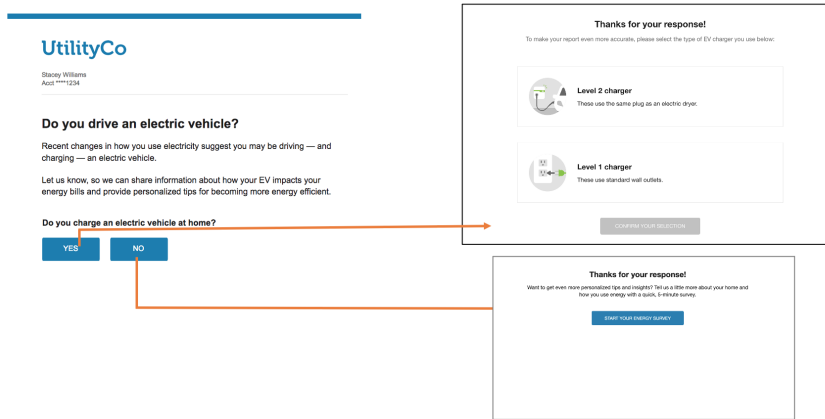


The promotional content can include copy, illustrations, and links to utility-hosted pages containing resources and functionality on how to engage with the promotion. To offer this experience to customers, utilities must coordinate with their [Oracle Utilities Delivery Team](#) to design and configure the promotional content.

## Follow-Up Question Flow

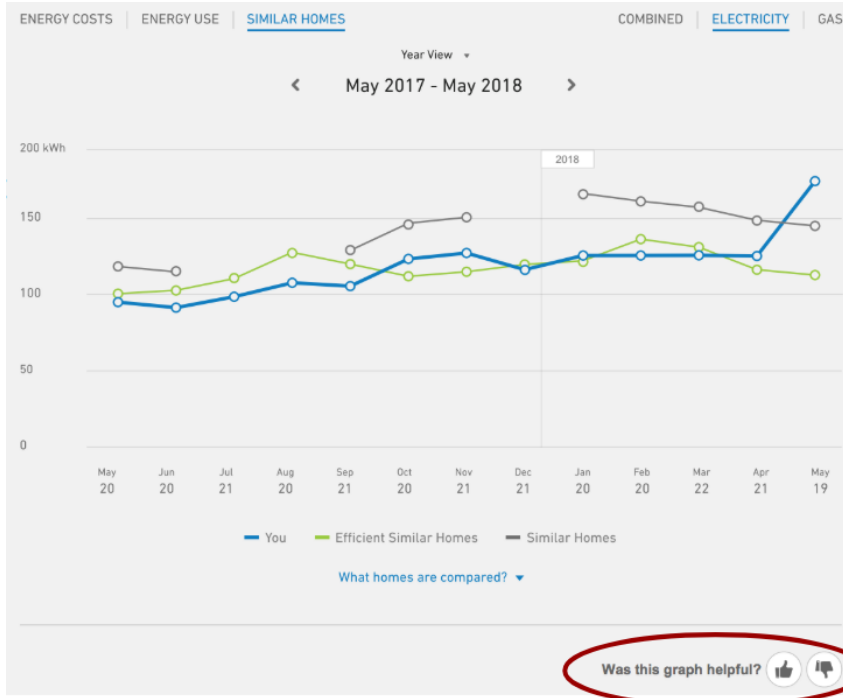
In this experience, customers are redirected to a confirmation page that presents a follow-up question. For example, if customers confirm that they own an electric vehicle, they are directed to a confirmation page that thanks them for their response and presents a follow-

up question regarding the type of charger they use. After confirming their charger type, they are shown another confirmation message that thanks them again and prompts them to complete the [full HEA survey](#).



## Customer Feedback

The Customer Feedback module can be added to certain widgets to gather input from users and support product improvements. Typically this module is displayed at the bottom of a widget.



**Supported Widgets:** The module can be displayed on supported widgets. Supported widgets include the [Data Browser](#), [Bill Comparison](#), [Bill or Usage Forecast](#), and [Home](#)

[Energy Analysis](#). Depending on each utility's setup and configuration, some of these widgets may or may not be available. Contact your Oracle Utilities Opower [Delivery Team](#) if you need more information.

The Customer Feedback module is displayed by default on each supported widget except for the Data Browser. In order to enable the module on the Data Browser, utilities must coordinate with their Delivery Team.

**Icons and Statement:** The module displays icons and a statement such as, "Was this information helpful?" The exact wording will vary based on the content of the widget and each utility's configuration. For example, the module may include statements like the ones below:

- Did this graph have what you're looking for?
- Did you understand this graph?
- Did this graph have accurate information?
- Did this graph help you understand your energy use?
- Did this graph help you understand your energy costs?
- Was this graph useful?
- Did you get any helpful insight from this graph?
- Was this information helpful?

Customers can select one of the available icons to respond to the statement. The customer's choice is logged, and the module displays a message thanking the customer for their feedback. This message is displayed for a short period of time before being hidden from view. The feedback module is then hidden for that widget, and for the customer who provided their feedback.

**Module Display:** The local storage of a customer's browser is used to determine if the feedback module is displayed in a given widget. If a cookie exists for a customer's feedback for a widget, then the feedback module is hidden from view for the customer for that widget. However, the module is displayed if a cookie is not present in the customer's browser, which can occur in situations such as:

- The browser storage has been cleared and the applicable cookie is removed.
- The customer uses a different browser on the same device which does not yet have a feedback module cookie.
- The customer uses a different device which does not yet have feedback module cookies for its browsers.

These scenarios allow customers to provide feedback for a widget multiple times. Clearing browser storage could be used by a customer to provide new feedback on a widget after an updated version of a widget is provided, which may change a customer's experience and satisfaction with a widget.

## Data Browser

The Data Browser is an interactive tool that allows customers to visualize and explore their energy use trends and costs, and make comparisons to useful benchmarks, such as weather and similar homes. One or more views for [Energy Costs](#), [Energy Use](#), [Usage Breakdown](#), and [Neighbors](#) are available in the feature. If applicable, customers can also use menus to switch between multiple accounts or service points.

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#).

### Customer Requirements

Category	Description
<b>Billing Frequency</b>	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	<p><b>Billing Data:</b> Customers must have a minimum of one historical bill to view data in the Year view.</p> <p><b>Weather Data:</b> Weather data is required for the weather line graph to display.</p> <p><b>AMI Data:</b> The Digital Self Service - Energy Management AMI cloud service must be purchased for daily or subdaily energy use AMI data and insights to display. A minimum of one historical bill with at least one day of historical AMI data is required to view such data.</p> <p><b>Rates Data:</b> The Rates Engagement cloud service must be purchased and <a href="#">rates must be modeled</a> in order for rates or cost insights to display in certain parts of the <a href="#">Energy Costs View</a>.</p>
Data History	A minimum of one historical bill is required for data to display in

Category	Description
	<p>the <b>Year</b> view.</p> <p>For AMI customers, a minimum of one historical bill which includes at least one day of historical AMI data is required for the <b>Bill view</b> and <b>Day view</b>.</p>
Data Coverage	Not applicable. By default, all graphs and views of the Data Browser display any data that is available, even if some reads are missing.
Supported Fuels	Electricity, gas, and dual fuel. Customers with two fuels can switch between electricity and natural gas views. A combined view, which combines electricity and natural gas use, can also be enabled.

### Limitations

- **Taxes and Fees Limitation:** The amounts shown for energy use typically do not include taxes or fees, so they will not match the customer's bill. However, with additional setup and configuration, the costs can be made to match a customer's bill. [Contact your Delivery Team](#) for more information.
- **Solar or Multi-Register Data:** Utilities must be on the [latest data transfer specifications](#) in order for enhanced solar data to display in the [Energy Use](#) view for customers with multi-register data. Your Delivery Team will work with you to identify which data transfer specifications you need.
- **Responsive Display:** Daily energy use can be displayed in 15 or 30-minute intervals for all customers with sub-hourly read data. When viewed on smaller screens such as for mobile devices, the responsive design displays hourly intervals to account for reduced screen space.

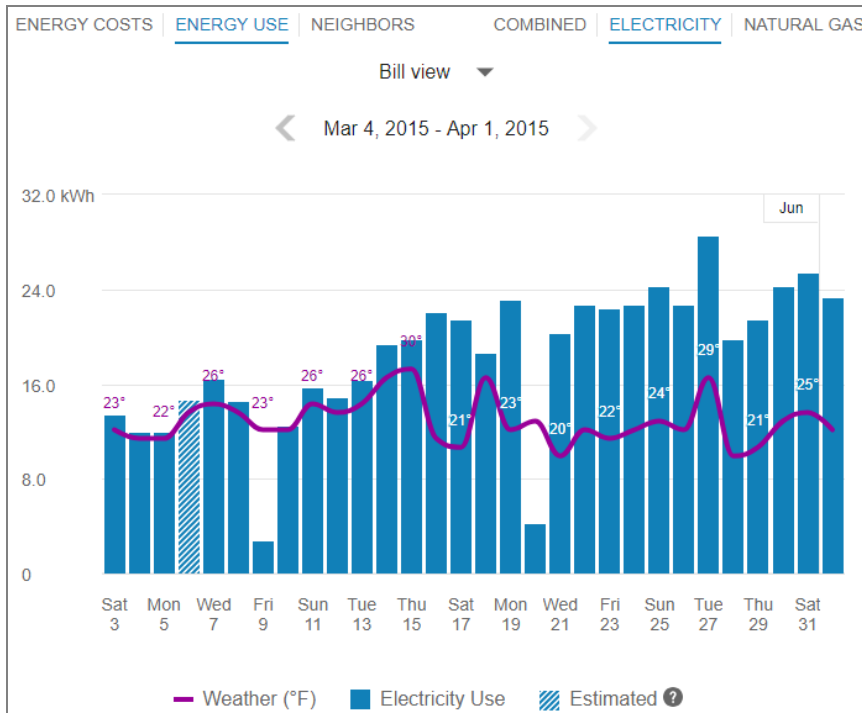
### User Experience

The Data Browser is an interactive visualization tool that allows customers to analyze their energy use trends by fuel type, time period, and a series of other views. Customers can hover over or select a data point in the Data Browser to [see a tooltip](#) containing more information about it. The major views available are:



- [Energy Costs View](#): The cost of energy usage over time, alongside factors such as a weather and solar power (if applicable).
- [Energy Use View](#): The amount of energy usage over time, alongside factors such as a weather and solar power (if applicable).
- [Usage Breakdown View](#): The top costs of energy by disaggregation categories over time.
- [Neighbors View](#): The amount of energy use compared between the customer and their neighbors.

The image below is an example of the Energy Use view.



Depending on what data is available, each of these views presents different kinds of trends and insights at varying levels of granularity over time:

- **Year view**: Energy cost or usage by each bill period in a year. Monthly, bi-monthly, and quarterly bills are supported.
- **Bill view**: Energy cost or usage by each day in a bill period, as well as the day with the highest demand.
- **Day view**: Energy cost, usage, or demand by each hour of a day, as well as the interval with the highest demand.

For more information on how the feature behaves and displays data, see [General Display Rules](#) below. Some insights may not be available depending on data availability and the customer's fuel type.

## General Display Rules

The Data Browser follows some general rules regarding when and how to display data. These rules vary depending on the view.

### Year View

Rules for the Year view include:

- For all major views (Energy Costs, Energy Use, and so on), the Year view will always display any available data, even if some data is missing. For example, if 12 out of 13 months are missing data, the Data Browser will still show data for the one month that is available.
- Energy use and cost data for a bill must be sent to Oracle Utilities Opower for the same billing period. For example, if a customer has quarterly bills, the utility cannot send monthly energy use data, and then later send the total cost of the customer's bill at the end of the quarter. Both the total usage and cost of the quarter must be sent together in order for it to display it in the Year view of the Data Browser.
- Data points are always shown for a full year plus one additional data point. This means that there are 13 data points for monthly billing, 7 data points for bi-monthly billing, and 5 data points for quarterly billing.

### Bill View

Daily AMI data is required to display the Bill view. In general, the Bill view will display any available data, even if some data is missing. For example, if only four days of data are available, the Data Browser will still show data for those four days.

### Day View

Subdaily AMI data is required to display the Day view. Data reads are shown by hour or by whatever time interval matches the customer's AMI meter. The supported intervals are 60-minute, 30-minute, and 15-minute.

For the Energy Costs and Energy Use graphs, the Day view will always display any available data, even if some data is missing. For example, if only five hours of data is available, data for those five hours will be shown. Since 24 hours in a day can be assumed, missing data is shown as gaps in the graph.

High and low temperatures are not displayed in the tooltips for the Day view. However, average hourly temperature data will be displayed if it is available.

### X-Y Axis

The Data Browser displays data in the form of lines, bars, and data points along an X-Y axis. Customers can hover over a given data point for more information and see a [tooltip](#)

containing standard details such as a date range, energy use amount, and other information depending on the view selected.

### X-Axis

The labels on the X-axis of the graph represent an interval of time (months, days, or hours).

View	Display Rules
Year view	<p>The abbreviated month and final day for each bill is displayed.</p> <p>For example, if a customer is billed monthly on the 20th of every month, the label for September is Sep 20. This ensures that if more than one bill ends in a given month, each bill can be distinguished by the day information.</p> <p>Labels appear across the X-axis for every bill. Labels are hidden in a manner to ensure that labels do not overlap for reduced screen sizes. For example, labels can be displayed for every other bill when a browser window is reduced.</p>
Bill view	<p>The abbreviated day of the week and numeric day for each daily read is displayed.</p> <p>Labels appear across the X-axis for every other day. Labels are hidden in a manner to ensure that labels do not overlap for reduced screen sizes. For example, labels can be displayed for every third bill when viewing area is reduced due to viewing the graph on a mobile device.</p>
Day view	<p>Time of day intervals are displayed, such as 12am, 6am, 12pm, and so on.</p> <p>Labels appear across the X-axis for every six hours. Labels are hidden in a manner to ensure that labels do not overlap for reduced screen sizes. For example, labels can be displayed for every twelfth hour when viewing area is reduced due to viewing the graph on a mobile device.</p>

### Y-Axis


The labels on the Y-axis of the graph represent an applicable unit of consumption, cost, or demand. The axis begins at 0 and displays increments up until an applicable maximum value that ensures all data can be shown.

## Estimated Bills and Usage Reads

Utilities are sometimes unable to obtain billing reads or AMI usage reads for their customers, in which case such bills or reads may be estimated.

- **Estimated Bills:** An estimated bill is an approximate monetary amount that is calculated based on the energy that a customer has consumed in the past rather than the present billing period. Estimated billing reads are marked in the data file sent by the utility to Oracle Utilities Opower. Estimated bills are corrected the next time the customer's meter is read. Any extra costs they were charged will be adjusted in the following bill, ensuring that customers never pay for more energy than they actually used.
- **Estimated AMI Reads:** An estimated AMI read (that is, granular usage reads such as daily or subdaily reads) is an approximate usage amount that is calculated based on the energy that a customer that has consumed in the past rather than in the present billing period. Like estimated bills, estimated AMI reads are marked in the data file sent by the utility to Oracle Utilities Opower.

In the Data Browser, estimated bills or AMI reads are indicated by a tooltip message that displays when the customer hovers over an applicable data point. This message will appear if any bill or usage read shown in the Data Browser was estimated. For example, a single bill period could be estimated or a single day could contain three hourly reads which are estimated.

 This bill was estimated.

---

Cost	<b>\$49.80</b>
Weather (°F)	<b>24° / H 32° / L 2°</b>

---

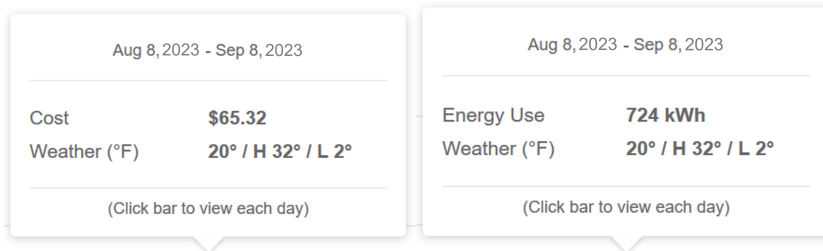
(Click bar to view each day)

**Note:** Estimated bills and AMI reads are flagged separately in the data files sent by the utility to Oracle Utilities Opower. If a utility has not marked that a billing read was estimated, then no indication of an estimated bill will be displayed for any of the bill periods shown in the Year view of the Data Browser—even if one of the billing periods contains one or more *daily* estimated AMI reads.

## Energy Tooltips

A tooltip is displayed when a customer interacts with a data point in the Data Browser. At minimum, the tooltip includes the time period covered and the amount of energy used by

the customer. Other elements of a tooltip vary depending on which view of the Data Browser is selected and what data is available.



**Time Period:** The time period for the selected data point. The information shown varies slightly depending on the interval of time being viewed.

- **Year View:** The tooltip shows the month and date range of a bill period. Example: May 3, 2020 - June 1, 2020
- **Bill View:** The tooltip shows details about a day in a bill period. Example: Thurs, May 8, 2020
- **Day View:** The tooltip shows an hourly or sub-hourly interval in a bill period. Example: 9:00 - 10:00am

**Energy Cost:** The cost of energy for the selected fuel type and time period. Energy costs are shown on tooltips for the Energy Costs graph. Hyphens are displayed for any data that is missing. The cost amounts typically do not include taxes and fees, and so do not match a customer's bill. However, with additional setup and configuration, the costs can be made to match a customer's bill. [Contact your Delivery Team](#) if you have any questions about this configuration.

**Energy Use:** The energy used for the selected fuel type (kWh, therms, and so on) and time period. Hyphens are displayed for any data that is missing.

**End-Use Category:** In the [Usage Breakdown](#) view, the tooltip shows the customer's top categories of energy use and associated costs for a given bill period. All other fields are hidden from the tooltip. If a customer chooses to view a single category, the tooltip adjusts to show the cost of the selected category and the cost of all other categories.

**Energy Insight:** In the [Neighbors](#) view, the energy tooltip provides insight into the customer's energy use for the applicable time period as compared to their neighbors. For example, the tooltip may show that a customer used more, less, or about the same as their neighbors.

**Weather:** The average temperature for the selected time period. Weather data is available in the [Energy Costs](#) and [Energy Use](#) views. High and low temperatures are also provided when using the Year view or Bill view.

**Click Bar to View Each Day or Hour:** For customers with AMI data, a message is displayed in tooltips in the year view and bill view, directing customers to more granular data. This message allows customers to quickly view data for the days in a bill period or the hours in a day.

**Estimated Bills:** Estimated bills are listed as estimates in a tooltip. When unusual circumstances prevent a utility from obtaining an actual billing read for a customer, it is sometimes necessary to calculate an estimate. See [Estimated Bills and Usage Reads](#) above for details.

### **Virtual Bills**

A virtual bill shows a business customer's daily energy use and energy costs up to the present day in the Data Browser, even though the bill period is not finished yet. This is accomplished by determining the maximum number of days to display along the horizontal axis in the Bill view. This feature requires AMI data.

A virtual bill is useful because it assumes an end date for an in-progress bill, and it therefore allows daily usage data to be displayed in the Data Browser before the bill period is finished. Because of virtual bills, customers can go to the Bill view and navigate past their most recent bill period to see their daily usage data up to the present day.

### **Solar Data**

The Data Browser supports solar data by displaying a customer's net energy usage in a given interval of time on the horizontal axis. (This may also be referred to as net energy metering, or NEM.) For example, if a customer has solar power and generates more energy than they consume, the Data Browser will show the customer's energy use as a credit or as a negative value. This data can be configured to display in different ways for a utility. See the [Energy Costs](#) view and [Energy Use](#) view for details.

### **Weather Data**

Any weather data displayed in the feature is based on the geolocation (latitude and longitude coordinates) of the business customer. A weather service is used to select the closest weather station with weather data for the customer. This usually corresponds to the nearest airport station, usually within ~40 kilometers from the customer. Daily average temperatures are based on hourly temperatures.

### **Multiple Accounts**

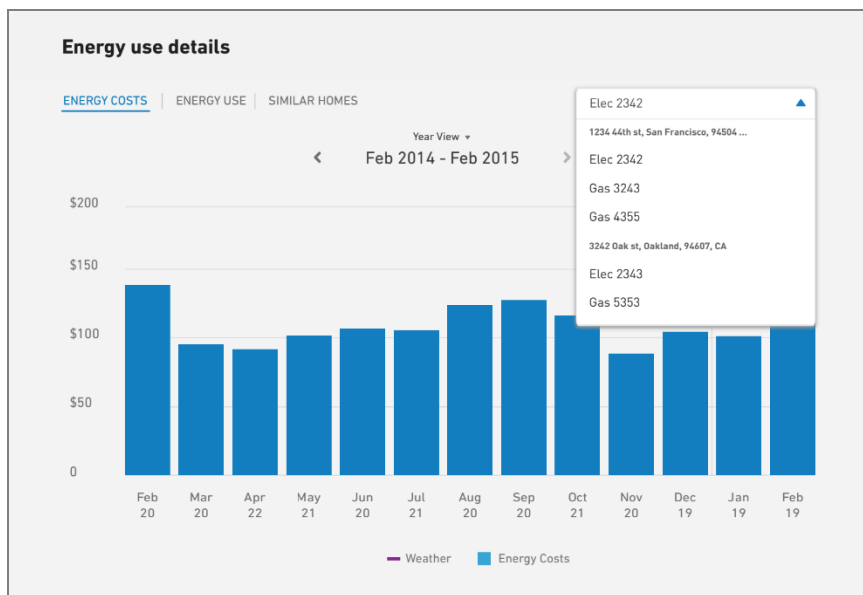
The multiple accounts experience varies depending on whether the feature has been configured for a standalone implementation or an embedded implementation.

In a standalone implementation, the Data Browser shows a drop-down list that allows customers to choose which account to view. The addresses in the list represent the available accounts.

In an embedded widget implementation, the account drop-down is hidden since the utility site is expected to have its own account selection tools. In this case, business customers can switch between their accounts by logging into their utility account using [single sign-on](#), and then clicking an account selector hosted on the utility website. All embedded widgets are then reloaded with data for the specified account.

## Multiple Service Points

An account can include one or more service points. In such cases, the Data Browser displays a menu listing multiple accounts and service points for the customer to choose from. Customers can select a service point from the menu, but not the premise itself. The example below shows a customer with a standalone implementation that has multiple accounts and service points.



## Missing Data

As discussed above, all available data is displayed in the Data Browser even if there is missing data.

For the [Year View](#) and [Day View](#), any missing bills, data reads, or weather data are displayed as missing data points on the graph. In the case of bar graphs, gaps will be shown for each interval of missing data. In the case of line graphs (such as the Neighbors View), a dotted line is displayed for the missing data point if the missing data is between other data points. If it is at the end, a gap will be shown with no line. The tooltips for these data points use hyphens in place of any missing data.

## Customer Feedback

A customer feedback module can be displayed at the bottom of the Data Browser to collect input and inform ongoing improvements. See [Customer Feedback](#) for more information.

## Energy Costs View

The Energy Costs view of the [Data Browser](#) displays how much a customer was billed for energy use, based on historical bill amounts. Customers can view energy costs for each bill over a 13-month period. Daily and subdaily views are also available if there is enough data.

## Requirements

Same as listed in [Data Browser](#). Additional data and cloud service requirements may apply depending on the types of insights (such as rate plan insights or peak time rebates) that the utility chooses to display. See the feature descriptions and [User Experience Variations](#) below for details.

## Limitations

Same as listed in [Data Browser](#).

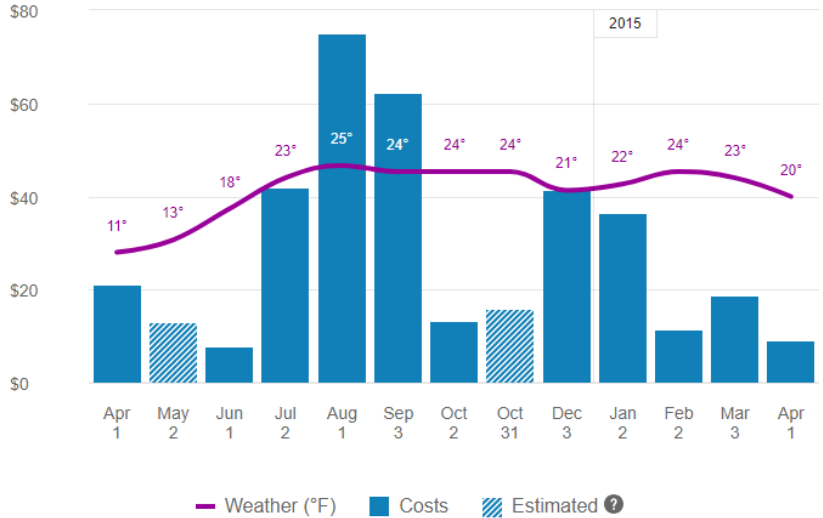
## User Experience

The Energy Costs view displays how much a customer was billed for energy use over time. This section describes the user experience for customers who have billing data and daily AMI data.



Year view ▾

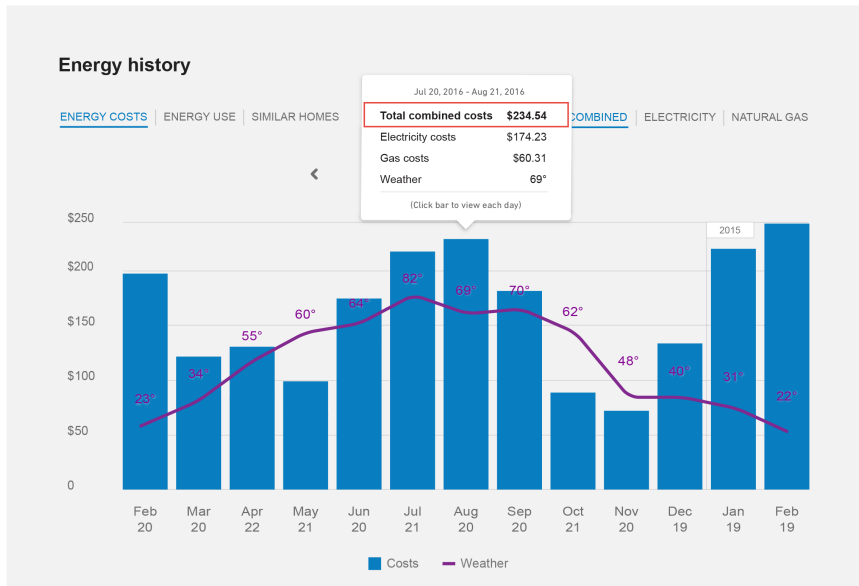
◀ Apr 2014 - Apr 2015 ▶



### Fuel Menu

The fuel menu allows customers to select which fuel to view data for. By default, electricity is shown. An additional gas menu only appears for dual fuel customers.

A Combined view can be displayed, which combines electric and gas costs into a single number using a price-weighted index. When the Combined view is enabled, the data point [tooltips](#) also display combined totals.



## Time Menu

Depending on what data is available, the Energy Costs view presents different kinds of trends and insights at varying levels of granularity over time:

- **Year view:** Energy cost by each bill period in a year. Monthly, bi-monthly, and quarterly bills are supported.
- **Bill view:** Energy cost by each day in a bill period. AMI data is required for this view.
- **Day view:** Energy costs by each hour of a day (or another subdaily interval such as quarter of an hour). AMI data is required for this view.

There are also forward and backward buttons that customers can select to display contiguous blocks of time. In the Year view, for example, clicking the forward or backward button displays contiguous 13-month blocks of time for customers on monthly billing.

## Bar Graph

The bar graph uses a vertical axis (Y-axis) to show the cost, and a horizontal axis (X-axis) to show the time period. The bars use the "You" color, which is blue by default and commonly changed to the utility's brand color. See [General Display Rules](#) for details on how the graph behaves and how the data visualization can change depending on the selected view.

## Weather Data

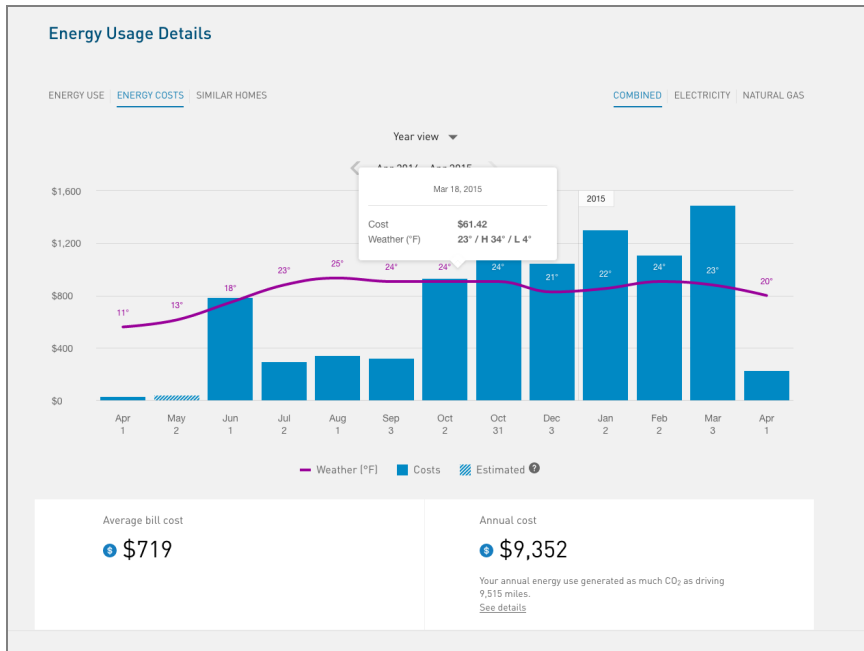
A line graph representing the average temperature during each time period is overlaid on the bar graph. This allows customers to see how their usage relates to local weather patterns. The weather data is based on data from the airport weather station closest to the location of the customer. See [Weather Data](#) for details on how weather data is retrieved.

## Cost Insights Bar

For each fuel type available in the Energy Costs view, a bar is displayed beneath the graph to show additional cost insights. This bar is available for single fuel and dual fuel customers and displays only in the Year and Bill views.

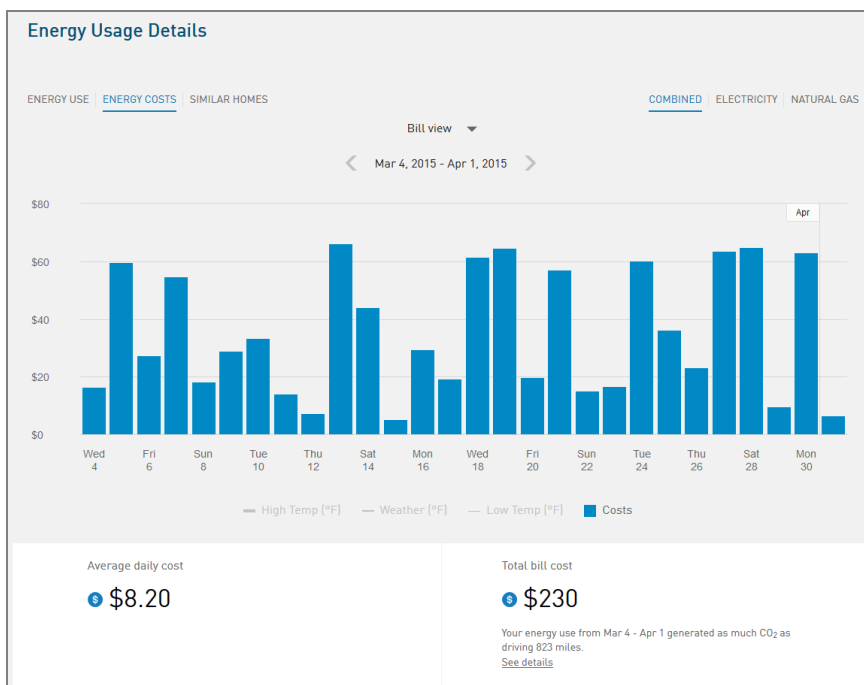
**Year View:** The bar displays the average bill cost and total annual cost for the selected year. If the year is not yet complete, the average bill and total cost-to-date is shown. The bar can also include an insight about how the customer's energy use equates to miles driven, if applicable.

In the example below, the year is complete, and the customer is using the Combined view.



**Bill View:** The bar displays the customer's average daily cost and total bill cost for the selected bill. If the bill period is not yet complete, then the daily average and cost to date is shown, and a link is displayed to take the customer to the [Smart Dashboard](#), which includes a bill forecast. The bar can also include an insight about how the customer's energy use equates to miles driven, if applicable.

In the example below, the bill period is complete, and the customer is using the Combined view.



**Carbon Emissions / Miles Driven Insight:** The cost insights bar can include an insight explaining how the customer's energy use equates to carbon emissions and miles driven. This information allows customers to understand their energy use in more practical, familiar terms. The insight is followed by a link to the US Environmental Protection Agency's greenhouse gas equivalencies calculator.

