Oracle Utilities Opower Business Customer Engagement Digital Self Service - Energy Management

Overview Guide

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Oracle Utilities Opower Business Customer Engagement Digital Self Service - Energy Management Overview Guide,

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Business Customer Engagement Digital Self Service - Energy Management Overview

Welcome to an overview of the Business Customer Engagement Digital Self Service - Energy Management cloud service. Use this information to learn about the features and capabilities of the cloud service. Have a question? Contact your Delivery Team or visit My Oracle Support.

Quick Links

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Getting Started

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

See Customer Experience for details about the features and insights available. For information about the data that is required for the cloud service, see Requirements and Limitations.

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Requirements and Limitations

The Business Customer Engagement Digital Self Service - Energy Management cloud service comes with a set of data requirements and limitations. The requirements must be met for a utility and a business customer to participate in the program.

Utility Requirements

Category	Description
Cloud Service Requirements	The Business Customer Engagement Digital Self Service - Energy Management cloud service must be purchased. Features based on billing and AMI data are included in the service. In order for rates insights to appear in the product, the Rates Engagement cloud service must be purchased, and rates modeling is required during initial program setup at an additional fee. Assessment will be needed to determine if your business rate structure can be supported. Contact your Delivery Team for more information. 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.
Implementation Requirements	**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 Authentication and the Oracle Utilities Opower SSO Configuration Guide. For standalone implementations of the product, Oracle Utilities supports SAML-based SSO. For embedded implementations, Oracle Utilities supports OpenID Connect-based SSO. Your Delivery Team will work with you to set up the proper method of SSO for your program.

Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	**Billing and AMI Data**: Most features require billing or daily AMI data (or a combination of the two) to provide the best customer experience. Additional data requirements vary by feature. See the feature descriptions under Customer Experience for more information. **Customer Classification**: The customer must be classified as a non-residential customer. For information on customer classification, see the Account Fields section in the Oracle Utilities Opower *Account Data Transfer* specification.

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Category	Description
Data History	For most features to have meaningful insights, a business must have more than one bill of historical billing data. Additional data requirements vary by feature. See the feature descriptions under Customer Experience for more information.
Data Coverage	Data for a single bill period is the typical minimum data coverage requirement. Additional data coverage requirements vary by feature.
Supported Fuels	Electricity, gas, and dual fuel businesses are generally supported. However, supported fuels vary by feature. See the feature descriptions under Customer Experience for details.
Other	**Active Account**: Business customers must be associated with a premise that has an active account with the utility. An active account means that the business has signed up with the utility for at least one service point for one fuel type at an address. **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. **Screen Resolution**: A minimum width of 320 pixels is required for devices to display the features and widgets of the product.

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Customer Experience

The Business Customer Engagement Digital Self Service - Energy Management cloud service is a flexible web experience that provides businesses 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 cloud service includes the widgets listed below. Most widgets and insights are available with billing data, while others require additional types of information such as weather data and AMI data. For a list of product-wide requirements, see Requirements and Limitations. Additional requirements vary by widget.

- Account Center
- Authentication
- Bill Comparison
- Bill or Usage Forecast
- Billing Account Selector
- Business Profile
- Customer Feedback
- Data Browser
- Demand Heat Map
- Green Button - Download My Data
- Guest User Access
- How Businesses Use Energy
- Next Best Action
- Portfolio View
- Ways to Save
- Welcome

Widget Layout and Design

The layout of the widgets is responsive, allowing content to automatically adjust based on the customer's screen size and orientation (including mobile, tablet, and desktop displays). This responsive design causes minor variations in the user experience, since content can be displayed, hidden, or adjusted to account for the screen size. The use of media queries to implement the responsive design is supported. For example, the layout of a widget can be defined using up to four screen size breakpoints. For more information, see the Oracle Utilities Opower Digital Self Service - Energy Management Embeddable Widgets Integration Guide.

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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 utility website or on the standalone Business Customer Engagement Digital Self Service - Energy Management web portal.

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 the Oracle Utilities Opower Digital Self Service - Energy Management Embeddable Widgets Integration Guide.

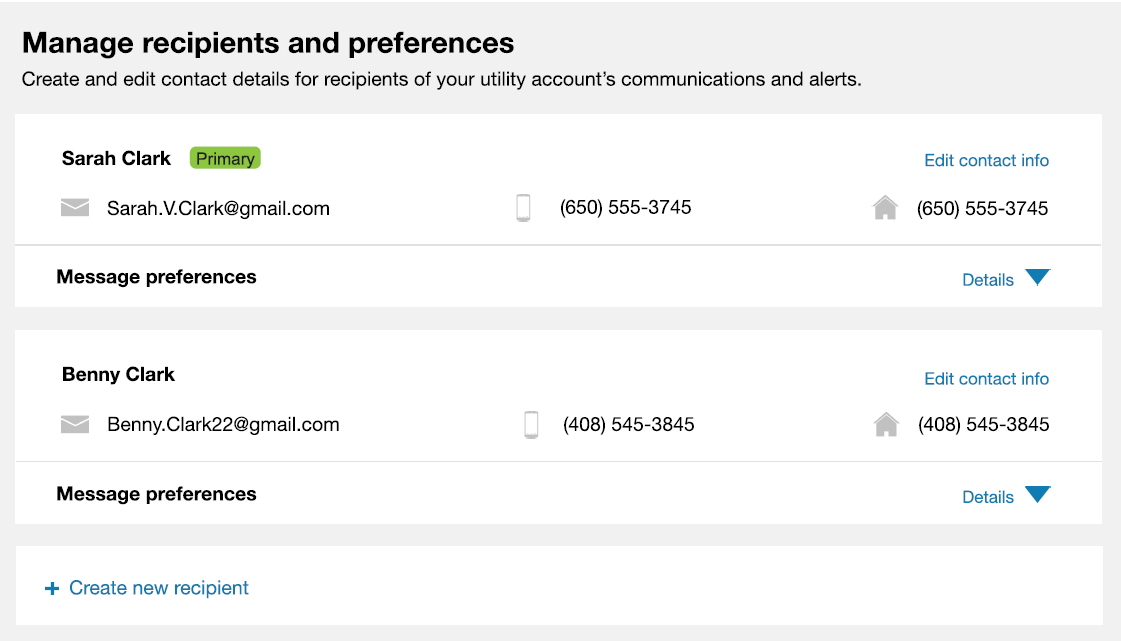
Be aware that the width of widgets that are embedded in containers is restricted by the container. This can cause embedded widgets to switch to smaller, responsive layouts at larger, overall screen sizes as compared to widgets that can utilize the full width of the page.

Account Center

The Account Center allows business customers to view and change information about their login details (email and password) and any applicable communication preferences. This functionality is available for utilities that provide a standalone web portal to business customers rather than implementing SSO authentication. See Authentication for more information about the different methods of authentication as well as the default requirements for secure passwords.

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.



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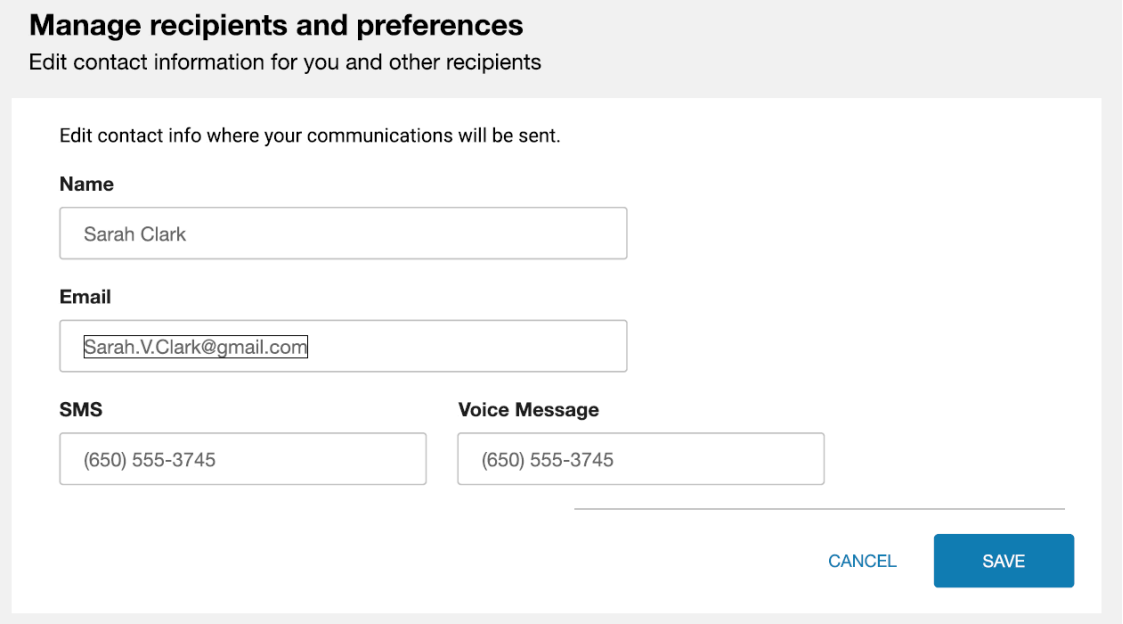
Manage Recipients

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 alerts. Recipient details include:

- Name
- Email address
- Phone numbers for text and voice messages

The name that appears on communications is the name on the actual utility account, and not the name that is displayed in the Account Center. If the primary recipient changes their name in the Account Center, 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.



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

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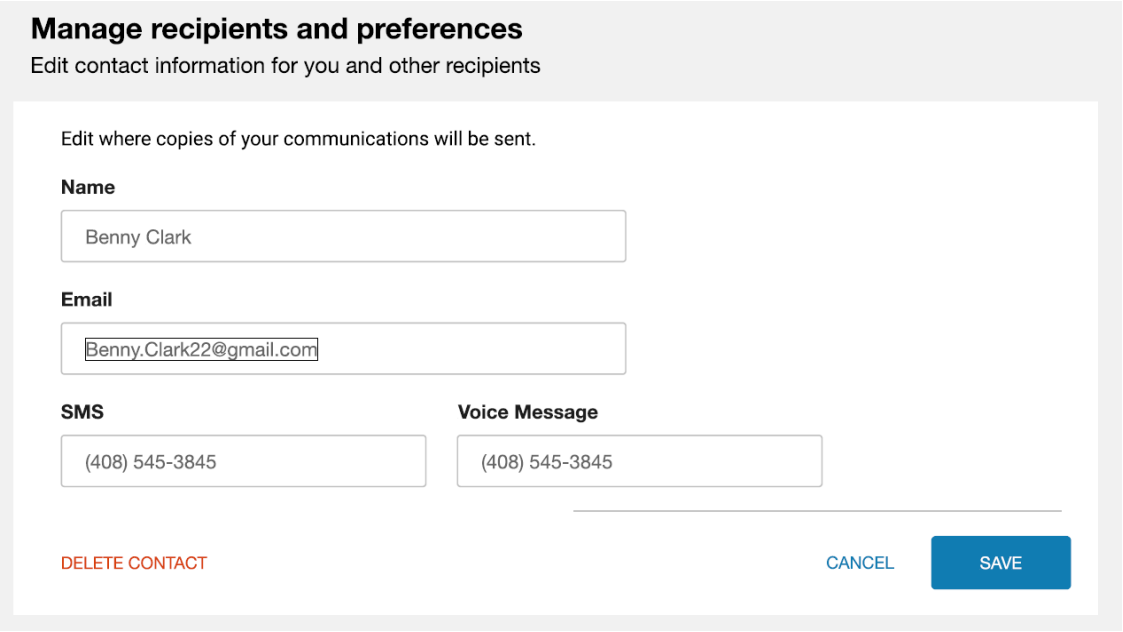
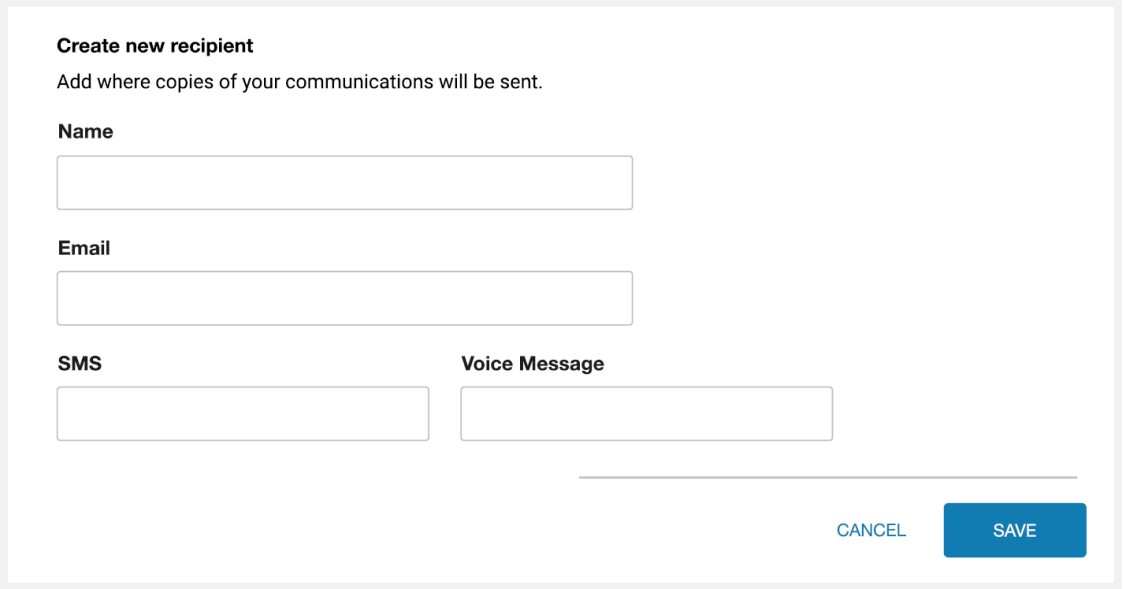


Create New Recipient

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.



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:

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- The products and communications 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.

High Usage Alerts

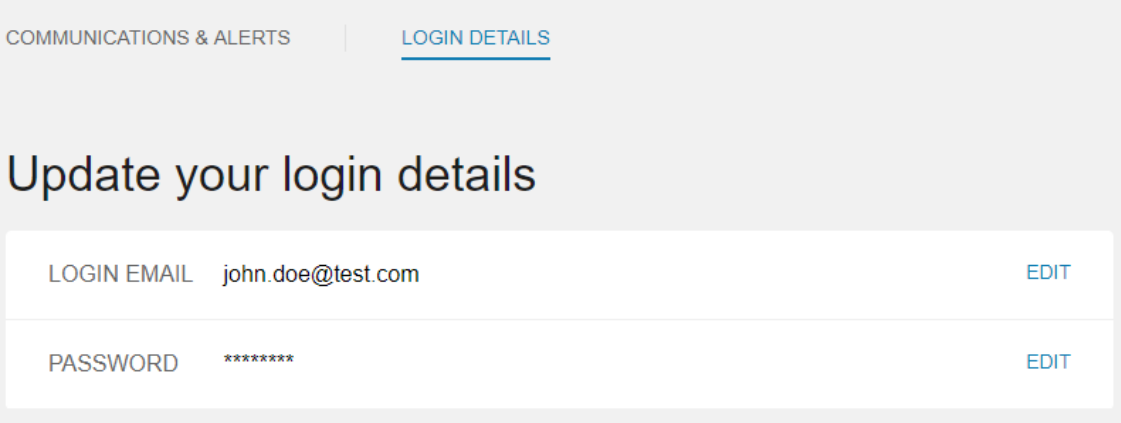
High usage alerts are digital communications sent through email, text, or voice channels to inform customers when they are expected to receive a higher energy bill.

A personalized alert threshold is available to business customers who receive High Bill Alerts AMI email. For information on the applicable cloud service, see the Oracle Utilities Opower Business Customer Engagement Proactive Alerts 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 threshold. All active utility accounts for a customer must have modeled rates. 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 in 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.

Login Details

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



Authentication

Authentication refers to the ways that a customer can access the Business Customer Engagement Digital Self Service - Energy Management web portal securely. The two methods

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available are single sign-on (SSO) and standalone account management. Each utility chooses which one of these to implement when launching the Oracle Utilities Opower program. In addition, some Customer Service Representatives may be able to access a business customer's web portal account to help them troubleshoot issues. The authentication method in place depends on each utility's setup and configuration.

Single Sign-On (SSO)

SSO allows business 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. The method of SSO depends on the type of implementation (standalone or embedded) that is agreed upon between Oracle Utilities and the utility.

SSO for Standalone Implementations

For standalone implementations of the cloud service, Oracle Utilities uses Security Assertion Markup Language (SAML) 2.0 to implement SSO with utilities. Moreover, Oracle Utilities supports Identity Provider-Initiated and Service Provider-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 the 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 for Embedded Widget Implementations

For embedded widget implementations of the cloud service, Oracle Utilities supports OpenID Connect-based SSO. In this case, the utility website acts as the Relying Party and must have an integrated authentication server that conforms to the OpenID Connect specification. See OpenID Connect Single Sign-On (SSO) Configuration for details.

SSO requires all authentication to be handled by the utility's website. After business customers have been authenticated using the utility website sign-in options, they have access to all features and pages of the Business Customer Engagement Digital Self Service - Energy Management cloud service. This can include individually hosted pages as well as content that has been embedded directly within the utility's website.

> **Note**
>
> In cases where SSO credentials are maintained by the utility's web site, business customers cannot use the Account Center to change their login email or password.

Standalone Authentication

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

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Account Creation

The Welcome page of the web portal allows business customers to create a new account. New customers are often directed to this landing page through messages or promotions from their utility.

Confirming the Customer's Account: Business customers creating a new account must provide their name and account number exactly as it appears on their 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 business 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 business customer supplied, which the customer then uses to verify the email address. Business customers can update their email and password in the Account Center.

Account Sign In and Sign Out

Business 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 web portal for signing out. By default, the session lasts for 30 minutes before timeout, at which point the customer is automatically signed out.

Password Reset

Business 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 the password reset feature.

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Bill Comparison

The Bill Comparison allows business customers to compare their current bill to their previous bill, or to the same bill period from the previous year. A statement indicates whether the business 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

Same as listed in the product-wide requirements.

Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	**Billing Data**: Billed usage data from the utility is the minimum data requirement. **Weather Data**: Weather data is required for the weather insight to appear. A minimum of nine months of historical AMI usage data with 75% coverage must be available in order to calculate customer-specific rather than utility-wide heating and cooling coefficients. **AMI Data**: AMI data is required for AMI-based insights to appear. **Rates Data**: The Rates Engagement cloud service must be purchased and rates must be modeled for rates-based insights to appear. Contact your Delivery Team if you have questions about this cloud service and whether your rate structure can be supported.
Data History	The business 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.

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 billed usage amount will be shown with an indicator that the bill was estimated. See Estimated Bills and Usage for more details.

