

# SylSmart Energy

## User Manual

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Welcome to SylSmart Energy

As we face one of the biggest challenges our society has ever faced, the need for all our energy based systems must be made more efficient and sustainable and drive towards decarbonising our buildings. Understanding is key to making changes, we believe that SylSmart Energy can play an important role in enabling businesses to succeed in their sustainability strategies.

SylSmart Energy is an advanced energy analytics platform that empowers businesses to take action regarding their energy data through actionable insights.

Typically our customers are interested in quantifying & verifying energy savings achieved from energy efficiency upgrades such as lighting, understanding the carbon profile of their energy use & meeting their energy reporting & sustainability initiatives and obligations.

SylSmart Energy is designed to make it easy for users of any type and scale to gain insights ranging from high level summary information to detailed circuit level information.

Some typical use cases activities that customers perform include baseload reconciliation, benchmarking existing use across buildings, quantifying energy usage & costs of specific loads, budgeting and driving behavioural change.

## 2. Glossary

<b>Term</b>	<b>Meaning</b>
Customer	An individual organisation or business.
Building	A physical building (or dwelling).
Device	A physical device installed within a building.
Circuit	A individual data channel measured by a device.
Virtual Circuit	A data channel that is not directly measured but is calculated by adding or subtracting one or more measured circuits.
Consumption	Energy that is used (or consumed).
Production	Energy that is generated (or produced).
Value	The different quantities or variables relating to energy reported by the platform. Values reported by the platform such as Real Energy (kilowatt hours (kWh)), Energy cost (€ or £), Emissions (kgCO <sub>2</sub> e).
Load	A convenient grouping of circuits (and virtual circuits). For example, there may be several lighting circuits being measured and a Load lets you sum them all together.
Supplies	The equivalent of a Load but for production circuits.
Tariff	Cost you pay your supplier per unit of energy consumed. This could be different at different times of the day.

## 3. Accessing SylSmart Energy

### Before you log in

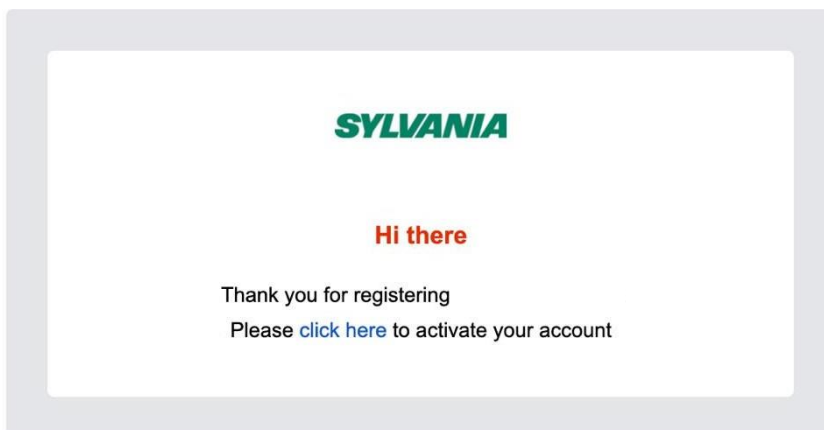
Your SylSmart Energy dashboard will be preconfigured up for you by a member of the SylSmart Energy engineering team.

The items preconfigured for you include:

- Customer set up
- Building set up
- Device & Circuit set up
- Load set up
- Tariff set up
- Schematic upload