**Note:** The carbon emissions insight is disabled by default since it depends on data from the US Environmental Protection Agency. It is therefore only available to utilities in the US. It can be enabled for US utilities upon request.

## Tooltips

Tooltips are displayed when customers interact with a data point on the graph. See [Energy Tooltips](#) for details on what the tooltips may include.

For AMI customers, a message is displayed at the bottom of tooltips for data points for each bill. This messaging acts as a tip for how a customer can quickly view hourly or sub-hourly data for a given bill.

Customers can also view data points for energy costs that have not yet been included on a bill. By default, up to 30 days of in-progress billing data can be displayed to a customer, which can be configured to align with the length of a customer's billing cycle. See [Virtual Bills](#) for details.

## Legend

A legend below the graph defines the elements displayed in the graph. If applicable, the legend includes an indicator for [estimated bills](#).

## Disclaimer

Disclaimer messages can be added to the Energy Costs view that are specific to the view. For example, if applicable, a disclaimer message can explain that the amounts shown do not include taxes and other fees. The disclaimer message can also include links to other resources where customers can find more information.

## User Experience Variations

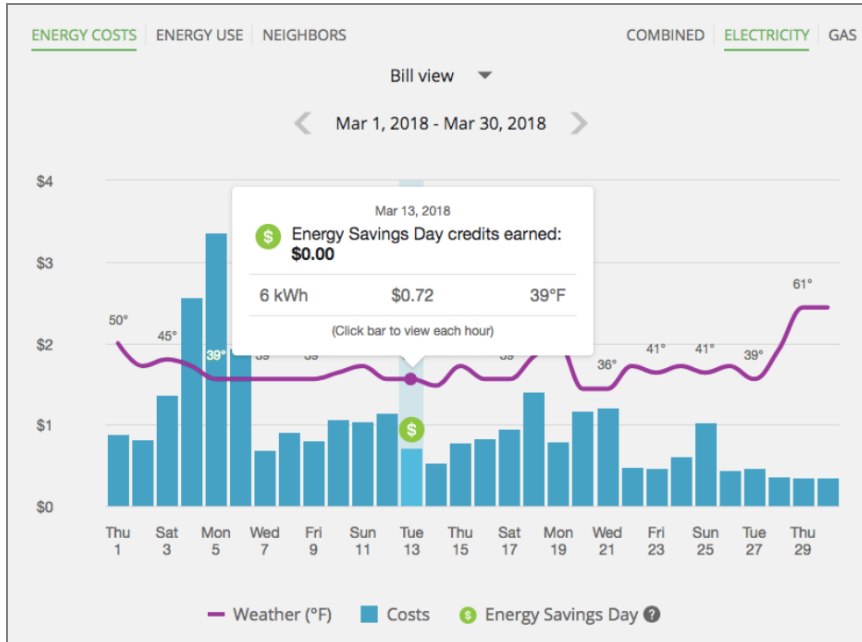
### Multiple Accounts and Service Points

If a customer has multiple accounts and service points, a drop-down list is displayed above the graph allowing customers to choose one and view data related to it. See [Multiple Accounts](#) and [Multiple Service Points](#) for details.

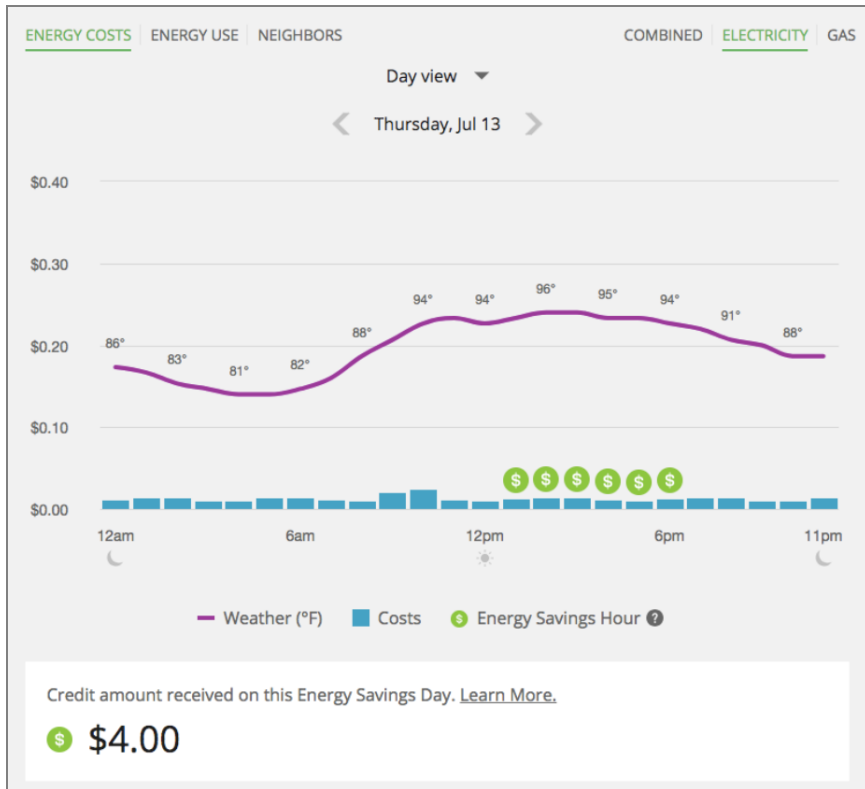
## Peak Time Rebates Experience

Customers who participate in a Peak Time Rebates program can view information about credits earned during a peak event. This information can be viewed in the Bill or Day views.

**Bill View:** An icon displays above the days when a customer had an opportunity to receive a peak time rebate. You can click on the icon to view the tooltip, which displays the amount of any credits earned.



**Day View:** An icon displays above the hours when a customer had an opportunity to receive a peak time rebate. You can click on the icon to display a tooltip with details about that hour. Additionally, you can see any credits earned during that day below the graph.



### Requirements:

- The [Peak Time Rebates](#) cloud service must be purchased.
- Peak time rebates data (such as the day and time of the peak event, as well as rebate amounts) is required.
- Daily or subdaily AMI data is required.

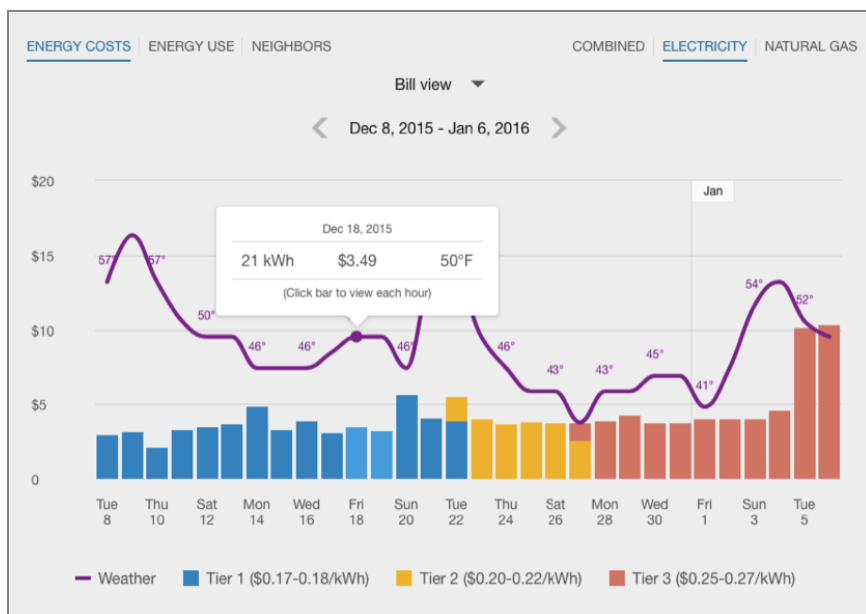
### Rates Experience

Rates or cost information be displayed in the daily and subdaily views of the Energy Costs view. Different types of rate plans are supported. The Rates Engagement cloud service must be purchased and [rates must be modeled](#). [Contact your Delivery Team](#) for more information.

### Tiered Rate Plans

In a tiered rate plan, the cost of energy depends on the amount of energy used in the current billing period. For example, the first 500 kilowatt hours (kWh) might be billed at \$0.06 per kWh, while the next 500 kWh would be billed at a higher rate. Each tier is listed in the graph legend and a customer's energy costs or use for each tier are depicted in the graph, as shown in the image below.

**Note:** The Data Browser can display a maximum of four rate tiers.

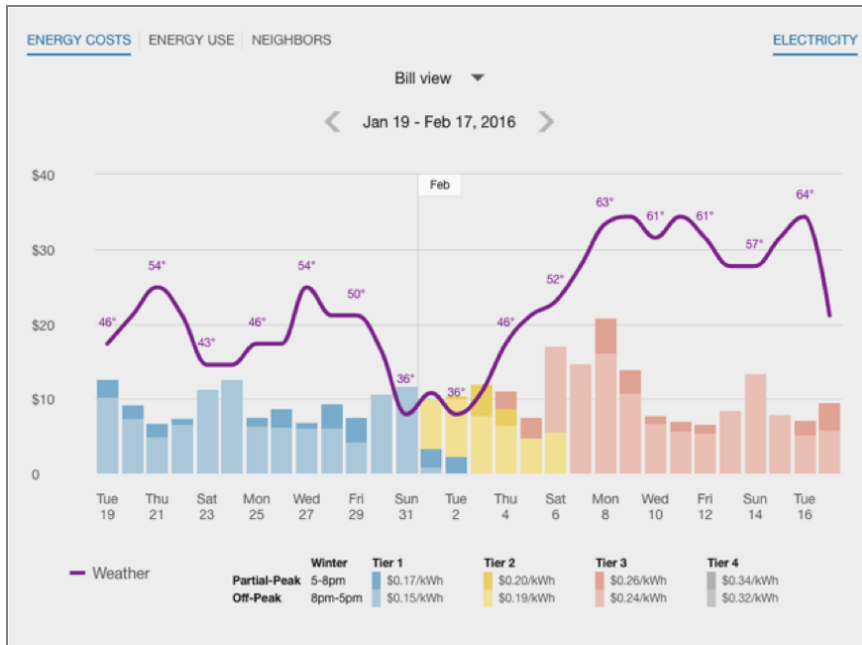


The legend in this case only displays tiers that are found in the chart. For example, the legend shows a rate plan that includes three tiers. But the third tier may be hidden from the legend if data is only available for two tiers.

The legend can account for the prices that are displayed for each tier. For a given tier, if a customer is charged multiple different prices on the graph, the tier is listed as a price range in the legend.

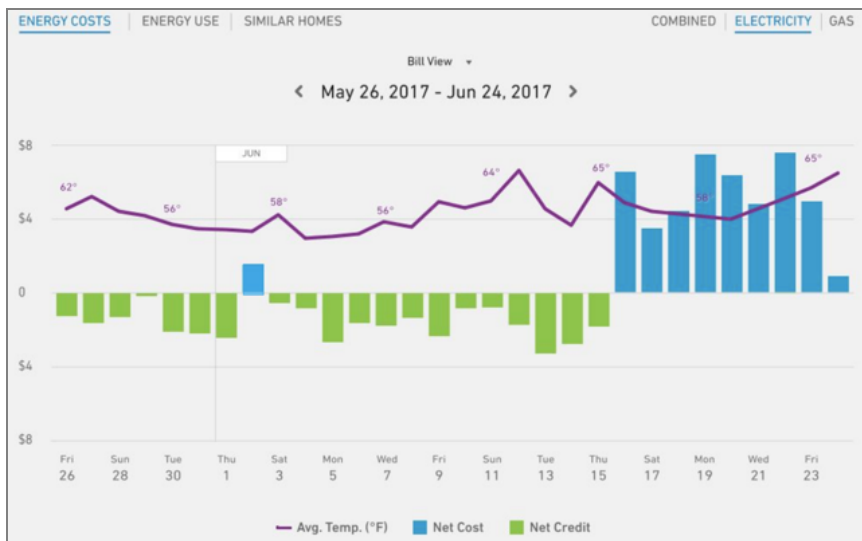
### Time of Use Plans

In a Time of Use plan, the cost of energy depends on the time of day and how the utility defines "on-peak" versus "off-peak" hours. For example, peak hours for a utility can be defined as weekdays between 1:00 PM to 7:00 PM from May through September. The example below uses a tiered rate plan in addition to a Time of Use rate plan.



The legend shows pricing for different tiers and peak periods. All the available rate tiers are displayed regardless of which tiers have data represented on the graph.

For customers with both Net Energy Metering (that is, solar power) *and* Time of Use plans, the display on the Bill view is simplified. For each day that includes a time-of-use period with negative cost, a net positive or net negative energy use is displayed for the entire day and removes the distinction between the different time-of-use periods.



### Peak Days

In rate plans that use peak day events, energy costs more money during peak days due to higher demand. The peak day event pricing is listed in the graph legend and a customer's



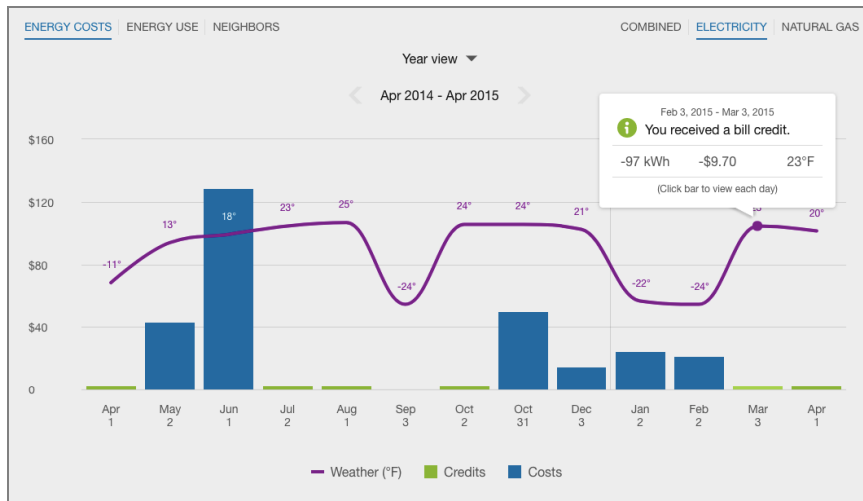
energy costs or use for each event are depicted in the graph.

### Rates Not Modeled

For customers who have AMI data but do not yet have their rate plan modeled in the system, there is not enough information to determine specific costs at a level more granular than the bill. In this case, the Data Browser will show an error message in the Bill or Day View for costs.

### Solar Customers

If a customer has solar power and generates more energy than they consume, the Energy Costs view will show the customer's energy use as a credit. The example below shows short green bars for negative values. Additionally, a tooltip denotes the negative cost value. This default experience can be configured to display in different ways. Utilities must coordinate with their Delivery Team to determine which display to use.



Additional solar insights and messaging can be displayed if the utility has purchased the Oracle Utilities Opower Distributed Energy Resources cloud service. See [Solar Insights for the Data Browser](#) for more information.

### One-Day Bill Period

In some cases, customers may see a one-day bill period. This can occur when a customer is on their first day of the bill period, and Oracle Utilities Opower has received interval usage data for that day but has not yet received billing data for the bill period's end date. When this happens, a single bar is displayed in the Bill view, centered on the graph, for the single day. The weather data line graph is disabled.

## Energy Use View

The Energy Use view of the [Data Browser](#) displays how much energy a customer consumed over specific periods of time. Customers can view energy usage for each bill over a 13-month period. If the required data is available, the customer can also view daily and subdaily data.

### Requirements

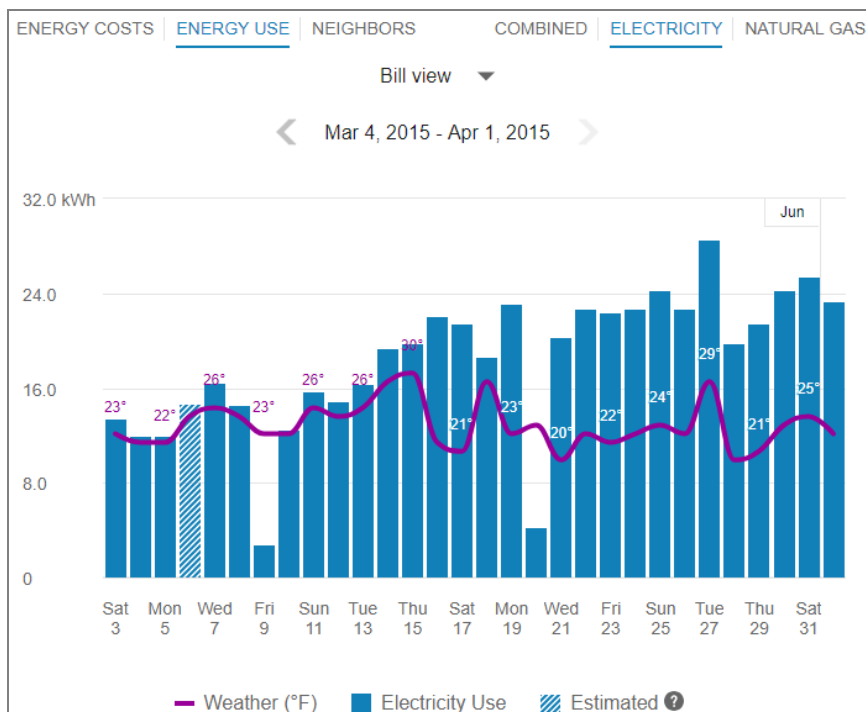
Same as listed in [Data Browser](#). Additional data and cloud service requirements may apply depending on the types of insights (such as solar insights) that the utility chooses to display. See the feature descriptions and [User Experience Variations](#) below for details.

### Limitations

Same as listed in [Data Browser](#).

### User Experience

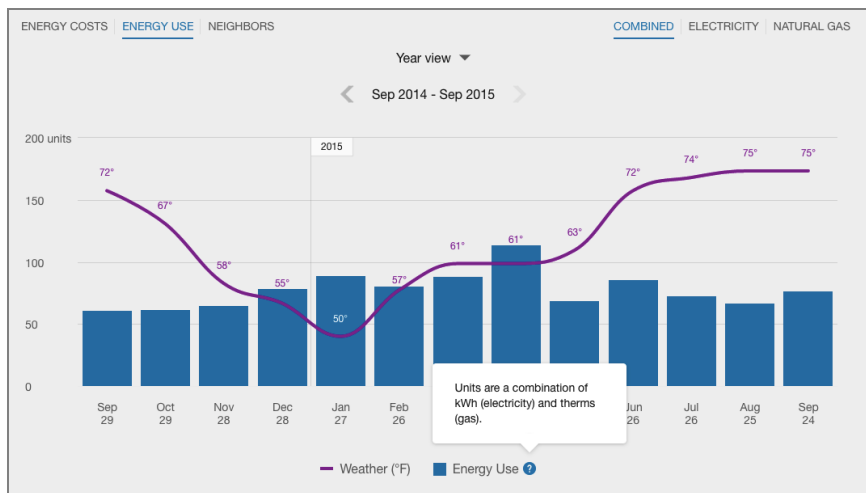
The Energy Use view displays how much energy a customer is using over time. This section describes the user experience for customers who have billing data and daily AMI data.



### Fuel Menu

Electricity is displayed by default. Dual fuel customers will see options that allow them to switch between electricity and gas use.

A Combined view can be displayed, which combines electricity and gas costs into a single number using a price-weighted index. When the Combined view is enabled, the data point [tooltips](#) also display combined totals.



## Time Menu

Depending on what data is available, the Energy Use view presents different kinds of trends and insights at varying levels of granularity over time:

- **Year view:** Energy use by each bill period in a year. Monthly, bi-monthly, and quarterly bills are supported.
- **Bill view:** Energy use by each day in a bill period. AMI data is required for this view.
- **Day view:** Energy use by each hour of a day (or another interval such as quarter of an hour). AMI data is required for this view.

There are also forward and backward buttons that customers can select to display contiguous blocks of time. In the Year view, for example, clicking the forward or backward button displays contiguous 13-month blocks of time for customers on monthly billing.

## Bar Graph

The bar graph uses a vertical axis (Y-axis) to show the cost, and a horizontal axis (X-axis) shows the time period. The bars use the "You" color, which is blue by default and commonly changed to the utility's brand color. Lighter bars represent [estimated bills or usage reads](#). See [General Display Rules](#) for details on how the graph behaves and how the data visualization can change depending on which view is selected.

## Weather Data

A line graph representing the average temperature during each time period is overlaid on the bar graph. This allows customers to see how their usage relates to local weather

patterns. The weather data is based on data from the airport weather station closest to the location of the customer. See [Weather Data](#) for details on how weather data is retrieved.

## **Tooltips**

Tooltips are displayed when customers interact with a data point on the graph. See [Energy Tooltips](#) for details on what the tooltips may include.

For AMI customers, a message is displayed at the bottom of tooltips for data points for each bill. This messaging acts as a tip for how a customer can quickly view hourly or sub-hourly data for a given bill.

Customers can also view data points for energy use that has not yet been included on a bill. See [Virtual Bills](#) for details.

## **Disclaimer**

Disclaimer messages can be added to the Energy Use view that are specific to the view. For example, a disclaimer message can explain estimated usage. The disclaimer messages can also include links to resources where customers can find more information.

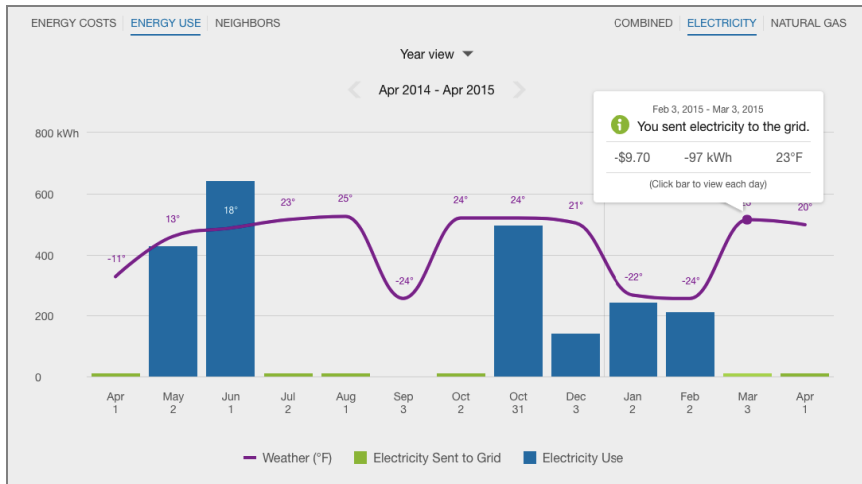
## **User Experience Variations**

### **Multiple Accounts and Service Points**

If a customer has multiple accounts and service points, a drop-down list is displayed above the graph allowing customers to choose one and view data related to it. See [Multiple Accounts](#) and [Multiple Service Points](#) for details.

### **Solar Data and Net Energy Metering**

If a customer has solar power and generates more energy than they consume, the Energy Use view will show the customer's energy use as being sent to the grid. The example below shows short green bars for negative values. Additionally, a tooltip denotes the negative use value.



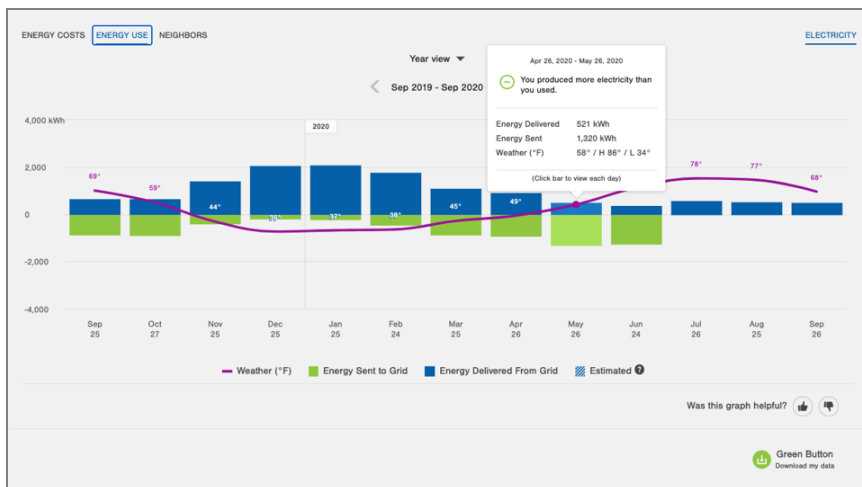
This default experience can be configured to display in different ways. Utilities must coordinate with their [Delivery Team](#) to determine which display to use.

### Solar Data and Bidirectional Energy Display

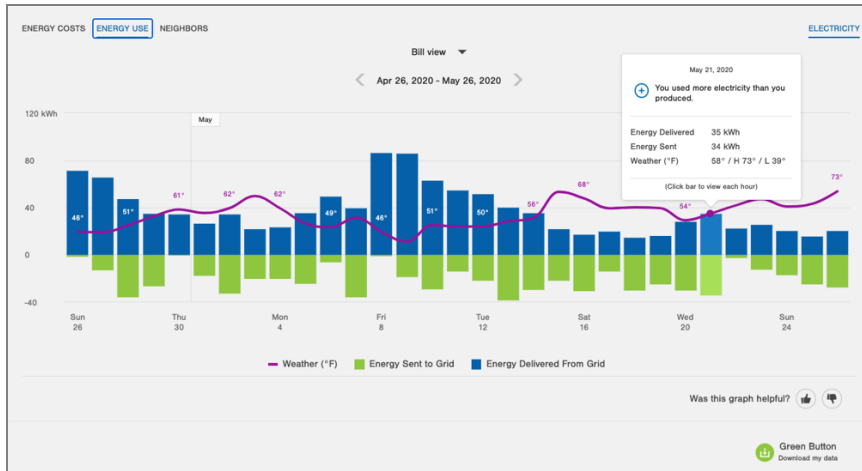
The Energy Use view of solar data can be enhanced for customers who have multi-register rather than single-register meters. Single-register meters only provide one data stream that provides total net energy use data (kWh). Multi-register meters can provide more details within an interval, such as the amount that goes from the grid to the house or from the house to the grid due to solar power.

When this view is configured, the Energy Use view can display both energy consumption and production data in the same time interval on the horizontal axis of the graph. Usage data is shown as a positive value and solar data is shown as a negative value, indicating a bidirectional flow of energy. The usage and production data is also reflected in the [Green Button](#) feature.

### Solar Bidirectional Enhancement: Year View Example



## Solar Bidirectional Enhancement: Bill View Example



### Requirements:

- The customer must have multi-register meters.
- [Account](#), [Billing](#), and [Premise](#) data feeds must be established with the utility.
- Some additional configuration is required to enable the view. [Contact your Delivery Team](#) for more information.

### Usage Breakdown View

The Usage Breakdown view of the [Data Browser](#) allows customers to explore their top energy costs by disaggregation category (or "end use category") over time. This helps customers see how their end uses (such as heating, cooling, and lighting) and appliances (such as dishwasher or dryer) contribute to their overall energy use, and to identify trends that may be leading to higher than normal bills.

### Requirements

Same as listed in [Data Browser](#). Additional requirements include:

- Average energy use data for households in a utility's region, as well as billing data and weather data.
- AMI data is required in order to show appliance-level insights (such as energy costs associated with an oven, refrigerator, or dishwasher). [Contact your Delivery Team](#) for more information.

### Limitations

Same as listed in [Data Browser](#). Additional limitations include:

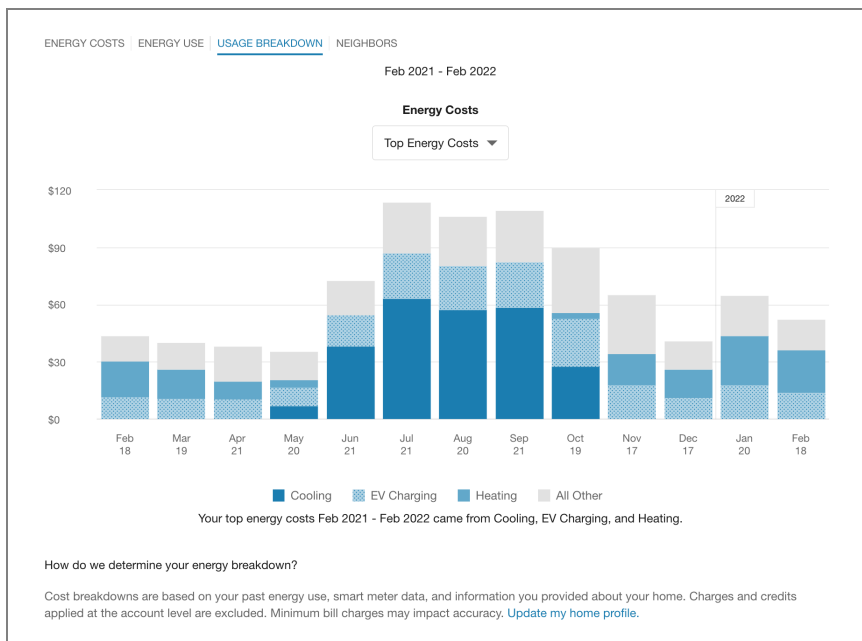
- The Usage Breakdown view is not available for customers with solar power. This is because the feature uses data science models which have not yet been trained on

homes with solar power, and so the disaggregation results would not be accurate.

- The following types of customers and utilities are not supported: Small and medium businesses (SMB) customers, commercial and industrial customers, and water and wastewater utilities.
- Customers cannot navigate to a previous 13-month historical period to view a usage breakdown.

## User Experience

The Usage Breakdown view displays how much money a customer is spending on energy in top end-use categories. This section describes the user experience for AMI electricity customers whose top costs are heating, cooling, and electric vehicle (EV) charging.



## Date Range

A date range appears at the top of the feature to indicate the time period for the data. The range always shows the current month and the previous 12 months (for a total of 13 months), so that customers can get a full year's worth of comparison. Customers cannot navigate to a previous 13-month historical period.

## Energy Costs Menu

A menu appears above the graph to allow customers to choose which end-use category to view. The menu defaults to the customer's top three energy costs from the current month and the previous 12 months (for a total of 13 months). If a customer selects to view a single category, then the bar chart adjusts accordingly. Other notes about the menu's behavior include:

- Only categories that apply to the customer are available in the menu. For example, customers who own an electric vehicle (EV) may see a menu option for "EV charging," but this option will not appear for customers who do not own an EV.
- The categories in the menu match most of the categories in the customer's [Home Energy Analysis](#) breakdown. The exception is that the menu does not display an option for "Other Energy Use," since in this context it is too vague and not granular enough to be useful.
- The menu can display categories for individual appliances (instead of the generic "Appliances") depending on available data and the utility's setup and configuration. See [Appliance-Level Insights](#) below for details.

## Bar Chart

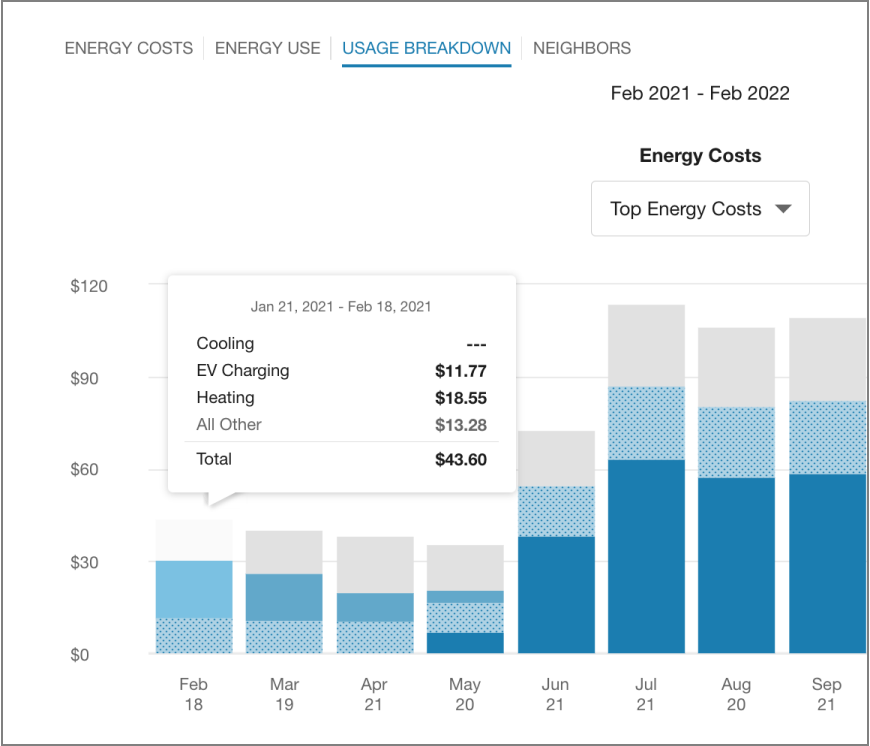
The bar chart displays a customer's top three energy cost categories over the last 13 bill periods. The categories are displayed in different colors in each bar. The bar also shows a gray color to refer to other categories of energy use. Customers can use this information to understand which category costs the most money at different points in time. Additional notes about the bar chart include:

- The bar chart shows top energy costs by bill period across a year. Customers cannot view data at a more granular view, such as monthly or daily.
- If a customer selects to view a single category, then the bar chart adjusts to show two colors: the color of the category selected and a gray color for all other categories.
- The top cost or costs shown in each bill period will match the disaggregation results of [Home Energy Analysis](#) for that same bill period. For example, if a customer hovers over a data point and sees that the electric heating cost was \$64 for January, then the same number will be displayed in the Home Energy Analysis breakdown for January.