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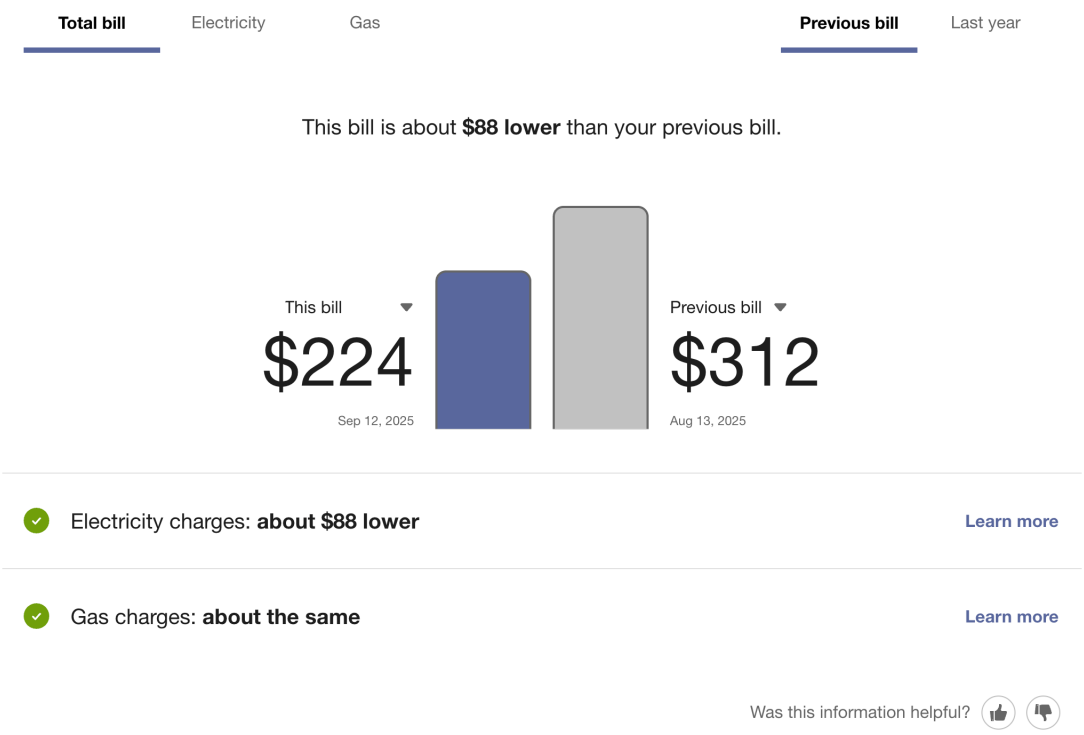
User Experience

This section describes the user experience for business customers who have a desktop screen and multiple service agreements (one for electricity and one for gas) under the same billing account.



Fuel Menu

The fuel menu allows business customers to select which fuel or resource to view a bill comparison for. For customers who have multiple service agreements, the Total Bill label is shown by default as a sum of all service agreements.

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 business 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. The **This Bill** drop-down in the bar chart can also be used 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 business 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

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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 business 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. Business 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 6/1-6/30/2024, whereas the other might be 6/10-7/9/2023. 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:

(Reference Bill Length - Compared Bill Length) / (Compared Bill Length) * 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 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 weather. This insight only appears if the following conditions are met:

- The business has one premise
- Weather data is available for both of the two periods being compared
- There is sufficient data to do weather normalization

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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.

Rate Plan Insight

The rate plan insight highlights cost differences in bills due to the business customer switching rate plans. This information can only appear if the business 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.

Rate Tier Insight

For business 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 Rates 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 business 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 Rates 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.

Critical Peak Pricing Insights

For business 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 Rates 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.
- Peak event data (day and time of peak event, as well as rebate amounts) is required.

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Non-Usage Insight

Differences due to changes outside of a business 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. A link to the Data Browser is included with this insight.

Customer Feedback Module

A customer feedback module is displayed at the bottom of the Bill Comparison. See Customer Feedback 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.

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 business 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, 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 Agreements

The multiple service agreements experience may vary depending on whether a utility uses the Legacy Data Transfer specification or one of the latest core data transfer specifications (Account, Billing, or Premise). Your Delivery Team can tell you which specification you are using.

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The Bill Comparison handles the forecast for service agreement(s) within a single billing account. A drop-down menu is displayed when 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.

Negative Bill

Business 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 business 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 business customer billed on a quarterly basis, because the feature requires two bill periods (or 6 months of data) before a comparison can be shown.

Single Fuel

If a business 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.

Calculations

Bill Comparison

The bill comparison calculation compares a business 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.

Weather Insight

The Bill Comparison feature estimates how much the business 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.

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> **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 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 HDD and 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.

With weather normalization, the comparison between bill periods is fairer 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 business 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

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of the billing cycle if they are likely to have high energy use or cost compared to the same time period from the previous 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	The utility must be able to deliver customer data to Oracle Utilities within 48 hours from the time of the last data read.
Data Requirements	**Billing Data**: Billed usage data from the utility is required. **AMI Data**: Daily, hourly, or subhourly AMI data is required. **Rates Data**: The Rates Engagement cloud service must be purchased and rates must be modeled for rates-based insights to appear. Contact your Delivery Team if you have questions about this cloud service and whether your rate structure can be supported.
Data History	The business 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. If the customer does not have a year's worth of billing history, they are still shown their current and projected usage or costs.
Data Coverage	The business 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 the forecast. For cost forecasts, at least 95% of AMI usage reads must have rates modeled in order to ensure an accurate cost projection.
Supported Fuels	Electricity, gas, and dual fuel.

User Experience

The user experience described in this section is for business customers who receive electric and gas service from their utility, and usage rather than cost information in their forecast.

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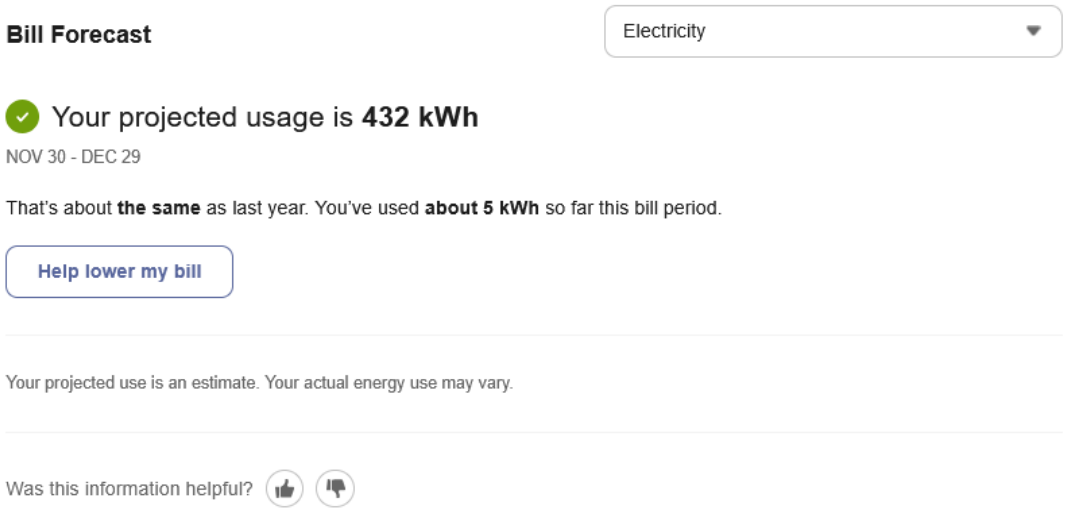

Fuel Drop-Down Menu: The fuel drop-down list allows business customers to select which fuel to view a forecast for. By default, the Electricity fuel label is shown. Gas is the second label. A fuel drop-down only appears for dual fuel customers and is hidden for single fuel customers.

Forecast Amount: The forecast amount is a projection of how much the customer's usage or 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. If cost information is displayed, 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 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 a high bill alert.

Condition	Experience
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 n days	Information icon
Customer does not have a baseline or estimated bill period	Information icon

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, which 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.

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Comparison Message: The comparison message explains how much money or energy 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 what data is available.

Spent So Far: A message explains the cost or usage so far in the billing period, which is the basis for the projection.

Help Lower My Bill: This link directs customers to energy efficiency tips to help them save money and energy. See Ways to Save for more information.

Disclaimer about Estimated Bill: The widget includes a brief explanation of how the bill or usage projection is estimated and can vary from a customer's final bill or usage amount.

Customer Feedback: A customer feedback section is displayed at the bottom of the forecast to gather information about the usefulness of the feature.

User Experience Variations

Forecast Lower Than Cost or Usage to Date

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

For example, it may be 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, there is logic in the widget to keep the original $42 forecast, instead of rounding down to the nearest five. This is the only case in which the calculation rounds 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 business 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.

Multiple Service Agreements

The multiple service agreements experience may vary depending on whether a utility uses the Legacy Data Transfer specification or one of the latest core data transfer specifications (Account, Billing, or Premise). Your Delivery Team can tell you which specification you are using.

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The Bill Forecast handles the forecast for service agreement(s) within a single billing account. A drop-down menu is displayed when 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.

Billing Account Selector

The Billing Account Selector widget allows business customers to select a billing account from a menu and view its energy use trends and insights. It is used in standalone implementations of the Business Customer Engagement web portal.

Requirements

Same as listed in Data Browser. Additional data requirements may apply for utilities that enable the Billing Details insight, which can be configured to display more information about the factors that determine each energy bill.

Utility Requirements

Same as listed in the product-wide requirements.

Customer Requirements

The main customer requirements are to send business customer billing account data to Oracle Utilities Opower through the Account Data Transfer data feed, and to provide all authorized billing accounts for each username and login as part of the single sign-on (SSO) integration with Oracle. These requirements are typically addressed during the setup and launch phase of your program.

Limitations

Embedded Implementations: The Billing Account Selector is designed for use in the Guest User Access portal, as well as for standalone web portal implementations. It can be used in embedded implementations as well, but it is not recommended. This is because (1) any selections from the Billing Account Selector do not persist across other utility-hosted web pages, and (2) utility websites usually already have an account selector menu which will conflict with the Billing Account Selector.

Not Displayed in Portfolio View: The Billing Account Selector does not display in the Portfolio View page since that page already contains a list of accounts and premise addresses.

User Experience

In the simplest case, the Billing Account Selector is displayed in a banner at the top of a page and contains a menu of billing account numbers and addresses. When the menu is selected and a new account is chosen, the widgets reload to reflect the selection.

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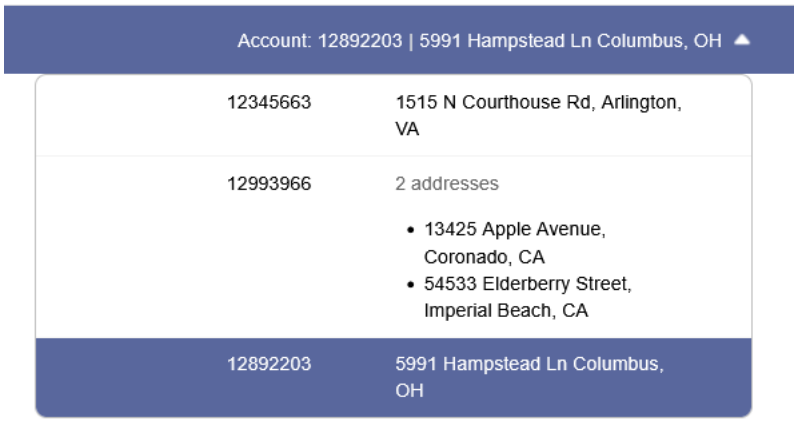
> **Note**
>
> If the business customer only has one billing account, the widget will not display. If there are multiple premises associated with a billing account, then the premise addresses will be grouped within the billing account number and displayed as a list.



The behavior of the Billing Account Selector menu changes slightly depending on how many billing accounts there are.

- If there is only one billing account, the Billing Account Selector does not display.
- If there are 10 or less billing accounts, the Billing Account Selector displays but does not have a search field.
- If there are more than 10 billing accounts, the Billing Account Selector displays a search field which you can use to filter through the account numbers.

User Experience Variations

Data Browser: Billing Account with Multiple Premises

If a billing account with multiple premises is selected, the Data Browser displays an additional submenu in the *year* view, which contains a list of the associated service agreements grouped by premise. Customers can then use the submenu to select individual service agreements and view related monthly energy usage or cost information.

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Data Browser: Premise with Multiple Service Points

If there are multiple service points within a service agreement, then the customer can go a level deeper and see energy cost or usage for each service point in the *bill* or *day* view of the Data Browser. In this case, the Data Browser displays a submenu showing all service points for the billing account grouped by service agreement and premise.

Business Profile

The Business Profile allows business customers to enter basic information about their businesses. This information can then be used in other features or widgets (such as Portfolio View or as inputs for tip targeting) to provide valuable energy use insights.

Requirements

Utility Requirements

Same as listed in the product-wide requirements.

Customer Requirements

The display of the Business Profile feature is not dependent on customer data or attributes. Business customers can use the feature to enter their own information about their premises.

Limitations

Residential Customers: The Business Profile was built and optimized for non-residential customers, such as commercial, industrial, and small and medium business customers. Residential customers are not currently supported.

User Experience

The Business Profile allows business customers to select a premises and enter basic information about it. Most of the profile information can be selected from a menu, though there are a few fields that require typed inputs.

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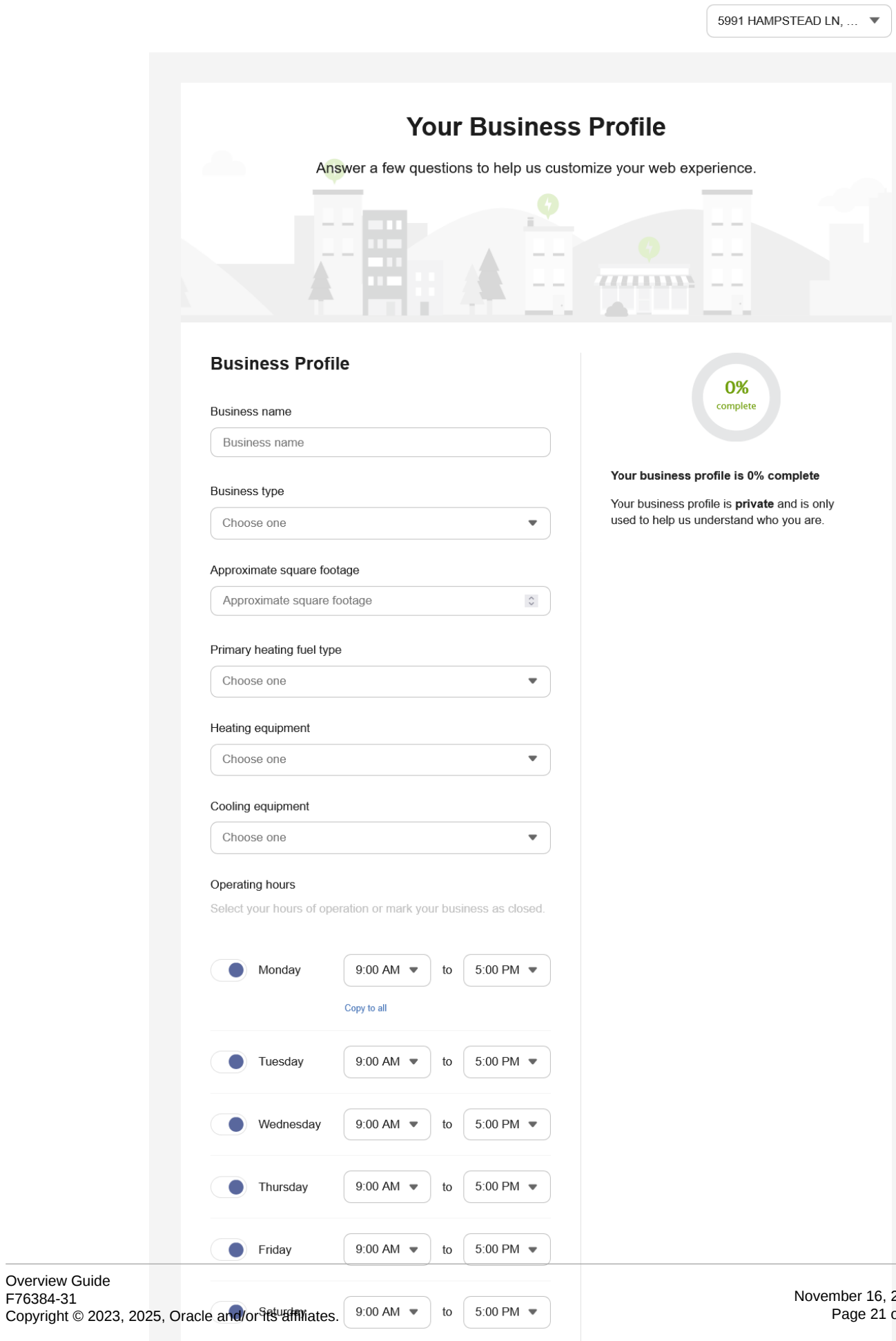

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Premises Selector

At the top of the page is a premises selection menu, which displays the address of each applicable premises for the business. If there are multiple premises, customers can select each premises individually and complete the profile for it. If there is only one premises for the business, no address is displayed and no menu appears.

Business Profile Fields

Business Name: A free text field that lets customers manually enter the name of the business associated with the premises.

Business Type: A menu that lets customers select an option that best describes their type of business. An "Other" option can be selected if none of the options available apply.

Approximate Square Footage: A free text field that lets customers manually enter the square footage of the premises. This information can then be used in Portfolio View to show the cost per square foot of the premises for each energy bill.

Primary Heating Fuel Type: A menu that lets customers to choose the primary heating fuel for the premises, such as electricity or natural gas.

Heating Equipment: A menu that lets customers choose the primary type of heating equipment at the premises, such as central heat pump or boiler. If more than one option applies, customers can choose the one they think is used the most.

Cooling Equipment: A menu that lets customers choose the primary type of cooling equipment at the premises, such as central air conditioning or a room air conditioner. If more than one option applies, customers can choose the one they think is used the most.

Operating Hours: A section that allows business customers to specify their open and closed hours for each day of the week, and to mark specific days as closed. The schedule is pre-filled with common operating hours and can be customized for each business.

Progress Wheel

At the top of the business profile is a progress wheel graphic indicating the completeness of the business profile. The graphic updates dynamically as more information is entered. The completeness of the profile is based on the customer’s responses to all fields in the profile, including the hours of operation.

State	Description
Not Started	The progress wheel shows 0% complete and a corresponding message.
Started but not completed	The progress wheel shows a higher percentage of completeness and a corresponding message.
Completed	The progress wheel shows 100% complete and a message congratulating the business customer for filling out all of the information.

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User Experience Variations

Mobile Experience

In the mobile experience of the Business Profile, customers see the progress wheel at the top of the screen and the profile fields stacked vertically to accommodate a smaller screen width.

Pre-Authenticated User Experience

In some cases, customers can access the Business Profile without logging in to their utility account. For example, customers who receive an email communication from Oracle Utilities Opower 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, or if the token from the link in the email expires, then a message appears and states that the link has expired or that the customer must sign in first.

In this experience, customers can view and update the profile the same way that an authenticated user can. The only difference is that once the profile is fully complete, two call-to-action buttons (**Sign In** and **Create Account**) appear, prompting the customer to sign in to their account or create a new account. Depending on each utility's configuration, these buttons may lead to different places.

- In a standalone implementation without single sign-on: The buttons lead to pages where customers can sign in or create an account with a new set of credentials. See Welcome for details.
- In a standalone implementation with single sign-on: The buttons lead to utility-hosted pages where customers can use their existing utility credentials to sign in or create an account.
- In an embedded widgets implementation: The buttons lead to utility-hosted web pages where customers can use their existing utility credentials to sign in or create an account.

Customer Feedback

The Customer Feedback module is used to gather input from users and drive product improvements. Typically this module is displayed at the bottom of a widget.

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Supported Widgets: The Customer Feedback module is displayed by default on the following widgets:

- Bill Comparison
- Bill or Usage Forecast
- How Businesses Use Energy

The widget can also be enabled on the Data Browser. Utilities must coordinate with their Delivery Team to enable it.

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?

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Business 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. A customer can clear their browser storage 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 business customers to visualize and explore their energy use trends and costs, and make comparisons to useful benchmarks such as local weather patterns. One or more views for Energy Costs, Energy Use, and Power are available. If applicable, business customers can also use menus to switch between multiple accounts or service points.

Utility Requirements

Same as listed in the product-wide requirements.

Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	**Billing Data**: Customers must have a minimum of one historical bill to view data in the Year view. **Weather Data**: Weather data is required for the weather line graph to display. If the Oracle Utilities Opower Premise Data Transfer specification is being used, then the `country` field in the Premise data entity is required. **AMI Data**: A minimum of one historical bill with at least one day of historical AMI data is required to view daily or subdaily energy use and insights. **Rates Data**: The Rates Engagement cloud service must be purchased and rates must be modeled in order for cost insights to display in certain parts of the Energy Costs View.

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Category	Description
Data History	A minimum of one historical bill is required for data to display in the **Year** view. For AMI customers, a minimum of one historical bill which includes at least one day of historical AMI data is required for the **Bill view** and **Day view**.
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. Businesses 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 business customers with multi-register data. Your Delivery Team will work with you to identify which data transfer specifications you need to follow.
- **Responsive Display**: Daily energy use can be displayed in 15 or 30-minute intervals for all business 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 business 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.