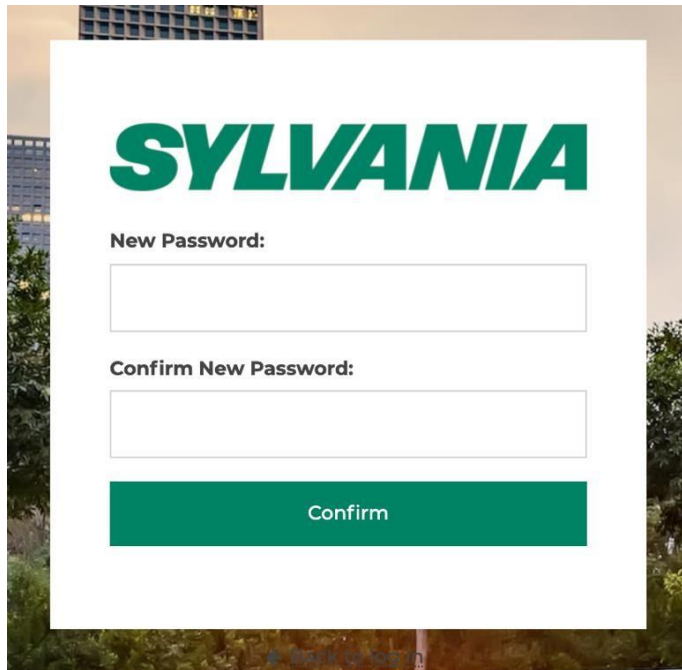
### Logging in for the first time

You will receive a personalised invitation to join the SylSmart Energy platform.

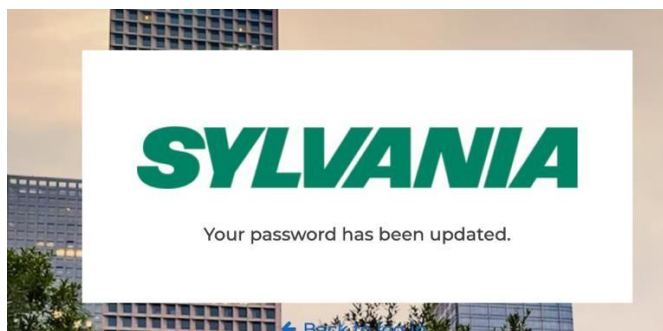


How to:

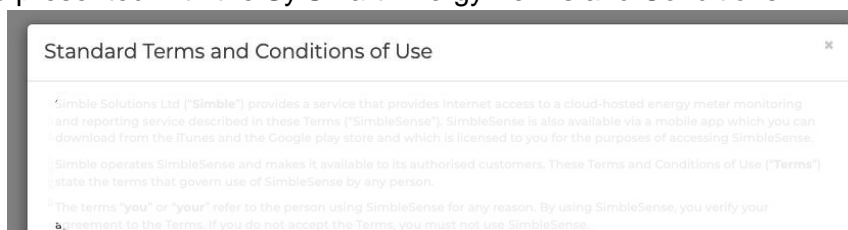
1. Click the blue hyperlink in the invitation e-mail.
2. You will be brought to <https://energy.sylvania-lighting.com/> to set a password.



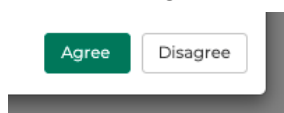
3. Enter the desired password in both the “New Password” and the “Confirm New Password” fields.
4. Click “Confirm”



5. Click “Back to login”
6. Under “Username or email”, enter the email that was invited.
7. Under “Password”, enter the new password that was set.
8. Click “Sign in”
9. You will be presented with the SylSmart Energy Terms and Conditions



10. Scroll to the bottom of the page, ensure to consent to how we use information which can be found in the privacy policy and click “Agree”



You will be brought to the home page of the SylSmart Energy platform.

### Didn't receive or can't find the invitation?

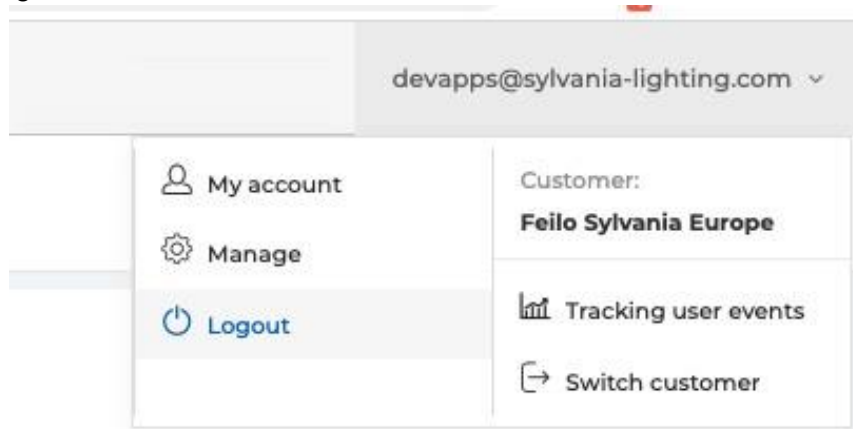
Please get in touch with our team using the details provided in the support section.