## Tooltips

Tooltips are displayed when customers interact with a data point on the graph. The tooltip includes the date range of the selected bill period, the top usage categories, the cost associated with each category, and the total cost for the bill period. If a customer selects to view a single category, the tooltip adjusts to show just two items: the cost of the selected category and the cost of all other categories.





See [Energy Tooltips](#) for details on what the tooltips may include in other views of the Data Browser.

**Legend**

The legend below the bar chart shows the color of each category displayed in the chart. If a customer selects to view a single category, the legend adjusts to show just two colors: the color of the selected category and a gray color for "All Other". The "All Other" category is present in the chart legend and tooltip, but not in the Energy Costs Menu since it varies depending on the selection.

- If "Top Energy Costs" is selected in the Energy Costs menu, then the "All Other" category in the legend refers to the total bill cost *minus* the top three energy category costs.
- If an individual category is selected in the Energy Costs menu, then the "All Other" category in the legend refers to the total bill cost *minus* the selected category cost.

**Energy Costs Insight**

An insight statement below the bar chart legend explains the customer's top costs in three categories for a specific time period. The statement remains the same even if the customer selects to view the breakdown for a single category. This is so that the customer is reminded of the top three costs when selecting to view a single category.

## Explainer

A message below the graph explains how the customer's breakdown is determined. The message varies slightly based on whether the customer has AMI data and has started or completed the [Home Energy Analysis](#) survey. There is also a disclaimer about how account-level charges and credits are excluded, and how minimum bill charges can impact the accuracy of the cost information. The message concludes with a link to the Home Energy Analysis survey, where customers can update their home profile so that they receive the most accurate insights.

## User Experience Variations

### Appliance-Level Insights

If sufficient data is available and the proper configuration has been completed, the Energy Costs Menu and chart can display specific appliances as top cost categories, rather than a general "Appliances" category. For example, the breakdown can include categories such as laundry, refrigerator, or oven.



**Requirements:** Weather data, subdaily AMI data (at the hourly or quarter of an hour resolution), billing data from at least one bill period, and more. Contact your [Delivery Team](#) for details.

### Dual Fuel

For dual fuel customers, the bar chart combines the data for electricity and gas into a single bar chart. There is no toggle to see a breakdown for each fuel type. This aligns with the breakdown that dual fuel customers see in the [Home Energy Analysis](#), in which a single graphic containing gas and electricity data is shown to dual fuel customers.

### Gas-Only

Gas-only customers can receive the Usage Breakdown view in the Data Browser. The user experience can change for them in the following ways:

**Disaggregation:** The disaggregation only shows end-use categories for which gas is a supported fuel type. For example, categories for cooling, electric vehicle, and individual appliances would be hidden.

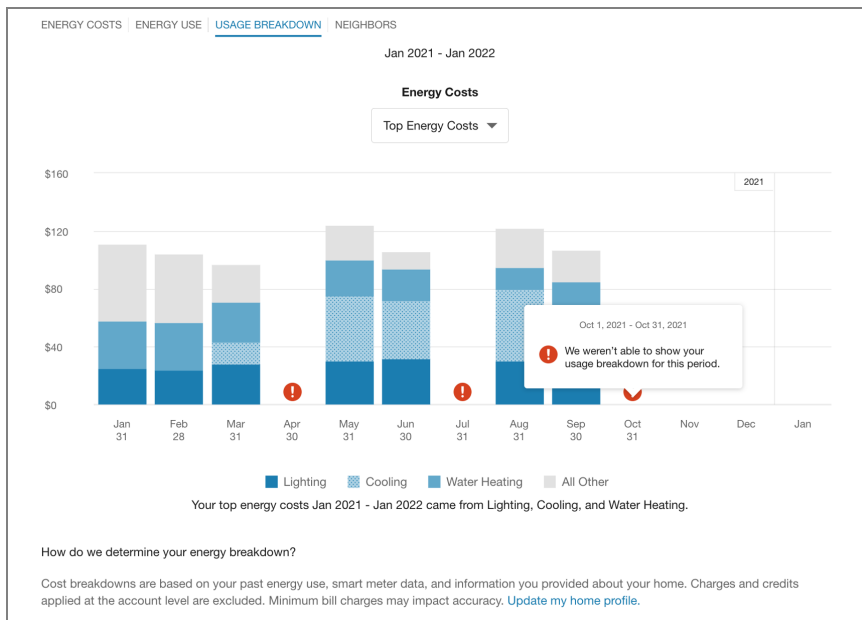
**Two Categories:** Gas-only customers may not have enough information to determine their energy use in three top categories. In such cases, two top categories can still be shown. See [Two or Three Categories](#) below for details.

### Less Than 13 Months

If less than 13 months of data are available, the bar chart still shows data for bill periods in which data is available.

### Missing Data

If there are four or less bill periods with missing data, then the bar chart shows a missing data icon and error message in the tooltip for each bill period where the data is missing. If there are more than four bill periods with missing data, then the Usage Breakdown view selector is hidden.



### Multiple Accounts and Service Points

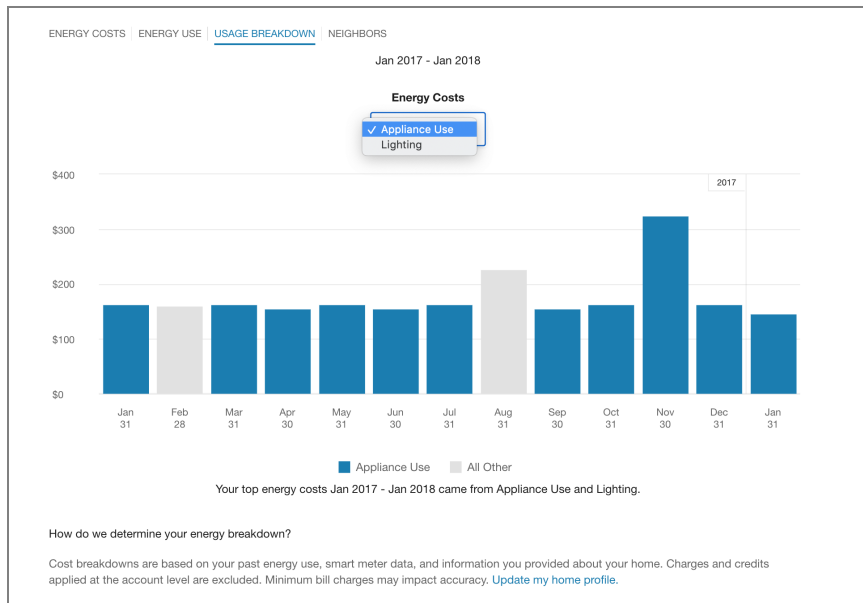
If a customer has multiple accounts and service points, a drop-down list is displayed above the graph allowing customers to choose one and view data related to it. See [Multiple Accounts](#) and [Multiple Service Points](#) for details.

## Non-AMI Data

For customers with non-AMI (billing) data, the explanation beneath the bar chart changes slightly to say that the customer's breakdown is based on "meter data" instead of "smart meter" data.

## Two or Three Categories

If only two or three disaggregation categories are available for a customer, then the Energy Costs Menu will include all available categories but exclude a Top Energy Costs category. A customer will be able to view a single category at a time.



## Neighbors View

The Neighbors view of the [Data Browser](#) allows residential customers to compare their energy use against their neighbors over each billing period from last year. Three lines are displayed on the graph to compare the energy use of the customer, all neighbors, and efficient neighbors. If there are not enough neighbors for a customer or the customer is ineligible for a neighbor comparison, then an applicable message is displayed in place of the view.

**Note:** The term **Neighbors** is used in this view by default, but it is often replaced with the term **Similar Homes**. The terminology is configurable for each utility.

## Requirements

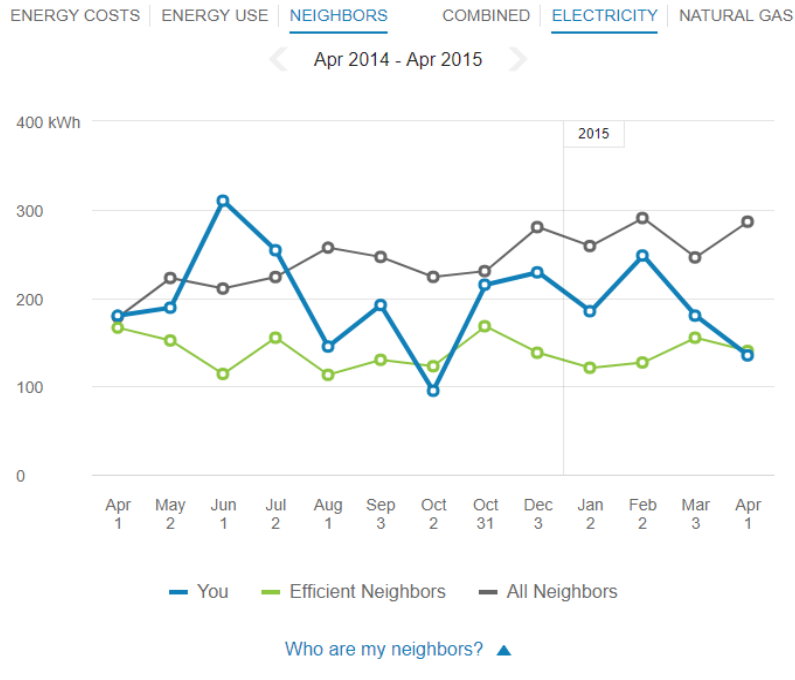
Same as listed in [Data Browser](#).

## Limitations

Same as listed in [Data Browser](#).

## User Experience

The Neighbors view allows customers to compare their energy use against similar homes over each billing period that falls in the last year. This section describes the user experience for customers who have billing data.



Based on what we know about you, we compare you to **100 similar homes** with these characteristics:

- ✔ **Home size:** 1205 ft<sup>2</sup>
- ✔ **Heating type:** 60% have electric heat
- ✔ **Occupants:** about 3

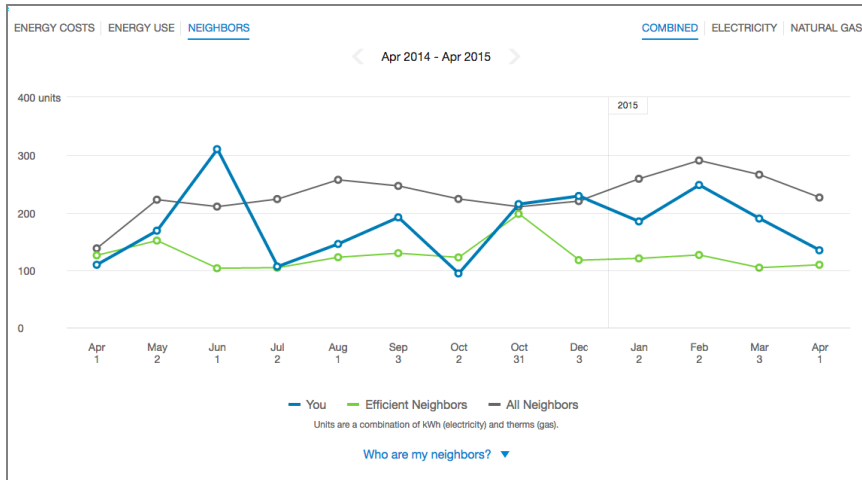
Efficient neighbors are the 20% who use the least amount of energy. Visit your Home Energy Analysis to update your information and see what uses most.

[SEE HOME ENERGY ANALYSIS](#)

## Fuel Menu

Electricity is displayed by default. If the customer is dual fuel, they will see options that allow them to switch between electricity and gas use.

A Combined view can be displayed, which combines electricity and gas costs into a single number using a price-weighted index. When the Combined view is enabled, the data point [tooltips](#) also display combined totals.



## Time Menu

Above the data graph are forward and backward buttons that customers can select to display contiguous blocks of time. In the year view, for example, clicking the forward or backward button displays contiguous 13-month blocks of time for customers on monthly billing.

Since the data granularity available for a customer does not always match that of their neighbors, the energy use trends are only shown on the year view. Customers do not have the option of switching to a more granular view of data (such as the bill or day view).

## Line Graph

The line graph uses a vertical axis (Y-axis) to represent energy use, and a horizontal axis (X-axis) to represent the time period. Three lines are displayed on the graph:

- **You (the customer):** Uses the "You" color, which is blue by default and commonly changed to the utility's brand color.
- **All Neighbors:** Uses a gray or neutral color.
- **Efficient Neighbors:** Commonly uses a green color because green is associated with energy efficiency.

See [General Display Rules](#) for details on how the graph behaves and how the data visualization can change depending on which view is selected.

## Neighbor Details

The Neighbors view includes a section in the legend of the graph that, when clicked, displays a **What homes are compared?** dialog, which shows the characteristics of the homes that the customer is being compared to. The description can be dynamic or static.




The static neighbor description is nearly identical to the dynamic neighbor description, except that it is much shorter and does not dynamically display neighbors' characteristics based on available data. The dynamic description includes a list of comparison characteristics and other information about the comparison, followed by a link to the [Home Energy Analysis](#) survey.

- **Summary Message:** A summary message provides the number of neighbors or similar homes that are included in the comparison.



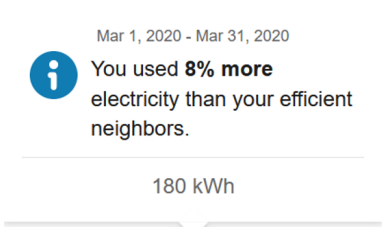



- **Comparison Characteristics:** A list of characteristics that a customer shares with their neighbors is displayed with a green check mark. If a characteristic is unknown for a customer, it is not included in the comparison and hidden from view.
- **Neighbors or Similar Homes Definition:** A brief line defining neighbors or similar homes as the 20% that use the least amount of energy.
- **Link to Survey:** Clicking this button takes the customer to [Home Energy Analysis](#) survey so that they can provide the latest details about their home and make the neighbor comparison more accurate. **Note:** The neighbor comparison does not get automatically updated in real time based on a customer's updates. This link will still appear even if the user has already visited the Home Energy Analysis.

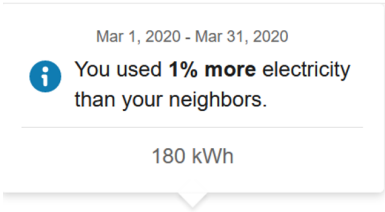
### Tooltips

Tooltips are displayed when customers interact with a data point on the graph. In addition to showing the time period and the customer's energy use, the tooltips in the Neighbors view also show an insight about how the customer compares to their neighbors or similar homes.

Comparison State	Description
Customer is using less than efficient neighbors.	<p><b>Logic:</b> Customer uses at least 1% less than efficient neighbors.</p> <p><b>Example Message:</b> "You used n% less than your efficient neighbors."</p> <p><b>Example Desktop Tooltip:</b></p> <div data-bbox="805 1276 1183 1482" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p style="text-align: center; font-size: small;">Mar 1, 2020 - Mar 31, 2020</p> <p style="text-align: center;">  You used <b>3% less</b> electricity than your efficient neighbors.         </p> <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center;">180 kWh</p> </div>
Customer is using the same as efficient neighbors.	<p><b>Logic:</b> The difference between the customer and efficient neighbors is 0%.</p> <p><b>Example Message:</b> "You used about the same as your efficient neighbors."</p> <p><b>Example Desktop Tooltip:</b></p>



Comparison State	Description
	 <p>Mar 1, 2020 - Mar 31, 2020   You used <b>about the same</b> electricity as your efficient neighbors.  <hr/> 180 kWh</p>
<p>Customer is using less than average neighbors, but more than efficient neighbors.</p>	<p><b>Logic:</b> Customer uses at least 1% or more than efficient neighbors.</p> <p><b>Example Message:</b> "You used n% more than your efficient neighbors."</p> <p><b>Example Desktop Tooltip:</b></p>  <p>Mar 1, 2020 - Mar 31, 2020   You used <b>8% more</b> electricity than your efficient neighbors.  <hr/> 180 kWh</p>
<p>Customer is using about the same as average neighbors.</p>	<p><b>Logic:</b> The difference between the customer and average neighbors is 0%.</p> <p><b>Example Message:</b> "You used about the same as your average neighbors."</p> <p><b>Example Desktop Tooltip:</b></p>  <p>Mar 1, 2020 - Apr 1, 2020   You used <b>about the same</b> electricity as your neighbors.  <hr/> 190 kWh</p>
<p>Customer is using more than average neighbors.</p>	<p><b>Logic:</b> Customer uses at least 1% or more than average neighbors.</p>

Comparison State	Description
	<p><b>Example Message:</b> "You used n% more than your average neighbors."</p> <p><b>Example Desktop Tooltip:</b></p> 

See [Energy Tooltips](#) for details on what the tooltips may include in other views of the Data Browser.

### Disclaimer

Disclaimer messages can be added to the Neighbors view that are specific to the view. For example, the disclaimer in the Neighbor view might provide information about how neighbors are determined. The disclaimer messages can also include links to resources where customers can find more information.

### User Experience Variations

#### Multiple Accounts and Service Points

If a customer has multiple accounts and service points, a drop-down list is displayed above the graph allowing customers to choose one and view data related to it. See [Multiple Accounts](#) and [Multiple Service Points](#) for details.

### Efficiency Zone

The Efficiency Zone widget replaces the standard [Neighbor Comparison](#) for customers who receive the Efficiency Zone module in their print or email [Home Energy Reports v3](#) experience. The widget includes a two-bar graph that compares customer and similar homes usage against an "Efficiency Zone" threshold, and displays insights that place the customer's usage in context. The Efficiency Zone represents the 20% of similar homes that used the least during that bill period. The customer's status within the zone can change with each report.

**Note:** The customer's web experience with the Efficiency Zone mirrors whatever is in their print or email report experience. For example, customers who receive the Efficiency Zone in their print or email report will also see an Efficiency Zone widget in the Digital Self Service - Energy Management web portal. Utilities have the option to replace the Efficiency Zone with the standard [Neighbor Comparison](#).

## Requirements

### Utility Requirements

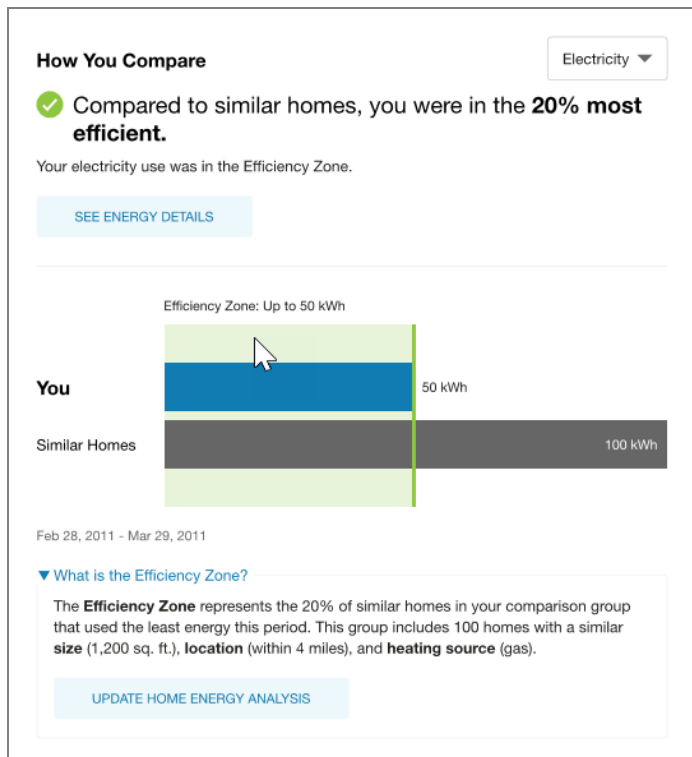
<b>Required Cloud Service</b>	Same as listed in the <a href="#">product-wide requirements</a> .
<b>Scale</b>	No applicable scale requirements.

### Customer Requirements

<b>Billing Frequency</b>	Monthly, bi-monthly, or quarterly.
<b>Data Delivery Frequency</b>	Monthly, bi-monthly, or quarterly.
<b>Data Requirements</b>	Billing data is required. Additionally, some third-party data (geospatial data and parcel data, for example) is required to select other similar homes for the comparison. The feature will not display if it is unable to select the minimum number of neighbors. The minimum threshold may vary depending on your utility's setup and configuration. <a href="#">Contact your Delivery Team</a> if you have any questions.
<b>Data History</b>	A single bill from the last bill period or previous to last bill period.
<b>Data Coverage</b>	Not applicable. Data at the bill level is used.
<b>Supported Fuels</b>	Electricity, gas, and dual fuel.

## User Experience

The Efficiency Zone experience re-frames the "efficient neighbors" concept in order to improve customer satisfaction without heavily compromising energy efficiency. To do this, the Efficiency Zone experience presents a bar graph that compares customer and similar homes' usage against an "efficiency zone", and provides insights that place the customer's usage in context.



**Heading:** The heading uses the language of a social comparison to entice customers to learn more about their energy use.

**Hero Insight Statement:** The hero insight statement conveys the customer's energy efficiency status relative to one of two benchmarks: Efficiency Zone or Similar Homes. The icon that appears in the statement varies depending on the customer's state. If the customer is within the Efficiency Zone, a green check mark appears. If the customer is not within the Efficiency Zone, a gray exclamation icon appears.

**Secondary Insight:** The secondary insight states whether the customer's energy use was inside or outside of the Efficiency Zone.

**Threshold Label:** The threshold label appears above the graph to introduce the maximum Efficiency Zone threshold (for example, "Up to 500 kWh").

The Efficiency Zone threshold represents the average energy use of the 20th percentile of similar homes that used the least amount of energy in the last billing period. A green tinted rectangle and dark green vertical line indicate the range and upper boundary of the zone,

enabling customers to quickly see their status in relation to it. The back-end logic used to calculate the Efficiency Zone is identical to the logic used to calculate "efficient neighbors" in the [standard Neighbor Comparison](#).

**Graph:** The two-bar graph displays the customer's energy use ("You" bar) and how the customer compared to Similar Homes. The Similar Homes bar represents the average energy use of the customer's selected neighbors during the last bill period.

**Date Range:** The date range displays the time period covered by the comparison. The comparison always covers the last completed billing period. The year accompanies both the start date and end date (for example, Dec 20, 2019 - Jan 20, 2020).

**What Is the Efficiency Zone:** When this link is clicked, information is displayed to describe the characteristics that match between the customer's home and the homes they are being compared against. It is similar to the [Who Are My Neighbors](#) section of the standard Neighbor Comparison.

**Call to Action:** At the bottom of the feature is a call-to-action button that prompts customers to update their [Home Energy Analysis](#), provide the latest details about their home, and make the efficiency zone more accurate. Note, however, that the efficiency zone is not automatically updated in real time based on a customer's updates. Moreover, the call-to-action does not change if the user has already visited the Home Energy Analysis.

## Energy Use Overview

The Energy Use Overview compares customers' energy use from their most recent bill period to their energy use in the same bill period from the previous year. An analogy insight may appear to help customers understand how their usage relates to real-world examples. The Energy Use Overview is included in the [Smart Dashboard](#).

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#).

### Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.

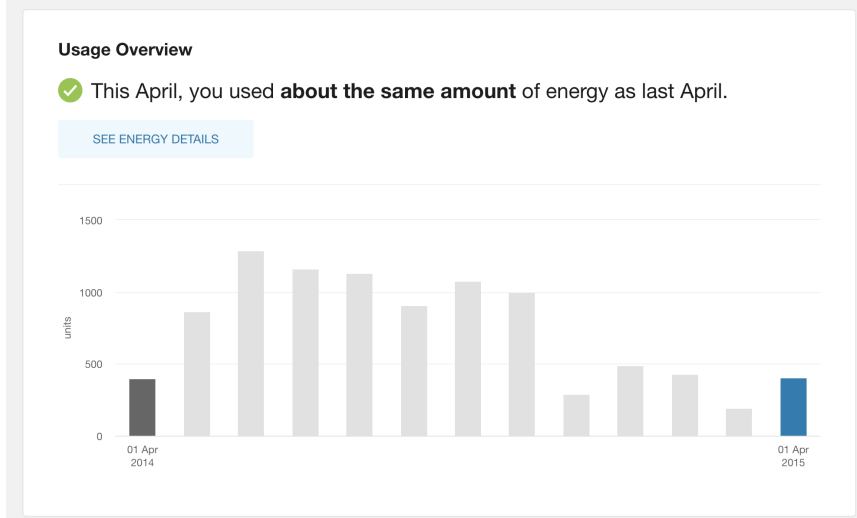
Category	Description
Data Delivery Frequency	Daily, monthly, bi-monthly, and quarterly.
Data Requirements	Bill-level reads from two service points at most (for example, one for gas and one for electricity). The start and end dates for each service point may not differ by more than three days.
Data History	At least one bill is required for the feature to render. A total of 12 bills or more is required to display the most recent bill period and compare it with the same period in the previous year. Customers with less data may see: <ul style="list-style-type: none"> <li>▪ A comparison to the previous bill period</li> <li>▪ Energy use for the current bill period only</li> <li>▪ A message that indicates additional information will be displayed once enough data is available</li> </ul>
Data Coverage	Not applicable. By default, any data that is available is displayed, even if some reads are missing.
Supported Fuels	Gas, electricity, and dual fuel.

## Limitations

- **Sub-Bill Views:** Because the widget uses bill-level data rather than AMI data, customers cannot select any sub-bill views, such as daily or hourly views. Users who want this level of detail can go to the [Data Browser](#).
- **Negative Values:** The display of negative energy use or cost information is not supported. If a customer has a negative bill, then no data is displayed for it in the bar chart.

## User Experience

The Energy Use Overview displays the most recent bill period's energy use in comparison to that of a bill period in the past. Energy use for dual fuel customers is displayed in combined energy units, while an applicable energy unit of measurement is used for single-fuel customers. Dual fuel customers do not see a menu to view bill trends for a specific fuel type.



**Title:** The name of the widget reflects its focus on energy usage patterns over time.

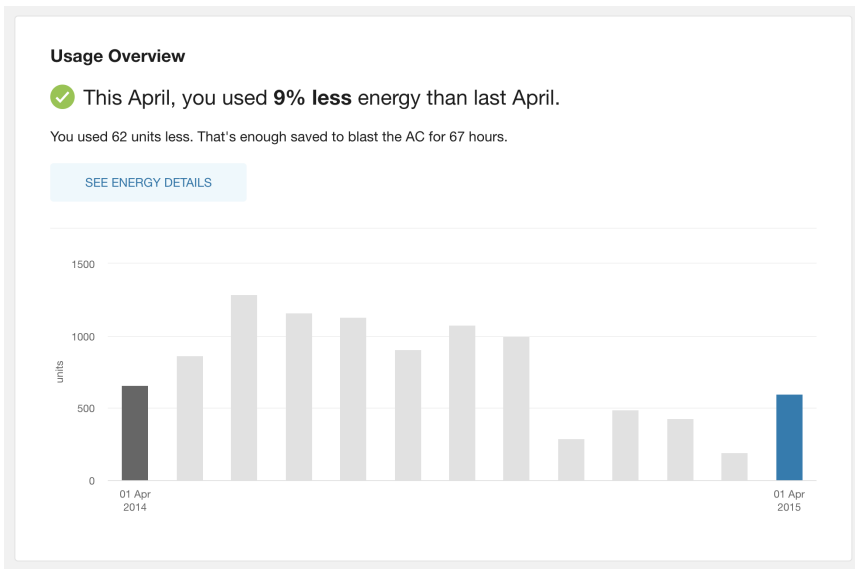
**Insight Statement:** An insight statement appears above the bar chart telling the customer whether their most recent bill period's usage is higher, lower, or about the same as the same period last year. The exact amount is shown in bold to draw the customer's attention to the comparison point of the insight. If there is no historical bill from the same period last year, the insight statement simply shows the cost or usage of the present bill period, without any comparison.

- **Threshold:** The default threshold that controls the statement is 6%. For example, if the customer's usage is 6% above or below the compared period, then the appropriate insight message will display. If the customer's usage does not exceed the threshold, then the insight message states that the customer's usage is about the same.
- **Data States:** The insight statement is different depending on how much energy the customer used.

Data State	Insight
Usage compared to past period is lower	"This <month>, you used X% less energy than last <month>."
Usage compared to past period is higher	"This <month>, you used X% more energy than last <month>."
Usage compared to past period is about the same	"This <month>, you used about the same amount of energy as last

Data State	Insight
	<month>."
Usage of current bill period without any comparison to a previous bill period	"This <month>, you used X."

**Energy Use Analogies:** An analogy may appear in the feature comparing the customer's difference in energy use to common energy use scenarios. For example, energy use can be expressed in the number of days it would light your home. An analogy only displays if there is a difference in energy use. It will not display if the customer used the same amount of energy as in the last comparison period.



**Bar Chart:** The bar chart highlights the most recent bill in a blue color, and the previous comparison period in a dark gray color. Other bill periods that occurred between those points are shown in a light gray color. The y-axis shows the bill amount, and the x-axis shows the month and year of the bill period.

- **Hover:** When hovering over a bar in the bar chart, both the associated dollar amounts and energy units for the bill period are displayed in a tooltip above the bar. The energy units resolve to electricity-only, gas-only, or combined energy units depending on whether the customer is single or dual fuel.
- **Data States:** The bar chart displays differently based on how many bills are available.



Data State	Bar Chart Display
12 or more bills	The most recent bill period is highlighted and compared with the same bill period from the previous year.
2 to 12 bills	The most recent bill period is highlighted and compared with the previous bill period using an analogy.
1 bill	The bill period cost or usage is displayed. There is no previous bill period show, and no comparison to the same bill period from the previous year.
No data (or less than one bill's worth of data)	A message is displayed indicating that there will be data available soon. This message encourages customers to complete the <a href="#">Home Energy Analysis</a> while they wait for their data to be available.

## User Experience Variations

### Single Fuel

The Energy Use Overview uses the applicable unit for the fuel type. For gas-only customers, energy use analogies are limited to a set that are applicable for gas-only customers. All analogies are available to dual-fuel and electric-only customers.

### Green Button

The Green Button allows customers to export their billing data into CSV or XML format. It is typically located beneath the [Data Browser](#). When a customer clicks the Green Button link, a **Download my data** section displays and allows the customer to choose between downloading their data in CSV or XML format. Customers can use this capability to review their data in a spreadsheet program, or send their data to third parties for use in some type of analysis software.

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#).

## Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Daily, monthly, bi-monthly, and quarterly.
Data Requirements	<p><b>Billing Data:</b> Billed usage data from the utility is the minimum data requirement.</p> <p><b>AMI Data:</b> AMI data is required for additional download options to appear. AMI data requires the Digital Self-Service Energy Management AMI cloud service. See <a href="#">Getting Started</a> for details.</p> <p><b>Rates Data:</b> The <a href="#">Rates Engagement</a> cloud service must be purchased and customers' <a href="#">rates must be modeled</a> for cost values to display for interval AMI data reads in the exported file.</p> <p><b>Enhanced Solar Data:</b> Utilities must be on the latest data transfer specifications in order for <a href="#">solar data</a> IMPORT and EXPORT columns to display in the exported file. Your <a href="#">Delivery Team</a> will work with you to identify which data transfer specifications you need.</p>
Data History	At a minimum, one historical bill is required for customers who do not have AMI data. For customers who have AMI data, a minimum of one read (that is, one day of data) is required.
Data Coverage	Not applicable. Missing or null reads are marked as such in the downloaded file.
Supported Fuels	<p>Gas, electricity, and dual fuel. Customers can only export the data relevant to their service types.</p> <p>Water and wastewater are also supported when integrated as part of <a href="#">Digital Self Service - Transactions</a>.</p>

## Limitations

- **Supported Resolutions:** The Green Button feature cannot support 5-minute data reads in its downloadable files.
- **Multilingual Limitations:** The CSV data download is available for US English, non-US English, and non-English languages. The XML data download is available for US English clients only.
- **Comparison to Green Button Connect:** The Oracle Utilities Opower Green Button feature is not the same as Green Button Connect. Green Button is a solution for downloading data in XML format, whereas Green Button Connect is a solution that allows customers to make their energy data available to a third party through an API.
- **ESPI Format:** Green Button allows customers to download their data in the Energy Services Provider Interface (ESPI) format. However, the feature is not Green Button Download certified.

## User Experience

This section describes the user experience for dual fuel customers who have billing data and who do not have rates modeled.

### Green Button

Customers can select the **Green Button** link to download their billing or AMI data to CSV or XML formats. The link is most commonly available at the bottom of the [Data Browser](#).