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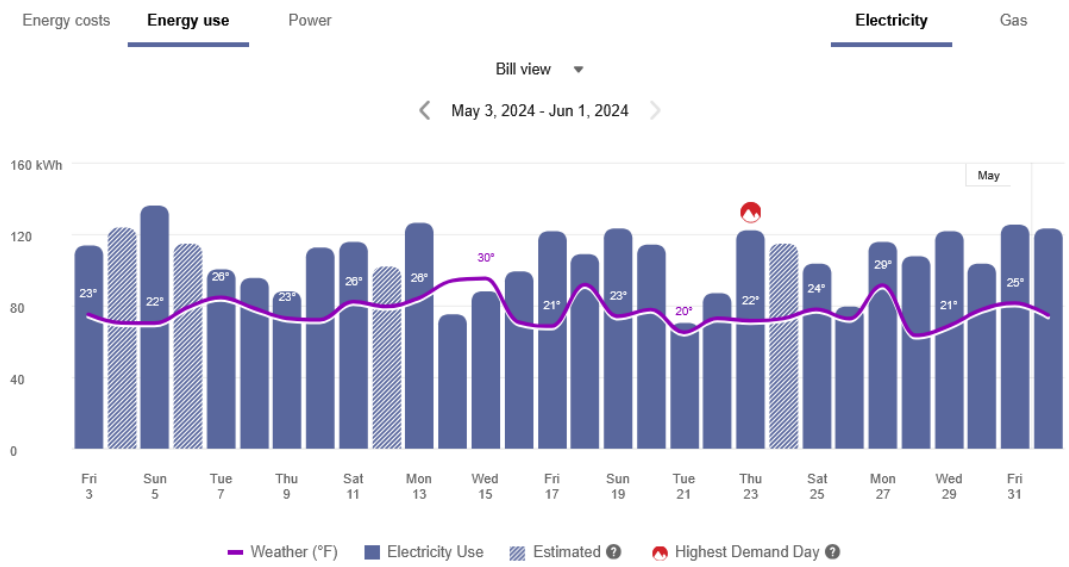

The major views available for businesses are:

- 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).
- Power View: The demand (or rate) of energy consumption over time, alongside factors such as reactive power, apparent power, power factor, and weather (if applicable).

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

- **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 power data (such as demand, reactive power, power factor, and more) 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.

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- Energy use and cost data for a bill must be sent to Oracle Utilities Opower for the same billing period. For example, if a business 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 4 days of data are available, the Data Browser will still show data for those 4 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 business 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 5 hours of data is available, data for those 5 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	The abbreviated month and final day for each bill is displayed. For example, if a business 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. 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.
Bill view	The abbreviated day of the week and numeric day for each daily read is displayed. 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.

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View	Display Rules
Day view	Time of day intervals are displayed, such as 12am, 6am, 12pm, and so on. 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.

Y-Axis

The labels on the Y-axis of the graph represent an applicable unit of consumption, cost, or power (such as demand, reactive power, or power factor). 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 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 energy that the customer has consumed in the present billing period. Estimated billing reads are marked in the data file sent by the utility to Oracle Utilities Opower.

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. Estimated AMI reads are marked in the data file sent by the utility to Oracle Utilities Opower.

In the Data Browser, estimated bills are indicated by a tooltip message that displays when the customer hovers over an applicable data point. This message will appear if any read shown in the Data Browser was estimated.

> **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.

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 daily 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.

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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. For example, a tooltip for a day data point displays the month and day.

Energy Cost: The cost of energy for the selected fuel type and time period. Energy costs are shown on tooltips for the Energy Costs view. 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.

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. See Estimated Bills and Usage above for details.

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.) 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 Billing Accounts, Premises, Service Agreements, and Service Points

The experience with the Data Browser varies depending on how many billing accounts, premises, service agreements, and service points a business customer has.

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> **Note**
>
> The description below is meant to cover the most common scenario for utilities who send data to Oracle Utilities Opower using the core data transfer specifications. If you are not sure how you are sending data to Oracle Utilities Opower, contact your Delivery Team. There may be a different experience depending on several other factors, such as the use of the legacy billing data transfer specification, the specifics of your setup and configuration, and any data extract and transformation scenarios.

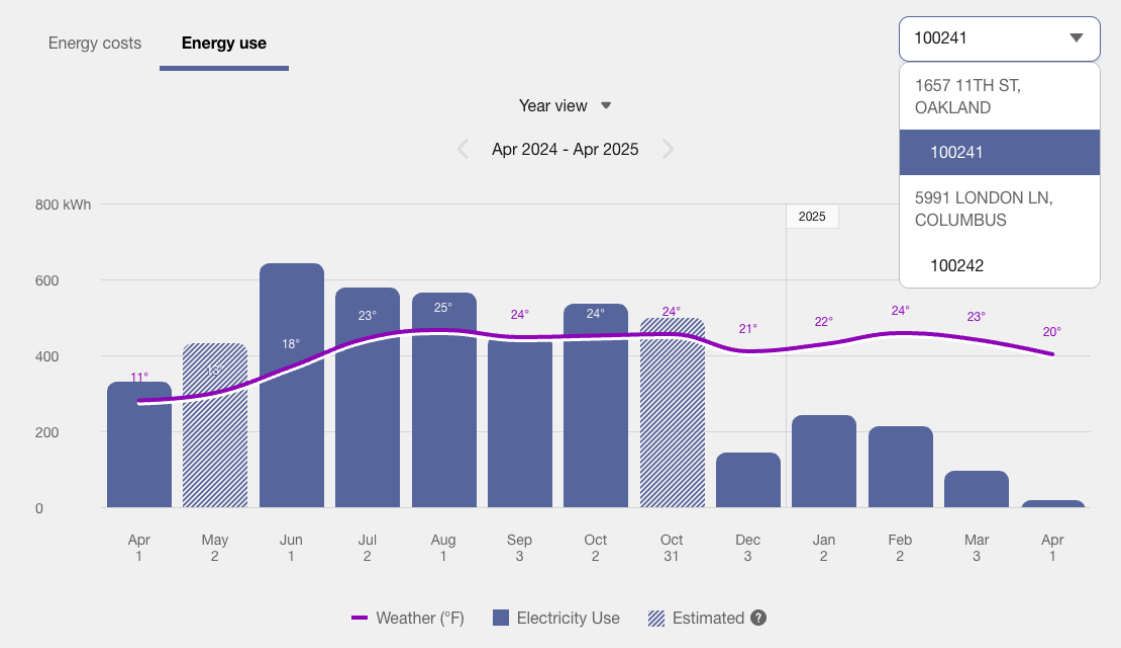
Multiple Billing Accounts

A business customer may have one or more billing accounts, and each billing account may include one or more premises. In such cases, a billing account selector can be implemented for utilities. Alternatively, the utility may have its own account selector that allows business customers to switch to a different billing account to view its associated energy information.

> **Note**
>
> When a business customer selects a billing account, the Data Browser refreshes and displays data for it. Data can only be displayed for one selected billing account at a time. The menus described below for multiple premises, service agreements, and service points all work under the assumption that the customer has already selected a single billing account.

Multiple Premises

A premise is a location that receives energy service from the utility. If a business customer has a billing account with multiple premises, then in the year view of the Data Browser, a menu displays a list of premises. The premises are represented as addresses. In the example below, each premise has one service agreement.



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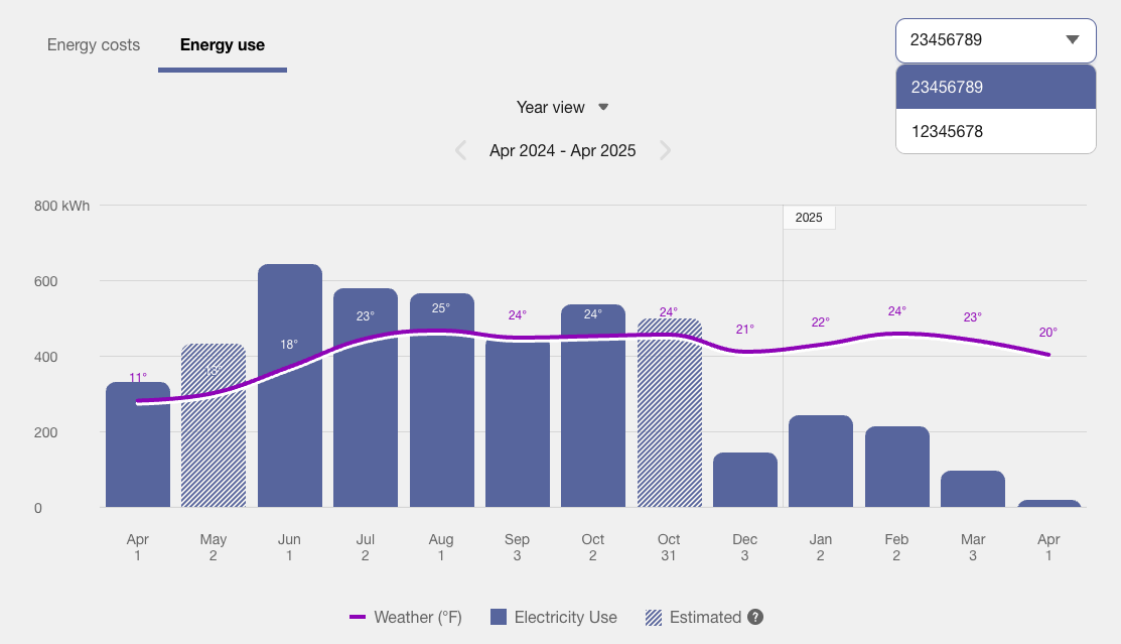
Premises will display in the bill and day views of the Data Browser as well, with service agreement or service point information grouped under them.

Multiple Service Agreements

A service agreement defines the type of service the premise receives, as well as the cost of that service. Even in the case of single-fuel utilities (for example, utilities that only provide electricity to business customers), a business customer could have multiple service agreements associated with a premise.

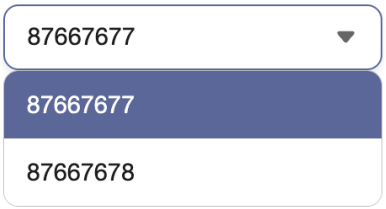
For example, a business customer could have two or more electricity service points—one for an HVAC system and another for some other purpose like a lighting system—each of which could be under its own separate service agreement.

In such cases, then in the year view of the Data Browser, a menu displays a list of service agreements grouped by premise. Business customers can select a service agreement to see the usage associated with it. In the example below, the business customer has a premise with multiple service agreements.



Multiple Service Points

A service point is the physical channel through which gas or electricity flows into the home, unit, or building. If a business customer has multiple service points within a premise, then in the bill or day view of the Data Browser, a menu displays a list of service points grouped by premise. Depending on your setup and configuration, either a simple number or service point ID is displayed. (The business customer must navigate back to the year view in order to switch to a different premise.)



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If a premise has multiple service agreements, each of which has one or more service points, then in the bill or day view of the Data Browser, a menu displays a list of service points grouped by service agreement. However, the service agreement value does not actually appear in the menu. The service point numbers or IDs display in the order in which the service agreements would be listed if they were shown.

For example, let's say there is a business with the following premise and service agreements:

- **Premise 1**: 1234 Main Street
- **Electric Service Agreement 1**: 9876543210
- **Electric Service Point 1**: 11100097
- **Electric Service Point 2**: 11100013
- **Electric Service Agreement 2**: 3456789012
- **Electric Service Point 3**: 11100099

In this case, the menu would display all the service point IDs as follows:

- 1234 Main Street
- 11100097
- 11100013
- 11100099

The first two numbers, 1110097 and 1110013, are grouped together even though their associated service agreement is not shown.

Customer Feedback

A customer feedback module can be displayed at the bottom of the Data Browser. See Customer Feedback for more information.

Energy Costs View

The Energy Costs view of the Data Browser displays how much a business was billed for energy use, based on historical bill amounts. Business 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 requirements may apply for utilities that enable the Billing Details insight, which can be configured to display more information about the factors that determine each energy bill.

Limitations

Same as listed in Data Browser.

User Experience

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

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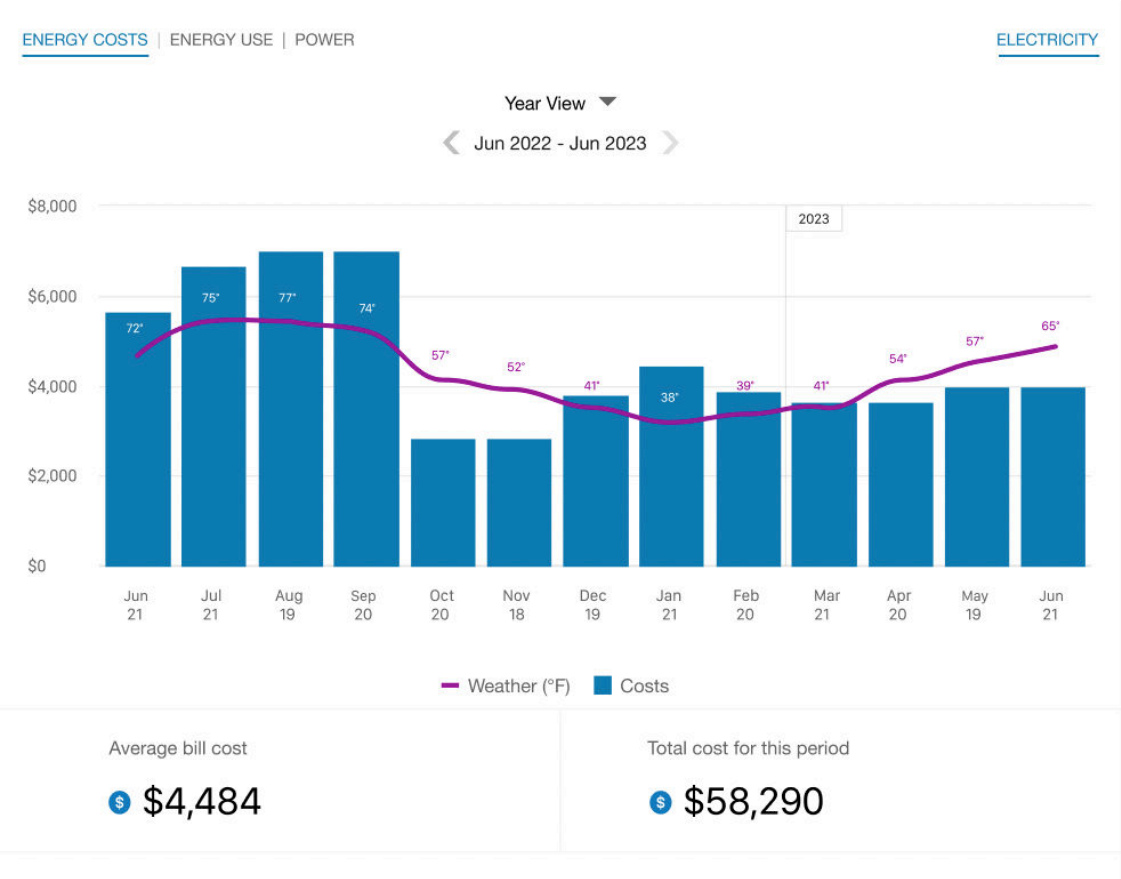

Fuel Menu

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, as well as the day with the highest demand. AMI data is required for this view.
- **Day view**: Energy cost by each hour of a day, as well as the interval with the highest demand. 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 businesses on monthly billing.

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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 business. See Data Browser for details on how weather data is retrieved.

Rates Data

Rates or cost information be displayed in the daily and subdaily views of the Energy Costs view. However, in order for such insights to appear, the Rates Engagement cloud service must be purchased, and rates must be modeled. Assessment will be needed to determine if your business rate structure can be supported. Contact your Delivery Team for more information.

Tooltips

Tooltips are displayed when business customers interact with a data point on the graph. See Energy Tooltips for details on what the tooltips may include.

Cost Insights Bar

For each fuel type available in the Energy Costs graph, 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 view to show 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.

Billing Details

Depending on each utility’s setup and configuration, a list of additional billing details is displayed below the bar graph in the Year view for each of the customer’s gas or electricity bills. The list is presented in a table format and includes more categories of information for each bill, allowing business customers to better understand the factors that determine their costs. The list can be expanded or collapsed, and is sorted by bill period by default, with the most recent bill period at the top. The table columns available by default include:

- **Bill Period**: The bill period date range. This column remains fixed if the business customer scrolls horizontally.
- **<Fuel Type> Cost**: The total cost of gas or electricity for the bill period. This column remains fixed if the business customer scrolls horizontally.
- **<Fuel Type> Use**: The total amount of gas or electricity consumed during the bill period.

> **Note**
>
> This information is only available for display in the Year view. It does not display in the Bill or Day views.

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Requirements

- Account, Billing, and Premise data feeds must be established with the utility.
- Additional columns of data can be displayed. For example, you may want to include data showing how a customer's peak hour usage affects the bill. Utilities must coordinate with their Oracle Utilities Opower Delivery Team to set up the appropriate data feeds and configure the columns.

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 business customers can find more information.

User Experience Variations

Solar Data and Net Energy Metering

If a business 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. Short green bars are shown for negative values, and 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.

Energy Use View

The Energy Use view of the Data Browser displays how much energy a business 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.

Limitations

Same as listed in Data Browser.

User Experience

The Energy Use view displays how much energy a business customer is using over time. This section describes the user experiences for businesses that have billing data and daily AMI data.

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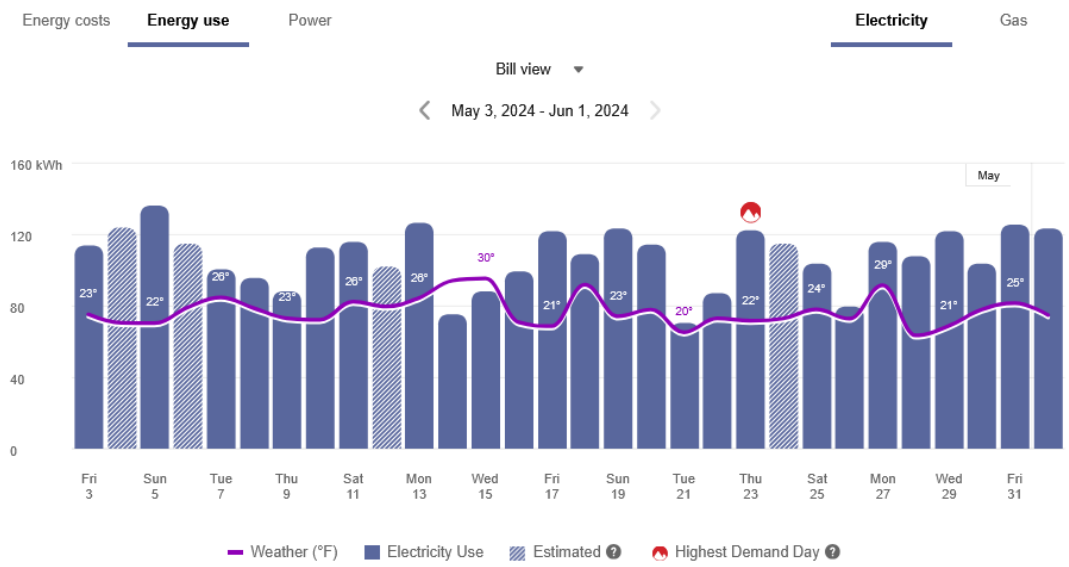

Fuel Menu

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

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, as well as the day with the highest demand. AMI data is required for this view.
- **Day view**: Energy use by each hour of a day, as well as the interval with the highest demand. 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 businesses 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.

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Highest Demand Day or Interval

In the bill and day views, an icon is displayed over the day or interval when demand was at its peak. *Demand* refers to the *rate* at which a business consumes electricity, not the actual amount that is consumed. This means that the day or interval with the peak demand icon may not always be the same as the day or interval with the highest amount of energy use. See Demand Versus Energy Use for more information about the difference between these units of measure.