## Logging in on further occasions

1. Go to <https://energy.sylvania-lighting.com/>
2. Enter your e-mail address
3. Enter your password
4. Click "Sign in"

## Logging out

1. Click the down arrow beside your e-mail address in the top right corner of the screen
2. Click "Logout"

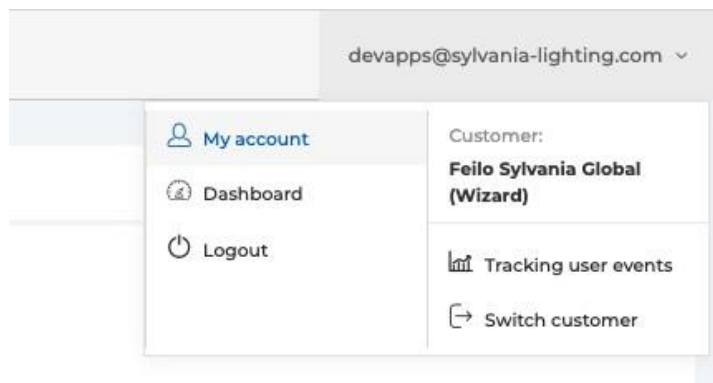


## Changing your password

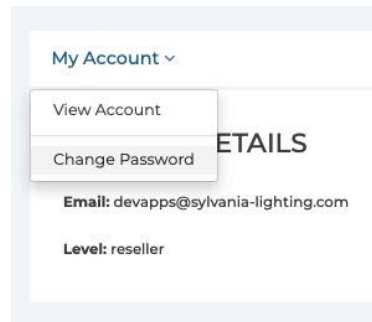
There are two ways you can change your password.

### If you are already logged in

1. Click the down arrow beside your e-mail address in the top right corner of the screen
2. Click “My account”



1. Click “Change Password”



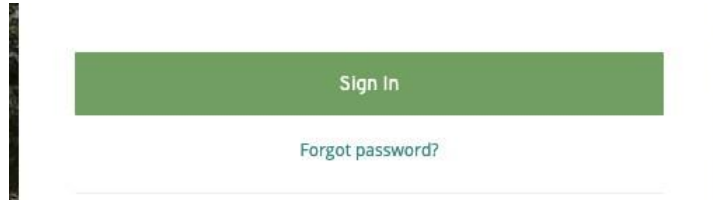
2. In the form that appears, enter your current password under “Current Password”, and the new password you wish to set under “New Password” and “Confirm New Password”.

A screenshot of the 'Change password' form. The form title is 'Change password' and it includes a sub-header 'My Account' with a downward arrow. Below the title, there is a small instruction: 'Use this form to change password. Once changed, your new password will effect next time you login.' The form contains three input fields: 'Current Password', 'New Password', and 'Confirm New Password'. A 'Submit' button is located at the bottom right of the form.

## If you are not already logged in

Your password can be changed via the 'Forgot password?' link below the "Sign in" button on the main log-in page.

1. Click 'Forgot password?' to be taken to the password reset page



2. Enter your e-mail address



3. Click 'Reset Password'
4. Check your e-mail inbox for a link to reset your password.

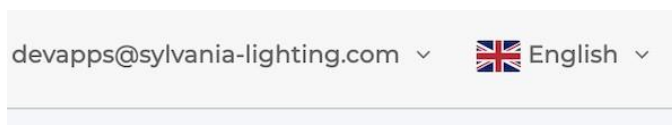
## 4. Using SylSmart Energy

### General Navigation

SylSmart Energy is designed for ease of use for both technical and less technical users.

Each of the tabs on the left menu provides you with a different way to interact with your energy data and different kinds of insights. The purpose of each tab & how to use them to gain maximum value is explained in this manual.

You can update your language settings using the dropdown menu in the top right corner.