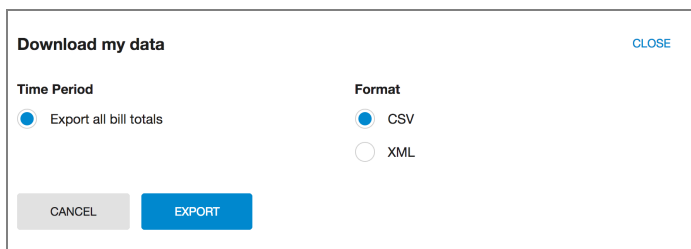


The Green Button link is based on an initiative called the "Green Button initiative," an industry-led effort that responds to a [White House call-to-action](#) to provide electricity customers with easy access to their energy usage data. The goal is for customers to be able to go to their utility website and securely download their energy usage information in a platform-neutral format (specifically, XML). Customers can then send this data to third-party web apps or developers to create visualizations or perform additional analysis.

See [The Green Button for Residential Use](#) for more information on how this data is intended to be used.

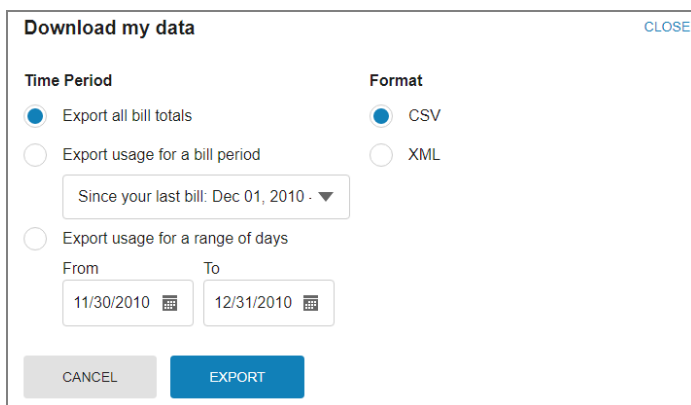
## Download My Data

When a customer clicks the Green Button link, a **Download my data** section displays and allows the customer to choose between downloading their data in CSV or XML format. The customer can then click **Export** to download the file. Depending on which web browser they are using, they may be prompted to save the file to their desktop rather than seeing an automatic download to their Downloads folder.



The screenshot shows a dialog box titled "Download my data" with a "CLOSE" link in the top right corner. Under the "Time Period" section, the radio button for "Export all bill totals" is selected. Under the "Format" section, the radio button for "CSV" is selected. At the bottom, there are two buttons: "CANCEL" and "EXPORT".

Customers with AMI data have additional data download options. A bill period can be selected from a drop-down list, or customers can also select **Since your last bill** to view energy usage and costs that have not yet been included on a bill. (By default, up to 30 days of in-progress billing data can be downloaded, which can be configured to align with the length of a customer's billing cycle.) Alternatively, a start and end date can be selected to define the range of days.



The screenshot shows a dialog box titled "Download my data" with a "CLOSE" link in the top right corner. Under the "Time Period" section, the radio button for "Export usage for a bill period" is selected, and a dropdown menu below it shows "Since your last bill: Dec 01, 2010". Under the "Format" section, the radio button for "CSV" is selected. At the bottom, there are two buttons: "CANCEL" and "EXPORT".

## Downloaded Files

The contents and structure of the downloaded file depend on whether the customer has billing or AMI data, and on which download options the customer has selected in the [Download My Data](#) screen. The contents may also depend on which buttons and menus the customer has selected in the [Data Browser](#).

**Notes:** Green Button supports the download of data in units of measure that are applicable for the customer's resource types. For information on the units of measure supported by Oracle Utilities, see the [Oracle Utilities Opower Premise Data Transfer specification](#).

## CSV File Structure

If the customer chooses to export their data in CSV format, then the .zip file contains one or more applicable CSV files—one for each resource type that is applicable for the customer (gas, electricity, water, or wastewater). The screenshot below is an example of a downloaded CSV file showing monthly electric billing data.

	A	B	C	D	E	F	G	H	I	J
1	Name	First_Name Last_Name								
2	Address	760 MARKET ST 61f4, SAN FRANCISCO CA 94103								
3	Account Number	123456789								
4	Service	Service 1								
5										
6	TYPE	START DATE	END DATE	USAGE	UNITS	COST	NOTES			
7	Electric billing		2/28/2020 3/29/2020	1027.9 kWh		\$1,027.90				
8	Electric billing		3/29/2020 4/28/2020	771.41 kWh		\$771.41				
9										
10										
11										

The columns in the CSV file are defined as follows:

- **Name:** The customer's first and last name.
- **Address:** The address of the premise or property associated with the customer.
- **Account Number:** The customer's utility account number.
- **Service:** The ID of the customer's service agreement with the utility. Alternatively, this field may display a nickname for the service agreement. There is some logic in the widget to determine which value to show. A nickname will be shown if one is available. If a nickname does not exist, then the widget looks for the service agreement ID.  
**Note:** The downloaded file currently cannot show service point IDs. It can only show the service agreement ID or nickname—even if a customer opens the Bill or Day view of the [Data Browser](#), selects an individual service point, and downloads a file.
- **TYPE:** The type of billing data, such as electricity, gas, or water billing.
- **START DATE:** The bill start date.
- **END DATE:** The bill end date.

- **USAGE:** The energy use value. In some cases, this may show blank values. For example, if a customer has AMI data, but selects a date range that does not have any data, then blank values will appear in the USAGE column. If a customer has sub-daily data for one fuel but only daily data for another fuel, the start and end time columns are left blank for the daily data.
- **UNITS:** The applicable unit of measure for the resource type, such as therms or kWh.
- **COST:** The cost of the bill. This is the total bill cost, not a value from the [Rate Engine](#).
- **NOTES:** This column displays the statement, "\* This <bill or read> was estimated" when applicable. Otherwise it is left blank. An estimated read is an approximate energy or resource use amount calculated based on what a customer has consumed in the past, rather than what the customer has consumed in the present billing period.

The downloaded spreadsheet may have additional columns for customers with multi-register meters and solar technology. See [Solar Data and Multi-Register Meters](#) below for details.

### XML File Structure

If the customer chooses to export their data in XML format, then the .zip file contains one or more XML files, one for each resource type that is applicable for the customer (gas, electricity, water, or wastewater). The XML file includes the customer's address and usage information. [Contact your Delivery Team](#) if you need assistance understanding the structure of the XML file.

## User Experience Variations

### Customer Switches to AMI Data

If a customer is converted from a non-AMI meter to an AMI meter, there are variations from the standard user experience during the transition. For each customer, there is an in-progress bill, or virtual bill, that is taken into account. This virtual bill is calculated by adding a defined number of days to the end date of the customer's most recent bill. Customers can download the virtual bill using the **Export usage for a bill** period drop-down list and selecting the **Since your last bill** option.

For example, a non-AMI customer may become an AMI customer on 05/10. The last bill the customer received was on 05/03. In this scenario, a virtual bill period is created from 05/03 to 06/02. Because this customer has become an AMI customer, both the additional AMI options are available after 5/10.

In a similar scenario, the customer becomes an AMI customer on 05/10, but this customer received their last bill on 04/03. This scenario creates a virtual bill period from 04/03 to 05/03. Due to this delay in bills another virtual bill is not created. If the customer

downloads their data on 05/12 and a new bill still is not available, the standard download options for AMI customers are not available to the customer.

### **Demand or Reactive Power**

If a customer has demand or reactive power data related to their electricity use, that data is available for download.

### **Multiple Accounts and Service Points**

If a customer has multiple accounts, the customer can download a file for each account. However, the feature does not display a menu for switching between accounts. Users must switch between their accounts by clicking an account selector hosted on their utility's website.

The contents of the file will vary depending on what is selected in the [Data Browser](#).

Examples include:

- In the **Year** view of the Data Browser, customers can see data for a specific fuel at the service agreement level. This means that if they click Green Button to download their usage, the downloaded file contains data at the service agreement level for whichever fuel they selected.
- In the **Bill** and **Day** views of the Data Browser, customers can see data at the service point level if they have multiple service points associated with the same service agreement. This means that if they click Green Button to download their usage, the downloaded file contains data at the service point level. However, note that the service agreement ID (and not the service point ID) is what will be listed in the downloaded file.
- If a customer has two fuels, they can download data separately for their gas and electricity usage. If a dual fuel customer is in the combined view in Data Browser and clicks to download data, then two files are generated: one file for electricity and one file for gas.
- If a customer has two or more service points of the same fuel type (for example, one for regular electric usage and one for an electric vehicle), then the customer can download data for the service point that is being currently viewed in the Data Browser.

### **Resources, AMI Data, and Cost Data**

The table below provides the user experience variations depending on the number of fuels or resources, the availability of AMI data, and whether or not the customer has [modeled rates](#). For example, customers with daily AMI data and rates modeled will see daily cost values. Customers with subdaily AMI data and rates modeled will see cost values broken down into the appropriate intervals, such as per hour, half hour, or quarter of an hour. Customers with these same levels of AMI data but without rates modeled

cannot see the cost values, but instead can view the energy use values at the same data intervals. The table below lists these and other possible user experience variations.

<b>Customer Scenario</b>	<b>User Experience</b>
<p><b>Fuels:</b> Single.</p> <p><b>Available Data:</b> Billing data.</p> <p><b>Rates Modeled?:</b> No.</p>	<ul style="list-style-type: none"> <li>▪ Customer can choose to export their data in CSV or XML format.</li> <li>▪ Single CSV or XML file downloads.</li> <li>▪ Downloaded file contains billing data.</li> </ul>
<p><b>Fuels:</b> Single.</p> <p><b>Available Data:</b> Billing and AMI data.</p> <p><b>Rates Modeled?:</b> No.</p>	<p>Customer can choose to export their data in CSV or XML format.</p> <p><b>CSV</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can choose to export AMI data for a range of days.</li> <li>▪ Customer can choose to export AMI data for specific billing periods.</li> <li>▪ Single CSV file downloads and contains either billing or AMI data.</li> </ul> <p><b>XML</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can use a more flexible date picker to export AMI data for specific days.</li> <li>▪ Single XML file downloads and contains either billing or AMI data.</li> </ul>
<p><b>Fuels:</b> Single.</p> <p><b>Available Data:</b> Billing and AMI data.</p> <p><b>Rates Modeled?:</b> Yes.</p>	<p>Customer can choose to export their data in CSV or XML format.</p> <p><b>CSV</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can choose to export AMI data for a range of days.</li> </ul>



Customer Scenario	User Experience
	<ul style="list-style-type: none"> <li>▪ Customer can choose to export AMI data for specific billing periods.</li> <li>▪ Single CSV file downloads and contains either billing or AMI data.</li> <li>▪ CSV file with AMI reads contains cost information for each read.</li> </ul> <p><b>XML</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can use a more flexible date picker to export AMI data for specific days.</li> <li>▪ Single XML file downloads and contains either billing or AMI data.</li> <li>▪ XML file with AMI reads contains cost information.</li> </ul>
<p><b>Fuels:</b> Multiple.</p> <p><b>Available Data:</b> Billing data.</p> <p><b>Rates Modeled?:</b> No.</p>	<p>Customer can choose to export their data in CSV or XML format.</p> <p><b>CSV</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Single .zip file downloads and contains separate CSV files for electricity, gas, water, and wastewater as applicable.</li> <li>▪ Downloaded files contain billing data.</li> </ul> <p><b>XML</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Single .zip file downloads and contains separate XML file for electricity, gas, water, and wastewater as applicable.</li> <li>▪ Downloaded files contain billing data.</li> </ul>
<p><b>Fuels:</b> Multiple.</p> <p><b>Available Data:</b> Billing and AMI data.</p>	<p>Customer can choose to export their data in CSV or XML format.</p> <p><b>CSV</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> </ul>

Customer Scenario	User Experience
<p><b>Rates Modeled?:</b> No.</p>	<ul style="list-style-type: none"> <li>▪ Customer can choose to export AMI data for a range of days.</li> <li>▪ Customer can choose to export AMI data for specific billing periods.</li> <li>▪ Single .zip file downloads and contains separate CSV file for electricity, gas, water, and wastewater as applicable.</li> </ul> <p><b>XML</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can use a more flexible date picker to export AMI data for specific days.</li> <li>▪ Single .zip file downloads and contains separate XML file for electricity, gas, water, and wastewater as applicable.</li> </ul>
<p><b>Fuels:</b> Multiple. <b>Available Data:</b> Billing and AMI data. <b>Rates Modeled?:</b> Yes.</p>	<p>Customer can choose to export their data in CSV or XML format.</p> <p><b>CSV</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can choose to export AMI data only for a range of days.</li> <li>▪ Customer can choose to export AMI data for specific billing periods.</li> <li>▪ Single .zip file downloads and contains separate CSV file for electricity, gas, water, and wastewater as applicable.</li> <li>▪ CSV file with AMI reads contains cost information for each read.</li> </ul> <p><b>XML</b></p> <ul style="list-style-type: none"> <li>▪ Customer can choose to export billing data.</li> <li>▪ Customer can use a more flexible date picker to export AMI data for specific days.</li> <li>▪ Single .zip file downloads and contains separate XML file for electricity, gas, water, and wastewater as applicable.</li> <li>▪ XML file with AMI reads contains cost information.</li> </ul>

## Solar Data and Multi-Register Meters

The downloaded spreadsheet may have additional columns for customers with multi-register meters and solar technology. This is because multi-register meters can provide more details about energy use within an interval of time, such as the amount of energy consumed from the grid, as well as the amount sent back to the grid due to solar power.

When support for multi-register meter customers is enabled, the downloaded spreadsheet displays columns for IMPORT (energy consumed from the grid) and EXPORT (energy sent back to the grid). The spreadsheet also displays columns for the start and end time of each interval if the customer has subdaily AMI data.

The image below shows an example output for the **Export All Bill Totals** option in the download menu.

TYPE	START DATE	END DATE	IMPORT	EXPORT	UNITS	COST	NOTES
Electric billing	8/27/19	9/25/19	656	884	kWh	\$9.52	
Electric billing	9/25/19	10/27/19	674	902	kWh	\$9.56	
Electric billing	10/27/19	11/25/19	1414	414	kWh	\$131.47	
Electric billing	11/25/19	12/25/19	2062	186	kWh	\$243.17	
Electric billing	12/25/19	1/25/20	2094	218	kWh	\$247.72	
Electric billing	1/25/20	2/24/20	1785	448	kWh	\$196.87	
Electric billing	2/24/20	3/25/20	1117	868	kWh	\$85.08	
Electric billing	3/25/20	4/26/20	937	938	kWh	\$60.92	
Electric billing	4/26/20	5/26/20	521	1320	kWh	\$9.95	
Electric billing	5/26/20	6/24/20	388	1264	kWh	\$9.96	
Electric billing	6/24/20	7/26/20	596	0	kWh	\$9.97	
Electric billing	7/26/20	8/25/20	545	0	kWh	\$9.96	
Electric billing	8/25/20	9/26/20	504	0	kWh	\$15.24	

## Requirements

- Customers must have multi-register meters.
- The [Account](#), [Billing](#), and [Premise](#) data feeds must be established.
- Some additional configuration is required to enable the IMPORT and EXPORT columns. [Contact your Delivery Team](#) for details.

## Highest Energy Use Days

The Highest Energy Use Days calendar highlights the top five days of the month in which a customer used the most energy, helping them identify patterns in their energy use. If a given weekday has five percent or more energy use than all other days of the week, it is highlighted as the day with the most energy use. For example, Saturday can be highlighted for a customer who uses considerably more energy on Saturday than any other day of the week. A link to the [Data Browser](#) allows customers to explore their energy use in more depth.

## Requirements

### Utility Requirements

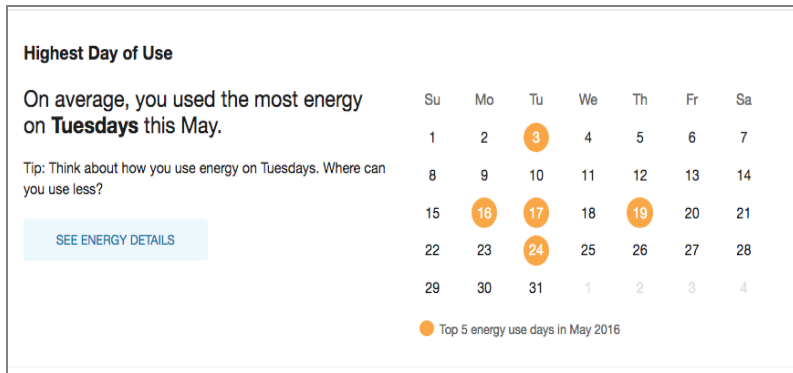
Same as listed in the [product-wide requirements](#).

### Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Daily, monthly, bi-monthly, and quarterly.
Data Requirements	Daily, hourly, or sub-hourly AMI reads from at least one service point.
Data History	A total of 14 days or more of data for a month is required for the most common user experience, which highlights the top five energy use days and includes an insight indicating what day of the week most of the energy use happened.
Data Coverage	Not applicable.
Supported Fuels	Gas, electricity, and dual fuel.

### User Experience

Customers with AMI data can view the highest usage days of the month, revealing patterns around the days of the week in which they used the most energy.



**Highest Day of Use Insight:** An insight message is displayed highlighting high energy use for a particular day of the week if that day has 5% more energy use than any other day of the week. For example, Saturday can be highlighted for a customer who uses considerably more energy on Saturday than any other day of the week.

**Tip:** A tip message appears below the insight to prompt customers to consider how to use less energy on days when they use the most.

**See Energy Details:** This button redirects customers to the [Data Browser](#) for a more detailed view of their energy use patterns.

**Top Energy Use Days Bubbles:** Customers who click on one of the Top 5 energy use days bubbles are redirected to the [Data Browser](#) to explore their energy use patterns for those days.

**Available Data:** The widget is designed to present a complete picture of the month's highest usage days. The last month is shown as long as it has a full month's worth of data. In general, the previous month is shown if it has more data than the current month, but the widget shows whichever month has more data: current month versus previous month. If the previous month has less data than the current month, the widget shows the current month. Specific cases are shown below.

Condition	Behavior
The previous month has 0-6 days of data, and the current months has 15+ days of data.	Show the current month.
The previous month has 7- 14 days of data, and the current months has 15+ days of data.	Show the current month.
The previous month has 15+ days of data, and the current month	Show the

Condition	Behavior
has 7- 14 days of data.	previous month.
The previous month has 7- 14 days of data, and the current month has 7- 14 days of data.	Show the current month.
The previous month has 15+ (but less than 30) days of data, and the current month has 15+ days of data.	Show the current month.
The previous month has 30 days of data, and the current month has 15+ days of data.	Show the previous month.

### User Experience Variations

#### Multiple Accounts and Service Points

The widget includes all applicable service points for a given customer. There is no multi-account selector. If there are two electric AMI service points, then AMI data from those two service points is added and shown in the widget. Reads from multiple service points are merged before processing regardless of fuel type (for example, electricity and gas are aggregated).

#### New Customers

New customers who do not yet have a full month's of data have different experiences depending on how many days of data are available.

- **More than 14 days of data:** The top five energy use days of the month are highlighted, and an insight indicates on which day of the week most of the energy use happened.
- **7 to 14 days of data:** The top energy use day of the month is highlighted.
- **Less than 7 days of data:** A message is displayed indicating that there is not enough data to provide an energy insight.

**Note:** Customers who have new accounts or newly available AMI data after the start of the month cannot view data on this widget until the following month. For example, if a new AMI meter is operational beginning on February 14, the customer is presented with a message that there is not enough data until March 1.

## Home Energy Analysis

The Home Energy Analysis is a visual, interactive survey that prompts customers to answer simple questions about their home attributes and energy habits. This information is used to provide customers with a more detailed breakdown of how they use energy. Additionally, utilities can use this information for more targeted Oracle Utilities campaigns and promotions.

There are two versions of the Home Energy Analysis. If you need help identifying which version is applicable to you, [contact your Delivery Team](#).

- [Home Energy Analysis v1](#)
- [Home Energy Analysis v2](#)

### Home Energy Analysis v1

Home Energy Analysis v1 is a visual, interactive tool that prompts customers to answer simple questions about their home attributes and energy habits. A customer's responses to the questions are used to create an energy use disaggregation that estimates how much energy the customer is consuming in different categories, such as heating, cooling, lighting, and so on. The breakdown is paired with personalized tips designed to help customers lower their energy use. The more information a customer provides, the better prioritized the tips will become.

### Pre-Survey

A customer can follow several different paths to the survey. The path taken depends on how the survey is promoted and the utility's setup and implementation. Below are some examples of common pathways.

- A customer follows a link in an Oracle Utilities Opower email communication (such as an Email Home Energy Report) to the survey.
- A customer signs in to the Web Portal, and then clicks a promotional banner on one of the pages or navigates directly to the survey (for example, by clicking the **Home Energy Analysis** tab).

- A customer visits their utility's website and clicks a banner promoting the survey, or signs in to their account and navigates to the survey by browsing the available links.

**Survey Not Started:** For customers who have not yet started the survey, the Home Energy Analysis displays information about the survey and provides the first question to begin the analysis. This messaging can include information on the estimated time it would take to complete the survey, as well as the benefits of completing the analysis. Customers who select to take the survey are directed to the full survey.

The screenshot shows a survey interface with the following elements:

- Title:** Analyze your energy use
- Subtitle:** Tell us a bit about your home—it takes less than five minutes
- Question:** Do you rent your home?
- Buttons:** Yes and No
- Three Benefit Cards:**
  - Tell us about your home:** Answer some questions about your home to complete your home profile. (Icon: Laptop with gear)
  - See what uses most:** Learn how much you spend on heating, cooling, hot water, and more. (Icon: Pie chart)
  - Lower your bill:** Find ways to make your home more efficient and cut back on energy costs. (Icon: Envelope with downward arrow)

**Survey Started, Not Completed:** If the customer has started but not completed the survey, the pre-survey screen shows a progress bar and returns the customer to where they left off.

## Survey

The survey prompts customers with individual questions about their home and their energy use. It is designed to be easy to understand and simple to complete. Customers should be able to answer all of the questions they are asked, even if their answer is to skip the question.

- The survey may be pre-populated with any data already gathered about the customer.
- The system will skip irrelevant questions based on answers to previous questions. For example, the system will not ask how the customer heats their pool if they answered that they do not have a pool.
- There are free text entry answers, such as when indicating the size of their home. If a customer does not enter a valid number (for example, if a customer accidentally enters "10" in the square feet field) a message displays asking the user to change their entry.



- Customers are not required to answer every question to see the final results. They can skip questions and complete the rest of the survey to see their energy use breakdown and top tips based on what the system knows about them so far.
- Certain questions and response options in the survey may vary based on a utility's locale. For example, for some countries or regions, the "Cooling" category is not applicable and therefore may be hidden from a utility's customers. Or, the question "What is the main way you heat your home?" may present different response options depending on what heat types are commonly-used in a customer's country or region.
- Customers can click a link at the top of the survey to exit the survey at any time. Any questions the customer has answered are saved prior to exiting the survey.

As customers answer questions, visual cues provide customers a gauge to see how quickly they are progressing through the survey.

If a customer begins the survey but does not finish it, when the customer returns to the survey they are automatically taken to the question that comes after the last question they answered. If a customer completed the survey while not logged in to their utility account, all answers are saved for their account and are available when the customer logs in to their utility account.

### **Disaggregation**

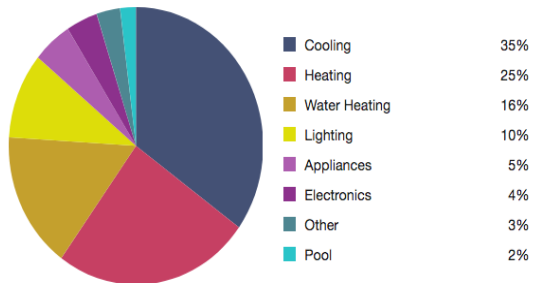
After the customer answers the last question and finishes the survey, the Home Energy Analysis displays their energy use breakdown based on their responses. Customers can select each individual energy use category to see what percentage of their home's energy use it comprises, category-specific tips, and a list of what contributes to energy use for the category. The category that has the highest energy costs is highlighted, along with a link for related tips.

Customers who have already completed the survey are taken directly to the energy use breakdown the next time that they access the Home Energy Analysis. They can use the **Update Home Profile** link at any time to view the survey again and update their answers.

### Annual Energy Usage

Your largest cost is **cooling**.

[GET COOLING TIPS](#)



This estimate is based on information you provided about your home.

[UPDATE HOME PROFILE](#)

Was this information helpful?

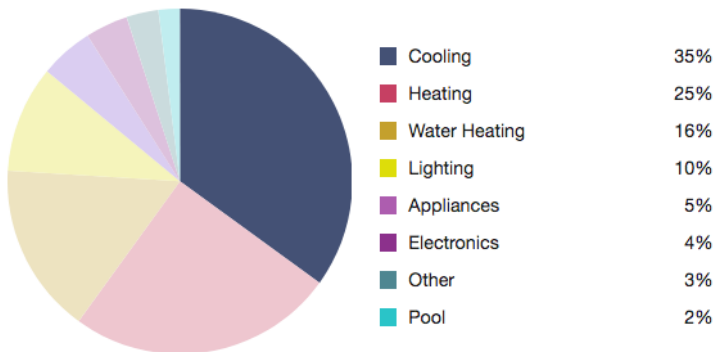
If customers complete the survey without being logged in to their utility account, the energy use breakdown includes links for the customer to create an account or sign in to their account.

### Annual Energy Usage

Create or sign into your account to compare bills, monitor your energy usage, and more.

CREATE ACCOUNT

SIGN IN



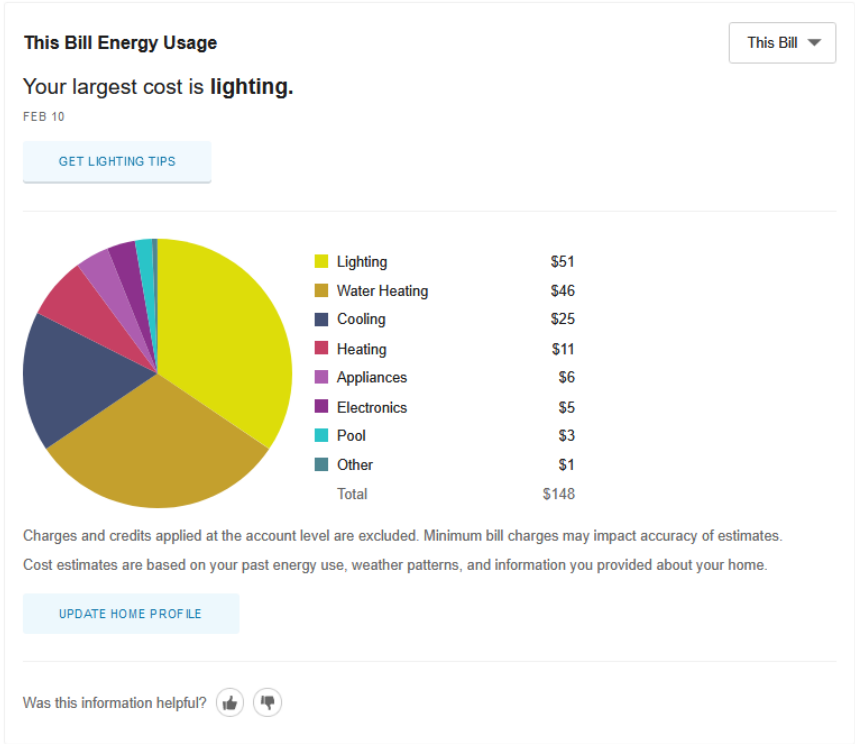
This estimate is based on information you provided about your home.

UPDATE HOME PROFILE

A set of buttons can be shown beneath the breakdown allowing customers to provide feedback about the usefulness of the feature. See [Customer Feedback](#) for more information.

### Bill-Level Disaggregation

The bill-level disaggregation provides the customer with a breakdown of their energy use and costs by bill period, as opposed to an annual energy use breakdown as shown in the standard disaggregation. Customers can switch between an **Annual** and **This Bill** view. Costs are totaled for gas and electric if applicable.



If the feature is unable to deliver a bill-level disaggregation for any reason, the **This Bill** navigation is hidden, and the annual results are shown. Insufficient historical billing data is the most common reason for this fallback.

**Pre-Authenticated - EasyOpen**

Customers can also access the survey without logging in to their utility account. For example, customers who receive Email Home Energy Reports can follow a link from within the email to begin the survey, which includes a token to automatically identify the customer. If the customer navigates directly to the survey rather than following a link from an email communication, they are prompted to provide their billing account number and their full name as it appears on their bill.

## Understand your home energy use

Tell us about your home to get a better picture of your annual energy use.  
It takes less than five minutes.

[SHOW EXAMPLE](#) ▼

Enter your billing account number and name to start  
Already have an account? [Log in here](#).

**Billing account number**

Where is my account number? [?](#)

**Full name**

Enter your name exactly as it appears on your bill or energy report.

**START**

After completing the survey, customers can view the energy use breakdown the same way that an authenticated user can. All survey responses are saved for the user account and are available to the customer when they log in to their account. Differences in the user experience include:

- Links are provided for the customer to either create an account or log in to their account.
- Only an annual breakdown with percentages can be shown. A bill-level breakdown containing more personalized cost information is disabled to protect a customer's privacy. (A customer can still view their bill-level disaggregation if they sign in to their account.)

### Data Requirements and Limitations

#### Requirements

- At a minimum, average energy use data for households in a utility's region and responses to the survey are required. The survey then uses the customer's responses to adjust the average energy use values and yield personalized results.

- The recommended minimum is to use weather data and at least six historical bills, as this will support a bill-level disaggregation and lead to more accurate disaggregation results.
- There are other data requirements to show the bill-level disaggregation for AMI customers. [Contact your Delivery Team](#) for more information.

### Limitations

- The customer must be residential, and can be electricity-only, gas-only, or dual fuel.
- The customer may see different categories, questions, and response options in the assessment based on the utility locale.
- Customers can access and complete the survey without logging in to their account. Any answers to the survey are saved for the customer's account. For subsequent attempts, customers must then be logged in to their utility account to view the Home Energy Analysis results for their account. This functionality is available for standalone deployments. To implement this experience in embedded deployments, refer to the [Oracle Utilities Opower Digital Self Service - Energy Management Embeddable Widgets Integration Guide](#).
- The Home Energy Analysis does not allow customers to switch between accounts.

### Home Energy Analysis v2

Home Energy Analysis v2 is a visual, interactive survey tool that prompts customers to answer simple questions about their home and energy habits. A customer's responses to the questions are used to create an energy use disaggregation of a customer's top three categories of energy use. The disaggregation is paired with personalized tips related to each top category, as well as a more granular breakdown of additional energy use categories. If sufficient AMI data is available, the feature can also include insights about a customer's individual appliances as well as their energy use for devices that are always on.

### Requirements

#### Utility Requirements

Category	Description
Required Cloud Service	Same as listed in the <a href="#">product-wide requirements</a> . The base requirement is to purchase the Digital Self Service - Energy Management cloud service. For any AMI enhancements in the appear in the product, the Digital Self Service - Energy Management

Category	Description
	AMI cloud service must also be purchased.
Scale	No applicable scale requirements.

## Customer Requirements

Category	Description
Billing Frequency	Monthly.
Data Delivery Frequency	Monthly.
Data Requirements	<p><b>Minimum:</b> Average energy use data for households in a utility's region. This data is typically obtained from public data sources. The feature then uses the customer's responses to the <a href="#">survey</a> to adjust the average energy use values and yield personalized results. This requirement applies to both the authenticated as well as <a href="#">pre-authenticated</a> user experiences of the feature.</p> <p><b>Recommended:</b> The recommended minimum is to use weather data and at least six historical bills, as this will provide more accurate results for annual as well as bill-level disaggregations. Without this data, only an annual disaggregation can be made available.</p> <p><b>AMI Requirements:</b> There are additional AMI data requirements to show advanced insights such as appliance-level insights or insights about a customer's always-on devices. See <a href="#">always-on usage</a> and <a href="#">appliance-level insights</a> below for details, or <a href="#">contact your Delivery Team</a> for more information.</p>
Data History	Varies depending on the utility's setup and configuration. At a minimum, the Home Energy Analysis requires utility-wide disaggregation percentages obtained from a public data source

Category	Description
	<p>and approved by the utility. The percentages are then adjusted and personalized for customers based on their responses to the survey.</p> <p>If AMI data is used, then additional data history requirements may apply.</p>
Data Coverage	Varies depending on the utility's setup and configuration.
Supported Fuels	Electricity, gas, and dual fuel.