The peak demand icon can also be shown in the Power View of the Data Browser to indicate the highest demand interval within a specific day. Additionally, there are cases when Multiple Peak Demand Icons can be displayed.

Weather Data

A line graph representing the average temperature during each time period is overlaid on the bar graph. This allows business 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 business. See Weather Data for details on how weather data is retrieved.

Tooltips

Tooltips are displayed when business customers interact with a data point on the graph. See Energy Tooltips for details on what the tooltips may include.

Billing Details

Depending on each utility's setup and configuration, a list of additional billing details is displayed below the bar graph for each of the business customer's electricity or gas bills. These details can include more categories of information for each energy bill, allowing business customers to better understand the factors that determine their costs. See Billing Details for more information.

Operating Hours

For business customers who have subdaily smart meter (AMI) data, an additional insight about operating hours displays below the bar graph when the Day view is selected. The insight shows the total daily energy usage, operating hour usage, and non-operating hour usage. The operating hour and non-operating hour details are based on what is entered in the Business Profile. This information helps business customers understand how their energy usage is related to the times when they are open and closed for business.

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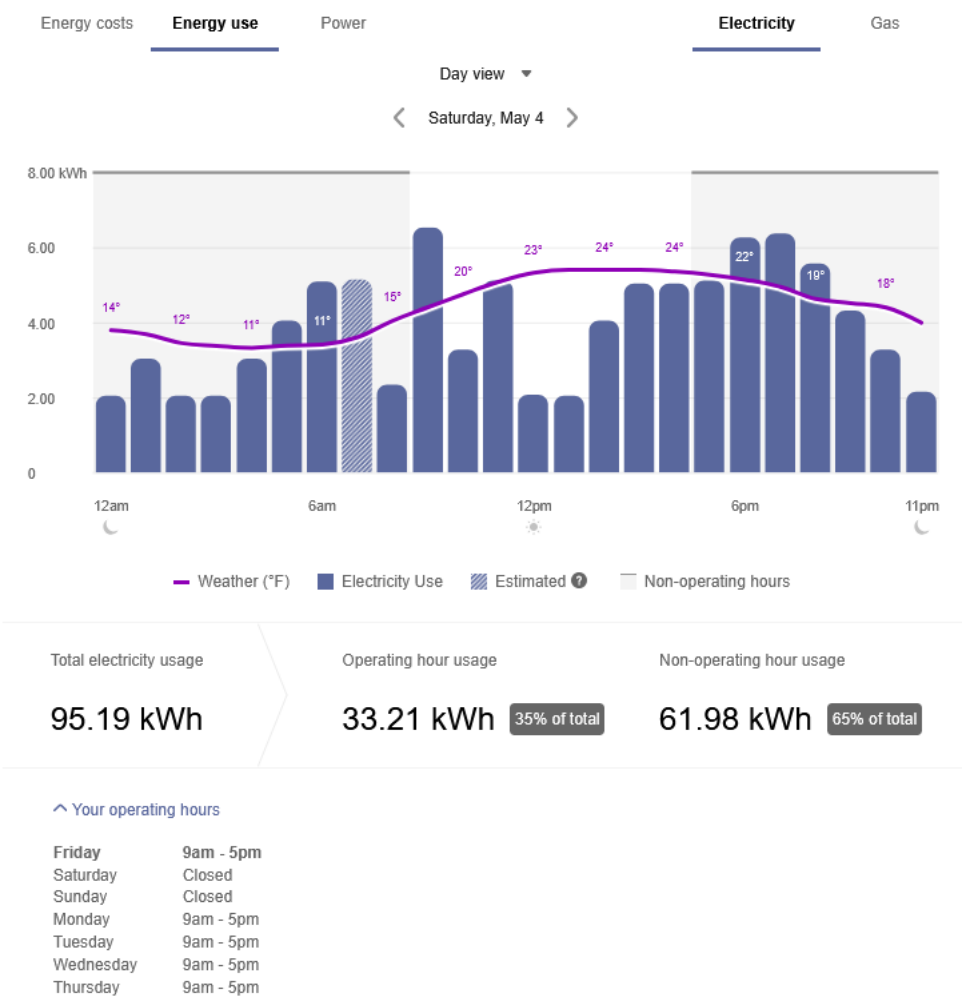

The bar graph displays extra background shading for non-operating hours of the day so that business customers have an additional visual reference point for their usage. At the bottom of the insight, an expandable menu displays the operating hours for quick reference.

If the business customer hasn't added any operating hours yet, no data is displayed, and a link appears to prompt the customer to add the hours in their profile.

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 Peak Demand Icons

If the demand values for two or more days or subdaily intervals are the same, and these values technically represent the highest demand, then multiple peak demand icons are displayed in the Energy Use view.

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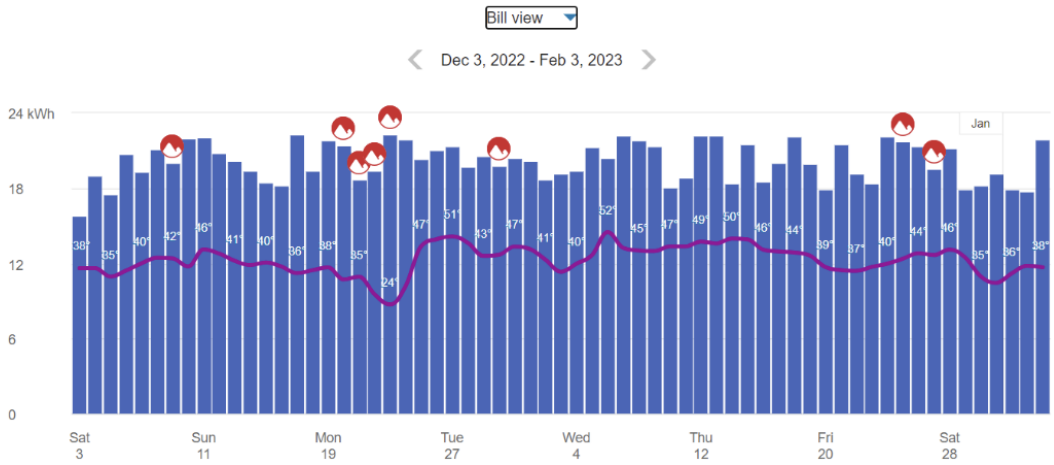

This may be the case, for example, at commercial or industrial locations where a specific set of high-power machinery or equipment needs to be turned on at regular points in time, resulting in a demand spike that consistently reaches the same amount multiple times in the same bill period.

Multiple peak demand icons are displayed in the Energy Use bill or day view under the following conditions:

- **Bill View**: Multiple days in a bill period contain an interval with the same demand value, and this value represents the peak demand for the bill period.
- **Day View**: Multiple intervals in a day have the same demand value, and this value represents the peak demand for the bill period.

This behavior can also occur in the Power view. See Power View- Multiple Peak Demand Icons 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. Short green bars are shown for negative values, and 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, Net Usage, and Delivered + Sent Toggle

If a business customer has solar power, the Energy Use view can display a toggle between **Net** and **Delivered + Sent** tabs when electricity is selected from the fuel menu. The toggle appears beneath the time menu. Business customers can use the tabs of the toggle to gain insight into their electric energy usage and solar production separately, as well as their net usage. This information is available in all time resolutions (year, bill, and day views) if there is sufficient data.

Net Tab: The Net tab displays the business customer’s final amount of energy consumption or energy generation for a given interval of time. It is determined by subtracting the business customer’s solar power generation amount from their energy consumption amount. If the business customer has a net usage amount, it is displayed as electricity use. If the business customer has a net generation amount, it is displayed as an electricity credit.

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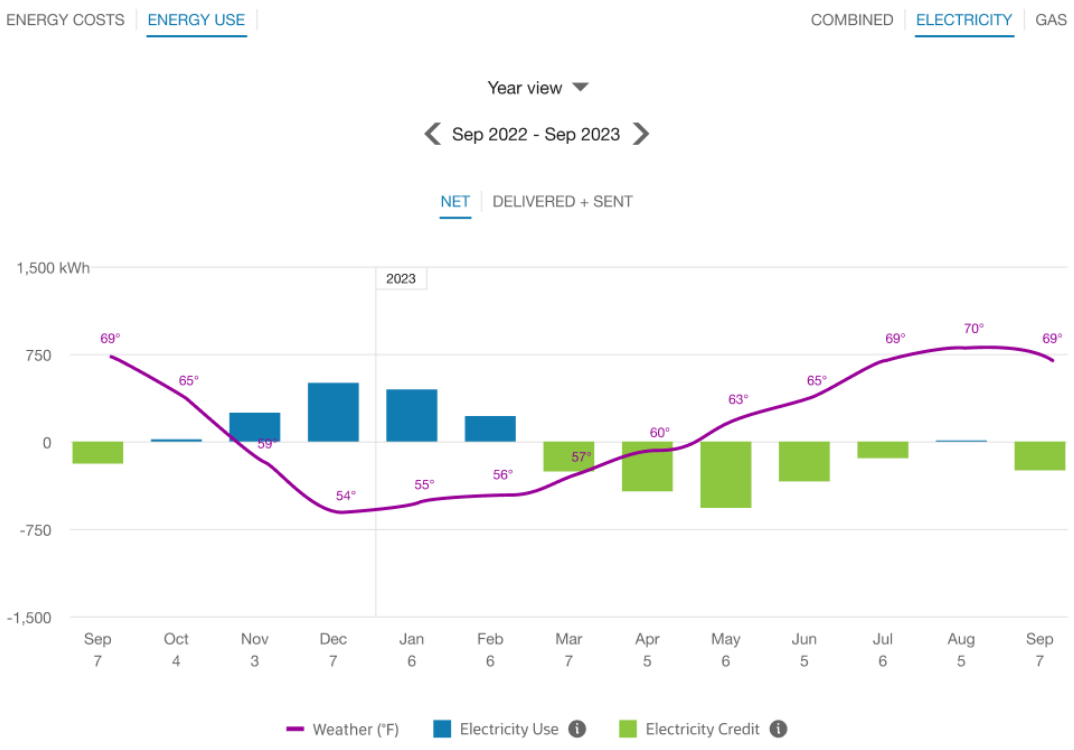
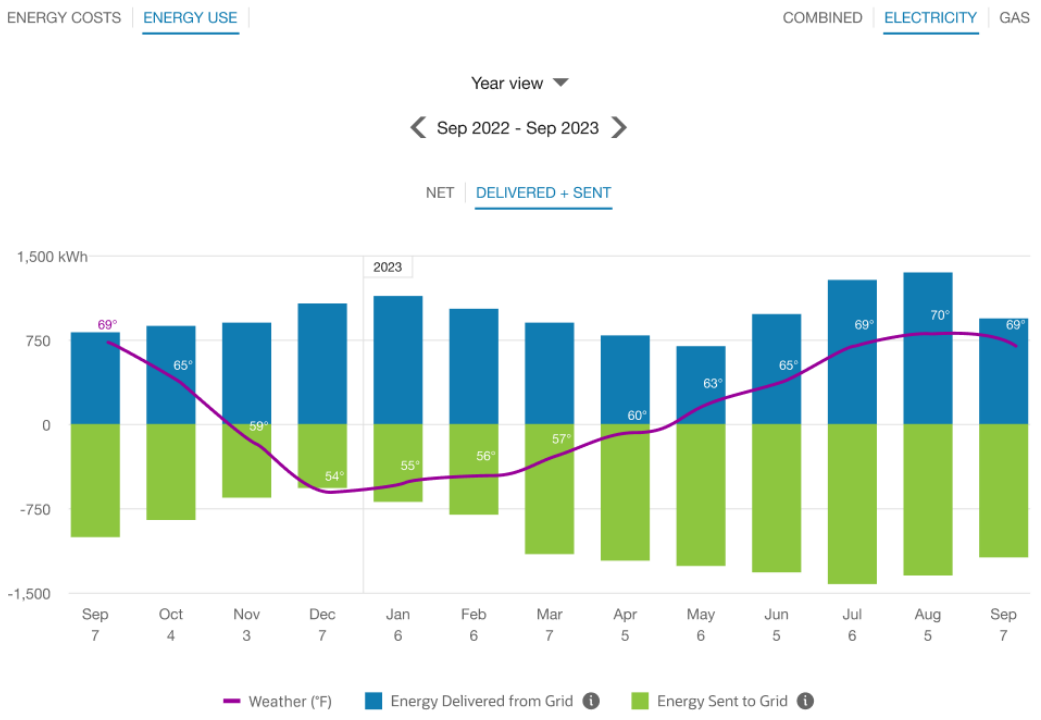


Sent + Delivered Tab: This tab displays the business customer's energy consumption and production data in the same time interval on the horizontal axis of the graph. "Sent" refers to energy sent to the grid through solar technology. "Delivered" refers to energy delivered from the grid to the business customer's premise.



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Requirements

- The business customer must be on a net metering rate. Business customers on a net billing rate or a non-net metering or billing rate are not eligible.
- Account, Billing, and Premise data feeds must be established with the utility.
- Billing data is required to display energy information in the year view. Interval (AMI) data is required to display energy information in the bill and day views. (If the business customer only has billing data, then only the year view will be available.) The data must contain an indication of how much energy was consumed and how much was exported or sent back to the grid.
- Some additional configuration is required to enable the view. Contact your Delivery Team for more information.

Solar Data and Bidirectional Energy

The Energy Use view of solar data can be enhanced for businesses with multi-register meters as opposed to 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 - Download My Data feature.

Requirements:

- The business 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.

Power View

The Power view of the Data Browser shows business customers their energy demand trends over time. It can also show several types of data and power measurements over a 24-hour time period: demand, reactive power, apparent power, and power factor. This information allows businesses to see their power efficiency as well as the point in time when they draw the most energy from the grid, and to ensure all systems are running without waste or high cost.

Requirements

Utility Requirements

Same as listed in Data Browser.

Customer Requirements

Category	Description
Billing Frequency	Same as listed in Data Browser.

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Category	Description
Data Delivery Frequency	Same as listed in Data Browser.
Data Requirements	**Billing Data**: Billing data is required to display demand data in the Year view. The billed usage data must include an indication of the demand per bill period. **Interval and Demand Data**: Electric interval (AMI) data in kilo-watt hour (kWh) units is required for the Bill and Day views, and is used to calculate demand data. For information on providing this data, see the Oracle Utilities Opower Interval Data Transfer specification . **Premise Data**: Premise data for the business is required. See the Oracle Utilities Opower Premise Data Transfer specification for more information. **Apparent Power**: Electric interval data in kilovolt-amp (kVA) units is required to display apparent power in the Day view. Alternatively, kVA data can be calculated if one of the following unit combinations are provided: • kWh and kVArh (kilovolt-ampere reactive hour) units • kWh and kVAh (kilovolt-ampere hour) units **Power Factor**: Power factor is the ratio between the system's real power (kW) and apparent power (kVA). The power factor value can therefore be calculated and displayed in the Day view as long as kW and kVA data are available. If necessary, kW and kVA data can be calculated if two of the following types of data are provided: kWh, kVArh, and kWAh (kilo-volt ampere hour). Work with your Delivery Team to determine which data to send based on what is available in your system. **Reactive Power Data**: To display reactive power data in the Day view, an additional input of interval data must be provided in kvarh. An applicable `register_id` must be defined for this data as described in the *Interval Data Transfer specification* .
Data History	Same as listed in Data Browser.
Data Coverage	Same as listed in Data Browser.
Supported Fuels	Electricity and dual fuel. Demand data for gas cannot be shown.

Limitations

- **Calculated Demand Data**: The Power view does not use or support demand rates data. Rather, demand data is calculated based on interval data provided in kWh and is available to all business customers for a utility. Calculated demand data is displayed as kWs in hourly intervals in the Day view and as daily intervals in the Bill view. In the Year view, demand data from the utility's billing data is displayed.
- **Peak Demand Icon**: Any icon highlighting peak demand in the Power view may not be consistent if a business has other rates that determine peak demand costs for their bill. For example, the Power view may highlight a particular *hourly interval* as the business customer's highest demand interval, but this may not align with the peak usage indicated on a customer's bill if the business is billed for *30-minute* usage intervals.

User Experience

The Power view displays a business customer's demand for a given time period, with tooltips providing the exact values for each data point. The image below shows an example of the Power view for a single day. If the required data is available, the Power view can show data by bill period and by year.

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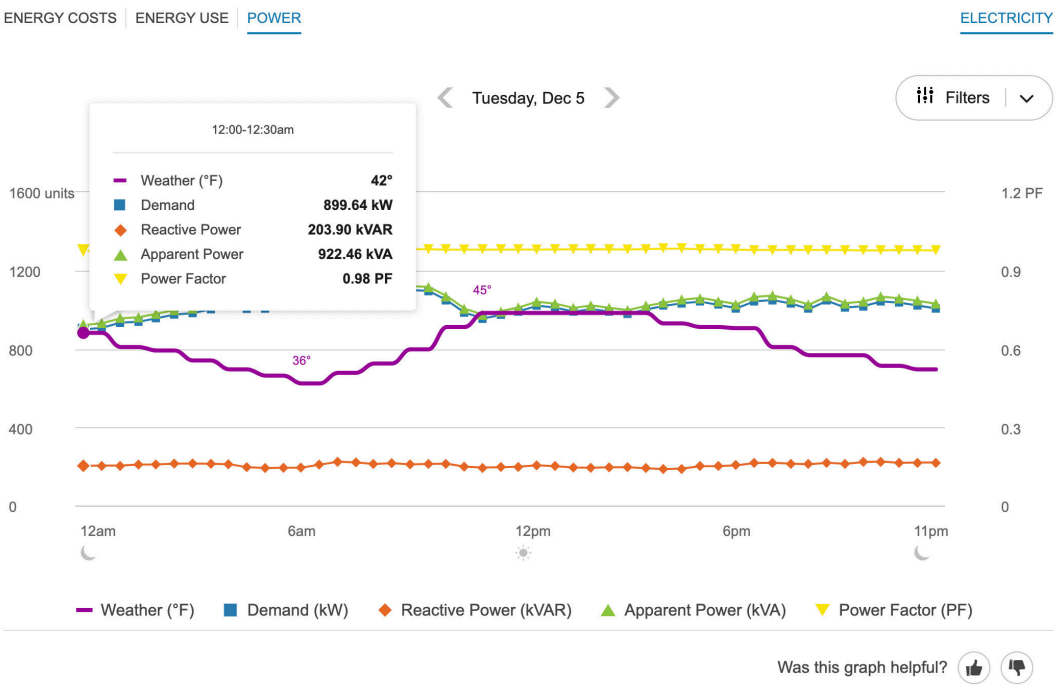

Fuel Menu

Only electricity data can be shown in the Power view. If the business also receives gas from their utility, then a gas menu may be displayed but it will be grayed out in the Power view so it cannot be selected.

Time Menu

In the Power view, the Day is shown by default. The backward and forward buttons can be used to view data for one 24-hour period at a time.

A menu containing options for the Bill view and Year view can be made available as well, depending on the data you have and your setup and configuration. See the Customer Requirements for details.

Line Graph

In all time resolutions of the Power view, there is a line graph which uses a horizontal axis (X-axis) to show time intervals and a vertical axis (Y-axis) to show weather and demand data.

In the Day view only, several different types of power data are available in each interval: Apparent Power, Demand, Power Factor, Reactive Power, and Weather. This helps business customers better understand the energy being used at any given moment for different electrical units of measure.

Additionally, business customers can use a **Filters** menu (only available in the Day view) to enable or disable the display of each data type. If customers select or deselect an item from the list, their selections will be preserved the next time they access the menu or sign in.