### Limitations

- **Non-Residential Customers:** The Home Energy Analysis was built and optimized for residential customers. Non-residential customers such as commercial, industrial, and small and medium business customers are not currently supported.
- **Customers with Multiple Accounts:** To view the Home Energy Analysis for a particular account, customers must log in to the account through their utility's website, which provides access to the Web Portal through single sign-on. The Home Energy Analysis does not provide customers an option to switch between accounts.
- **Survey Updates:** If a utility updates the content of the survey by adding a new question, customers who have previously taken the survey are required to take the survey again from the start. The answers to questions they previously answered are pre-populated when the customer completes the survey again. The customer can click **Confirm** instead of re-answering the question.
- **Deep Linking:** Utilities are encouraged to support deep linking capabilities. Deep linking allows an unauthenticated user to click a link to the Home Energy Analysis from another part of the utility web site, log in with their credentials, and automatically continue to the intended page instead of being redirected to a landing page, such as the utility's home page.
- **Feature Eligibility:** Some customers may not be eligible for the Home Energy Analysis if their disaggregation has any of the following characteristics:
  - There is only one category with a non-zero energy use value.
  - There is one category that is greater than 90% of the customer's total energy use.



- The survey returns negligible energy use for all categories. ("Negligible" in this case means that based on the survey's back-end logic, no energy use is predicted to come from utility-supplied fuels or resources.)
- All service points have zero or negative costs or energy use.
- **Customers with Electric Vehicles or Heat Pumps:** Custom survey questions about electric vehicles (EVs) or heat pumps could potentially be added to the Home Energy Analysis survey, but responses to these questions will not impact a customer's neighbor selection. See [Neighbor Comparison - Limitations](#) for details.

## User Experience

This section describes the user experience for dual fuel utility customers who are logged into their account and have not yet taken the Home Energy Analysis [survey](#). Additionally, it describes customers who have enough data to see a bill-level and annual [disaggregation](#) of their energy use before completing the survey.

## Pre-Survey

A customer can follow several different paths to the survey. The path taken depends on how the survey is promoted and configured. Below are some examples of common pathways.

- A customer follows a link in an Oracle Utilities Opower email communication (such as an [Email Home Energy Report](#)) to the survey.
- A customer signs in to the Web Portal, and then clicks a promotional banner on one of the pages or navigates directly to the survey (for example, by clicking the **Home Energy Analysis** tab).
- A customer visits their utility's website and clicks a banner promoting the survey, or signs in to their account and navigates to the survey by browsing the available links.

**Onboarding Screen:** Depending on the utility's configuration, an introductory onboarding screen can be presented to explain the energy breakdown, and to allow customers to view a [disaggregation](#) of their energy use before completing the survey. This screen lets customers bypass the effort it takes to answer questions and see results.

## How do we know your energy breakdown?



Thanks to data from your smart meter, we can read certain energy signatures to get an idea of how energy is being used in your home.

Using advanced data science algorithms, we match those energy signatures to types of use, such as water heater, refrigerator, and more.

Combined with your past energy use, we're then able to show you a breakdown of your usage so you know where to focus and save.

[SHOW MY BREAKDOWN](#)

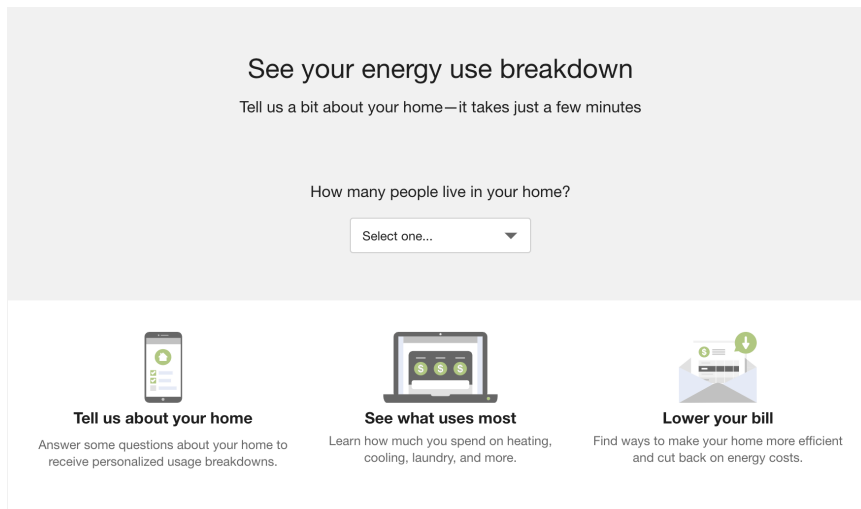
*For a more personalized breakdown, take a short survey about your home.  
Take the energy survey*

If the onboarding screen is enabled, it is only displayed once for customers who have either not started the survey or who have started but not completed it. For all subsequent return visits to the Home Energy Analysis, a customer will be presented with a [disaggregation](#) of their energy use.

**Note:** There may be cases when a utility launches the survey but decides not to enable the onboarding screen until a later time. If any customers complete the survey before the onboarding screen is enabled, they will not see the onboarding screen at a later time even though it is enabled.

The messaging in the onboarding screen varies slightly depending on whether the customer has AMI data or not. For customers with AMI data, the message will include language about a smart meter. For customers with non-AMI data, the message will include language about energy use patterns.

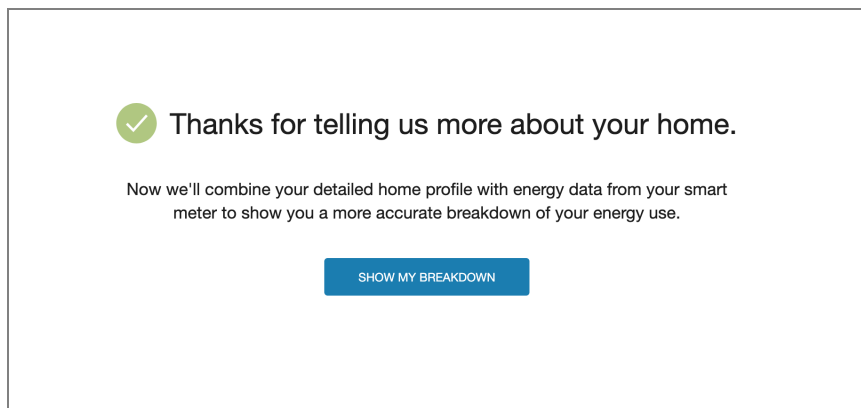
**Survey Not Started:** For customers who have not yet started the survey, the Home Energy Analysis displays information about the survey and provides the first question to begin the analysis. This messaging can include information on the estimated time it would take to complete the survey, as well as the benefits of completing the analysis. Customers who select to take the survey are directed to the full survey.



**Survey Started, Not Completed:** If the customer has started but not completed the survey, the pre-survey screen shows a progress bar and returns the customer to where they left.

## Survey

The survey prompts customers with individual questions about their home and energy use. The user experience with the survey is the same as that described in [Home Energy Analysis v1](#), except that when the survey is finished, an additional screen appears to thank the customer for providing answers. The messaging of this final screen varies slightly depending on whether the customer has AMI data or not. For customers with AMI data, the message includes language about a smart meter. For customers with non-AMI data, the message includes language about energy use patterns.

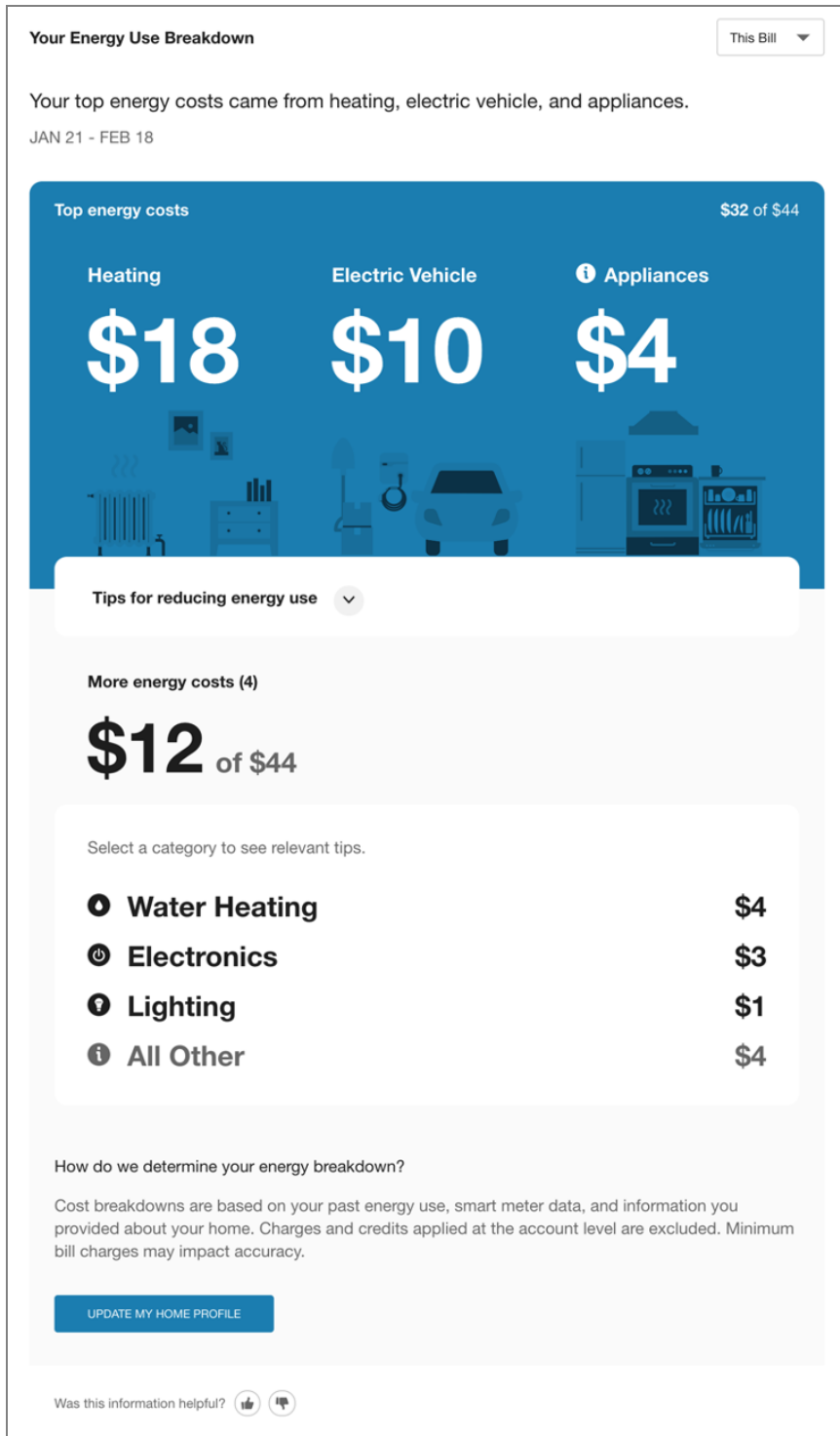


## Disaggregation

After customers complete the [survey](#), they are shown a disaggregation (also called a "breakdown") that displays their energy use divided into top three categories. The top

three categories are followed by personalized tips and an additional list of end-use categories. Customers can take different paths to the disaggregation:

- If the [onboarding screen](#) is used, customers can click to see their disaggregation without taking the survey. The onboarding screen is only displayed once. This means that the next time a customer clicks to see the disaggregation, they are taken directly to it and will not be shown the onboarding screen.
- If no onboarding screen is used, customers must complete the survey before seeing the disaggregation. Customers must complete all of the required questions before the disaggregation can be displayed. Required questions cannot be skipped.



**Title:** The title of the widget reflects its focus on giving customers a more detailed view into how they consume energy. If there is not enough historical data for a customer to choose between an annual or bill-level breakdown, then the title changes to specify that it is an annual breakdown.

**Time Period Selector:** A selector is displayed at the top to let users choose between a breakdown for This Bill or Annual. If the annual time period is selected, percentage values are displayed in the breakdown. If the bill time period is selected, dollar amounts are displayed in the breakdown.

If there is not enough weather data and historical billing data to show a breakdown by bill period, then the time period selector is hidden, and the feature shows an annual breakdown only. (See the [Customer Requirements](#) above for more information about what is required to enable both annual and bill-level disaggregations.)

**Insight Statement:** An insight statement appears above the breakdown explaining where the customer used the most money or energy. The language of the insight varies slightly depending on different data states, such as whether the customer has completed the survey. It also changes slightly if there are only two top categories or if the insight focuses on usage instead of cost information.

State	Example Insight Statement
Survey completed	"Your top energy costs came from ..."
Survey not started or completed	"It looks like your top energy costs came from ..."

**Date Range:** A date range is displayed at the top of the breakdown to communicate that the breakdown applies to a specific bill period. This information is hidden if the Annual time period is selected from the time period selector.

**Cost or Usage Summary:** A cost or percentage is displayed at the top of the breakdown to show how much of the customer's total cost or usage can be attributed to their top three categories. For example, when a bill period breakdown is shown, the summary might show "\$123 of \$159." If an annual view is shown, the summary might show "75%." These values are meant to reinforce the idea that the top three end uses make up a large part of the customer's overall usage or bill, not the full amount.

**Note:** The annual view can only show estimated annual usage percentages for each category rather than estimated annual costs. This is because a customer's bill periods do not align exactly with a 12-month period, and so the feature is unable to retrieve and calculate costs for that time period.

**Top Energy Costs or Uses:** The focus of the feature is a breakdown showing up to three top end-use categories. See [End-Use Categories](#) below for a list of all available categories. Each category includes the following elements:

- **Category Name:** Each category includes a name, such as "Cooling," "Water Heating," or "Electronics."
- **Category Cost:** Each category shows a cost rounded to the nearest whole dollar. The costs represent the portions of a customer's energy use in each category, and are not meant to add up to the customer's total bill. The breakdown can show percentages if cost information is not available. It can also show two categories instead of three. See [User Experience Variations](#) below for details.
- **Category Icon:** Each category is paired with a graphic so that customers have a visual reference and can more quickly understand the meaning of the category.
- **Category Tooltip:** A tooltip is displayed when a customer hovers their pointer over a category. The tooltip prompts the customer to view a personalized tip related to that category. Selecting the tooltip takes the customer to that tip lower on the screen.
- **Category Order:** The categories are shown from left to right, in the order of most expensive to least expensive. If the cost of two or more categories is the same, there is system logic to determine which ones are displayed, and in what order.

**Personalized Tips:** Beneath the top three categories is a set of tips related to each category. Each tip message includes:

- An illustration that allows customers to quickly recognize the concept or purpose of a tip.
- A short title that summarizes the purpose of the tip.
- A brief description of the tip and actions the customer can take.
- The estimated annual savings if the customer completes the tip.
- If applicable, a message about a rebate offer from the utility and a link to where the customer can learn more about the rebate. This is hidden if there is no applicable rebate.
- A link to more detailed information about the tip. See [Ways to Save - Tip Details](#).
- A link to a tip guide containing tips about the top end-use category. See [Ways to Save - Tip Guides](#).

**More Energy Costs or Uses:** Beneath the tips is a breakdown of the rest of the customer's end uses. The section begins with a cost or usage insight stating how much of the customer's overall usage or bill is attributable to the additional categories. The insight is followed by the list of end-use categories.

- **Category Order:** The categories are ordered from highest to lowest. The exception is the 'Other' category, which always appears at the bottom. If two or more categories have the same value, there is system logic to determine the order.
- **Category Links:** Users can hover each item in the list for a link to a tip guide related to that category. Upon hovering, the title of an item dynamically expands to include the word "tips." For example, when hovering over the Heating category, the title expands

to say "Heating tips." When clicked, the link points to a tip guide called "Heating tips to help you save."

For the full list of categories that could be displayed, see [End-Use Categories](#) below.

**Breakdown Explanation:** Beneath the breakdown is a link to more details about how the customer's breakdown is determined. This is meant to educate customers about the method behind their breakdown. The explanation may prompt the customer to update their answers to the survey.

**Feedback Prompt:** A set of buttons can be shown beneath the breakdown allowing customers to provide feedback about the usefulness of the feature. See [Customer Feedback](#) for more information.

### End-Use Categories

After customers complete their survey, they are shown a [disaggregation](#) (also called a "breakdown") of their total energy use divided into specific end-use categories. The table below lists the categories available and their supported fuel types.

If a customer does not have the required fuel type for a category, then the customer will not see that category. For example, a gas-only customer would not see the Cooling category since that category is only available for the electricity fuel. There are also cases in which additional rules are used to show or hide a category. If you need more insight about these rules, [contact your Delivery Team](#).

End-Use Category	Supported Fuels
<b>Heating:</b> The impact of how a home is heated.	Gas, Electricity
<b>Cooling:</b> The impact of how a home is cooled.	Electricity
<b>Appliances:</b> The impact of common household items such as refrigerators and ovens.  Depending on your utility's setup, configuration, and available data, this category may be the sum of several other categories (such as 'Dishwasher' and 'Laundry'). It will not be shown if an appliance-level disaggregation is shown.	Electricity



End-Use Category	Supported Fuels
<p><b>Refrigerator:</b> The impact of food storage appliances.</p>	Electricity
<p><b>Oven:</b> The impact of oven use.</p>	Electricity
<p><b>Dishwasher:</b> The impact of dishwasher use.</p>	Electricity
<p><b>Laundry:</b> The combined impact of a washing and drying machine. Depending on your utility's setup, configuration, and available data, this category may be the sum of several other categories (such as 'Clothes Washer' and 'Dryer').</p>	Electricity
<p><b>Clothes Washer:</b> The impact of a clothes washing machine. This category is not shown if the 'Laundry' category is shown.</p>	Electricity
<p><b>Dryer:</b> The impact of a clothes drying machine. This category is not shown if the 'Laundry' category is shown.</p>	Electricity
<p><b>Electric Vehicle:</b> The impact of owning and charging an electric vehicle in one's home. Depending on your utility's setup, configuration, and available data, you may only be able to see a breakdown for Level 2-charged electric vehicles.</p>	Electricity
<p><b>Lighting:</b> The impact of lighting. This category accounts for devices like energy efficient bulbs as well as indoor and outdoor lights.</p>	Electricity
<p><b>Water Heating:</b> The impact of a water heating device such as a heat pump or conventional storage tank. Depending on your utility's setup, configuration, and available data, this category may show up as 'Electric Water Heating'.</p>	Gas, Electricity

End-Use Category	Supported Fuels
<b>Electronics:</b> The impact of electronics such as TVs, computers, and DVD players.	Electricity
<b>Pool:</b> The impact of owning and maintaining a pool.	Gas, Electricity
<b>Other:</b> The impact of all other devices in a home that do not fall into a clear category. This may include small kitchen appliances, humidifiers, or medical devices.	Electricity

**Note:** 'Other' is never shown as a top end-use category since it contains uncommon devices that are hard to categorize. Even if the impact of the category is high (for example, a customer may use a medical device that consumes a lot of electricity), it will not be shown in top end-use displays.

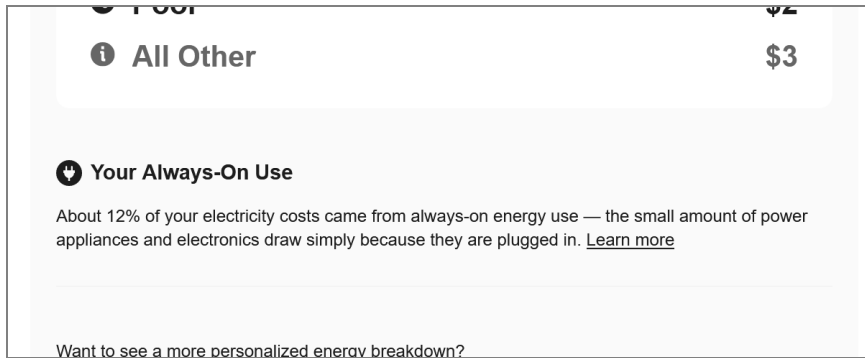
**Smart Dashboard (HEA Light)**

The [Smart Dashboard](#) or other utility-hosted web page can include a separate version of the user experience called [Home Energy Analysis \(HEA\) Light](#). Customers viewing HEA Light are either encouraged to take the survey if they have not started (or not completed) the survey, or they are shown disaggregation results if they have completed the survey. Customers that select to take or continue the survey are directed to the full survey experience, which is hosted on a separate page. Depending on the utility's configuration, customers can also be shown the disaggregation before completing the survey.

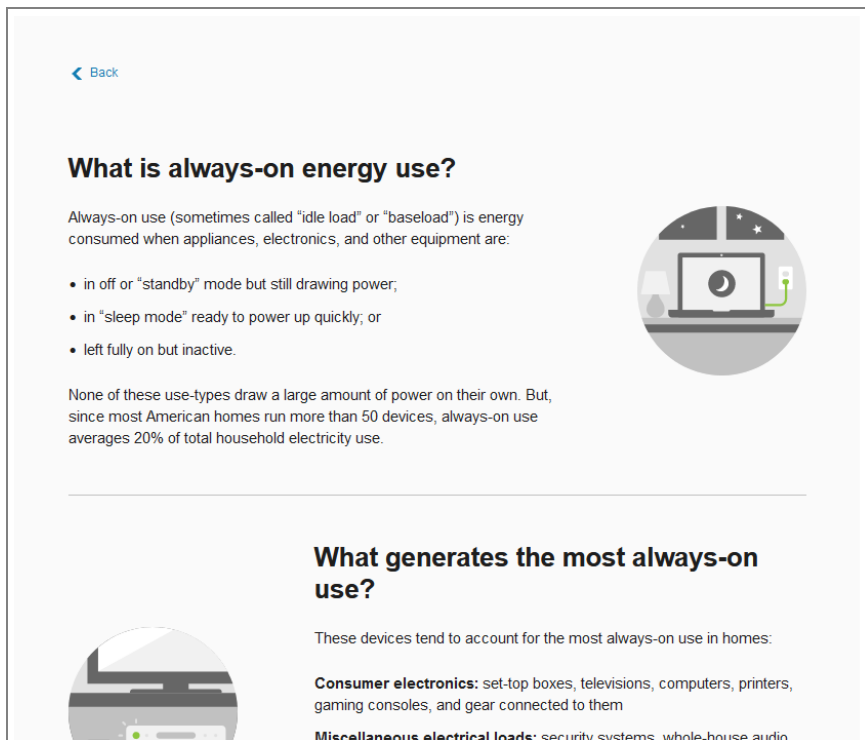
**User Experience Variations**

**Always-On Insight**

If sufficient AMI data is available, an insight about "always-on" usage can display below the breakdown. The insight specifies the customer's estimated energy use in a bill period for devices that do not get unplugged, such as game consoles and security systems.



Within the insight is a **Learn More** link. When this link is selected, the widget refreshes and loads a detailed explanation about always-on devices. (Clicking the link does not open a web page with a new URL.)



## Requirements

One historical bill and hourly AMI data for the bill period are required.

## Appliance-Level Insights

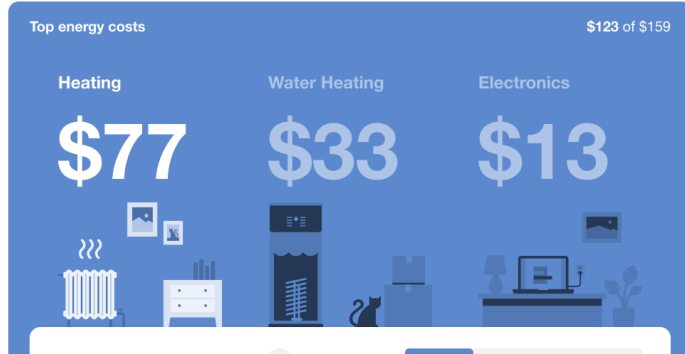
If sufficient data is available and the proper configuration has been completed, the usage breakdown can display specific appliances as top end-use categories rather than a general "Appliances" category. For example, the breakdown can include categories such as laundry, dishwasher, refrigerator, or oven.

Your Energy Use Breakdown

This Bill

Your top energy costs came from heating, water heating, and electronics.

MAR 6 - APR 5



Tips for reducing energy use

HEATING WATER HEATING ELECTRONICS



Improve your home's insulation

Improving the insulation in your home can be the single most effective action you can take to save energy. Improvements to insulation can help you stay warmer in the winter and cooler in the summer while reducing your energy costs by 15%.

Save up to \$100 per year

**Rebate:** UtilityCo is offering a rebate of \$200. Visit our website to learn more.

[LEARN MORE ABOUT THIS TIP](#)

[ALL HEATING TIPS](#)

These tips and savings estimates are personalized based on what you told us about your home and your energy use patterns.

More energy costs (6)

\$36 of \$159

Select a category to see relevant tips.

Lighting	\$11
Refrigerator	\$10
Oven	\$6
Laundry	\$4
Dishwasher	\$2
All Other	\$3

Your Always-On Use

About 15% of your electricity costs came from always-on energy use—the small amount of power appliances and electronics draw simply because they are plugged in.

[Explore ways to reduce your always-on energy use](#)

How do we determine your energy breakdown?

Cost breakdowns are based on your past energy use, smart meter data, and information you

## Requirements

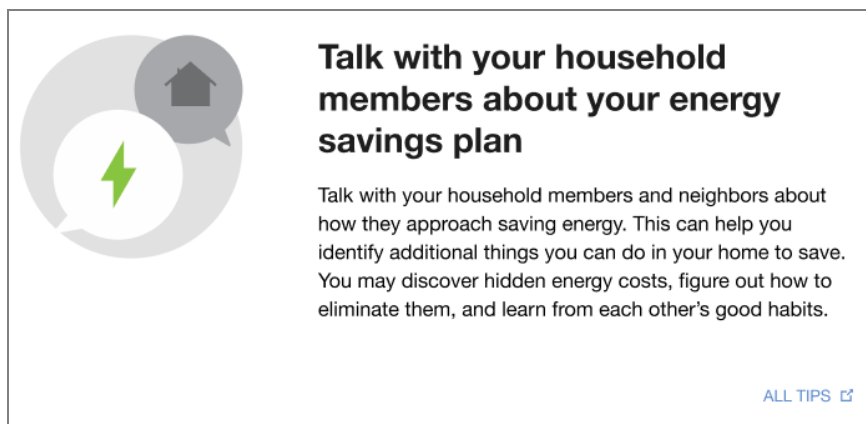
Appliance-level insights require about one year's worth of AMI data at hourly or sub-hourly resolutions.

## Embedded Experience

The Home Energy Analysis consists of multiple widgets that can be embedded within a utility's web pages. An overview of the widgets and the embedding guidelines is below. For details on how to embed widgets, see the [Embeddable Widgets Integration Guide](#).

## Fallback Tip

There may be cases where a top end-use category tip is not available. For example, a customer may have marked all tips related to a specific end-use category as "Done" or "Won't Do." In these cases, a generic fallback tip is shown, along with a link to a list of all available tips.



**Talk with your household members about your energy savings plan**

Talk with your household members and neighbors about how they approach saving energy. This can help you identify additional things you can do in your home to save. You may discover hidden energy costs, figure out how to eliminate them, and learn from each other's good habits.

[ALL TIPS](#)

## Gas-Only Customers

Gas-only customers can be part of gas-only utilities or dual-fuel utilities. The user experience can change for gas-only customers in the following ways:

**Survey:** The survey is modified to hide questions and results that are not applicable to gas-only energy use. For example, questions related to cooling, lighting, electronics, and electric vehicles would be hidden.

**Disaggregation:** The disaggregation can only show categories for which gas is a supported fuel type. For example, categories for cooling and appliances would be hidden. See [End-Use Categories](#) for a complete list of the categories available for each fuel type.

**Higher Percentage for Appliances:** Gas-only customers for dual-fuel utilities may see a percentage of energy use for their appliances that is higher than the *actual* energy use for those appliances. This is because the same baseline disaggregation percentages are

being applied for *all* customers of the utility—customers who are gas, electric, and dual fuel. The baseline disaggregation percentages would therefore more closely align with dual fuel or electricity-only customers.

**Two Categories:** Gas-only customers may complete the Home Energy Analysis survey but still not have enough information to determine their energy use in three top categories. In such cases, two top categories can still be shown. See [Two Categories](#) below for details.

**Always-On Insight:** The always-on insight is not available for the gas fuel type, and so it will not display for gas-only customers.

## Locale

This feature can display locale-appropriate language and units of measure. A few examples include:

- Some countries might use "flat" instead of "apartment," while others might use number of bedrooms as a measure of living space instead of square feet.
- Some survey questions might be modified or hidden to be more relevant to a utility or locale. For example, in countries where it is hot all year round, the question about heating your home might be hidden.
- Some survey answers might be unique to a utility's locale. For example, for utilities outside of the US, certain answers might specify different heating and cooling technologies that are common to that utility's country.

## Mobile Experience

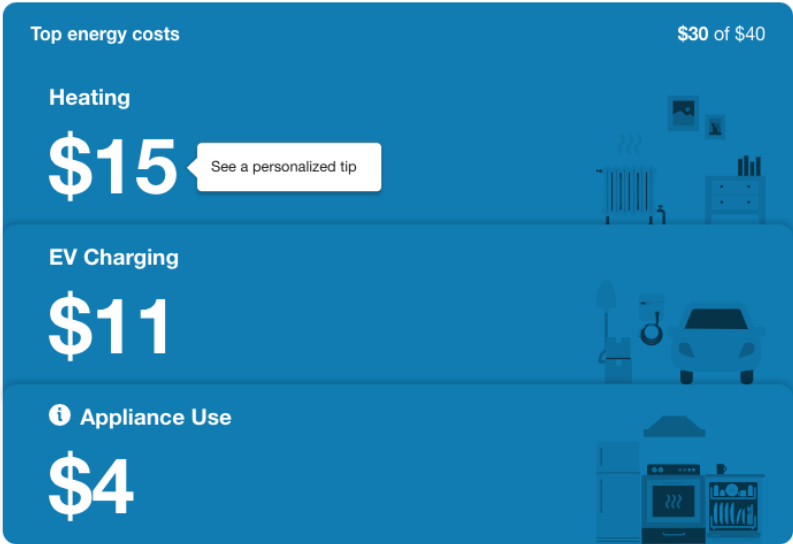
The experience of the Home Energy Analysis for smaller mobile screen sizes consists of the same components as the desktop experience. However, the layout changes to fit the smaller screen size by stacking the components vertically.

## Your Energy Use Breakdown

This Bill ▼

Your top energy costs came from heating, EV charging, and appliance use.

FEB 19 - MAR 19



### More energy costs (4)

**\$10** of \$40

Select a category to see relevant tips.

- Water Heating** \$4
- Electronics** \$3
- Lighting** \$1
- Other Energy Use** \$2

### Your Always-On Use

About 19% of your electricity costs came from always-on energy use—the small amount of power appliances and electronics draw simply because they are plugged in. [Learn more.](#)

### How do we determine your energy breakdown?

Cost breakdowns are based on your past energy use, smart meter data, and information you provided about your home. Charges and credits applied at the account level are excluded. Minimum bill charges may impact accuracy.

**Note:** In Home Energy Analysis v2, the mobile breakpoint is based on the container size as opposed to the whole browser window. This means that the tablet view may be displayed in the desktop view if the widget is embedded within a container that has a small width. This could happen, for example, if the survey is embedded on a utility website in which the container size is smaller than the minimum width of 1025px needed to display the desktop version of the widget.

### Multiple Accounts and Service Points

If a customer has multiple accounts, the customer can view the Home Energy Analysis survey for a different account by clicking an account selector hosted on the utility website. All embedded widgets are then reloaded with data for the specified account.

If customers have multiple service points associated with their account (for example, one for electricity and one for gas), then the [survey](#) and the [disaggregation](#) behave as expected. However, note that the user interface does not display a menu for switching between individual service points.

If a customer has two or more service points of the same fuel type (for example, if there is one service point for regular electric usage and another for an electric vehicle), there are several limitations. The survey can be completed, but the disaggregation is limited to an annual disaggregation based on average energy use data for households in a utility's region. A bill-level disaggregation cannot be shown, and more advanced insights and personalization based on AMI data are not supported. [Contact your Delivery Team](#) if you have any questions.

### Percentage-Based Breakdown

Cost values are shown in the breakdown by default. However, if cost information cannot be calculated for the top three categories, then the feature falls back to a percentage-based personalized breakdown. In this case, the insight shows percentage values, and the insight statement emphasizes where the customer's top energy *uses* came from. The percentages represent the major portions of a customer's entire energy use, and are not meant to add up to 100%.

### Pre-Authenticated User Experience

In some cases, customers can access the [survey](#) without logging in to their utility account. For example, customers who receive [Email Home Energy Reports](#) can follow a link from within the email to begin the survey, which includes a token to automatically identify the customer. If the customer navigates directly to the survey rather than following a link from



an email communication, they are prompted to provide their billing account number and their full name as it appears on their bill.

The screenshot shows a web form titled "Understand your home energy use". Below the title is a sub-header: "Tell us about your home to get a better picture of your annual energy use. It takes less than five minutes." The form contains two input fields: "Utility account number" and "Full name". Below the "Utility account number" field is a small icon and the text "Where is my account number?". Below the "Full name" field is the text "Enter your name exactly as it appears on your energy bill." At the bottom of the form is a blue "START" button. Below the form are three icons with corresponding text: a smartphone icon for "Tell us about your home", a laptop icon for "See what uses most", and an envelope icon for "Lower your bill".