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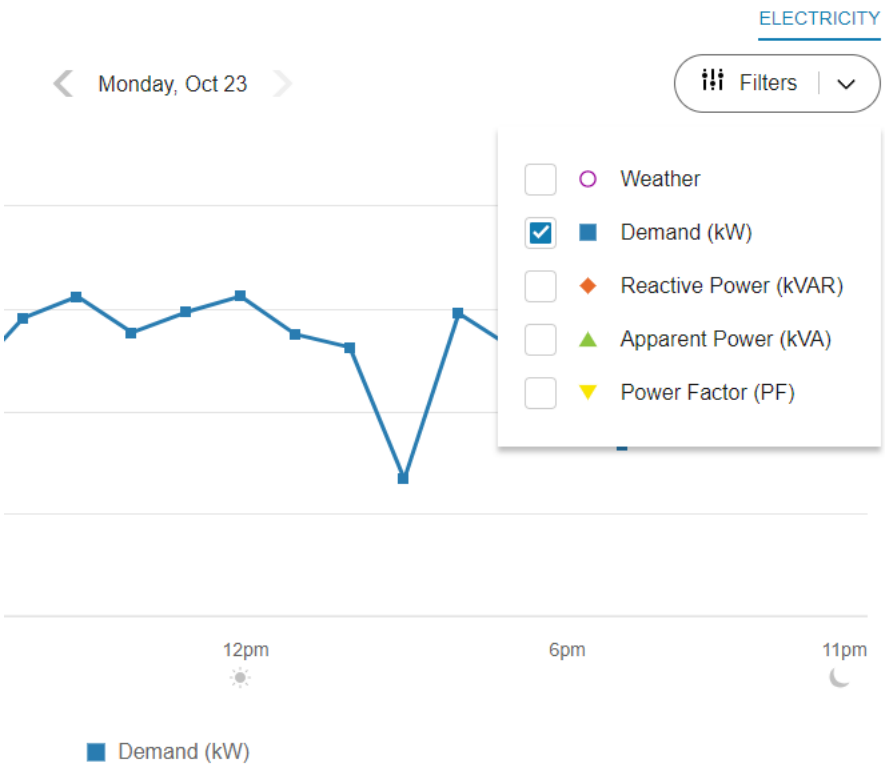

On desktop displays, each data type has a different color-coded shape or icon so it is more easily distinguishable and accessible. On mobile displays, the icons are hidden and color-coded toggles are shown instead.

Notes:

- The line graph only displays data points if the corresponding data is available.
- The Y-axis label shows a generic "Units" label, since the different data types use different units of measure. If Power Factor is selected from the Filters menu, an additional Y-axis displays dynamically on the right side of the line graph to show PF units.
- One or more of the data types may not be displayed in the line graph depending on each utility's configuration and the relevance of the data to a utility's customer base.
- If the line graph only contains one or two of the four primary units of measure available for the Power view, then the **Filters** menu will not be displayed.

Apparent Power

Apparent power is the amount of power used to run machinery and equipment during a specific period of time. It is expressed in kilovolt ampere (kVA) units, where one kVA is equal to 1,000 watts of power. With this information, business customers can that ensure apparent power is within acceptable limits of their building's total usage or demand, and verify that there is no strain on their usage.

This data is only available in the Day view.

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Demand

Demand refers to the rate at which a business consumes electricity, not the actual amount that is consumed. Demand is expressed in kilowatts (kW) rather than kilowatt-hours (kWh). This information allows businesses to see the point in time when they draw the most energy from the grid, identify irregularities, and consider how to lower their usage during those times in the future.

Power Factor

Power factor is a measure of how efficiently power is used in electrical equipment. It is usually expressed as a percentage, based on the ratio between the system's real power (kW) and apparent power (kVA). The lower the percentage, the less efficient the power usage, which results in less efficient circuits and higher operating costs. Utilities often charge businesses extra money when their power factor is low.

By seeing their power factor trends over time, business customers can identify when there are any inefficiencies and consider how to correct those inefficiencies in the future and reduce overall costs. For example, if the power factor line decreases frequently or noticeably below acceptable limits, there may be a need to schedule maintenance or invest in new equipment.

This data is only available in the Day view.

Reactive Power

Reactive power refers to wasted or lost power. Typically it is used for purposes like the storage and retrieval of energy rather than the consumption of energy, and so it is typically very low compared to the line representing energy demand. If the reactive power line increases, this means that power is being wasted. When this happens, the power factor line will likely show a decrease at the same time, since energy is not being used efficiently.

This data is only available in the Day view.

Weather

Weather data shows the temperature for a given interval in the Power view. Business customers can use this data to infer how weather impacts their power measurements. See Weather Data for more information about how weather data is obtained.

Highest Demand Interval

An icon is displayed over the highest demand interval in the Day View and over the day with the highest demand in Bill View to indicate when the demand for energy was at its peak. This icon is also shown in the bill and day views of the Energy Use View, where business customers can quickly determine which day in a bill period or which interval in a day contained the highest demand. The customer can then view that day in the Power view to see the exact hour when demand was highest.

Notes about the Peak Demand Icon:

- *Demand* refers to the rate at which a business consumes electricity, not the actual amount consumed. This means that the interval with the peak demand icon may not always be the same as the interval with the highest amount of energy use. See Demand Versus Usage below for an illustration.
- The icon is not shown for days in the bill period that did not include the highest demand interval.

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- There are cases when multiple peak demand icons can display within a day. See Multiple Peak Demand Icons below for details.

Tooltips

Tooltips are displayed when customers interact with a data point on the graph. At the day level of the Power view, the tooltip provides the specific units of measure for each type of power, such as kilowatts (kW) for demand data, kilovolt-amperes-reactive (kVAR) units for reactive power data, and so on.

See Energy Tooltips for details on what the tooltips may include in other views of the Data Browser.

Billing Details

Depending on each utility's setup and configuration, a list of additional billing details is displayed below the bar graph for each of the business customer's electricity or gas bills. These details can include more categories of information for each energy bill, allowing business customers to better understand the factors that determine their costs. See Billing Details for more information.

Disclaimer

Disclaimer messages can be added to the Power view that are specific to the view. For example, a disclaimer message can explain demand and reactive power charges. The disclaimer messages can also include links to resources where business customers can find more information.

Demand Versus Energy Use

Whereas demand is expressed in kilowatts (kW), energy use is expressed in kilowatt-hours (kWh). Demand can be thought of as the *rate* at which energy is drawn from the grid, rather than how much energy was consumed.

To use a metaphor, imagine that energy is water flowing through a pipe. The pipe itself, however, can only let so much water through at a time. The pipe is like "demand": its size determines how fast the water flows through to meet the need for water.

To give a more concrete example, consider two business customers, Mary and Bob. Mary's utility tracks her business's energy use every hour. This means she has one interval of data per hour. Now imagine that from 4-5 p.m. on March 1st, Mary's business consumed 100 kilowatts of electricity. This means that for the entire hour of 4-5 p.m., Mary's demand was 100 kilowatts, and her business consumed 100 kilowatt-hours.

Meanwhile, Bob's utility tracks his business's energy use every *half an hour*. This means he has two intervals of data per hour. Now imagine that from 4-4:30 p.m. on March 1st, Bob's business consumed 200 kilowatts of electricity. But then from 4:30-5, he did not consume any more electricity. This means that for the entire hour of 4-5 p.m., Bob's *demand* was 200 kilowatts, and yet he only consumed 100 kilowatt-hours, since he did not consume any electricity in the second half of the hour.

The important thing to note is that the *rate* or *demand* of Bob's electricity consumption was twice as high as the *demand* of Mary's consumption—even though they both consumed the same amount of energy over a single hour in the end.

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User Experience Variations

Multiple Peak Demand Icons

If the demand values for two or more intervals are the same, and these values technically represent the highest demand of the bill period, then multiple peak demand icons are displayed within the same day in the Demand view.

This may be the case, for example, at commercial or industrial locations where a specific set of high-power machinery or equipment needs to be turned on at regular points in time, resulting in a demand spike that consistently reaches the same amount multiple times in a day, or on multiple days in a bill period.

This behavior can also occur in the Energy Use view. See Energy Use View - Multiple Peak Demand Icons for details.

Demand Heat Map

The Demand Heatmap displays a business customer's demand data in a color-coded grid, and indicates the level of energy demand during specific times, days, and weeks of the year. This allows business customers to see when they draw the most energy from the grid, to identify any anomalies, and to consider if and how to lower their demand during those times in the future.

Demand refers to the rate at which a business consumes electricity, not the actual amount of electricity that is consumed. Demand data is expressed in kilowatts (kW) rather than kilowatt-hours (kWh). For more information on the difference between these units, see Power View.

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.
Data Requirements	**Usage Period Data**: Usage period data from the Oracle Utilities Opower Billing Data Transfer specification is required. Specifically, the `usage_period_start_datetime` and `usage_period_end_datetime` fields in the Bill Segment data entity are required. **Interval Data**: Subdaily electric interval data in kWh is required. Data can be sent in whichever subdaily resolution is available. For information on providing interval data, see the Oracle Utilities Opower Interval Data Transfer specification . **Premise Data**: Premise data for the business is required. See the Oracle Utilities Opower *Premise Data Transfer specification* for more information.
Data History	A minimum of one historical bill and one day of AMI data.

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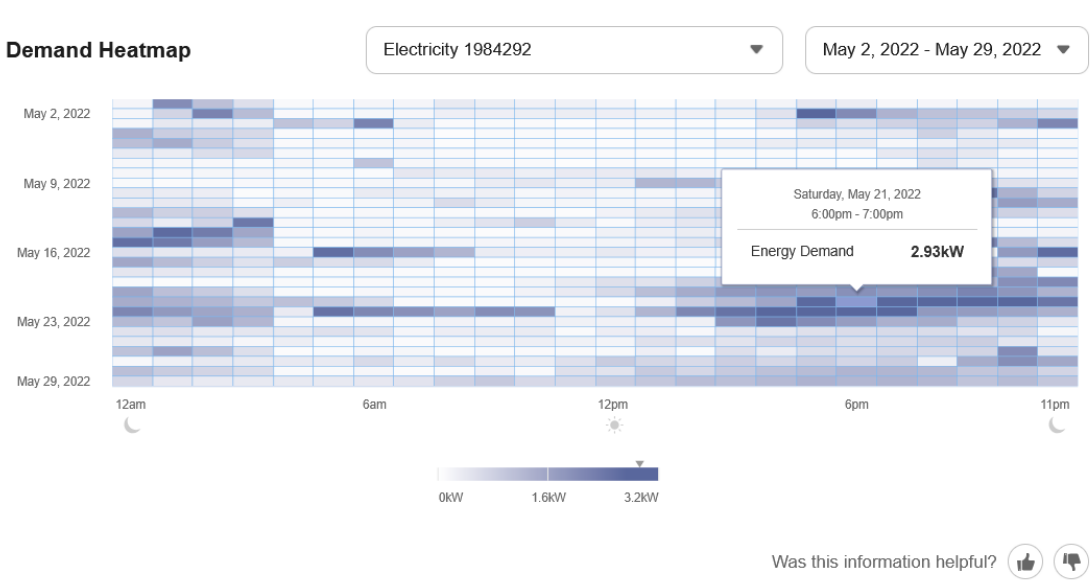
Category	Description
Data Coverage	Not applicable. By default, the heatmap displays any data that is available, even if some reads are missing.
Supported Fuels	Electricity. Demand data for gas cannot be shown.

Limitations

Calculated Demand Data: The feature does not use or support demand rates data. Demand data is calculated based on interval data provided by the utility in kWhs, and is then displayed in kWs.

User Experience

This section describes the user experience of the Demand Heatmap for business customers who have electric interval AMI data. The image below is an example of the Demand Heatmap.



Service Point Selector: A service point selector menu may display above the heatmap for businesses that have multiple service points of the same fuel type at a premise.

Date and Time Menu: The date and time menu allows business customers to select the bill period for which to view demand data. The menu is limited to displaying options for the last 12-13 months.

Depending on the customer's billing cycle, the menu shows different date ranges for different bill periods. For example, a customer on a monthly billing cycle would see menu options with month-long date ranges, while a customer on a bi-monthly billing cycle would see menu options with bi-monthly date ranges.

Demand Grid: The demand data is shown in a color-coded grid view. By default, a single color gradient is used so that the colors are more accessible to colorblind customers.

- **X-Y Axis**: The y-axis represents the days and weeks of the selected time period. The x-axis represents the time of the day, broken down into 24 hours.

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- **Panels**: The panels in the grid represent different time intervals (such as one hour) depending on the resolution of the customer's data. Each panel in the grid is color-coded to indicate how much energy was in demand at that point in time.
- **Rows**: The number of rows in the demand grid varies depending on the customer's billing cycle. For example, a customer with monthly billing would see a grid containing data for about four weeks, while a customer with bi-monthly or quarterly billing would see a grid containing data for additional weeks.
- **Highest Demand Interval**: An icon is displayed in the panel when demand was at its peak. Demand refers to the *rate* at which a business consumes electricity, not the actual amount that is consumed. This means that the interval with the peak demand icon may not always be the same as the interval with the highest amount of energy use. See Demand Versus Energy Use for more information about the difference.

Note: Any data that is available will be displayed. If some reads are missing (for example, if a customer's meter malfunctioned or was unable to send data reads to the utility for some reason), the corresponding panels in the grid will appear empty.

Tooltips: A tooltip is displayed when a business customer interacts with a data point in the Demand Heatmap. The tooltip includes two elements.

- **Time Period**: The time period for the selected data point or panel in the grid, including the month, day, year, and time interval.
- **Energy Demand**: The energy demand for the selected time period, expressed in kilowatts (kWs).

Legend: Below the demand grid is a legend displayed in the form of a color-coded scale. The color on the left side indicates the low end of demand (usually 0 kWs), and then gradually changes as the scale moves to the right where the high end of demand is indicated.

The scale is dynamic and ends at whatever is the highest demand for the selected time period. For example, if the highest demand during the selected time period was 4 kWs, then the right side of the scale would indicate 4 kWs. This number may change when the customer selects a different time period.

When a customer interacts with the Demand Heatmap and selects (or hovers over) a panel in the grid, an upside-down triangle icon appears above the scale at the appropriate point that corresponds with the demand represented by the selected panel.

User Experience Variations

No AMI Data

If the business customer does not have AMI data, then an error message displays stating that the information in the widget can only be displayed if the customer has smart meter data.

Green Button - Download My Data

The Green Button - Download My Data feature allows business customers to export their billing data to CSV or XML format. It is 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.

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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	Monthly, bi-monthly, and quarterly.
Data Requirements	**Billing Data**: The business must have a minimum of one historical bill. **AMI Data**: AMI data is required for additional download options to appear. **Rates Data**: The Rates Engagement cloud service must be purchased and customers' rates must be modeled for cost values to display for interval AMI data reads in the exported file. Contact your Delivery Team if you have questions about this cloud service and whether your rate structure can be supported. **Power Data**: Additional types of power data can be included in the downloaded file, such as demand, apparent power, reactive power, and power factor. See Power View - Customer Requirements for more information about how to provide this data. **Enhanced Solar Data**: Utilities must be on the latest data transfer specifications in order for enhanced solar data IMPORT and EXPORT columns to display in the exported file. Your Delivery Team will work with you to identify which data transfer specifications you need.
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	Gas, electricity, and dual fuel. Business customers can only export data relevant to their service types.

Limitations

- **Supported Resolutions**: The Usage Export can support the following subdaily resolutions: hour, half hour, quarter of an hour. It cannot support more granular resolutions, such as 5-minute reads.
- **Multilingual Limitation**: The CSV data download is available for localization. The XML data download (Green Button) is only available in US English, but it can still be downloaded by business customers in any locale.
- **Comparison to Green Button Connect**: The Green Button - Download My Data 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 would allow customers to make their energy data available to a third party through an API.

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- **ESPI Format**: Green Button allows customers to download XML 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 businesses that have billing data.

Green Button

Business 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.

> **Note**
>
> Depending your setup, configuration, and available data, the downloaded file may not contain the full range of possible data types. See Downloaded Files below for details.

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. 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.

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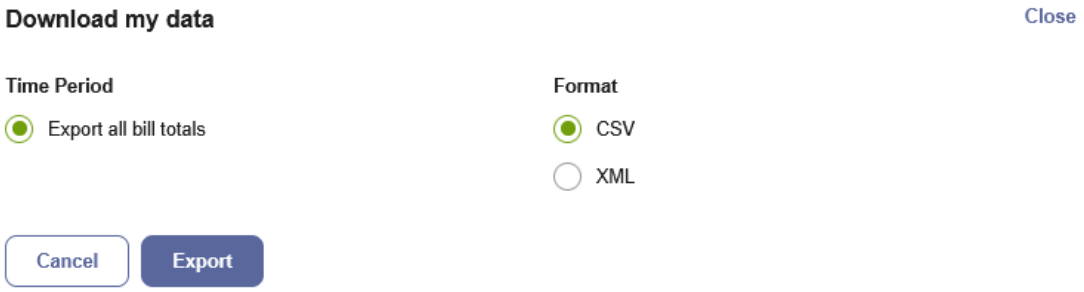
Download My Data

When a business 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, customers may be prompted to save the file to their desktop rather than seeing an automatic download to their Downloads folder.



Download My Data - AMI Experience

Business customers with AMI data have additional data download options. One option is that customers can download data for a specific bill period from a drop-down list.

For example, if a customer has historical bills going back three months, then the customer might see a list of bill periods like the following:

- Dec 21, 2024 - Jan 22, 2025
- Nov 20, 2024 - Dec 21, 2024
- Oct 22, 2024 - Nov 20, 2024

The customer can then choose from the list to export data for the selected date range.

If a customer has multiple service agreements, each with slightly different start and end dates, then the date range for a given period displayed in the drop-down list will encompass the dates for all available service agreements. For example, imagine a customer who has two service agreements, one for gas and one for electricity. The gas bill period is Oct 21 - Nov 20 while the electricity bill period is Oct 22 - Nov 22. In this case, the date range shown in the Export usage for a bill period menu might be Oct 21 - Nov 22 to cover the date ranges of both service agreements. When the file is downloaded, however, the customer will see a .zip file that contains a separate CSV or XML file for each fuel type, and the data in the file will have slightly different start and end dates.

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.

For large files, the export may take up to a minute.

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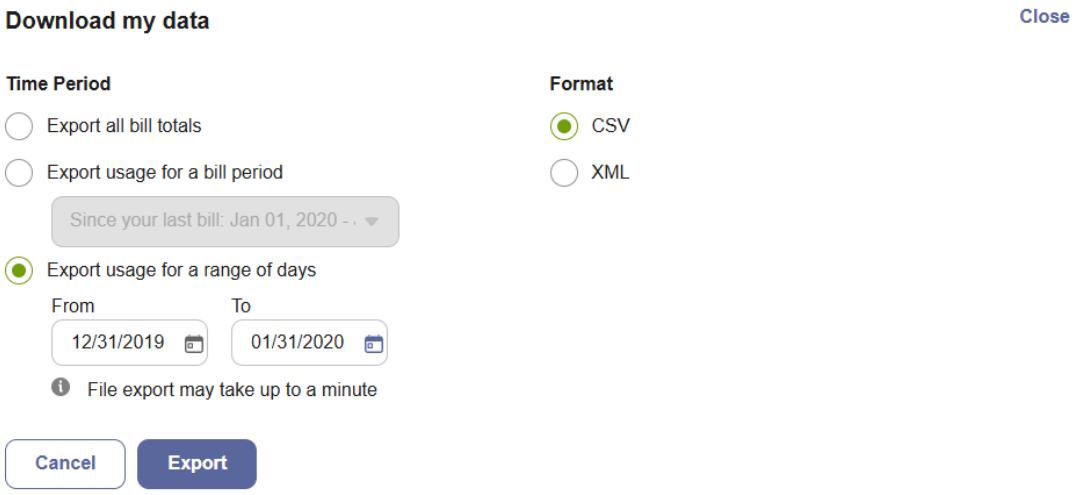

Downloaded Files

The contents and structure of the downloaded file depend on the customer's data types and the options selected in the Download My Data screen.

CSV File Structure

If the customer chooses to export their data in CSV format, then the .zip file contains a CSV file for each resource type that is applicable for the customer (gas or electricity).

The most common columns in the CSV file are described below. For information about additional columns that can appear, such as for power data and Solar Data and Multi-Register Meters, see the User Experience Variations section below.

> **Note**
>
> If you open your file in Excel, there may be some cells in which part of the number is displayed in scientific (exponential) notation, replacing part of the number with E+n. This can occur for cells where there are 12 or more digits. See Display numbers in scientific (exponential) notation for more information.