**Understand your home energy use**

Tell us about your home to get a better picture of your annual energy use. It takes less than five minutes.

Enter your utility account number and name to start

Already have an account? Log in [here](#).

**Utility account number**

Where is my account number? ⓘ

**Full name**

Enter your name exactly as it appears on your energy bill.

**START**

**Tell us about your home**  
Answer some questions about your home to receive personalized usage breakdowns.

**See what uses most**  
Learn how much you spend on heating, cooling, laundry, and more.

**Lower your bill**  
Find ways to make your home more efficient and cut back on energy costs.

After completing the survey, customers can view the energy use breakdown the same way that an authenticated user can. All survey responses are saved for the user account and are available to the customer when they log in to their account. Differences in the user experience include:

- Links are provided for the customer to create an account or log in to their account.
- Only an annual breakdown with percentages can be shown. A bill-level breakdown containing more personalized cost information is disabled to protect a customer's privacy. (A customer can still view their bill-level disaggregation if they sign in to their account.)
- Personalized tips for the top end uses cannot be shown.
- Links to tip guides for the **More energy uses** section cannot be shown.
- The background color of the top three categories section is 20% lighter than the primary color. This is meant to convey that the pre-authenticated experience is not the complete experience.
- If a user has previously started but not completed the survey and clicks a link to it from an email communication or the web, they are taken directly to where they left off in the survey.

- If a user has completed the survey already and clicks a link to it from an email communication or from the web, they are taken directly to the disaggregation.

There are a few known limitations in the pre-authenticated experience. The limitations include:

- Customers who follow a link from an email to the HEA is provided with a token that only authenticates the customer for the HEA. If a customer tries to navigate to another widget, they will need to first sign in (or create an account). The ability to navigate to another widget will also depend on what navigation is shown on the pre-authenticated HEA pages. It is possible that there will not be any navigation to another widget available if the HEA has been embedded on a utility-hosted webpage.
- A **Create Account** button is displayed in the pre-authenticated disaggregation even if a customer has already created an account. The button cannot be hidden for customers who already have an account. This is because the token that identifies a customer does not include enough information to determine whether or not the customer has already created an account.

## Solar Customers

The Home Energy Analysis is supported for solar customers. For utilities that have a lower amount of data (for example, utilities that do not have sufficient customer usage or weather data), the [disaggregation](#) is based on the coefficients that adjust based on known customer attributes that are mainly provided when a customer completes the Home Energy Analysis [survey](#).

For utilities that have more advanced data capabilities (for example, utilities that have enabled Oracle Utilities Opower appliance detection capabilities), there are fallback strategies in place. These fallback strategies are necessary until the underlying data models for appliance detection have been trained on solar households. In this case, utilities should work with their Oracle Utilities Opower [Delivery Team](#) to determine the best method for identifying solar customers and adjusting the disaggregation for them.

## Two Categories

If customers complete the Home Energy Analysis survey but there is still not enough information to determine their energy use in three top categories, then the top two categories can still be shown. This experience is only the case for gas customers, since the number of end-use categories that can be displayed for the gas fuel type is much shorter than for electricity customers. See [End-Use Categories](#) above for a complete list of the categories available for each fuel type.

If there is only data for one category or less, an error message is displayed.

## Calculations

### Disaggregation / Energy Use Breakdown

To calculate the energy use [disaggregation](#) (also called an "energy use breakdown") for a customer, the Home Energy Analysis begins by obtaining the average end-use percentages of all utility customers in a utility's service territory. These percentages are obtained from a public source and are aggregated to serve as baseline values; they are not personalized to each individual customer. These average, baseline values represent the typical energy use of a home in a utility's service territory. For many utilities in the U.S., data is available for the following energy use categories: Space Heating, Cooling, Hot Water, Appliances, Lighting, Electronics & Other, and Pool.

The Home Energy Analysis calculation then uses each customer's responses to the [survey](#) to adjust the baseline values and yield personalized energy use percentages. Each answer option is associated with a multiplier, which represents whether the customer uses more, less, or the same amount of energy as the average household in a given energy use category, based on that particular response.

For example, the question "Do you turn off lights when nobody is in the room?" has the following response options: Always, Sometimes, and Never. "Always" has a multiplier of less than 1, since that customer is likely to spend less electricity on lighting than a customer who never turns off the lights. "Sometimes" has a multiplier of 1, since it was determined to be the average behavior, and "Never" has a multiplier greater than 1.

*Recalculations:* The disaggregation calculations are run dynamically each time the user accesses their energy breakdown.

### Bill Period Cost Calculation

After customers complete the Home Energy Analysis [survey](#), they are shown a [disaggregation](#) that displays their energy use divided into three top categories, followed by personalized tips and an additional list of end-use categories. If sufficient data is available, customers can see how much money each end-use category costs for a given bill period.

The first step in this calculation is for the feature to determine the percentage of energy consumption for each end-use category. For example, based on the customer's answers in the survey, the feature may determine that the Electric Vehicle category accounts for 15% of a customer's total usage.

Next, the Home Energy Analysis multiplies the percentage of each category by the total usage charge for the bill period. Continuing with the example above, let's say that the total usage charge for the customer's bill period is \$300. The cost calculation would be:

*Electric vehicle usage (15%) \* total usage charge (\$300) = \$45*

This means that the Home Energy Analysis disaggregation would show that the customer's Electric Vehicle usage accounts for \$45 of the total \$300 in the last bill period.

## Home Energy Analysis Light

The Home Energy Analysis (HEA) Light widget encourages customers to complete the HEA survey if they have not taken it already, and displays an energy use disaggregation for customers who have completed the survey. The widget is designed to be included in the [Smart Dashboard](#) or embedded on other utility-hosted web pages to promote the survey and lead customers to the full [Home Energy Analysis](#) experience.

There are two versions of Home Energy Analysis Light. If you need help identifying which version is applicable to you, [contact your Delivery Team](#).

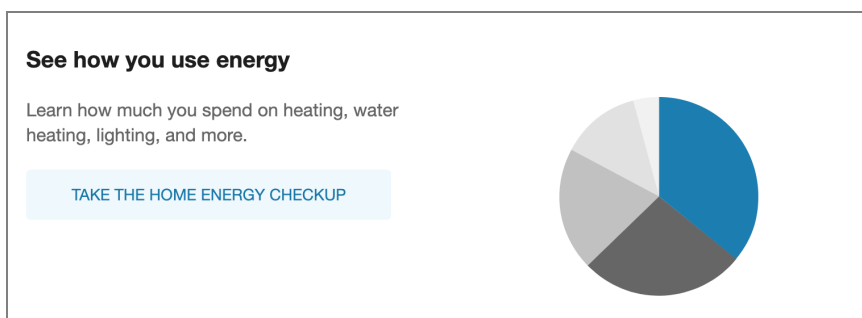
- [Home Energy Analysis Light v1](#)
- [Home Energy Analysis Light v2](#)

### Home Energy Analysis Light v1

The Home Energy Analysis (HEA) Light v1 widget encourages customers to complete the [Home Energy Analysis v1](#) survey if they have not taken it already, and displays an energy use disaggregation for customers who have completed the survey. The disaggregation is shown as a pie chart. HEA Light v1 is included in the [Smart Dashboard](#).

### Survey Prompt

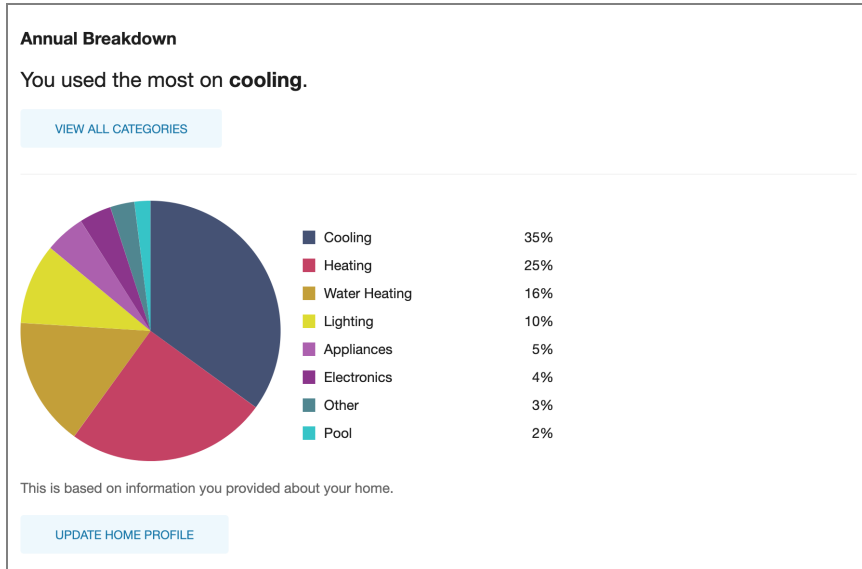
If the customer has not started the HEA v1 survey, then the HEA Light v1 widget shows a prompt to encourage survey completion. The appearance of the prompt is the same whether the customer has not started the survey, or started but not completed the survey.



### Disaggregation

If the customer has completed the survey, then the HEA Light v1 widget is updated to display an energy use disaggregation in the form of the pie chart. Compared to the full [Home Energy Analysis v1](#) experience, the HEA Light v1 disaggregation includes the following differences:

- The **View All Categories** link directs the customer to the full HEA v1 disaggregation experience
- The pie chart categories are not interactive
- Only an annual time resolution can be shown (a bill-level disaggregation cannot be shown)



## Data Requirements and Limitations

- The data requirements for HEA Light v1 are the same as those described in [Home Energy Analysis v1](#).
- HEA Light v1 can only be shown in the [Smart Dashboard](#) and is not embeddable on other utility-hosted web pages.

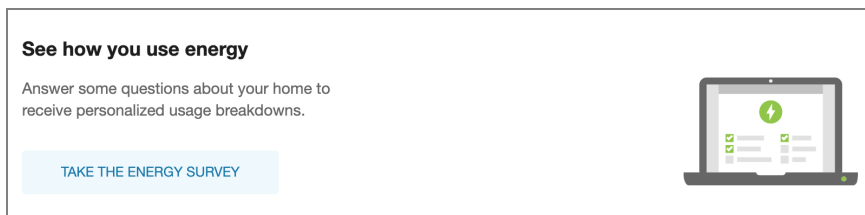
## Home Energy Analysis Light v2

The Home Energy Analysis (HEA) Light v2 widget encourages customers to complete the [Home Energy Analysis v2](#) survey, and can display a disaggregation of a customer's top three categories of energy use before or after the survey has been completed. HEA Light v2 is designed to be included in the [Smart Dashboard](#) or embedded on another utility-hosted web page to promote the survey and lead customers to the full [Home Energy Analysis v2](#) experience.

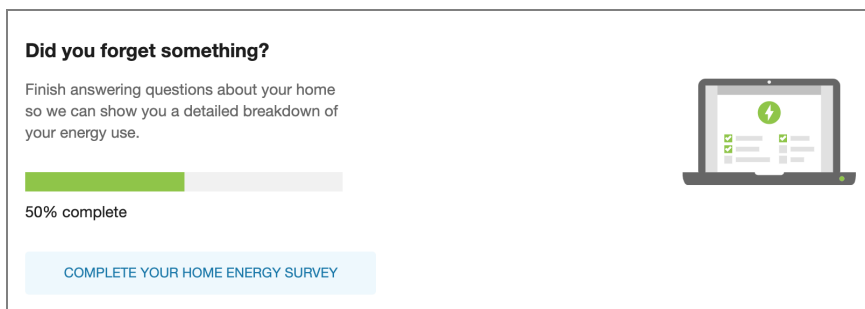
## Survey Prompt

A survey prompt is shown if a customer has not started or completed the HEA v2 survey. The appearance of the prompt varies depending on the survey status.

**Survey Not Started:** The customer sees a prompt to take the Home Energy Analysis survey. It includes a link to the survey and some language about the benefits of completing it.



**Survey Started, Not Completed:** If the customer has started but not completed the survey, the widget shows a progress bar and returns the customer to where they left off in the survey.



## Disaggregation

Before or after the HEA v2 survey has been completed, the HEA Light v2 widget can display a disaggregation of the customer's top three categories of energy use. The pathway used depends on the utility's setup and configuration.

- **Post-Survey Disaggregation:** A disaggregation is shown after the survey has been completed.
- **Pre-Survey Disaggregation:** A disaggregation is shown before the survey has been completed so that customers have quicker access to the results. Customers can still take the survey, and their answers may update the disaggregation results.

## Post-Survey Disaggregation

In the post-survey disaggregation flow, customers must complete the survey before seeing a disaggregation. When the survey is complete, the HEA Light v2 widget is updated to display an energy use disaggregation in the form of top three categories. Compared to the full [Home Energy Analysis v2](#) experience, the HEA Light v2 disaggregation has the following differences:

- Only the top three end-use categories are displayed (there are no additional end-use categories, personalized tips, or advanced AMI-based insights).
- The **See More Detail** link directs the customer to the full disaggregation experience.

#### Energy Use Breakdown

Your top energy costs came from heating, EV charging, and appliance use.

FEB 19 - MAR 19

[SEE MORE DETAIL](#)

Top energy costs

\$30 of \$40

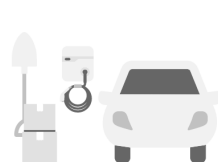
Heating

**\$15**



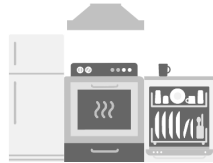
EV Charging

**\$11**



**i** Appliance Use

**\$4**



0

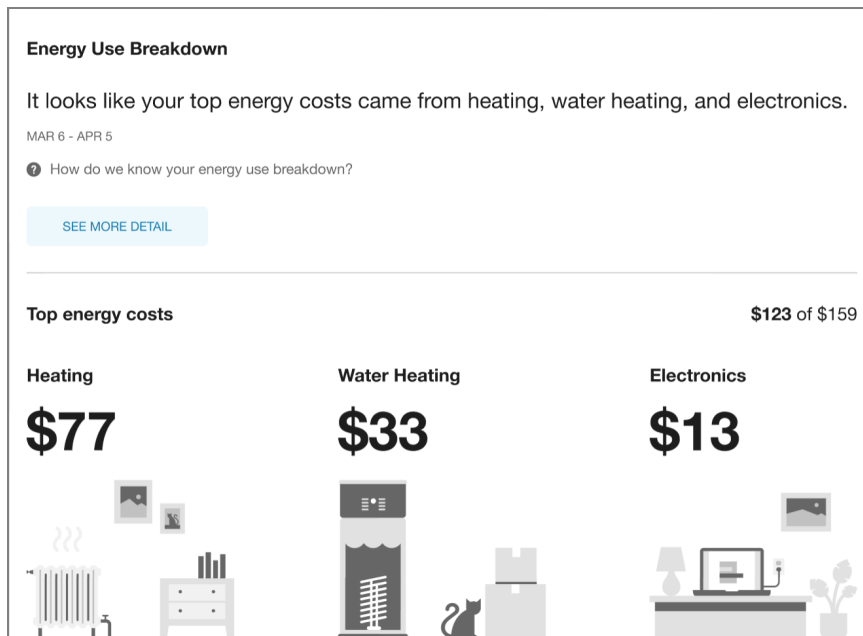
**Time Resolution:** If a bill-level time resolution is configured, then a date range is displayed to refer to a specific bill period. If an annual time resolution is configured, then no date range is displayed.

**Appliance Use Tooltip:** If appliance use is highlighted as a top category, customers can click a tooltip for an explanation of what is included in that category. For example, the tooltip may state that the category takes into account the customer's energy use for a stove or refrigerator. The tooltip message changes dynamically to list the appliances that are known to exist at the customer's site based on survey responses or third-party data.

#### Pre-Survey Disaggregation

In the pre-survey disaggregation flow, the HEA Light v2 widget displays a disaggregation automatically based on available data. In this case, there are no survey prompts, and the disaggregation looks the same as in the [post-survey disaggregation flow](#), except that the messaging changes slightly. The top categories insight says, "It looks like your top energy costs came from...". The phrase "looks like" emphasizes that the disaggregation is an estimate.

Customers can still visit the full [Home Energy Analysis v2](#) experience. When they click the **See More Detail** link, they are taken to a one-time onboarding screen that explains how their disaggregation is determined, and that includes a link to the full survey. Any changes that result from taking the survey will be reflected in both the full HEA disaggregation and in the HEA Light disaggregation.



## Data Requirements and Limitations

- The data requirements for HEA Light v2 are the same as those described in [Home Energy Analysis v2](#).
- The data requirements for the [pre-survey disaggregation flow](#) vary slightly depending on what data is available. For utilities with billing data only, the disaggregation can be based on utility-wide disaggregation percentages for customers. For utilities with AMI data, the disaggregation can be based on a combination of billing, AMI, and weather data to produce more accurate results. Utilities must work with their Oracle Utilities Delivery Team to determine the best approach.

## Neighbor Comparison

The Neighbor Comparison compares the customer (“You”) to two groups: “Efficient Neighbors” and “All Neighbors.” The results are displayed in a horizontal bar graph, and a message explains how the customer compares to their efficient neighbors. The customer can fall into one of three states: “Great,” “Good,” or “Using more than average”. “Efficient Neighbors” are defined as the most efficient 20% of the customer's neighbors. An informational section below the bar graph provides details about the comparison.



## Requirements

### Utility Requirements

<b>Required Cloud Service</b>	Same as listed in the <a href="#">product-wide requirements</a> .
<b>Scale</b>	No applicable scale requirements.

### Customer Requirements

<b>Billing Frequency</b>	Monthly, bi-monthly, or quarterly.
<b>Data Delivery Frequency</b>	Monthly, bi-monthly, or quarterly.
<b>Data Requirements</b>	Billing data is required. Additionally, some third-party data (geospatial data and parcel data, for example) is required to select other similar neighbors or households for the comparison. The feature will not display if it is unable to select the minimum number of neighbors. The minimum threshold may vary depending on your utility's setup and configuration. <a href="#">Contact your Delivery Team</a> if you have any questions.
<b>Data History</b>	A single bill from the last bill period or previous to last bill period.
<b>Data Coverage</b>	Not applicable. Data at the bill level is used.
<b>Supported Fuels</b>	Electricity, gas, and dual fuel.

### Limitations

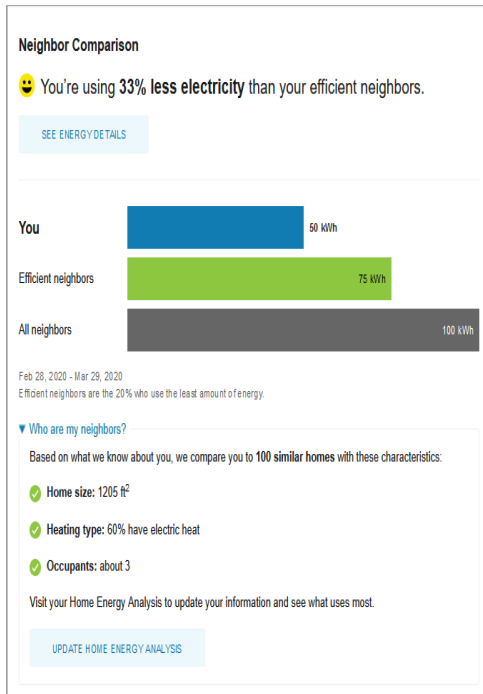
- **Neighbor Comparisons on the Web Versus Printed Reports:** The neighbor comparison on the web may be slightly different than the neighbor comparison in printed [Home Energy Reports](#). Both report types still depend on the same set of neighbors selected for a customer.
- **Dynamic Neighbor Calculations:** A new set of neighbors is not dynamically calculated whenever a customer signs in to their web account and views the neighbor comparison. This is because the neighbor selection algorithm is an intensive

matching process that takes a non-trivial amount of time to run, and so the web version of the feature would take a very long time to load. This also means that if customers update their home information on the web (for example, by using the [Home Energy Analysis](#) survey), they will not see an updated neighbor comparison until Oracle Utilities systems are able to run neighbor re-selection processes at a time later.

- **Dual Fuel Customers and Combined Energy View:** Dual fuel customers see a combined "Energy" view as the default view in the neighbor comparison. If a customer has no gas data, but is part of a dual fuel utility, the customer will still see a neighbor comparison for electricity (and vice versa). Additionally, note that for dual fuel customers, the neighbor selection process selects neighbors based on all the home characteristics, but performs a comparison for each fuel independently. The gas values are calculated based on the gas bill periods, not the electric bill periods (and vice versa).
- **Customers with Electric Vehicles or Heat Pumps:** The neighbor comparison will not be impacted if custom survey questions about electric vehicles (EVs) or heat pumps are added to the [Home Energy Analysis](#). In other words, customers who have these attributes will not be compared to other customers who have these attributes, because the data on these attributes is not widely available. Even if these specific questions were added as new rules in the neighbor selection process, most customers would end up matching with neighbors based on standard information about a premise (such as square footage), unless a very high number of people completed the Home Energy Analysis survey and provided enough data to affect the selection.

## User Experience

The user experience described in this section is for customers who have a desktop screen, a single fuel (electricity), and "neighbor" terminology as opposed to "similar homes" terminology.



**Insight Statement:** The insight statement above the chart ("You used x% more [fuelType] than your neighbors") provides information about why the bar chart appears the way it does. Specifically, it displays a percentage for how much more or less the customer used compared to their "efficient neighbors", or how much more or less the customer used compared to "all neighbors" (including efficient neighbors).

**How You're Doing Icon:** This icon visually represents whether the customer is doing "Great," "Good," or "Using more than average." There are different states for the icon depending on the customer's state.

Customer State	Icon Displayed
Great	
Good or using more than average	

**See Energy Details:** This link takes customers to the [Data Browser](#) to explore their historical energy costs.

**Bar Chart:** The bar chart displays how much energy each group in the comparison used. The order of the bars should be: the bar with the smallest value on top and the bar with the largest value on the bottom.

- **You:** This bar indicates how the customer is doing. This is often a color that corresponds to the utility brand color.
- **Average Neighbors:** This bar indicates how all the customer's neighbors are doing. It is usually a gray or neutral color.
- **Efficient Neighbors:** This bar displays a usage value for the most efficient 20% of the customer's neighbors. It is usually colored green because green is commonly associated with energy efficiency. Note that the efficient neighbors value is not an average of the top 20% of neighbors. A threshold value—the 20th percentile neighbor—is used to determine the value.

**Date Range:** The date range displays the time period that is covered by the comparison. The comparison always covers the last completed billing period. The year accompanies both the start date and end date (for example, Dec 20, 2019 - Jan 20, 2020).

**Who Are My Neighbors:** When clicked, information about the characteristics that match between the customer's home and the neighbors' homes is displayed. See [Who Are My Neighbors](#) below for details.

**Call-to-Action:** The call-to-action is a link (such as **See Energy Details**) that directs customers to additional information. The link varies depending on how well the customer is doing.

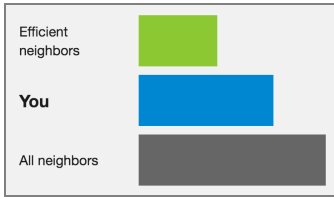
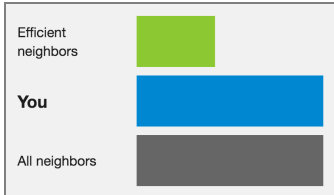

Customer State	Link Displayed
Customer falls in the "Great" or "Good" categories.	SEE ENERGY DETAILS Links to the interactive <a href="#">Data Browser</a> .
Customer falls in the "Using more than average" category.	SEE WAYS TO SAVE Links to <a href="#">Ways to Save</a> .

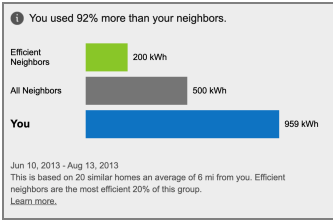
### Neighbor Comparison States

Different components of the neighbor comparison module can take on different states depending on how the customer is doing. This section captures the different neighbor comparison states that may be displayed. Most of these states apply to both single and

dual fuel customers, though there is an edge case that applies only to dual fuel customers. See [Edge Case: Less Than Neighbors](#) below for more information.

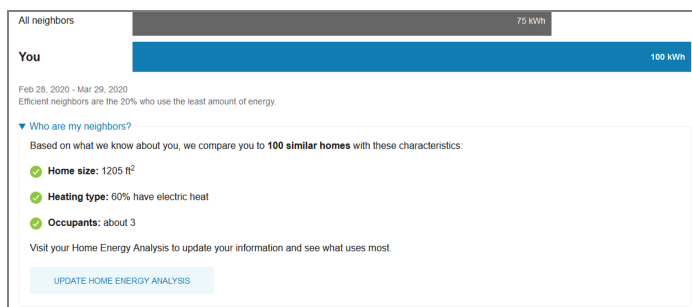
Normative Message / Insight	Customer State	Description
<p>"You're using X% less [fuelType] than your efficient neighbors."</p>	<p>Great</p>	<p>Customer uses the least of both groups.</p> 
<p>"You're using about the same amount of [fuelType] as your efficient neighbors."</p>	<p>Great</p>	<p>There is a negligible, less than, or equal to difference between the customer and efficient neighbors.</p> 
<p>"You're using about the same amount of [fuelType] as your efficient neighbors."</p>	<p>Good</p>	<p>There is a negligible, greater difference between the customer and efficient neighbors.</p> 
<p>"You're using X% more [fuelType] than your efficient neighbors."</p>	<p>Good</p>	<p>Customer used less than all neighbors, but more than efficient neighbors.</p>

Normative Message / Insight	Customer State	Description
		
<p>"You're using X% more [fuelType] than your efficient neighbors."</p>	<p>Good</p>	<p>There is a negligible difference between the customer and all neighbors.</p> 
<p>"You used X% less than your neighbors"</p>	<p>Good</p>	<p><b>Web Only:</b> This message may display for dual fuel customers when they select just electricity or just natural gas from the fuel selector, rather than the combined "energy" option.</p> <p>This is a known edge case, as most messages compare the customer to their efficient neighbors.</p> 
<p>"You're using X% more [fuelType] than your neighbors."</p>	<p>More than average</p>	<p>Customer has used the most. A warning icon is displayed as part of the messaging text.</p>

Normative Message / Insight	Customer State	Description						
		 <p>① You used 92% more than your neighbors.</p> <table border="1"> <tr> <td>Efficient Neighbors</td> <td>200 kWh</td> </tr> <tr> <td>All Neighbors</td> <td>500 kWh</td> </tr> <tr> <td>You</td> <td>959 kWh</td> </tr> </table> <p>Jun 10, 2013 - Aug 13, 2013 This is based on 20 similar homes an average of 6 mi from you. Efficient neighbors are the most efficient 20% of this group. <a href="#">Learn more.</a></p>	Efficient Neighbors	200 kWh	All Neighbors	500 kWh	You	959 kWh
Efficient Neighbors	200 kWh							
All Neighbors	500 kWh							
You	959 kWh							

## Who Are My Neighbors

Customers can click **Who are my neighbors?** to display information on the characteristics of the neighbors that the customer is being compared to. The purpose is to give customers a better idea of the fairness of the comparison. The contents of the description vary depending on what data is available. The information available is broken down into a message about the number of similar homes, a list of characteristics, and a link to the [Home Energy Analysis](#).



**Number of Similar Homes:** A summary message specifies the number of similar homes that are included in the comparison. The number is targeted at 100, but if not enough qualified neighbors exist a smaller number may be used. Reports are only generated for households with a minimum number of qualified neighbors.

**Note:** Neighbors are defined by site rather than by occupant. For example, if an occupant of a neighbor home relocates over the course of the program and another resident moves in, the comparison will subsequently be to the new occupant of the same home. Neighbor sites are nearby homes that have characteristics that typically lead to similar energy needs, and only include homes that appear to be occupied at the time of the comparison. They are not necessarily homes on the same street.

**Comparison Characteristics:** A list of characteristics a customer shares with the neighbors included in the comparison are displayed with a green check mark. If a characteristic is unknown for a customer, it is not included in the comparison and hidden from view. The characteristics may include:

- **Location:** The average distance or proximity of the neighbors' homes. The number is rounded to the nearest whole unit and is meant to assure customers they are being compared against homes that are nearby.
- **Home Size:** The average home square footage among neighbors.
- **Heating Type:** The percentage of neighbors with the same heating type, such as gas or electric heating.
- **Building Type:** The percentage of neighbors with the same building type, such as apartments, condos, or single family homes.
- **Occupants:** The average number of occupants among the neighbors.

**Update Home Energy Analysis:** Clicking this button takes the customer to the [Home Energy Analysis](#) so that they can provide the latest details about their home and make the neighbor comparison more accurate. Note, however, that the neighbor comparison is not updated in real time based on a customer's updates. Additionally, the call-to-action button does not change even if the customer has already visited the Home Energy Analysis.

## User Experience Variations

### Competitive Markets Terminology

Utilities in competitive markets may choose to use different language in the neighbor comparison to make it clear that the customers is being compared to other customers of the same utility.

**Insight Statement:** The insight statement above the chart either says "similar ABC homes" or "your ABC neighbors," where ABC is the name of the utility.

**Who Are My Neighbors Message:** This message says "Based on what we know about you, we compare you to [numberOfHomes] similar [Utility] homes with these characteristics", where [Utility] is the name of the utility.

### Dual Fuel Experience

If the customer is dual fuel, they will see an additional drop-down menu for switching between fuel types. By default, the "Energy" fuel label is shown, which is a view that combines natural gas and electricity using a price-weighted Energy Index. Electricity is the second label and gas is the third. The drop-down only appears for dual fuel customers. Single fuel customers only see a comparison for their fuel type, without a drop-down.



### Edge Case: Less Than Neighbors

For dual fuel customers, the neighbor comparison has to compare the customer to the *same* neighbor group ("all neighbors" or "efficient neighbors") for *all three* options available in the fuel selector: energy, electricity, and gas. This rule results in an edge case where the customer may see a "You used less than your neighbors" message. (In most cases, the feature only compares the customer to *all* neighbors when the customer is using more than *all* neighbors. Otherwise, the module compares them to *efficient* neighbors in order to encourage more efficient behavior.)

**Note:** This limitation only applies to the neighbor comparison for the web.

For example, let's say a dual fuel customer signs in to their online account and views their neighbor comparison. Imagine that the comparison says the customer used 28% more *energy* than all neighbors. Then let's say the customer clicks the fuel selector and switches to *electricity*. Imagine they find that they used 88% more electricity than all neighbors. But then let's say they switch to *natural gas* and find that they used 22% less than all neighbors.

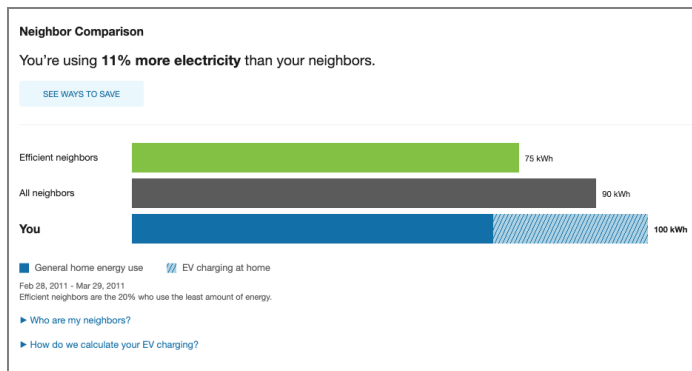
In this case, the statement about natural gas will compare the customer to all neighbors (not efficient neighbors), resulting in the statement, "You used X% less than your neighbors." This is the only scenario in which this particular wording will be used.

### Efficiency Zone Experience

If the customer receives [Home Energy Reports v3](#) (either the email or print version), they will see that an Efficiency Zone experience replaces the standard Neighbor Comparison experience on the web. See [Efficiency Zone](#) for more information.

### Electric Vehicle Experience

Customers who receive the [Email Home Energy Reports Electric Vehicle \(EV\) report edition](#) or the [print Home Energy Reports EV report edition](#) can view personalized insights about the impact of EV charging on their overall energy use in the Neighbor Comparison web widget. The EV web experience takes into account the impact of the customer's EV charging on their total energy usage. It also incorporates additional insights (such as disaggregation and detection) and makes it clear to customers how their EV use factors into their report.



This experience is only available to EV customers with Level 2 (L2) chargers and varies from the standard experience in several ways.

**Normative Message / Insight Statement:** The normative message that appears above the chart includes a link to [Ways to Save](#).

**Bar Chart:** The "You" bar in the bar chart displays two parts: a solid color to represent the customer's general home energy use, and a lighter shaded color to represent the customer's energy use attributable to EV charging. When a customer selects one of these parts of the bar, a tooltip appears to indicate how much energy use it represents. The usage amounts of each part add up to the total energy use amount displayed at the end of the bar. Additionally, beneath the bar chart is a short legend that explains what the colors of the "You" bar represent.