CSV File Header

- **Name**: The business customer's first and last name.
- **Address**: The address of the premise or property associated with the business customer.
- **Account Number**: The business customer's utility account number.
- **Service**: The ID of the business 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.

Depending on your data, setup, and configuration, the following fields may also be enabled in the header. The core data transfer standards are required to show this information.

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- **Service Point**: The ID of the service point associated with the service agreement. If you export billing data for an account with only one service point, then the field will display the service point ID. If you export billing data for an account with multiple service points, the field will simply say "Multiple" and will not list all of the service point IDs.
- **Meter**: The ID of the meter device associated with the service agreement. If you export billing data for an account with only one service point and meter device, then the field will display the meter ID. If you export billing data for an account with multiple service points and devices, the field will simply say "Multiple" and will not list all of the meter IDs.

CSV File Body

- **TYPE**: The type of billing data, such as for electricity or gas usage.
- **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 business customer has AMI data, but selects a date range that does not have any data, then blank values will appear in this 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 Oracle Utilities Opower 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.

XML File Structure

If a business 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 or electricity). 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

Multiple Billing Accounts and Service Points

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

Dual fuel business customers can download data separately for their gas and electricity usage. If a customer has two or more service points of the same fuel type (for example, a customer with one for regular electric usage and one for an electric vehicle) and clicks to download data, then a zip file is generated containing a CSV or XML file for each service point.

If a dual fuel business customer is in the combined view in the Data Browser and clicks to download data, then a zip file containing two CSV or XML files is generated: one file for electricity and one file for gas.

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Multiple Fuels, AMI Data, and Cost Data

The table below describes user experiences depending on the number of fuels or resources, the availability of AMI data, and whether or not the customer has modeled rates. For example, business customers with daily AMI data and rates modeled will see daily cost values. Business 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. Business 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.

Customer Scenario	User Experience
Fuels: Single. **Available Data**: Billing data. **Rates Modeled?**: No.	• Business customer can choose to export their data in CSV or XML format. • Single CSV or XML file downloads. • Downloaded file contains billing data.
Fuels: Single. **Available Data**: Billing and AMI data. **Rates Modeled?**: No.	Business customer can choose to export their data in CSV or XML format. **CSV** • Business customer can choose to export billing data. • Business customer can choose to export AMI data for a range of days. • Business customer can choose to export AMI data for specific billing periods. • Single CSV file downloads and contains either billing or AMI data. **XML** • Business customer can choose to export billing data. • Business customer can use a more flexible date picker to export AMI data for specific days. • Single XML file downloads and contains either billing or AMI data.
Fuels: Single. **Available Data**: Billing and AMI data. **Rates Modeled?**: Yes.	Business customer can choose to export their data in CSV or XML format. **CSV** • Business customer can choose to export billing data. • Business customer can choose to export AMI data for a range of days. • Business customer can choose to export AMI data for specific billing periods. • Single CSV file downloads and contains either billing or AMI data. • CSV file with AMI reads contains cost information for each read. **XML** • Business customer can choose to export billing data. • Business customer can use a more flexible date picker to export AMI data for specific days. • Single XML file downloads and contains either billing or AMI data. • XML file with AMI reads contains cost information.

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Customer Scenario	User Experience
Fuels: Multiple. **Available Data**: Billing data. **Rates Modeled?**: No.	Business customer can choose to export data in CSV or XML format. **CSV** • Business customer can choose to export billing data. • Single .zip file downloads and contains separate CSV files for electricity and gas as applicable. • Downloaded files contain billing data. **XML** • Business customer can choose to export billing data. • Single .zip file downloads and contains separate XML file for electricity and gas as applicable. • Downloaded files contain billing data.
Fuels: Multiple. **Available Data**: Billing and AMI data. **Rates Modeled?**: No.	Business customer can choose to export their data in CSV or XML format. **CSV** • Business customer can choose to export billing data. • Business customer can choose to export AMI data for a range of days. • Business customer can choose to export AMI data for specific billing periods. • Single .zip file downloads and contains separate CSV file for electricity and gas as applicable. **XML** • Business customer can choose to export billing data. • Business customer can use a more flexible date picker to export AMI data for specific days. • Single .zip file downloads and contains separate XML file for electricity and gas as applicable.
Fuels: Multiple. **Available Data**: Billing and AMI data. **Rates Modeled?**: Yes.	Business customer can choose to export their data in CSV or XML format. **CSV** • Business customer can choose to export billing data. • Business customer can choose to export AMI data only for a range of days. • Business customer can choose to export AMI data for specific billing periods. • Single .zip file downloads and contains separate CSV file for electricity and gas as applicable. • CSV file with AMI reads contains cost information for each read. **XML** • Business customer can choose to export billing data. • Business customer can use a more flexible date picker to export AMI data for specific days. • Single .zip file downloads and contains separate XML file for electricity and gas as applicable. • XML file with AMI reads contains cost information.

Power Data

The downloaded file may include additional columns of data that align with the data that is shown in the Power View of the Data Browser. Depending on the setup and configuration, some or all of the following columns may be included in the downloaded file:

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- DEMAND (KW): The rate at which energy is consumed.
- REACTIVE POWER (KVAR): Wasted or lost power.
- APPARENT POWER (KVA): Power used to run machinery and equipment.
- POWER FACTOR (PF): A measure of power efficiency.

See the Line Graph for detailed descriptions of these power data types.

Solar Data and Multi-Register Meters

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

When support for multi-register meter businesses is enabled, the downloaded file 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 TIME and END TIME of each interval if the business has subdaily AMI data.

Five-Minute Data Reads

For business customers with five-minute AMI data resolution, the downloaded file may show rows for each five-minute usage read. This allows for a more granular view of a business customer's subdaily usage.

Five-minute AMI data is required for this experience, and some additional configuration is needed. Contact your Delivery Team for more information.

Guest User Access

The Guest User Access feature allows primary utility business account holders to invite guest users to have access to energy insights from their Business Customer Engagement Digital Self Service - Energy Management billing account. This is particularly helpful for staff at large businesses who oversee multiple business locations and who want other users to have access to their energy use trends, insights, and tips on how to save energy.

> **Note**
>
> Guest users primarily have read-only access to energy use information, billing history information, and energy savings tips. They cannot pay bills or start or stop service, and the ability to make account changes is limited. See Guest User Portal below for details.

Requirements

Utility Requirements

Same as listed in the product-wide requirements. Additional implementation requirements include:

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- Utilities must coordinate with their Oracle Utilities Delivery Team to set up and configure relevant aspects of the Oracle Identity Cloud Service and Oracle Identity and Access Management.
- Utilities that wish to configure the email address received by guest users must work with their Delivery Team to follow steps at Configuring Email Authentication Settings for SPF and DKIM.
- The standard domain name of the Guest User Portal is http://bce-utilitycode-opower.com, where `utilitycode` is a three- or four-letter code defined during the setup and launch process to represent the name of the utility. Utilities that wish to set up their own domain must set up a DNS redirect to the domain that they own.
- Utilities that already have customers on a guest user access solution can work with their Delivery Team to create a plan to migrate these customers.

Customer Requirements

The display of the Guest User Access feature is not dependent on customer data or attributes. The main requirement is that guest users must accept the invitation sent to them and activate their account before they can log in to the Guest User Portal.

Limitations

No more than 25 guest users can be invited and assigned to a business account.

User Experience

The Guest User Access feature consists of several interrelated components: a widget to manage authorized account viewers, an email invitation and supporting email communications, and a Guest User Portal.

Manage Authorized Account Viewers Widget

Primary business utility account holders can go to their account settings and use the Manage Authorized Account Viewers widget to invite guest users.

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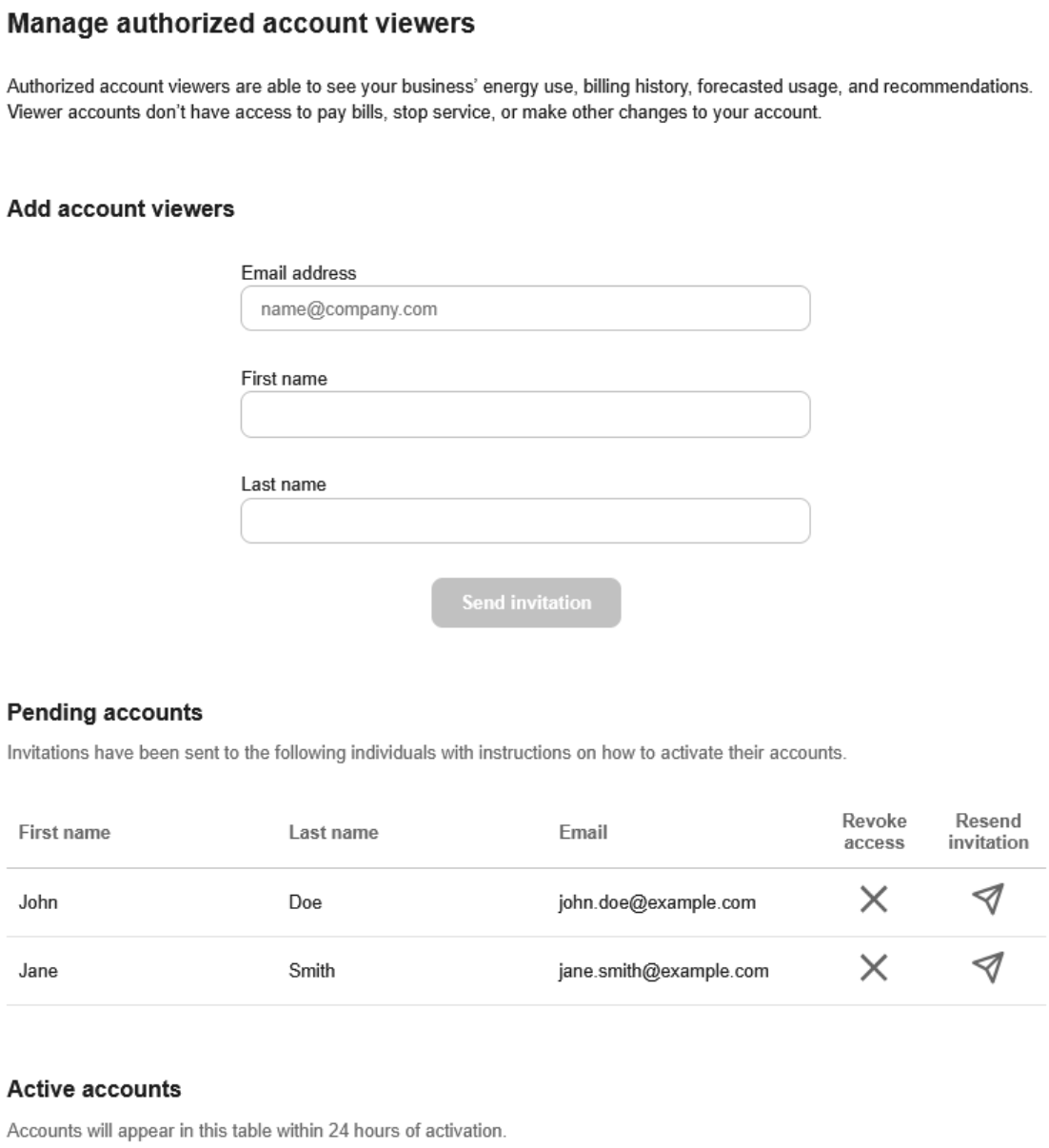

Add Account Viewers: This section allows guest users to be invited and have access to their account. When an invitation is sent, the guest users' information appears in the Pending Accounts section.

Pending Accounts: This section lists information about the guest users who have been invited but who have not yet activated their guest account. Primary account holders can revoke access or resend an invitation from this section if necessary.

Active Accounts: This section lists information about the guest users whose accounts have been activated. Business customers can revoke access from this section if necessary.

Email Invitation and Supporting Communications

When guest users are added to a business account, they receive an email invitation with a link prompting them to set a password for their guest account.

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The default expiration period of email invitations is seven days. Guest users must create passwords according to standard security rules:

- A minimum of 12 characters and a maximum of 40 characters
- At least one uppercase and lowercase character, and at least one numeric character
- The new password must be entered twice to confirm both entries match

After the password is set, the guest account is activated. Guest users can then sign in and view the energy information for their account.

Guest users may receive other emails necessary for guest user access, such as password recovery or reset emails.

Guest User Portal

Guest users who activate their guest account can log in to a Guest User Portal, a standalone website that contains the same widgets and data as that of the primary account holder who invited them. Guest users are able to perform a variety of actions in the portal, such as:

- View energy information for a specific business account.
- Browse and explore energy use trends, insights, and energy savings tips.
- Use Green Button - Download My Data to export billing data to CSV and XML formats.
- View the Business Profile and make updates to the profile information.
- Update their guest user name and password in the account preferences section.
- If the guest user has access to multiple billing accounts, then the guest user can switch between each billing account and view related energy information. See Billing Account Selector for details.

Guest users who log out of the portal and forget their password can request a new password. If any guest users have their access later revoked by the owner or administrator of the business account, they will still be able to log in to the portal, but no data will be displayed in the widgets.

How Businesses Use Energy

The How Businesses Use Energy feature allows business customers to see an estimated annual breakdown of energy use categories (such as heating, cooling, lighting, refrigeration, and so on) based on primary business type or activity (such as education, healthcare, retail, or restaurant). With this information business customers can better understand where they use the most energy and how to save energy in those categories.

Requirements

Utility Requirements

Same as listed in the product-wide requirements.

Customer Requirements

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

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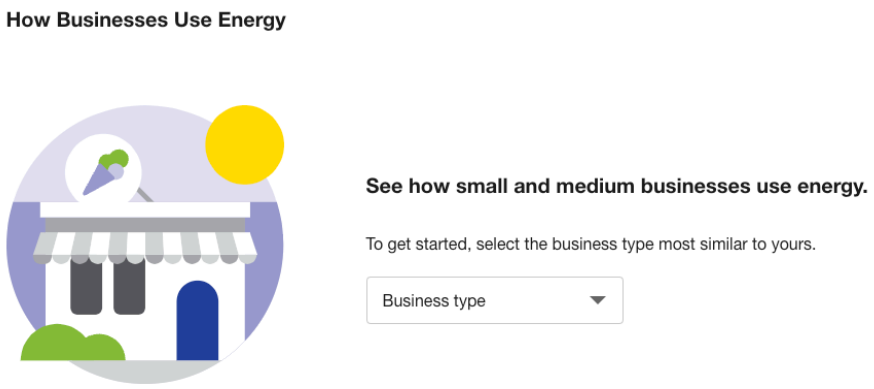
Category	Description
Data Delivery Frequency	Not applicable.
Data Requirements	Not applicable. Building type data and annual average energy use data based on climate zone are already configured in the cloud service and do not need to be sent by utilities.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

Limitations

- **Authentication:** Customers must be logged in to their utility account or standalone web portal account before they can use this feature.
- **Supported Business Types**: The widget is designed for businesses classified as a small and medium business (SMB). It does not support a breakdown of energy use categories for business types that are commonly associated with large commercial, agricultural, or industrial.

User Experience

When customers view the widget for the first time, they are prompted to select a business type before they can view a breakdown of usage categories.



When a selection is made, a color-coded pie chart displays, with an estimated breakdown of how much energy is consumed in different categories every year by similar buildings in the area. "Energy" is defined here as a combination of electricity and gas usage. Customers can click on a usage category and see what percentage of the total annual usage it represents.

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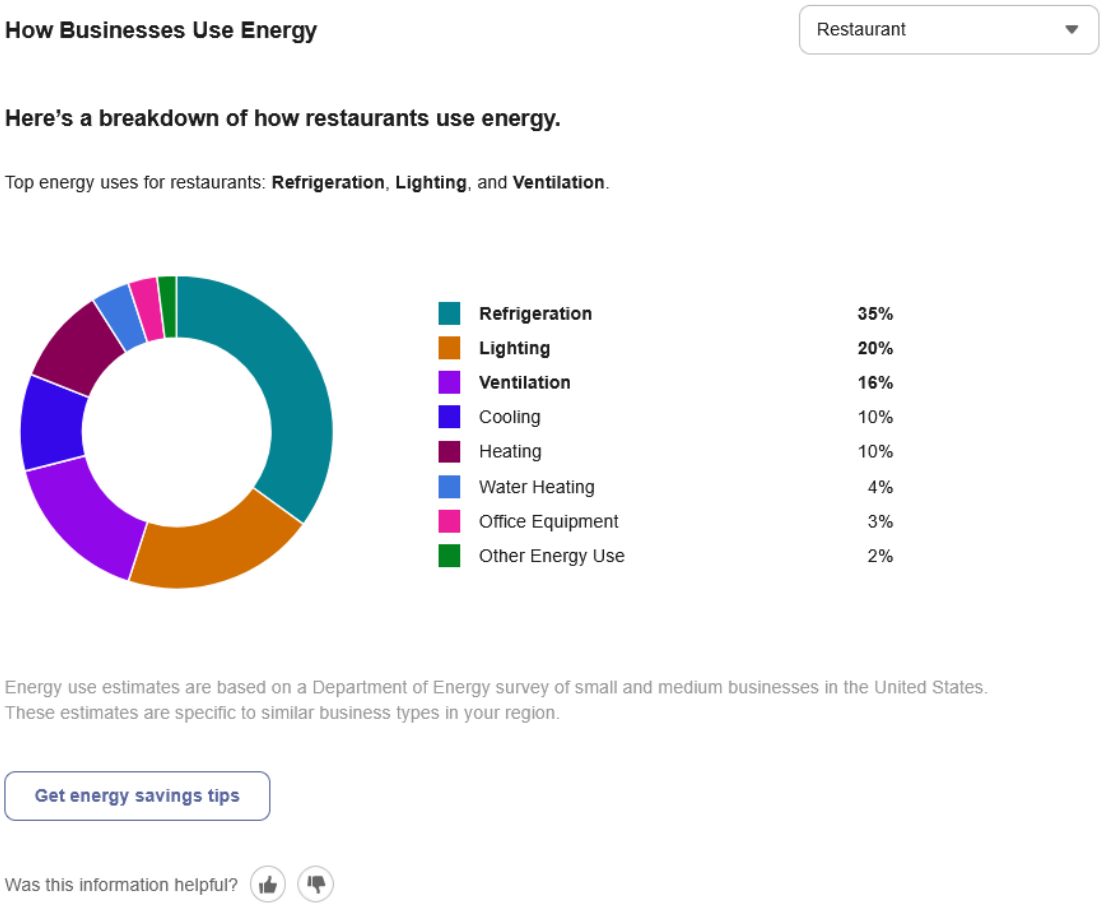

Title: The default title of the widget emphasizes how the feature displays energy consumption broken down into specific end-use categories.

Business Type Selector: This menu allows business customers to select a business type that best represents their primary activity.

Note: Business customers currently cannot specify or correct their business type if it does not appear in the menu. In such cases, they must choose another category that most closely matches their primary activity.

Disaggregation: After a customer selects a business type, an insight statement is shown and the pie chart is broken down into color-coded energy usage categories. The categories are expressed in percentages, and are arranged by the most to the least amount of usage. Each percentage value represents the estimated annual consumption of energy in that category by similar buildings in the same climate region. The climate regions used are based on definitions from the U.S. Energy Information Administration.

Usage Category	Description
Cooking	The energy impact of cooking devices (ovens, stoves, and so on) in a building.
Cooling	The energy impact of how a building is cooled.
Heating	The energy impact of how a building is heated.
Lighting	The energy impact of lighting. This category accounts for devices like energy efficient bulbs as well as indoor and outdoor lights.

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Usage Category	Description
Office Equipment	The energy impact of office equipment, such as computers, printers, and other common office devices.
Other Energy Use	The energy impact of all other devices in a building that do not fall into a clear category.
Refrigeration	The energy impact of refrigeration.
Ventilation	The energy impact of ventilation systems.
Water Heating	The energy impact of hot water heating.

Disclaimer: A disclaimer appears below the graphic saying that the percentages shown are annual averages.

Call-to-Action: A button appears below the disclaimer inviting customers to learn about more ways to save energy.

Feedback Prompt: Beneath the explanation is a set of buttons allowing customers to provide feedback about the usefulness of the feature. See Customer Feedback for details.

Near Real Time Usage

The Near Real-Time Usage widget displays unvalidated electric interval usage data for customers with AMI (Advanced Metering Infrastructure) meters. The data for this widget is delivered through an API built in partnership between the utility and Oracle Utilities Opower, and is intended to provide users with energy usage data and trends that are nearly current, as opposed to delayed or batch-processed data.

Requirements

Utility Requirements

- Utilities must coordinate with Oracle Utilities Opower to develop an API endpoint that supplies near real-time AMI interval data at the service point level. Oracle Utilities Opower will provide a YAML specification for the API.
- The API must provide interval data that is updated in near real-time, allowing end users to see the most current usage data available. The data should be unvalidated and available for direct, on-demand retrieval by the widget, with no local data storage on the widget side.
- Utilities must provide access to the API endpoint through an application ID and application key (sometimes called API key and API secret). These credentials are used to verify and establish a secure connection for data exchange.
- Utilities must be able to maintain and update their API as data standards evolve, and to participate in ongoing validation or troubleshooting as new integrations are introduced.

Customer Requirements

Category	Description
Billing Frequency	Not applicable. Bill-level information is not shown.
Data Delivery Frequency	Not applicable. The utility will coordinate with Oracle Utilities Opower to develop an API through which usage data can be retrieved on demand.

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Category	Description
Data Requirements	Subdaily AMI usage data must be made available through the API. Reads at 60-minute, 30-minute, 15-minute, and 5-minute resolutions are supported. If five-minute reads are supplied, they are aggregated to 15 minutes and displayed as 15-minute intervals. Customer and account identification data is required, including support for unique account and service point IDs, to securely and accurately associate customers' data with their login. Your Delivery Team will work with you to understand the identification data that is required.
Data History	Subdaily usage data from the last 24-48 hours is required.
Data Coverage	The widget shows data for each read that is available. A blank space is shown for any missing reads. The bar graph displays as long as there is one read available. If there are no reads available in the past 24 hours, the widget displays an error message.
Supported Fuels	Electricity.

Limitations

The widget supports the display of net energy use data for customers with solar technology. However, it does not support the display of data for customers who have multi-register meters rather than single-register meters. (Multi-register meters provide more details within an interval, such as the amount of energy that goes from the grid to the house or from the house to the grid due to solar power.)

User Experience

The Near Real-Time Usage widget displays AMI electricity usage for customers in the form of a bar graph, showing intervals of energy use for a service point at a premise from the past 24 hours. Compared to the Energy Use View of the Data Browser, the Near Real-Time Usage widget displays data that has not been validated. (Data in the Data Browser takes longer to display since it must be validated and loaded.)

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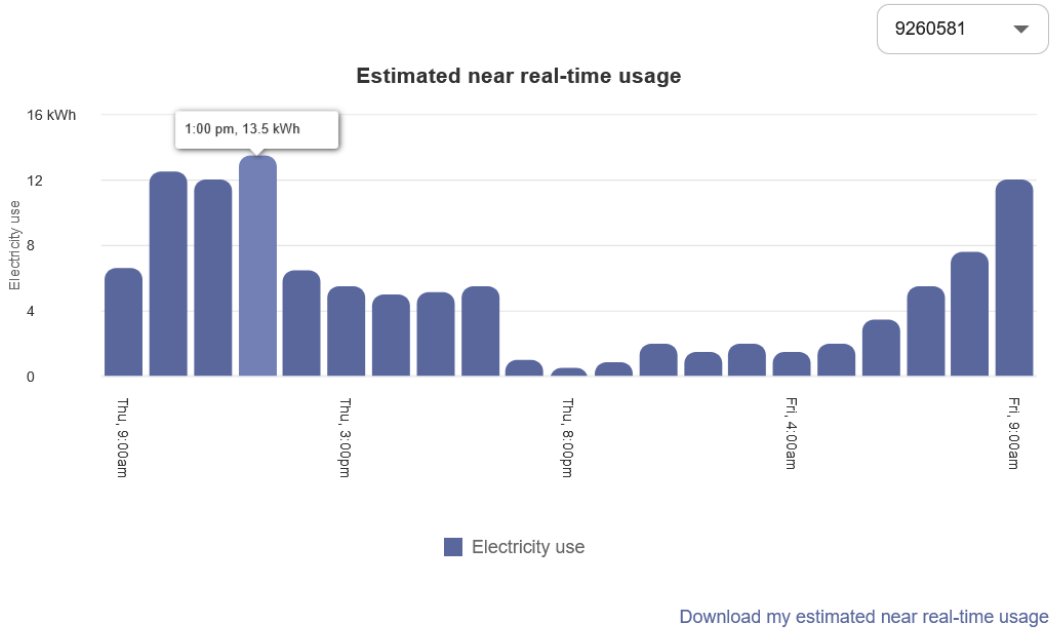

Title: The title emphasizes that the data is estimated and near real-time to help customers understand how the data differs from what is displayed in the standard views of the Data Browser.

Meter ID: If a customer has a service point with two or more meters, then a drop-down list is displayed above the graph allowing customers to choose a meter ID and view data related to it. If a customer only has one meter, then only one meter ID is displayed above the bar graph.

Bar Chart: The bar graph uses a vertical axis (Y-axis) to show the usage intervals, and a horizontal axis (X-axis) to show the time period. The data is visualized in intervals for the current time, minus 24 hours. For example, if a customer logs in at 3 p.m., the widget will show data going back 24 hours to 3 p.m. from the previous day. Only data from the past 24 hours is shown. Customers cannot view historical data beyond this time period.

Tooltips: When a customer hovers over one of the interval bars, a tooltip displays the time of day and energy usage amount for that interval.

Download: Customers can download a CSV file containing usage data for the 24-hour period. The data in the downloaded file matches what is viewed in the widget. It only includes columns specifying the start time, end time, usage value, and unit of the customer's energy usage.

User Experience Variations

Solar Data and Net Energy Display

If a customer has solar technology and net negative energy use, then the bar graph displays green bars for each interval when the customer's home produces more energy than it consumed. The tooltip in this case displays a negative usage value, and the downloaded file shows negative usage values as well.

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Next Best Action

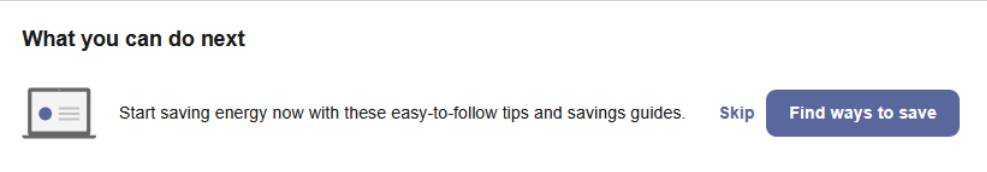
The Next Best Action widget provides short, actionable tips and promotions for business customers. The tips are displayed as mobile-responsive web banners containing information about valuable solutions and helpful tools for managing energy use and costs.

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 business 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 customers focused on actionable steps for their business.

Icon and Message: The banner includes a visual icon and messaging to provide additional information on the action that is being recommended for the business.

Skip Button: Customers can select to skip the action listed. This displays the next available next best action banner. If the customer skips through all banners, the customer is shown the first banner again.

Call to Action Button: A button containing an applicable message or phrase redirects the business customer to valuable opportunities, solutions, or tools to complete the suggested action.

Portfolio View

The Portfolio View allows business customers to see aggregated energy use and cost information across multiple premises. Business customers can use this information to quickly determine if any of their premises need attention.

Requirements

Utility Requirements

Same as listed in Data Browser.

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Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Monthly, bi-monthly, and quarterly.
Data Requirements	**Billing Data**: Customers must have a minimum of one historical bill to see billing and usage amounts. **Interval Data**: Interval data is required in order to support downloads of daily interval data over a specified range of days. **Premise Data**: Premise data (address and premises ID) is required.
Data History	Billing data from the previous year's bill period is required to determine year-over-year changes in billing information. If there is not enough historical data for the comparison, then the **Change from last year** column will be blank.
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.) If there is not enough data for the comparison, then the **Change from last year** column will be blank.
Supported Fuels	Gas and electricity.

Limitations

Embedded Widget Limitations: If the Portfolio View is implemented as an embedded widget, the **Cost per Sq. Ft.** column will be displayed, but its links will be disabled. Additionally, the **View Details** column will be hidden so that its links cannot be clicked. This is because the embedded widget is separate from the utility-hosted account selector. This means that even though the links in the **Cost per Sq. Ft.** and **View Details** columns can redirect to the proper locations, the correct billing account may not be selected since the utility-hosted account selector will override whatever billing account selection was made in the Portfolio View table.

Support Customer Types: The Portfolio view is only available for non-residential customers. If a user has access to both residential and non-residential accounts, the residential accounts will be filtered out from the Portfolio view, and only non-residential accounts will be displayed.

User Experience

The Portfolio View lets business customers view aggregated information about all of their premises in a single list. The list has two tabs or views: Energy Costs and Energy Use. Within each tab, there is a summary of insights, list of premises details, and a download button. Each tab also displays a search bar if there are 10 or more premises in the list.

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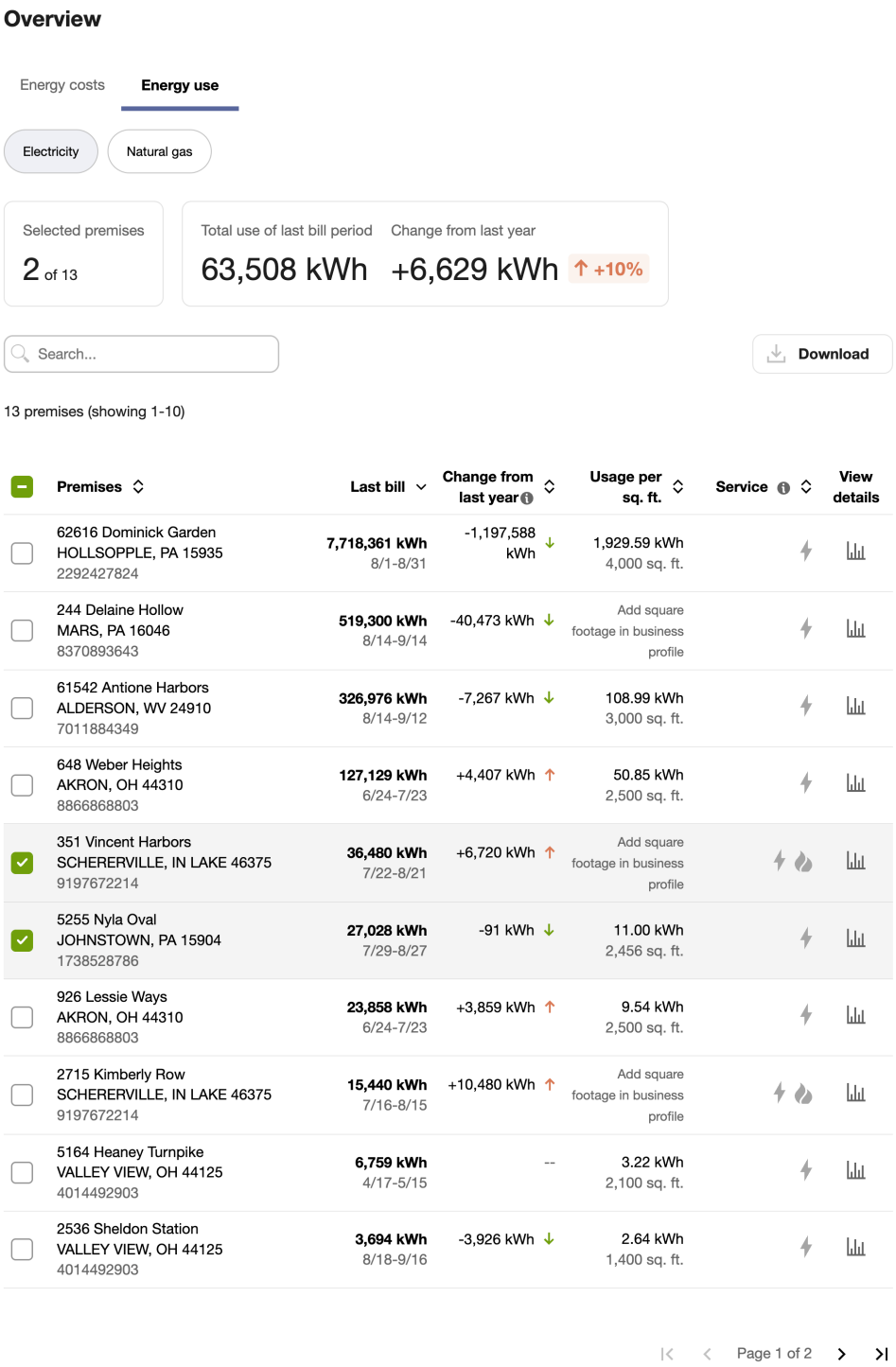

Selectors

A selector at the top of the widget allows customers to choose between two tabs or views of information: Energy Costs and Energy Use. These tabs display either cost or usage data in the summary of insights and the list of premises. For dual fuel customers, there are also tabs for switching between gas and electricity bills.

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Summary Insights

The Summary Insights module displays when a business customer has at least two premises. It is hidden if there is only one premises in the list. The data in the module depends on whether the Energy Costs or Energy Use tab is selected. When Energy Costs is selected, the insights reflect cost data. When Energy Use is selected, the insights reflect usage data. Three insights are shown in the module:

- **Total Number of Premises**: A sum of all the premises in the table. If one or more premises are selected, this field changes to indicate how many premises have been selected.
- **Total Cost or Use of Last Bill Period**: A sum of all bill or usage amounts across all premises. If one or more premises are selected, this number reflects the total billing or usage amount of selected premises.
- **Change from Last Year**: A number showing the difference between the current bill period and the same bill period from the previous year. A color-coded percentage tag is shown to the right of the number, where red indicates an increase and green indicates a decrease.

If necessary, the insights can stack vertically to accommodate smaller screen sizes or the width of the content inside each insight (such as in the case of high energy usage or costs resulting in long numbers).

Search Bar

If there are 10 or more premises in the Portfolio View, a search bar displays to allow business customers to run a real-time search and filter of data. For example, a customer may want to search by a word or number to find a specific premises. When a text or numeric value is entered into the search bar, the table list filters dynamically to display rows containing matching information.

The search looks only in the Premise column, which contains premises addresses and billing account numbers. A message appears below the search to indicate any matches.

Note: If a customer selects any rows in the search results list and then clears the search field, the selected rows will remain selected. One or more of the selections might disappear to another page if there are two or more pages of premises. In this case, a customer can use the navigation controls below the table to move between pages and find the selected premises.

Table List

The table list presents rows of information for each premise. Each row represents a unique premises and billing account pair. The premises is the physical location where energy service is supplied.

By default, the rows are sorted by the **Last bill** column in descending order. A checkbox at the top of the table allows business customers to select all rows if necessary. When there are more than 10 premises to display, navigation controls appear at the bottom of the list to split up the data.

Premise: The address of the premises. The premises is the physical location where energy service is supplied. Below the address, the billing account number is displayed.

Last Bill: The last bill's total charge or usage amount for the premises, followed by the date span of the bill. The value displayed represents the sum of usage or cost for all service agreements associated with the premises.

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Change from Last Year: The amount of difference in cost or energy usage between the last bill for the premises and the same bill period from the previous year. A color-coded icon appears in this column to indicate if the change was an increase or decrease.

Cost or Usage Per Square Foot: The cost or usage of the bill per square foot. This is calculated by dividing the bill or total usage by the known square footage of the premises. If the square footage is not known, a message is displayed to prompt business customers to enter the information in their Business Profile.

Service: An icon to indicate whether a specific premises receives gas, electricity, or both.

View Details: A link to Data Browser - Energy Costs view of the selected premises. If the Energy Use tab is selected at the top of the page, then the link redirects to the Data Browser - Energy Use view of the selected premises.

Download

A download button appears above the table list of premises to allow business customers to export data about their premises to a CSV file. Clicking the download button displays a set of options which vary slightly depending on how many premises the customer selected from the list. For dual fuel customers, the downloaded data file contains data about each of the business customer's fuel types.

Premise Selection Options: These options let customers choose whether to download data for selected premises or all premises. (These options only display if one or more premises have been selected.) If the business customer selects one premises, then only one file for each available fuel type will be downloaded for that premises. If multiple premises are selected, then one or multiple files may be downloaded for each fuel type depending on how the customer chooses to group the data.

Data Grouping Options: These options let business customers choose whether to group all data together in a single place, or to separate the data by premises. If the data is separated, then one CSV file for each premises and fuel type is downloaded. If the data is grouped, then one file for each fuel type is downloaded regardless of the number of premises.

Date Range Options: These options let customers choose whether to download all historical billing totals, or to download interval data by a range of days. If the historical bill totals option is selected, then the downloaded file includes usage as well as cost information. If the range of days option is selected, then the downloaded file includes usage information.

Downloaded File Name

If a business customer has a single premises, then a zip file containing a CSV for each available fuel type is downloaded for that premises. If a business customer has multiple premises, then the following file download behavior may occur:

- A single zip file containing a CSV file per fuel type and per premises is downloaded if the business customer chooses to separate the information.
- A single zip file containing a CSV file for per fuel type is downloaded if the business customer chooses to group the information.

The zip file name includes the utility code, fuel type (electricity or natural gas), business customer ID (displayed as an alphanumeric string), either the premises address or the term "Grouped", and the data type (such as billing data or daily usage interval data).

The CSV file name will contain the term "Grouped" if the business customer has multiple premises and chose to combine the data from each premises together in the downloaded file.

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In this case, the term “Grouped” will replace the premises address. In all other cases, the downloaded CSV file will contain the premises address.

Downloaded File Format

The contents of the downloaded CSV files vary depending on the **Date Range** selected by the customer (that is, whether the business customer selects to download all historical bill totals or by a range of days).

Format for All Historical Bill Totals

If the business customer selects to download all historical bill totals, then the downloaded file includes the columns shown in the example table below.

TYPE	ACCOUNT	ADDRESS	SERVICE AGREEMENT	SERVICE POINT	START DATE	END DATE	USAGE (kWh)	COST	NOTES
Electric billing	<Billing account number 1>	<Address>	<Service Agreement 1>	<Service Point ID>	10/23/24	11/22/24	1,211,556.00	$29,966.43	
Electric billing	<Billing account number 1>	<Address>	<Service Agreement 1>	<Service Point ID>	11/23/24	12/24/24	1,199,522.00	$28,954.31	
Electric billing	<Billing account number 2>	<Address>	<Service Agreement 2>	Multiple	10/19/24	11/20/24	9,236,700.00	$460,010.86	
Electric billing	<Billing account number 2>	<Address>	<Service Agreement 2>	Multiple	11/21/24	12/22/24	8,777,213.00	$450,716.34	

Additional notes about the format and contents:

- When a business customer exports billing data for a service agreement with one service point, the file will contain the service point ID.
- When a business customer exports billing data for a service agreement with multiple service points, the file will indicate there are multiple service points associated with the account but will not list all of the service point IDs. Instead, the value will say "Multiple".
- If a business customer has multiple service agreements, the data in the CSV file will be grouped by each unique combination of billing account and service agreement, starting with the oldest data and going down to the most recent data.

  For example, in the table above, there are two sets of rows: one for billing account 1 and service agreement 1, and another for billing account 2 and service agreement 2. This represents the fact that there are two unique combinations of an account and service agreement.

Format for Range of Days

If the business customer selects to download a range of days, then the downloaded file includes the columns shown in the example table below.

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Compared to the historical bill totals version above, there is a DATE column for usage intervals within individual days, as well as START TIME and END TIME columns for each interval. Additionally, there is no COST column.

TYPE	ACCOUNT NUMBER	ADDRESS	SERVICE AGREEMENT	SERVICE POINT	DATE	START TIME	END TIME	USAGE (kWh)	NOTES
Electric billing	<Billing account number>	<Address>	<Service Agreement 1>	<Service Point ID>	4/1/2024	0:00	0:59	7.18	
Electric billing	<Billing account number>	<Address>	<Service Agreement 1>	<Service Point ID>	4/1/2024	1:00	1:59	7.56	
Electric billing	<Billing account number>	<Address>	<Service Agreement 1>	<Service Point ID>	4/1/2024	2:00	2:59	7.39	

Summary of File Download Behavior

The table below explains the behavior of the downloaded file depending the number of premises, the data grouping selection, and the date range selection.