**Who Are My Neighbors:** This section contains the same information as in the [standard user experience](#). There is no additional EV attribute highlighted as a reason for the comparison. Customers with an EV are compared against other customers based on standard premise information, such as home type and square footage. One reason for this is that EVs are not widespread, and finding other households where an EV is present is a challenge. However, the EV Neighbor Comparison experience shows customers the impact of EV charging on their overall usage, which helps explain why their comparison is the way it is.

**How Do We Calculate Your EV Charging:** When this link is clicked, information is displayed to explain that the customer's EV energy use is estimated based on what is known about their home profile as well as the energy use data available for their home.

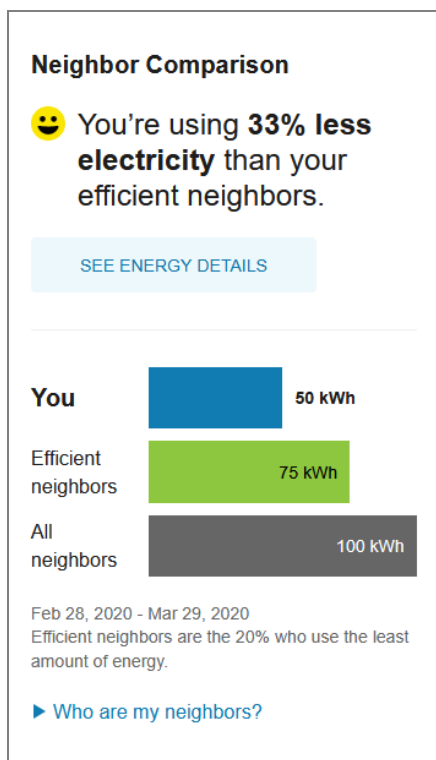
## Requirements

The preferred approach for the EV experience is to use an advanced AMI data science model, since this model generates the most accurate neighbor comparison results. In this case, there are minimum AMI data and weather data requirements for the utility to meet. Contact your [Delivery Team](#) for details.

If not enough data is available to use the advanced AMI data science model, then the "EV charging at home component" can be based on billing data and utility-wide average percentages for end use categories (including for EV end use), as well as the customer's answers to the [Home Energy Analysis](#).

## Mobile Experience

The Neighbor Comparison for smaller screen sizes consists of the same components as the desktop experience. The only difference is that the layout changes, and the components of the feature stack vertically to fit the screen. Since the Oracle Utilities Opower web features or widgets adapt their layout based on screen size rather than device type, the mobile experience may differ slightly between devices.



## Calculations

The neighbor comparison calculation compares a customer's energy use against two groups: All Neighbors and Efficient Neighbors. At a high level, the calculation involves the following steps:

1. Identify the start and end dates of the period of comparison.
2. Identify the customer's neighbors. The number of neighbors is targeted at 100, but if not enough qualified neighbors exist, a smaller number may be used.
3. Identify the customer's efficient neighbors—the 20th percentile of neighbors with the lowest use for the selected period.

4. Calculate the customer's total energy use over the time period.
5. Calculate the average energy use of all of the customer's neighbors over the time period. This results in an energy use value for the "All Neighbors" group.
6. Calculate the 20th percentile of energy use of all the customers' neighbors over the time period. This results in an energy use value for "Efficient Neighbors" group.
7. Compare the information and generate a graph that indicates how the customer is doing.

#### Notes:

- **Report Generation:** Reports are only generated for households that have a minimum number of neighbors in the "good" state. Households that do not meet this requirement will not receive reports.
- **Neighbors Defined by Site:** Neighbors are defined by site rather than by customer. For example, if an occupant of a neighbor home relocates over the course of the program and another resident moves in, the comparison will subsequently be to the new occupant of the same home.
- **Neighbor Comparison Data:** The calculation can compare customers to neighbors who have been selected to participate in the program, as well as neighbors who have *not* been selected. However, it does not calculate or store comparison data for non-program customers.
- **Pro-Rating Neighbors' Bills:** A customer's neighbors' previous bills do not always coincide exactly in time with the customer's previous bills. To arrive at the neighbor averages used to calculate the comparison, it is necessary to align neighbors' past energy use amounts with the customer's past energy use amounts. In these scenarios, the application pro-rates, or "time-shifts," the neighbor bills to align with the customer bills by determining and adjusting for the amount of overlap. The time-shifted neighbor bills are then used to determine the neighbor averages.

## Next Best Action

The Next Best Action widget provides dynamic, actionable tips and promotions that can be shared with all customers, or targeted to specific customer groups. The tips are displayed as mobile-responsive web banners containing information about valuable solutions and helpful tools for managing energy use and costs.

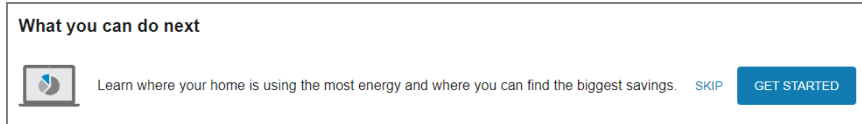
## Requirements

Same as listed in the [product-wide requirements](#). A segmentation process is used to determine which banners to display to business customers. This process can include presenting banners based on specific attributes or criteria, such as whether a customer is

[authenticated](#) or not. Your [Oracle Utilities Delivery Team](#) will work with you to configure the banners in support of your program goals.

## User Experience

Banners can be displayed on any page to promote utility-specific programs and promotions, deliver notifications and tips, and suggest the best next web action to take.



**Headline:** A headline appears at the top of the widget to highlight the suggested action. Many banners use a "What you can do next" headline by default to keep the customer focused on actionable steps.

**Icon:** A graphical icon provides a visual to supplement the banner message.

**Banner Message:** The message provides additional information on the action that is being recommended to the customer.

**Skip Button:** Customers can select to skip the action listed. This displays the next available Next Best Action banner to the customer. If the customer skips through all banners, the customer is shown the first banner again.

**Call to Action Button:** A button with applicable messaging for the action redirects the customer to the valuable opportunities, solutions, or helpful tools to complete the suggested action.

**Note:** Utilities can choose to configure banners that a customer can completely close from view. The banner remains hidden for the customer from the current user session and reappears on subsequent user sessions. For more information, see the [Next Best Action](#) topic in the *Oracle Utilities Opower Digital Self Service - Energy Management Configuration Guide*.

## User Experience Variations

### Custom Banners

Next Best Action banners can vary widely by utility and by the type of promotional information they contain. The design and content are generally decided upon through collaboration between the utility and Oracle Utilities Opower.

## Single Sign-On

For utilities that enable single sign-on (SSO), the Next Best Action banners allow customers to click through to utility-hosted pages without needing to log in. For utilities that do not enable SSO, a customer must log in before they are redirected to a utility-hosted page.

## Peak Time Rebates

The Peak Time Rebates program consists of web features as well as print and digital communications that encourage utility customers to reduce energy during peak event days in the summer or winter seasons, thereby lowering energy demand on a large scale. The program offers customers monetary credits towards their next bill when they reduce their energy use during peak events.

The Peak Time Rebate widget allows customers who are enrolled in Peak Time Rebates to view their historical peak event day rebate and energy saving information in a user-friendly graph.



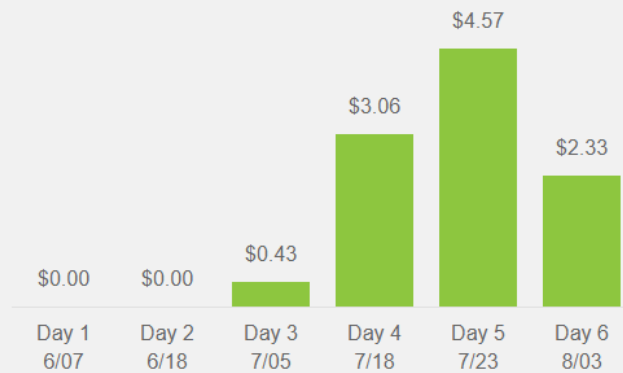
### You earn bill credits for using less energy on Energy Savings Days.

- In the summer there are a few Energy Savings Days – hot days when there is more demand on the grid.
- Save during peak hours, **1-7pm**, on Energy Savings Days.
- Earn bill credits for every kWh you save. [Learn more](#)

▲ [HIDE DETAILS](#)

[BILL CREDITS](#) | AVERAGE HOMES

◀ Summer 2017 ▶



Total bill credits

\$ **\$10.39**

[How is this calculated?](#)

Depending on what options are available from the utility, customers can view the following information:

- **Bill Credits:** This graph displays how much money a customer has earned by saving energy on peak rebates event days.
- **Average Homes:** This graph displays how much money a customer has saved compared to homes within 100 miles of them and who saved energy on an energy savings day. Average homes data is only available for the money comparison and peak rewards experiences.

- **Tool tip:** When hovering over the Bill Credits or Average Homes graphs, pertinent information about the day is displayed including date and day of the week, specific event hours and average temperature during that period, how much energy the customer saved compared to their baseline, and the rebate amount is displayed.
- **Total Bill Credits:** This section calculates the customer’s cumulative rebate amount for the selected season.

See the [Oracle Utilities Opower Peak Time Rebate Product Overview](#) for more information about the product's requirements and features.

## Resources

The following resources are available for customers to access and review as needed. Links to these resources can be included in a footer that is displayed on all pages.

## Help and Contact Information

Oracle Utilities develops Frequently Asked Questions (FAQs) drawn directly from customer feedback. The list is kept small so that customers can quickly find the information that they need.

**Frequently asked questions**

**About the neighbor comparison**

Who are my neighbors? Answer ▲

Your energy use is being compared to the usage patterns of a group of about 100 neighbors whose homes are close to yours and similar in size.

---

How did you choose the homes used in my neighbor comparisons? Answer ▼

---

What if there are good reasons that my household uses more energy than my neighbors? Answer ▼


Customers who cannot find the answer to their questions in the provided FAQs can use the contact information to contact the utility. The contact information is specified by the utility.



## We're here to help

UtilityCo is providing you new information on your energy use through the Home Energy Reports program. It's part of our ongoing efforts to help our customers save energy and money.

### Contact us

 **Email:** test@UtilityCo.com

 **Phone:** (555)555-5555

## Terms of Use

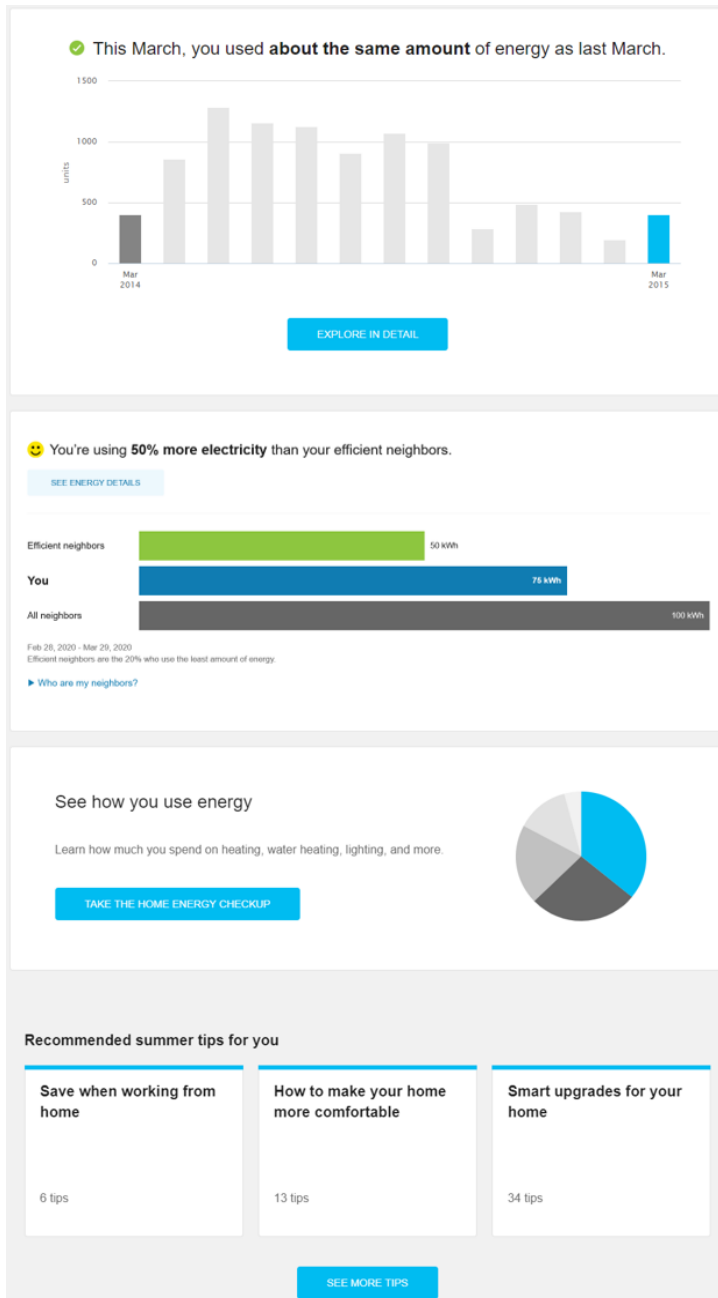
The customer must agree to the Oracle Utilities Terms of Use before creating an account.

## Privacy Policy

The Privacy Policy is available to all customers.

## Smart Dashboard

The Smart Dashboard displays an overview of customers' energy use and utility account tools and can be used as the initial page for users who have signed in. It combines multiple insights and experiences on a single page to help customers engage with the tools and information in their account.



Features of the dashboard are dependent on a customer's available data and can include:

- [Bill Forecast](#) (AMI data required)
- [Energy Use Overview](#)
- [Highest Energy Use Day](#) (AMI data required)
- [Home Energy Analysis Light](#)
- [Neighbor Comparison](#)
- [Tips Light](#)

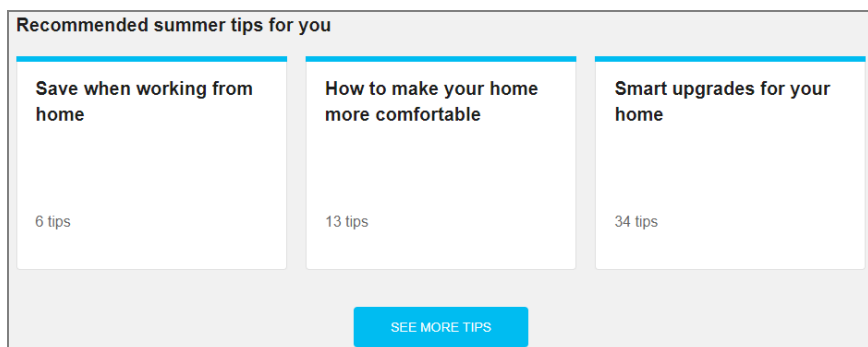
## Data Requirements and Limitations

- **AMI Customers:** Some features in the Smart Dashboard require AMI data. These features in turn require the Digital Self Service AMI cloud service. For more information, see [Getting Started](#).
- **Feature-Specific Requirements:** Additional data requirements vary by feature. See the applicable feature descriptions for more information.

## Tips Light

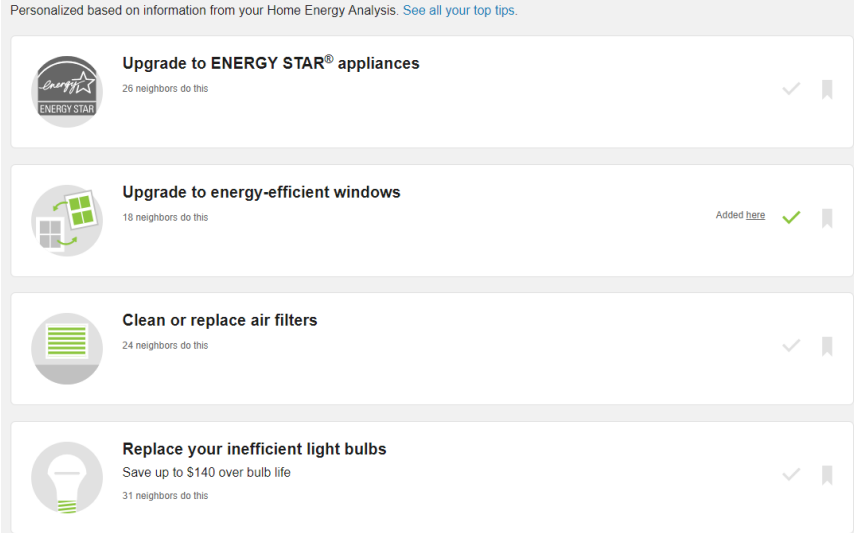
Tips Light displays the top three tip guides for the customer's household. These tip guides promote customer interest in tips and lead them to more detailed tip information. This widget typically appears on the "Smart Dashboard" on page 189.

Selecting a tip guide sends customers to the Guide Details widget. A **See More Tips** button appears below the tip guides. Selecting this button sends customers to the Ways to Save landing page. See "Ways to Save" on page 193 for more information.



## Tips List

The Tips List widget displays the top five energy efficiency tips for a customer's household. The priority and order of the tips is determined based on data that is available for the customer. The widget can be coupled with the "Home Energy Analysis" on page 139 or it can be standalone. The purpose is to promote customer interest in tips and guide them to more energy efficient behavior.



**Personalization Message:** At the top of the widget is a message indicating that the tips are personalized for the customer based on their answers to the "Home Energy Analysis" on page 139. If the widget is not paired with the Home Energy Analysis, the text can be changed to convey a more appropriate meaning.

The message also includes a link to see more top tips. Clicking the link redirects the customer to a "top tips" guide that contains a list of all available tips for the customer, prioritized by [Intelligent Tip Targeting](#). For more information about tip guides, see "Ways to Save" on page 193.

**Tip Content:** Each tip includes the components below.

- An illustration that allows customers to quickly recognize the concept or purpose of a tip.
- A short title that describes the tip.
- The estimated annual savings if the customer completes the tip.
- The number of utility customers who have completed the tip.
- Icons that let the customer mark a tip with an applicable tip action, such as marking it as done or saving it for later.

Customers can select any tip to go to a page containing additional details about the tip and how to implement it.

**Widget Placement:** While there is no technical restriction on where the widget is displayed, there are two recommended locations: beneath the "Home Energy Analysis" on page 139 or the "Bill Comparison" on page 13. If the widget is placed under the Bill Comparison, then the default personalization message can be changed to convey a more appropriate note.

**Pre-Authenticated Experience:** Customers can access the Tips List widget without logging in to their account. In this case, personalized tip targeting is not applied, which means that the top five tips are drawn from all of the allowed tips for the utility. The tips are prioritized based on web tip actions—that is, whether other customers have done the tip, saved the tip for later, or said they won't do the tip. The most commonly completed tips are ranked at the top. Customers viewing this experience are prompted to log in if they attempt to save a tip or mark it as done.

## Ways to Save

Ways to Save presents a personalized selection of energy saving tips. Customers can browse through the available tips to learn how they can save energy. The tips are organized into various tip guides based on filters like cost, appliance, and season of the year.

## Requirements

### Utility Requirements

Same as listed in the [product-wide requirements](#).

### Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Not applicable.
Data Requirements	Not applicable. A customer's data and attributes do not determine whether the Ways to Save feature is displayed. However, a customer's attributes and utility-specific configurations may affect which tips within the feature are displayed.
Data History	Not applicable.
Data Coverage	Not applicable.

Category	Description
Supported Fuels	Electricity, gas, and dual fuel.

## User Experience

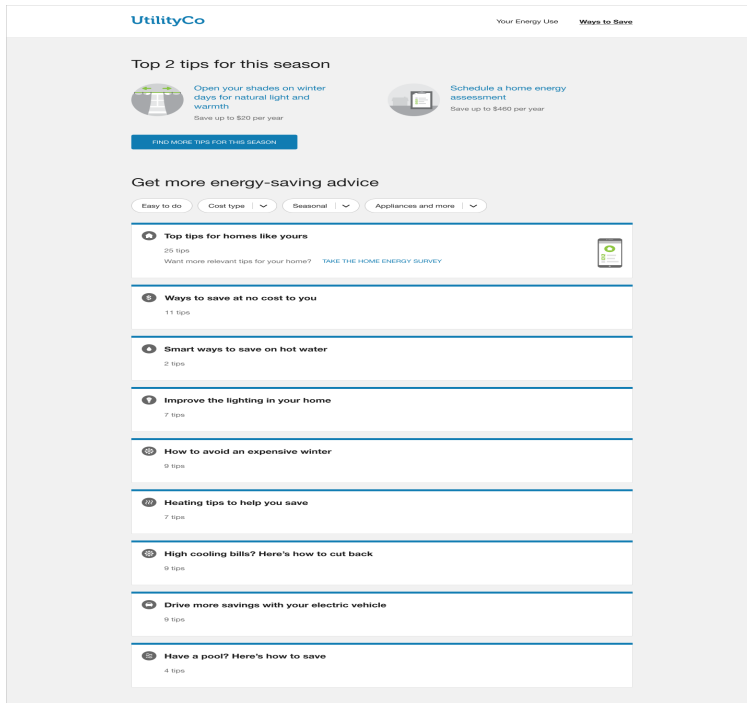
Ways to Save presents a selection of energy tips that customers can follow to lower their usage and save money. The tips are selected based on a customer's attributes and how likely the customer is to follow the tip, and organized into guides based on filters like cost, appliance, and season of the year.

## Tip Guides

A tip guide is a collection of tips organized in behavior-oriented, seasonal, and end-use categories that provide customers with relevant cost-saving recommendations. For example, the "How to avoid an expensive summer" guide is displayed to customers during summer months.

A tip guide is only shown if tips are included in the guide after [tip filtering](#) is applied and irrelevant tips are excluded. Customers can view tips by browsing the tips guides or by selecting filters to identify all available tips that meet the filter criteria.

**Note:** Customers can access Ways to Save without logging in to their account. See [Unauthenticated Experience](#) below for more information.

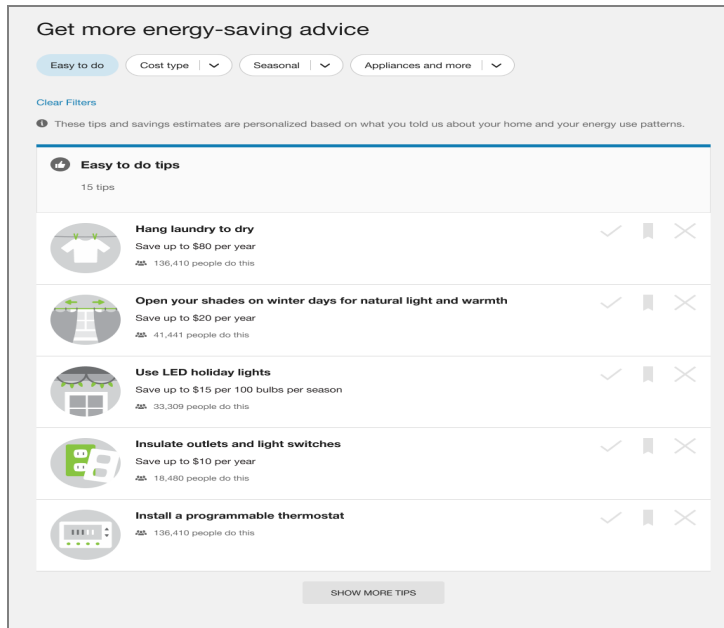


**Promoted Tips:** A promoted tip guide containing the two most applicable tips of the season is displayed at the top of the Ways to Save page above all other tip guides. The top two tips are randomly chosen from the first seasonal guide shown on the page. These promoted tips can be selected, and they change upon each page refresh. The customer can also click a button to view all tips available in the seasonal tip guide.

**Order of Tip Guides:** The default order is to show a promoted seasonal guide first (if applicable), followed by a list of guides defined during the setup and configuration process.

**List of Tips in a Guide:** Customers can select a tip guide to view the list of tips included in that guide. From this list of tips, customers can review high-level information about each tip, and select a tip to view additional details. Information available for a tip from this list includes the following:

- An illustration allows customers to quickly recognize the concept or purpose of a tip.
- A short title that describes the tip.
- The estimated annual savings if the customer completes the tip.
- The number of utility customers who have completed the tip.



Customers can select a tip in the list to view additional details about the tip, or mark a tip with an applicable [tip action](#).

**Order of Tips within Tip Guide:** The tips are ordered based on [Intelligent Tip Targeting](#), a proprietary automated process that uses logic to show the most relevant tips for the customer at the top of each tip guide. One exception is the Most Popular Tips guide, which shows tips in order of popularity (that is, the tips marked completed by the most users).

In the [unauthenticated experience](#) of Ways to Save, the Most Popular Tips guide is still ordered by popularity, and the rest of the tip guides are ordered by the default savings estimates.

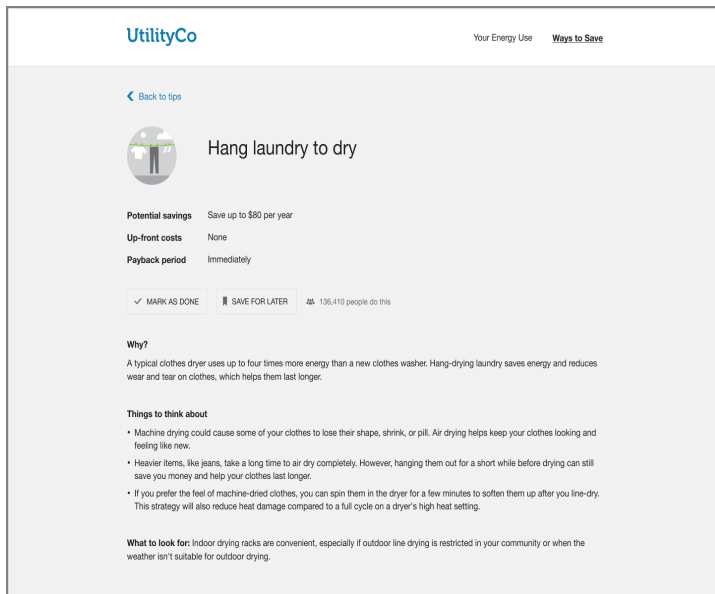
## Tip Details

Customers can select a tip to view reasons why they should complete a tip. An option to **Read More** about the tip displays all available information for the tip. This can include the following:

- A tip title displayed at the top, along with the tip illustration.
- A list of financial incentives related to the tip, such as cost savings or tax incentives. By default, a maximum of three of the available financial benefits are displayed. If more than three financial benefits are available for the tip, a link is displayed to show or hide the additional financial benefits. The financial incentives can include:
  - Savings amount
  - Rebate information
  - Upfront costs
  - Tax incentives

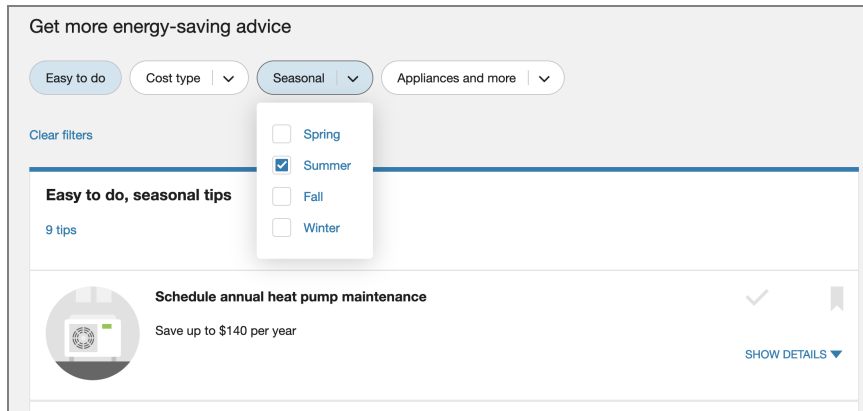


- Recycling information
- Payback period
- Other incentives
- Links to utility programs and incentives, if applicable.
- Why a customer would perform the tip.
- Information on what actions a tip includes or how to complete a tip can be provided. This optional information is commonly provided for tips that are not as straightforward as simple tips.
- Customers can save a tip to a list of tips to review later, or mark a tip as something they have completed.



## Tip Filtering

Tips are automatically filtered for customers based on the characteristics of their home. These characteristics may include the customer's home type, whether they own or rent, the heating system and type (for electric systems), and the type of air conditioning. Customers can browse the tips available in each guide, or select filters to find the tips most relevant to them.



Filter categories and sub-categories include:

- **Easy Tips:** Easy to Do tips
- **Cost Type:** Free Tips, Low Cost Tips, Great Investments, and Rebates
- **Seasonal:** Spring, Summer, Fall, and Winter
- **Appliances and More:** Heating, Cooling, Water Heating, EV Charging, Pool Energy Use, Laundry, Dishwasher Use, Oven Use, Refrigeration, Electronics, and Lighting

Filters can be combined to display a smaller selection of tips. For example, the Free Tips and Summer filters could be combined so that only free seasonal tips for the summer are displayed. When the filters are cleared, the full list of tip guides is displayed.

Tip filtering is also affected by the [Home Energy Analysis](#), which allows customers to answer questions about their energy use, including whether they live in an apartment and if they rent or own their home. After completing this survey, customers are shown tips that are more relevant to them. See [Home Energy Analysis Completed](#) below for details.

### Tip Actions

Tip actions allow customers to save a tip or mark a tip as completed. Customers can view all saved tips and all completed tips in separate tip guides. The number of other utility customers who have completed the tip is displayed to encourage the customer to also complete the tip. If a customer is viewing Ways to Save without being logged in to their account, the customer is prompted to log in to their account to complete any tip actions.

## Next Best Action

A [Next Best Action](#) banner can be displayed at the bottom of Ways to Save to give customers next steps to lower their energy use. Customers can select Skip in the message to see the next best action, or follow a link to more information.

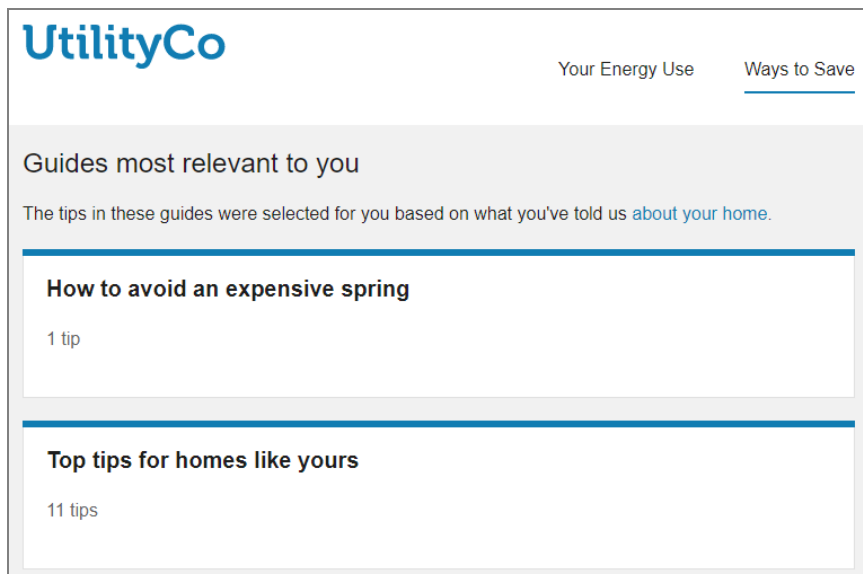
For example, the suggested actions could include taking the [Home Energy Analysis](#) survey, using the [Rate Comparison](#), signing up for alerts, and so on.

**Note:** The Next Best Action banner requires some setup and configuration before it can be displayed. [Contact your Delivery Team](#) to coordinate.

## User Experience Variations

### Home Energy Analysis Completed

A message is displayed just above the tip guides to customers who have completed the Home Energy Analysis survey. This message explains that the tip guides were selected based on the customer's responses to the survey, and provides a link to their [Home Energy Analysis](#) energy use breakdown.



### Locale

If the customer lives in a non-US locale, the Ways to Save feature will display locale-appropriate language and units of measure. In addition, the tip library will likely vary based on the heating and cooling types available, the common appliances used in the locale, and so on.

### Multiple Accounts and Service Points

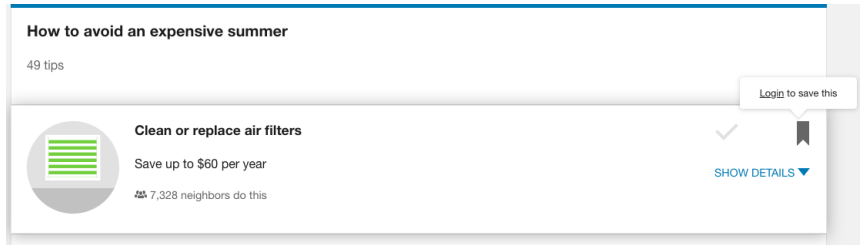
If a customer has multiple accounts, then the customer can view tips for a different account by clicking an account selector hosted on the utility website. All embedded widgets are then reloaded with data for the specified account.

If a customer has one service point for electricity and one for gas associated with their account, then the Ways to Save widget behaves as expected. The tips are prioritized based on the customer's account or premise rather than individual service points. The user interface does not display a menu for switching between service points.

### Unauthenticated Experience

Customers can access Ways to Save without logging in to their account. [Tip filtering](#) is not applied in this case, which means that all tip guides available for a utility are displayed to

the customer. Customers viewing this experience are prompted to log in if they attempt to save a tip or mark it as completed.



## Calculations

### Intelligent Tip Targeting

The tips in Ways to Save are selected, ordered, and displayed for customers based on a programmatic process called Intelligent Tip Targeting. This process uses a series of logic and rules to filter, prioritize, and select the tips for display. See [Intelligent Tip Targeting](#) for more information.

### Tip Heating and Cooling Disaggregation

The tips a customer receives are sometimes influenced by a proprietary heating and cooling disaggregation algorithm that Oracle Utilities Opower uses to estimate a breakdown of how much energy a customer consumes related to heating and cooling, based on local weather and AMI data. This breakdown, in turn, affects the weight that each tip has, which in turn affects how highly prioritized each tip is relative to other tips.

For example, customers who live in warm climates are more likely to lean heavily on air conditioning to cool their homes. They are therefore more likely to see tips related to air conditioning. As another example, if it looks like customers are spending a high amount of gas in the summer, then greater weight and priority will likely be assigned to gas-related tips.

Ultimately, the heating and cooling disaggregation informs the tip targeting process and generally results in tips that are better suited to the customer's context. It is especially useful for customers those who live in vastly different climate zones.

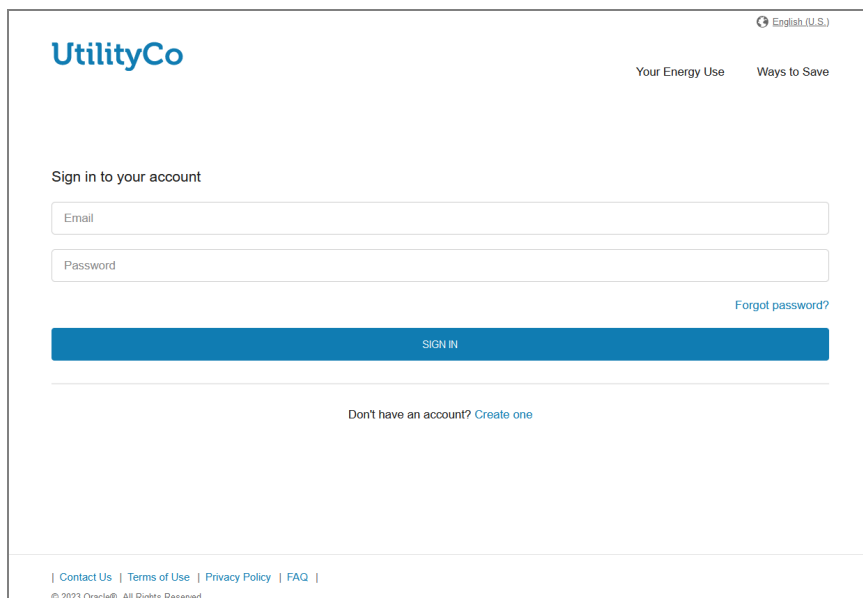
**Note:** The heating and cooling disaggregation is only available for utilities that meet the relevant customer data requirements, such as having weather data and AMI-level data.

## Tip Savings Estimates

Many tips contain an estimate of how much money a customer could save by completing the tip. To calculate these estimates, Oracle Utilities Opower conducts extensive research across many government, academic, and non-profit sources of energy information, and then derives a set of proprietary tip-saving formulas. If necessary, utilities can [work with their Delivery Team](#) to discuss whether the tip savings estimates can be replaced with estimates of their own.

## Welcome

A welcome experience is displayed when a customer has not signed in yet. Customers can sign in to their account, create a new account, or access tips on how to save energy.



UtilityCo

English (U.S.)

Your Energy Use Ways to Save

Sign in to your account

Email

Password

Forgot password?

SIGN IN

Don't have an account? [Create one](#)

| [Contact Us](#) | [Terms of Use](#) | [Privacy Policy](#) | [FAQ](#) |

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**Sign In:** Customers can sign in to their account with their email address and password. There is a link to create an account if they have not already done so. There is also a link to recover a password if they forgot it.

**Language Selector:** A link at the top of the page allows the customer to select a preferred language for the content in the interface. Customers will only see options for languages that have been localized for their utility.

**Your Energy Use Menu:** The **Your Energy Use** menu includes links to the [Smart Dashboard](#), [Data Browser](#), and [Bill Comparison](#) widgets. Customers are prompted to sign in before they can access these features.

**Ways to Save Menu:** The **Ways to Save** menu includes links to the [Home Energy Analysis](#) and [Ways to Save](#) widgets. Customers are prompted to sign in or provide some uniquely identifying information before they can access the Home Energy Analysis. The

Ways to Save page is accessible whether or not the customer has signed in. However, the tips are not personalized until the customer has signed in.

## Providing Customer Support

The customer support capabilities of the Digital Self Service - Energy Management Web Portal vary depending on whether the portal is implemented as a standalone instance, or if it is seamlessly integrated with a utility's website and uses embeddable widgets.

### Supporting Customers with Standalone Digital Self Service - Energy Management

Customer Service Representatives (CSRs) with the proper permissions have the ability to access customer web accounts in the standalone Digital Self Service - Energy Management Web Portal from a link in the Oracle Utilities Opower Customer Service Interface. CSRs are prompted to confirm that they have permission from the customer to view the account.

After logging in, the Digital Self Service - Energy Management Web Portal appears to the CSR much like it does to the customer, and the CSR is better positioned to answer questions about the customer's account. The only differences are that a CSR cannot modify the customer's email address or password.

CSRs can access the Digital Self Service - Energy Management Web Portal for every customer in the Oracle Utilities Opower program, regardless of whether the customer has created a web account. If a CSR and customer are making modifications at the same time, the changes are preserved for the last person that commits their changes.

See [Supporting Digital Self Service - Energy Management](#) for more information.

### Supporting Customers with Embedded Digital Self Service Widgets

In embedded integrations of the Digital Self Service - Energy Management, one or more widgets are embedded within the pages of a utility's website. To provide customer support for these widgets, CSRs can open a customer's profile in the Customer Service Interface tool and access a widget gallery where they can view the widgets associated with that customer. The CSR can then view a widget as the customer sees it, and more quickly answer customer questions.

See [Supporting Digital Self Service - Energy Management](#) for more information.

## Rates Engagement

The Oracle Utilities Opower Rates Engagement cloud service enables customers to view energy cost insights and trends, learn about available rate plans, and view projected

energy cost savings from joining a new rate plan. This information helps customers better understand the cost implications of their energy use, and empowers them to be more energy efficient.

The following components are available in this service:

- [Rate Engine](#)
- [Rates Engagement - Web](#)
- [Rate Education Reports - Print](#)
- [Rate Education Reports - Email](#)

For an overview of all cloud services available from Oracle Utilities, see the *Oracle Energy and Water Cloud Services* document online at [Oracle Contracts - Cloud Services Service Descriptions](#).

## Requirements

The Rates Engagement cloud service comes with a set of requirements that must be met for utilities and customers to participate in the program. See [Requirements and Limitations](#) for details.

# Rate Engine

The Oracle Utilities Opower Rate Engine is a computing model that relies on rate configuration data, rate plan data, and customer energy use data as its primary inputs. These inputs are then used to perform rate calculations for features like the [Bill Comparison](#), [Bill Forecast](#), and [Data Browser Costs Graph](#). These features help customers make smarter choices about their energy use.

Note that the Rate Engine is not designed to be a billing-grade engine. Its purpose is to convert customer energy use values to dollar values, and to then deliver estimated cost insights and trends based on those dollar values. These insights are valuable because cost information is typically easier for customers to understand and act upon than energy use information.

The Rate Engine is set up and configured as part of a comprehensive rates modeling process conducted by your Oracle Utilities Delivery Team. See "Rates Modeling" on page 205 for details.



## Add-On Features

The Rate Engine Plus is an enhanced version of the standard Rate Engine that can be purchased as an optional add-on to Rates Engagement. See [Rate Engine Plus](#) for more information.

# Rates Modeling

Rates modeling is the process by which Oracle Utilities configures the [Rate Engine](#) to consume rates data from utilities and calculate personalized cost insights for customers. Rates modeling is required at an additional fee when setting up the Rates Engagement cloud service.

**Note:** The Oracle Utilities Opower rates modeling process can be carried out for residential and commercial customers. For commercial customers, an initial assessment is needed to determine if your business rate structure can be supported. Contact your Delivery Team for more information.

Your Delivery Team will work closely with you to complete the rate modeling process. The high-level steps include:

1. Identify which rate plans need to be modeled and acquire the appropriate documentation. Often, such documentation includes a rate tariff document describing the terms and conditions of a utility's rate plan, as well as examples of bills and usage charges.
2. Determine what data is currently being sent in the `usage_charge` field in the [Legacy Billing Data File](#). This lets Oracle Utilities know which costs to model in the [Rate Engine](#). For example, if taxes are included in the data for that field, then taxes should be modeled in the Rate Engine. If taxes are not included in that field, then they should not be modeled.
3. Analyze the rate plan documentation to understand how a utility's rates are calculated. Tasks in this step may include:
  - Conduct meetings as needed with rates subject matter experts at the utility to verify how the rate plans work
  - Identify what rates data needs to be imported into the Oracle Utilities Opower data platform.

- Determine whether existing rate calculators in the Oracle Utilities Opower Rate Engine can be used to calculate the rates, or if a new custom rate calculator needs to be developed. A "rate calculator" is a piece of code that generates cost information. While there is a set of generic rate calculators in the Rate Engine that can be configured to support different rate plans, sometimes a new calculator must be created to support a utility's unique situation. The Rate Engine has calculators for common scenarios such as tiered rate plans, time-of-use rate plans, and flat charges.
4. Send the Oracle Utilities Opower [Rates Data Transfer documentation](#) to the utility to begin establishing a regular feed of rates data.
  5. Import rates data from the utility and test that cost insights are being calculated and displayed in the relevant web features as expected.

## Rates Engagement - Web

The Rates Engagement cloud service includes various cost insights and features for the web.

- Cost insights in the [Bill Comparison](#)
- Cost insights in the [Bill Forecast](#)
- Cost insights in the [Data Browser](#)
- Cost information in [Green Button - Data Download](#)
- [Rate Comparison](#)

### Rate Comparison



The Rate Comparison feature allows customers to see an overview of rate plans for which they are eligible, estimated cost information, and details about each rate plan option. Customers can compare rate plans in terms of estimated annual costs and quickly identify their cheapest rate. Further rate analysis is available through additional rate details and the ability to perform what-if scenarios representing energy use choices the customer can make.

1 These cost estimates do not include generation costs. Generation costs are handled by another provider.

### Electricity rate plan comparison

#### Your lowest cost rate plan

Based on your electricity use history, you could save the most on the **Time of Day 3-8pm** rate plan.

Your Current Rate	Lowest Cost   Save \$330
 <p><b>Monthly</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1935</b> Estimated cost per year</p> <p><a href="#">LEARN MORE</a></p>	 <p><b>Time of Day</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1605</b> Estimated cost per year</p> <p><a href="#">LEARN MORE</a></p>




Ready to switch rate plans? Call us at 1-800-UTILITY

2

Shifting your energy habits can lower your costs.  
See how your costs per rate plan change by answering a few questions.

[GO TO RATE SIMULATOR](#)

#### Compare all rate plans

Lowest Cost	Your Current Rate
 <p><b>Time of Day rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1605 /year</b></p> <p><a href="#">LEARN MORE</a></p>	 <p><b>Monthly rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1605 /year</b></p> <p><a href="#">LEARN MORE</a></p>
 <p><b>Electric Vehicle rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1605 /year</b></p> <p><a href="#">LEARN MORE</a></p>	

The Electricity rate plan comparisons and chart are provided for illustrative purposes only and do not constitute a representation or recommendation by UEMCo as to what rate schedule is best for you. This chart only depicts estimated usage charges based on available internal data. It does not include costs associated with certain programs such as UEMCo's Solar Choice or other fees such as utility user taxes, certain other taxes, and surcharges. As a result, the cost comparison displayed in the chart will not reflect all of the charges on your bill. UEMCo cannot guarantee the accuracy, completeness or usefulness of rate information or the estimated cost information displayed. UEMCo expressly disclaims any and all liability for any damages of any nature (including direct, indirect, incidental and consequential) arising in connection with the use of the Electricity rate plan comparisons and arising in connection with the use of the monthly estimated bill comparison.

The following components are included within the Rate Comparison feature:

- [Rate Comparison](#): Allows customers to see a comparison of their eligible rate plans.
- [Rate Details](#): Allows customers to view additional information on their eligible rate plans.
- [Rate Simulator](#): Allows customers to simulate how their energy costs may be reduced under other eligible rate plans if they make changes to their energy use habits.

### Data Requirements and Limitations

- The customer must be billed monthly.
- Daily or sub-daily AMI data is required.
- By default, the customer must have at least 9 months of billing data available.

- By default, the customer must have at least 270 days of AMI data available, and a minimum of 75% of AMI reads from this period must be available.
- Customers are only presented with rate plans for which they are eligible. This ensures that the information is relevant to the customer.



## Rate Comparison

The Rate Comparison component allows customers to see a comparison of their eligible rate plans. This component compares the estimated annual costs for each rate plan and highlights the cheapest rate for the customer.

These cost estimates do not include generation costs. Generation costs are handled by another provider.

### Electricity rate plan comparison




**Your lowest cost rate plan**  
Based on your electricity use history, you could save the most on the **Time of Day 3-9pm** rate plan.

Your Current Rate	Lowest Cost Save \$330
 <p><b>Monthly</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1935</b> Estimated cost per year</p> <p><a href="#">LEARN MORE</a></p>	 <p><b>Time of Day</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p> <p><b>\$1605</b> Estimated cost per year</p> <p><a href="#">LEARN MORE</a></p>

Ready to switch rate plans? Call us at 1-800-UTILITY

**Shifting your energy habits can lower your costs.**  
See how your costs per rate plan change by answering a few questions.  
[GO TO RATE SIMULATOR](#)

### Compare all rate plans

Lowest Cost		
	<p><b>Time of Day rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p>	<p><b>\$1605</b> /year</p> <p><a href="#">LEARN MORE</a></p>
	<p><b>Monthly rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p>	<p><b>\$1605</b> /year</p> <p><a href="#">LEARN MORE</a></p>
	<p><b>Electric Vehicle rate plan</b></p> <p>Best for: Homes with low energy use Price highest: Weekdays 4pm - 9pm</p>	<p><b>\$1605</b> /year</p> <p><a href="#">LEARN MORE</a></p>

The Electricity rate plan comparisons and chart are provided for illustrative purposes only and do not constitute a representation or recommendation by LMECo as to what rate schedule is best for you. This chart only depicts volumetric usage charges based on available interval data. It does not include costs associated with certain programs such as LMECo's Smart Choice or other fees such as utility user taxes, certain other taxes, and surcharges. As a result, the cost comparison displayed in the chart will not reflect all of the charges on your bill. LMECo cannot guarantee the accuracy, completeness or usefulness of rate information or the estimated cost information displayed. LMECo expressly disclaims any and all liability for any damages of any nature (including direct, indirect, incidental and consequential) arising in connection with the use of the Electricity rate plan comparisons and arising in connection with the use of the monthly estimated bill comparison.

**Lowest Cost Plan:** Customers can compare their current rate plan to another rate plan they are eligible for. This comparison shows the customer at a glance which plan is their

cheapest option. The name and key details of each plan are provided, along with a link to view additional details about a specific rate plan using the Rate Details component.

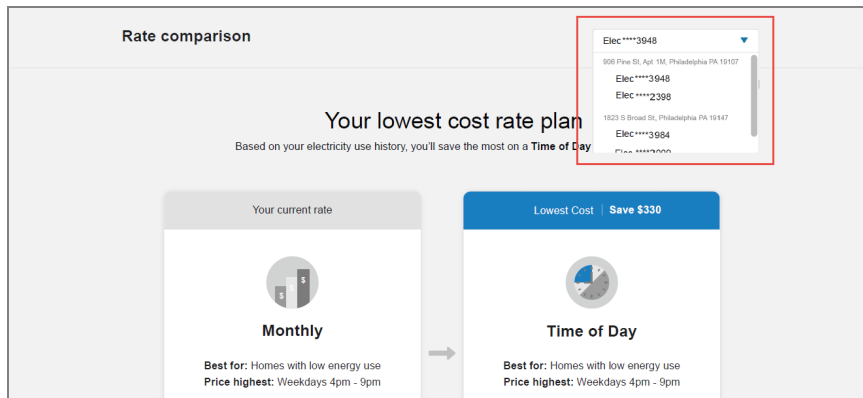
**Change Your Rate Plan:** A call-to-action for customers to change their rate is provided, which directs customers to a website location where they can change their rate plan. Alternatively, utilities can provide a phone number that their customers can call to change their rate plans.

**Rate Costs Simulator Call-to-Action:** A message is displayed to customers prompting them to see how changes in their energy use habits could lower their costs for varying rate plans. A link is provided that sends the customer to the Rate Simulator.

**Compare All Rate Plans:** All rate plans a customer is eligible for are displayed to the customer, which includes highlights of the rate plan, estimated annual cost, and a link that sends the customer to the rate details information. The rate plans are sorted to list the least expensive rate plan listed at the top and the most expensive rate plan at the bottom. A customer's current rate plan and lowest cost rate plan are also highlighted.

Legal disclaimers related to the information provided in the Rate Comparison can also be provided in a footer at the bottom of the page.

**Multiple Premises and Service Points:** If the customer has multiple premises and service points, then the customer can use a drop-down menu to view a rate comparison associated with each one. The drop-down menu lists each account premise, along with the service points associated with the premise. In this case, customers are able to select a service point, but not the premise itself.



## Rate Details

The Rate Details component allows customers to view additional information on their eligible rate plans to better understand how a rate plan is structured and how their costs may vary throughout a year.

[Back to all rates](#)

**Rate plan**  
**Time of Day** (rate code)

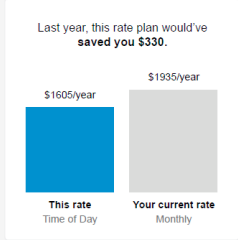
**Estimated cost**  
**\$1605** /year

**1-2 Lines To Describe This Plan. 100 Characters Max.**

A brief paragraph describing this rate plan in more detail—how this plan works and why a customer would want to choose this plan. 350 characters max.

**Best for:** Someone  
**Price highest:** Sometime  
**Some other measure:** Something

Visit our [rate signup page](#) to choose this plan.

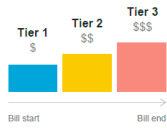


**An explanation of time of day.**

Summer weekdays



**An explanation of tiers**



**This is an optional/custom field where the utility can add additional content.**

Here is the body paragraph where they can go into detail. This is a good place to go into detail about add-ons.

**How it works:** Something  
**What you need to know:** Something  
**Some other measure:** Something

[SEE DETAILED PRICING](#)

**Your highest bill on this rate plan: \$369**

	Jan 21	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Annual Total
Current Rate		Lowest				Highest							
<b>Tiered</b>	\$87	<b>\$81</b>	\$95	\$261	\$239	<b>\$358</b>	\$241	\$117	\$86	\$127	\$106	\$85	<b>\$1,985</b>
<b>Time of Day</b>	\$90	Lowest <b>\$84</b>	\$98	\$269	\$350	Highest <b>\$369</b>	\$249	\$121	\$89	\$131	\$110	\$88	<b>\$2,015</b>

Ready to switch?

[CHANGE YOUR RATE PLAN](#)

**Frequently asked questions about rate plans**

Why are you recommending rates to me? [Answer](#) ▾

How are you estimating my costs? [Answer](#) ▾

The details provided for each rate include:

**Rate Plan Title and Estimated Costs:** The rate plan title (for example, "Time of Day") and estimated annual costs for the rate plan are provided. Annual costs are rounded to the nearest \$5.

**Rate Plan Headline and Description:** Descriptive information about the selected rate plan, which includes:

- A headline and general description that highlights how the plan works and why a customer would want to select the plan.
- A comparison between their current rate plan and the selected rate plan. The comparison includes bar graphs that display the costs of the rate plans for the customer.
- A link that directs the customer to a page where they can sign up for the rate plan.

**Costs Per Bill:** The Costs Per Bill table displays the per-bill costs, rounded to the nearest dollar, for each bill period within the last 12 months. Bill periods are always arranged in a January to December order. The current rate prices are used with historical usage data to calculate what a customer's costs would be if the current rate prices were applied to the last 12 months. The customer's current rate and the selected rate are included in the table. The highest and lowest bills for each rate plan are highlighted in the table. The insight headline above the table displays the amount of the highest bill for the selected rate plan.

**Note:** The annual totals in the Costs Per Bill table are not expected to match the exact annual total costs in all cases. This is due to the Costs Per Bill table rounding to the nearest \$1, while annual costs are rounded to the nearest \$5.

- **Change Your Rate Plan:** A call-to-action for customers to change their rate is provided, which directs customers to a utility website location where they can change their rate plan. Alternatively, utilities can provide a phone number that their customers can call to change their rate plans.
- **Additional Rate Content:** Utilities can provide content for each available rate, including content such as FAQs, key details, rate structure explanations, and so on.

Legal disclaimers related to the information provided in the Rate Details can also be provided in a footer at the bottom of the page.

## Rate Simulator

The Rate Simulator prompts customers to answer a few short questions about how they might change their energy use. This is geared towards showing customers when other

rate plans can provide reduced costs if the customer makes changes to their energy habits.

A survey prompts customers to answer questions related to shifting energy use to avoid peak times, reducing energy use during peak events, and reducing overall energy use. Based on the customer's responses, their energy use data is transformed, reducing or shifting a certain percentage of their applicable energy use.



Can you shift your use of major appliances on weekdays from 3-8pm?

Examples of major appliances: air conditioner, heater, dishwasher, washer, dryer.

- Most of the time
- Some of the time
- Never

Can you reduce your use of major appliances 2-8pm on 15 peak days per year?

Peak days are hot days where you could be rewarded for lowering your use.

- Most of the time
- Some of the time
- Never

[Skip this question](#)

Can you decrease your overall use of major appliances?

Examples of major appliances: air conditioner, heater, dishwasher, washer, dryer.

- Most of the time
- Some of the time
- Never

[Skip this question](#)

Customer responses are summarized in the [Rate Comparison widget](#). The lowest cost plan is highlighted at the top, including a summary of the customer's responses to the

survey. All rate plans a customer is eligible for are also displayed. Each rate plan includes the new estimated cost, along with the cost prior to completing the survey. The order of rate plans in the compare all rate plans section is updated to list the least expensive rate plan at the top to the most expensive rate plan at the bottom.

Customers that navigate to the [Rate Details](#) widget are presented with the new estimated cost for the applicable rate plan, along with the cost prior to completing the survey. This includes updating the insight message that compares the customer's current rate plan to reflect the new difference between a customer's current rate plan and the selected rate plan.

Customers can modify their responses at any time by using the links to update their answers or completely reset the simulator.

## Rate Education Reports - Print

Print Rate Education Reports are paper communications that inform customers of rate changes, encourage customers to opt in to a new rate, or provide other information specific to rates.

### Customer Experience

Print Rate Education Reports are two pages of content that consist of modules. When printed out, the reports are a single sheet of paper, with content on the front and back.

### Report Header

The header appears in the top section of the front of every Rate Education Report. The purpose of the header is to provide customer information and to introduce the report. The header contains the customer address box, utility return address box with utility logo, customer account information, and introductory paragraph that explains the purpose of the report. The mailing and return addresses are placed so as to show through the two windows in the envelope. The right side of the header contains introductory information and a call to action. An additional message and small illustration may appear below this content.

### Report Modules

Rate Education Reports contain modules that include the following types of information:

- **Rate Analysis Information:** A customer-specific analysis of projected savings by opting in to a new rate plan. For example, the projected annual or monthly cost for the current rate as compared to the projected annual or monthly cost for the new rate.

- **Rate Plan Details:** Information about the new rate plan such as the season start and end dates, peak hours, and the number of days during the season affected by the rate plan.
- **Custom Tips:** Custom tips can be added to provide information about how customers can save energy on a new rate plan. For example, customers may be able to reduce their energy use during peak hours to receive lower cost energy bills under a new rate plan.

Additional custom modules may be available. [Contact your Delivery Team](#) to discuss your options.

## Report Footer

The footer appears at the bottom of the back page of the report. The footer includes optional legal text, utility customer service contact information, utility logo, and Oracle Utilities copyright information.

## Data Requirements and Limitations

### Channel Fees

Utilities may purchase a channel fee if they are using any printed rate education communications as part of the Oracle Utilities Opower program. Channel fees are used to add on report generation, printing, mailing, and postage services to a cloud service. There are two types of options: General Availability and Controlled Availability channel fees. The type that is relevant depends on the individual Oracle Utilities Opower program setup. Coordinate with your sales representative if you need help determining which type applies.

A summary of the fees is shown below. For more details about what each channel fee includes and the requirements for using them, see the [Oracle Utilities Opower Channel Fees Cloud Services](#) guide.

### General Availability Channel Fees

The General Availability channel fees are applicable if the utility has a version of the cloud service that includes report generation. These channel fees can be purchased for different regions.

- **Report Printing and Mailing:** The Report Printing and Mailing channel fee includes the printing of generated report communications through an approved third-party print vendor, as well as services for the proper mailing of the reports. It does not include postage for mailing the reports to customers.
- **Postage for Print and Mail:** The Postage for Print and Mail channel fee includes postage for the delivery of print communications.

**Note:** The postage channel fee cannot be purchased alone. It must be purchased in combination with the printing and mailing channel.

### Controlled Availability

The Controlled Availability channel fees are applicable if the utility has a version of the cloud service that does not include report generation. A utility may only choose one of the channel fees listed below.

- **Report Generation:** The Report Generation channel fee includes generating a digital version of print communications. It does not include the printing and mailing of print communications.
- **Report Generation and Print:** The Report Generation and Print channel fee includes the generation and printing of print communications. It does not include the mailing of print communications.
- **Report Generation, Print, and Mail:** The Report Generation, Print and Mail channel fee includes the generation, printing, and mailing of print communications.

### Utility Requirements

- **Languages:** Not all languages and locales are supported at this time. Contact your Oracle Utilities Sales Representative to confirm that Rate Education Reports are available in your market.
- **Report Limit:** Up to two Rate Education Reports are included in the 12 month contract period in the Rates Engagement cloud service.
- **Customer Service Limitation:** Rate Education Reports are not currently available for Customer Service Representatives (CSRs) to view in the Customer Service Interface (CSI).

### Customer Requirements

- **Historical Billing Data:** The customer must have 12 months of historical billing data.
- **Billing Data:** Customer billing data must date back to the beginning of the current billing cycle.

## Rate Education Reports - Email

Email Rate Education Reports are digital communications that inform customers of rate changes, encourage customers to opt in to a new rate, or provide other information specific to rates.

## Customer Experience

Email Rate Education Reports consist of modules containing actionable information about customers' energy rates. Content is delivered directly in the email message with no attachments. This makes it more convenient for customers to quickly view the information, and it makes the emails less likely to be blocked by spam filters.

### Subject Line

The subject line is used to engage the customer and brand the communication. The subject line varies based on the content of the Rate Education Report and is determined by Oracle Utilities and the utility.

### Email Header

The email header contains a logo provided by the utility and the customer's utility account number. Part of the account number is obscured for security purposes.

### Email Modules

Rate Education Reports contain modules that provide the following types of information:

- **Rate Analysis Information:** A customer-specific analysis of projected savings by opting in to a new rate plan. For example, the projected annual or monthly cost for the current rate as compared to the projected annual or monthly cost for the new rate.
- **Rate Plan Details:** Information about the new rate plan such as the season start and end dates, peak hours, and the number of days during the season affected by the rate plan.
- **Custom Tips:** Custom tips can be added to provide information about how customers can save energy on a new rate plan. For example, customers may be able to reduce their energy use during peak hours to receive lower cost energy bills under a new rate plan.

Additional custom modules may be available. [Contact your Delivery Team](#) to discuss your options.

### Email Footer

The email footer contains the following content:

**Unsubscribe:** A link to a page where customers can unsubscribe from email Rate Education Reports. An unsubscribe link must appear due to CAN-SPAM regulations in the US and similar regulations abroad. The URL the unsubscribe link points to cannot be customized.

**Warning:** Unsubscribing from Rate Education Reports in this manner unsubscribes the customer from all Oracle Utilities Opower email communications. This action is permanent. A customer cannot opt in again after opting out.

**Address:** The utility's mailing address. The mailing address must appear due to CAN-SPAM regulations in the US and similar regulations abroad.

**Disclaimer:** An optional disclaimer that can be added at the request of the utility.

**Legal text:** The copyright and any other legal text required by the utility or Oracle Utilities.

## Data Requirements and Limitations

### Utility Requirements

- **Languages:** Not all languages and locales are supported at this time. Contact your Oracle Utilities Sales Representative to confirm that Rate Education Reports are available in your market.
- **Report Limit:** Up to two Rate Education Reports are included in the 12 month contract period in the Rates Engagement cloud service.
- **Supported Email Clients:** Oracle Utilities supports email clients that may be native to a specific device, such as the installed email client on the iPhone, as well as email client applications that may be accessed from any device or computer, such as Gmail.com. Oracle Utilities supports the following email clients to view email Rate Education Reports:
  - iPhone internal email client
  - iPad internal email client
  - Apple Mail
  - Android internal email client
  - Microsoft Outlook
  - Outlook.com
  - Yahoo! Mail
  - Gmail.com

For email clients that support multiple versions operating at the same time (for example, Apple iOS6 on iPhone or Microsoft Outlook 2010, 2012, and 2013), Oracle Utilities generally supports the most current major release as well as a number of previous major releases. For email clients that only provide a single version (for example, Gmail.com), Oracle Utilities supports the currently available version. Other email clients are not officially supported or tested by Oracle Utilities. Customers

viewing email Rate Education Reports on unsupported devices or applications may see user experience variations in their reports.

- **Customer Service Limitation:** Rate Education Reports are not currently available for Customer Service Representatives (CSRs) to view in the Customer Service Interface (CSI).

### Customer Requirements

- **Historical Billing Data:** The customer must have 12 months of historical billing data.
- **Billing Data:** Customer billing data must date back to the beginning of the current billing cycle.
- **Customer Email Address:** The customer must have a current email address.

## Rate Engine Plus

The Oracle Utilities Opower Rate Engine Plus cloud service is an add-on that offers an enhanced version of the standard [Oracle Utilities Opower Rate Engine](#). Compared to the standard Rate Engine, Rate Engine Plus offers the following benefits:

- Rate Engine Plus does not require [rates modeling](#), and therefore allows for faster Rates Engagement setup and deployment.
- While the standard Rate Engine accurately computes energy use costs, Rate Engine Plus is able to account for additional factors that may affect a customer's energy bill, such as taxes and fees. This ensures customers are less likely to see a discrepancy between their utility bill and the Rates Engagement cost insights in Oracle Utilities Opower products.

## Requirements

The Rate Engine Plus cloud service comes with a set of requirements that must be met for utilities and customers to participate in the program. See [Requirements and Limitations](#) for details.

## Oracle Utilities Opower APIs

The Digital Self Service - Energy Management Cloud Service includes the Oracle Utilities Opower APIs. APIs provide programmatic resources to implement feature customizations or achieve deeper integration of features or data into utility applications. See the [Oracle Utilities REST API for Digital Self Service Energy Management](#) for more information.

**Note:** The REST APIs are only applicable to utilities who have purchased the legacy *Oracle Utilities Opower Digital Self Service - Energy Management* cloud service. They are not applicable to utilities who have purchased the new *Oracle Utilities Opower Digital Self Service - Energy Management Residential* cloud service. [Contact your Delivery Team](#) if you need help determining what is applicable to your situation.



# Inside Opower

The Digital Self Service - Energy Management Cloud Service includes access to Inside Opower. Inside Opower is an online, utility-facing suite of tools to help users across a utility stay informed of and manage their Oracle Utilities Opower program. Utility users can access key data such as program insights, analytics, reports, contact information, and documentation. See the [Oracle Utilities Opower Inside Opower Product Overview](#) for details.

# Customer Service Interface - Program Management

The Digital Self Service - Energy Management Cloud Service includes access to Customer Service Interface - Program Management. The Customer Service Interface (CSI) is an online support tool that provides utility support staff with the information and functionality they need to manage the Oracle Utilities Opower program and answer customer questions. See the [Oracle Utilities Opower Customer Service Interface - Program Management Product Overview](#) for details.

## Contacting Your Delivery Team

Your Oracle Delivery Team is the group responsible for setting up, configuring, launching, or expanding your Oracle Utilities Opower program. Contact your Delivery Team if you have any questions about your program products and implementation.

### To contact your Delivery Team:

1. Sign in to Inside Opower (<https://inside.opower.com>). This is your portal for questions and information related to your program.
2. Go to the **Community** tab to see who is on your Delivery Team.
3. Contact any of the team members using the information provided.

If you need to report an issue or get technical support, contact [My Oracle Support](#).