Number of Premises	Data Grouping Selection	Date Range Selection	General Behavior
1 premises	Not applicable	All historical bills	Provide 1 file for each available fuel type. • Include usage and cost for each of the service agreements associated with the premises. • File name includes street address.
1 premises	Not applicable	Range of days	Provide 1 file for each available fuel type. • Include usage for each of the service points associated with the premises. • File name includes street address.
2 or more premises	Separate	All historical bills	Provide 1 file per fuel type and per premises. • Include usage and cost for each of the service agreements associated with the premises. • File name includes street address.

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Number of Premises	Data Grouping Selection	Date Range Selection	General Behavior
2 or more premises	Separate	Range of days	Provide 1 file per fuel type and per premises. • Include usage for each of the service points associated with the premises. • File name includes street address.
2 or more premises	Group	All historical bills	Provide 1 file per fuel type with usage and cost data, regardless of number of premises. • Include usage and cost for each of the service agreements across premises. • File name includes the term "Grouped" instead of street address.
2 or more premises	Group	Range of days	Provide 1 file per fuel with usage data only, regardless of number of premises. • Include usage for each of the service points across premises. • File name includes the term "Grouped" instead of street address.
0 premises	Not applicable	Not applicable	Download functionality is disabled.

User Experience Variations

Mobile Experience

In the mobile experience of the Portfolio View, customers see the following differences:

- The content in the Summary Insights module stacks vertically to accommodate the shorter screen width.
- The table-list of premises shrinks to show two columns: Premise and Last Bill.
- The option to download data is hidden.
- Selecting a row from the table-list redirects the user to the Data Browser page for that single premises.

Limited Number of Premises

If there are nine premises or less in the Portfolio View, the Summary Insights module remains, but the search bar and pagination are hidden.

If there is only one premises, the search bar, Summary Insights module, and pagination are hidden to keep the user experience clean and simple.

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Ways to Save

The Ways to Save widget presents a selection of energy saving tips for businesses. A business customer can browse through the available tips to view detailed information on how to save energy.

Requirements

Utility Requirements

Same as listed in Data Browser.

Customer Requirements

Category	Description
Billing Frequency	Monthly, bi-monthly, and quarterly.
Data Delivery Frequency	Not applicable.
Data Requirements	Business classification data is required. This data can be sent through the Account data specification or the Legacy Billing data specification. Your Delivery Team will work with you to identify the required fields.
Data History	Not applicable.
Data Coverage	Not applicable.
Supported Fuels	Electricity, gas, and dual fuel.

User Experience

The Ways to Save widget presents a selection of energy tips that businesses can follow to lower their usage and save money. These tips are selected based on a business customer's attributes and how likely the customer is to follow the tip. Tips are organized into tip guides that provide tips based on factors such as fuel type 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 businesses with relevant cost-saving recommendations. A tip guide is only shown if tips are included in the guide after tip filtering is applied. Business customers can view applicable tips by browsing the provided tips guides or by selecting filters to identify all available tips that meet the filter criteria.

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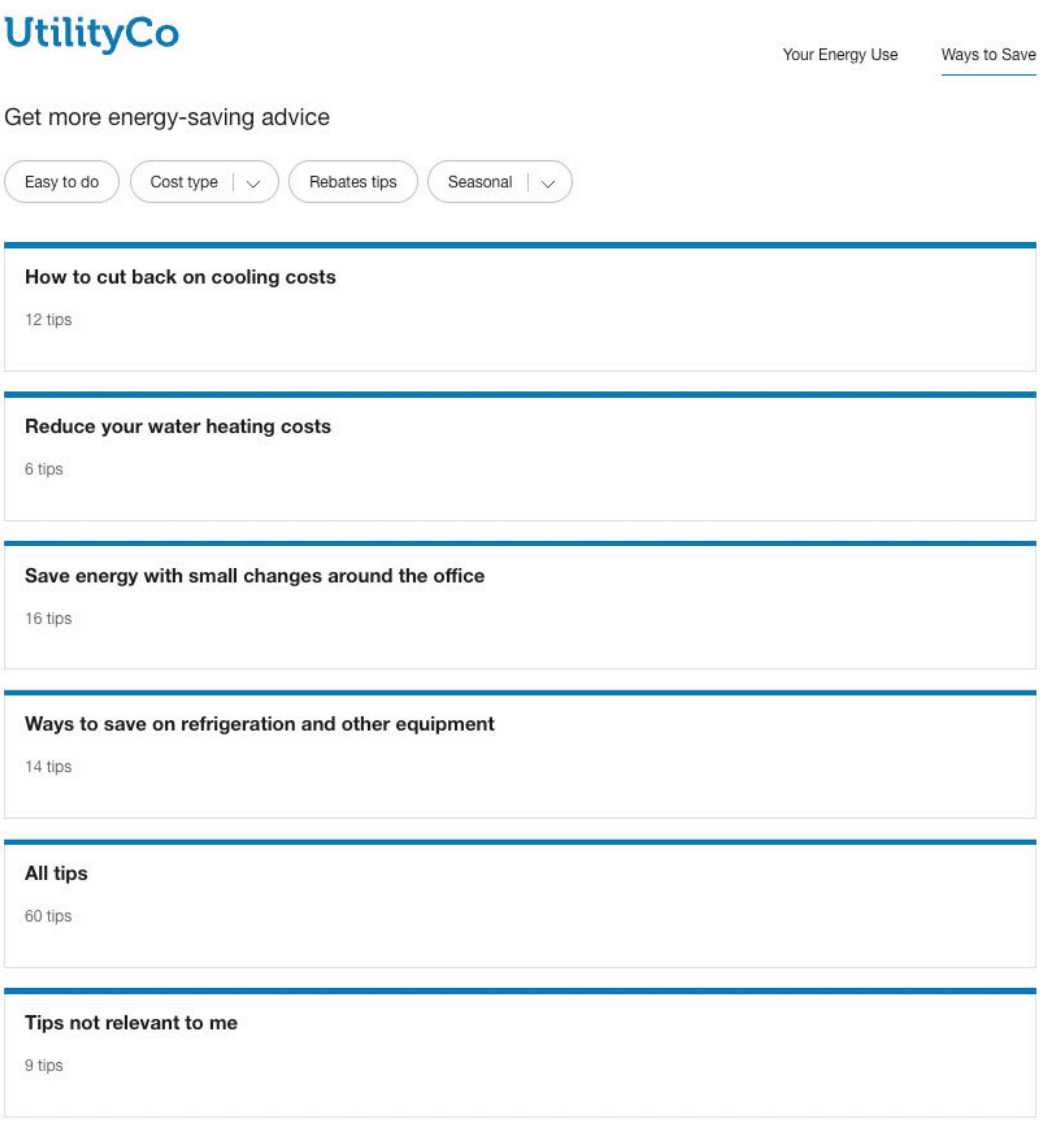

Order of Tip Guides: The default order is to show a promoted seasonal guide first (if applicable), followed by a list of guides defined during the setup and configuration process.

List of Tips in a Guide: Business 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 number of business customers who have completed the tip.

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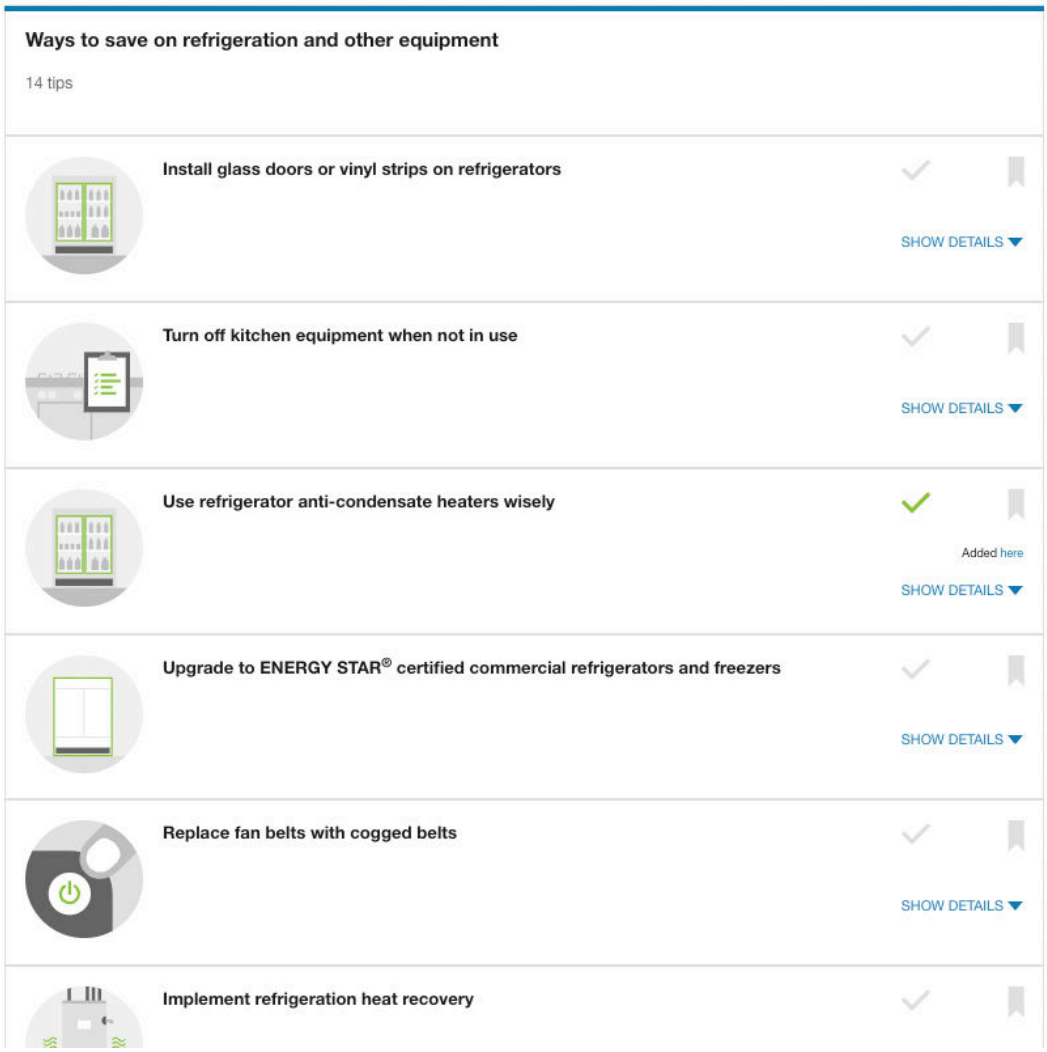

Business customers can select a tip in the list to view additional details about the tip, or mark a tip with an applicable tip action.

Tip Details

Business 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 information.

- The tip title is displayed at the top, along with the tip illustration.
- A list of financial incentives related to the tip, such as rebates 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.
- Links to utility programs and incentives, if applicable.
- Why a business 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.

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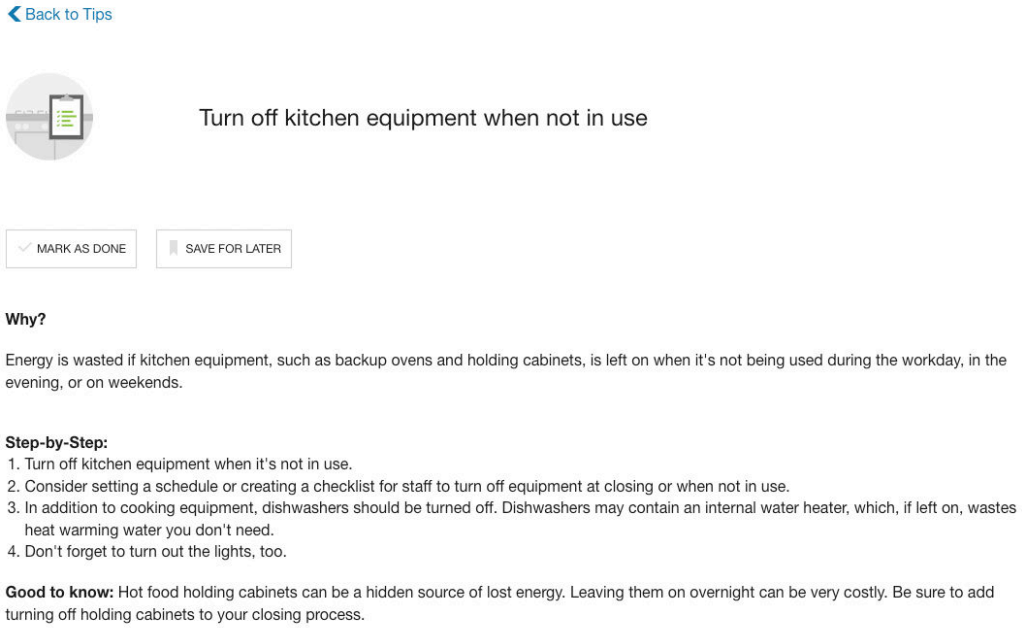
- Business customers can save a tip to a list of tips to review later, or mark a tip as something they have completed.



Tip Filtering

Tips are automatically filtered for business customers based on their known characteristics. These characteristics may include the building type, the heating system and type (for electric systems), and the type of air conditioning. Business customers can view applicable tips by browsing the provided tips guides or by selecting filters to identify all available tips that meet the filter criteria.

Tip Actions

Tip actions allow business 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 businesses that have completed the tip is displayed to encourage the customer to also complete the tip.

User Experience Variations

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 widgets are then reloaded with data for the specified account.

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If a customer has one service point for electricity and one for gas associated with their account, then 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.

Welcome

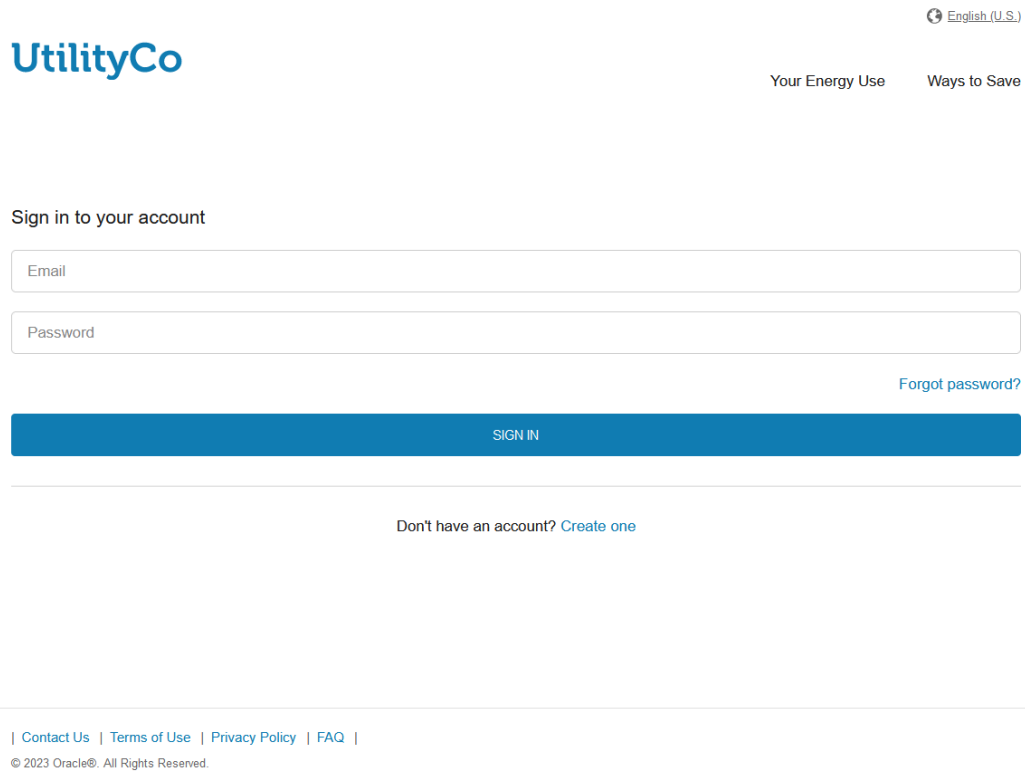
A welcome experience is displayed for business customers who have not signed in yet. Customers can sign into their account, create a new account, or access tips on how to save energy.

Requirements

The Welcome page experience is available for utilities who are using the standalone web version of the Business Customer Engagement Digital Self Service - Energy Management cloud service. It is not used for utilities that use embeddable widgets. Contact your Delivery Team if you have questions about whether this feature applies to your situation.

User Experience

Sign In or Create Account: Business customers can sign into their account with their email address and password. There is also a link to recover a forgotten password.



There is a link to create an account if they have not already done so. This leads to a page where customers can go through the account creation process.

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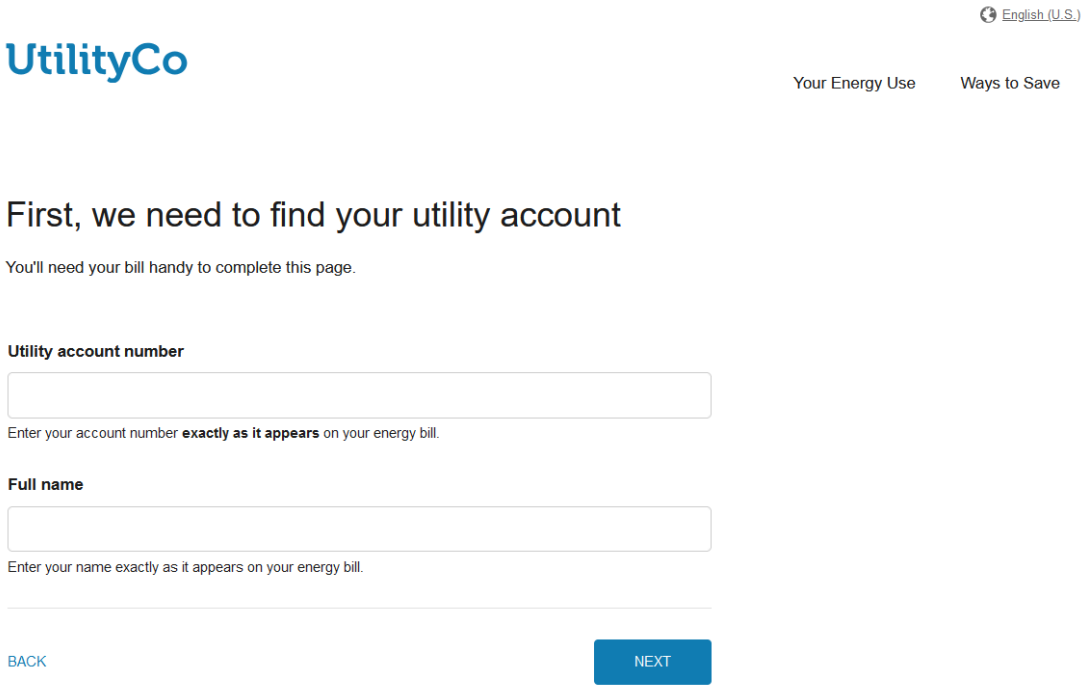

Language Selector: A link at the top of the page allows the customer to select a preferred language for the content in the interface. Only languages that have been localized for the utility will be available.

Your Energy Use Menu: The **Your Energy Use** menu includes links to the Data Browser, Bill Comparison, or other widgets. Business customers are prompted to sign in before they can access these features.

Ways to Save Menu: This menu includes a link to the Ways to Save widget.

Providing Customer Support

Customer Service Representatives can do the following in the Oracle Utilities Opower Customer Service Interface (CSI) to assist with customer inquiries related to energy management:

- Review personalized energy data, insights, and recommendations on how to save energy
- Manage a customer's widgets and insights preferences
- Access a customer's Oracle Utilities web portal account and view and update their energy management settings

See Supporting Business Customer Engagement for details.

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Customer Service Interface - Program Management

The Business Customer Engagement 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.

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Contact 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.

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