The user menu option is accessible by clicking the down arrow next to your e-mail account in the top right corner.

You can log out of SylSmart Energy by clicking the “Log out” button.

If your user account is assigned multiple Customers, you can switch between them by clicking the “Switch Customer” button.

SylSmart Energy can also be used on a mobile device through a web browser.

## High Level Summary

The Dashboard & Executive tabs provide powerful high level summary information for those who wish to get quick, accessible insights but perhaps don't have the time to dive into detailed analysis.

## Home page

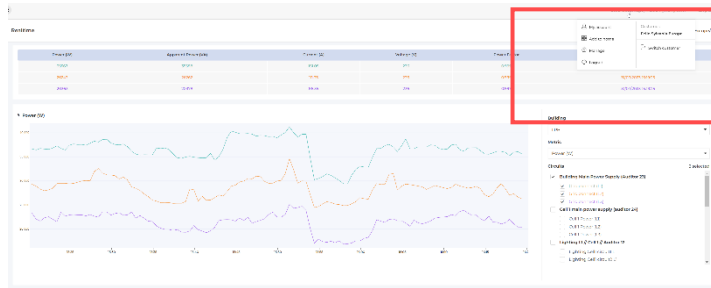
The home page tab enables users to select visualisations from different buildings to be displayed in one section giving you a quick overview of the metrics that matter the most to you.

Visualisations can be selected from:

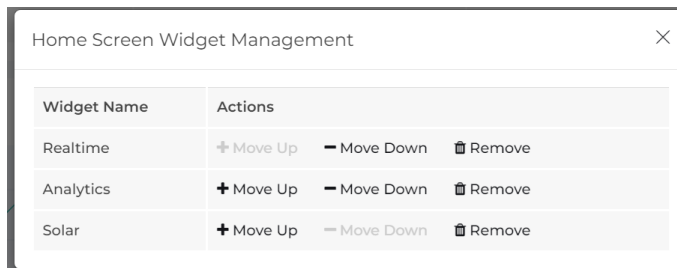
1. Solar
2. Analytics
3. Real time

How to add a visualization to homepage:

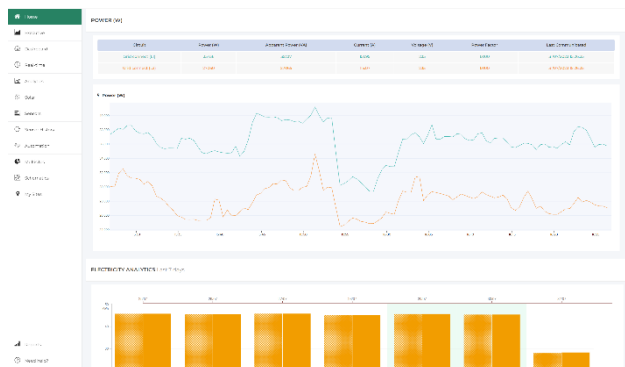
1. Navigate to visualisation you wish to save to home page
2. Select drop down menu from email address as below:



3. Select add to home
4. Adjust position in home page or remove widget using the menu below:



5. Navigate to home page tab to see your favourite views:

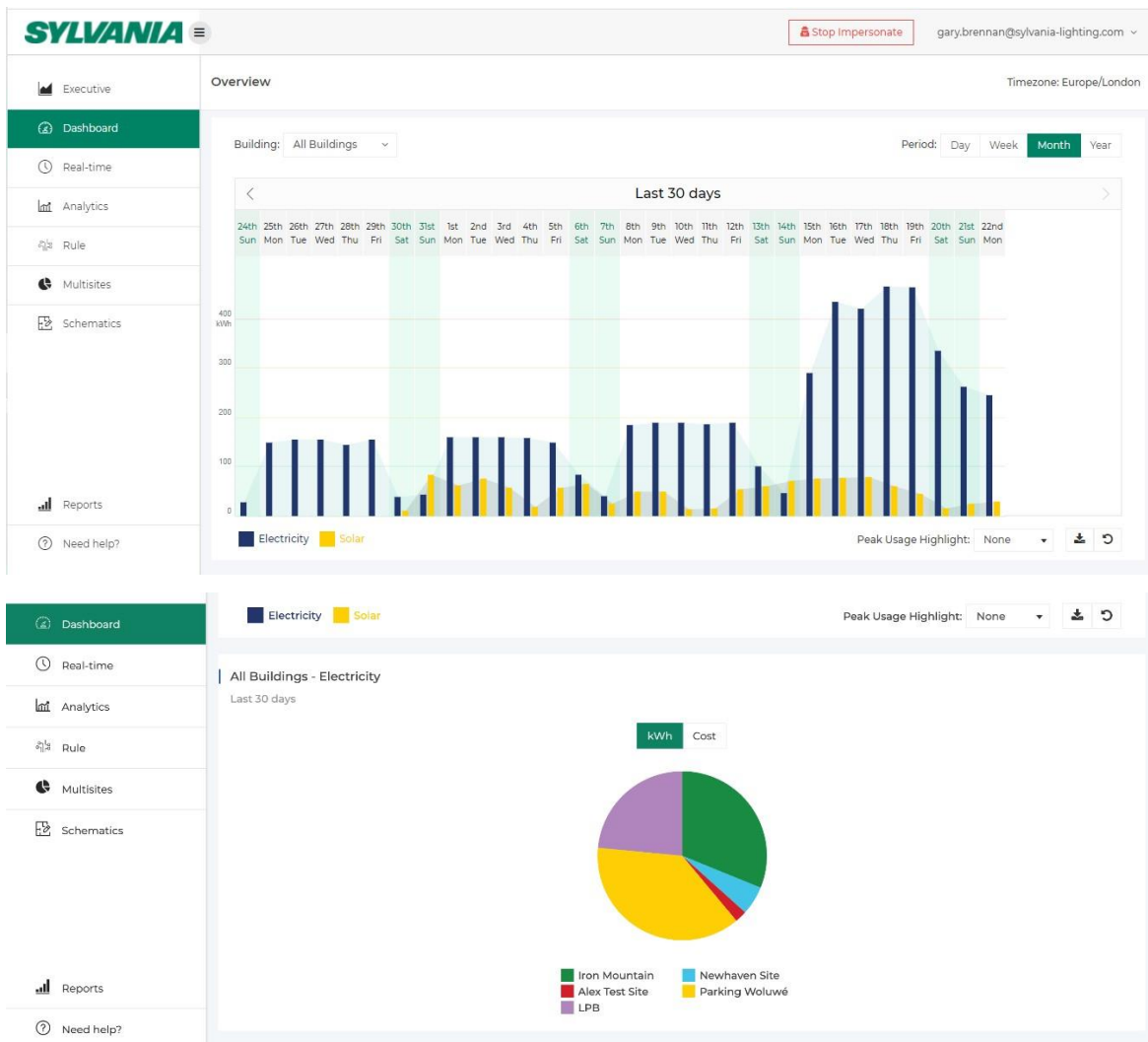


Key limitations:

1. Users can only save one view per tab, for example 1 view of analytics
2. Analytics views will only be for last 7 days

## Dashboard

The Dashboard gives top level summary information on your energy usage in terms of cost, carbon & kilowatt-hours (kWh). Key features include letting you understand at a glance the difference in your energy use between weekdays & weekends, highlight peak energy use and to download your data. All of these insights can be paned to different time periods, and varied in granularity from daily, to weekly to monthly & annual insights with the click of a button.



*Dashboard Tab Showing Powerful insights*

### How to adjust time period of energy data

1. To see energy consumption of a specific day, shown in hourly intervals, select 'Day' in the top right of the page.
2. For consumption over a week with daily intervals, select 'Week'.
3. For consumption over a month with daily intervals, select 'Month'.
4. For consumption over a year with monthly intervals, select 'Year'.

The selected time period applies to both the bar and the pie chart. Weekends are highlighted on the bar chart in SylSmart Energy green.

Navigate in increments of the selected time period using the left and right arrows in the header of the bar chart.

### How to view data for a specific building

For the bar chart:

1. Click 'All Buildings' in top left.
2. Select desired building from drop-down menu.

For the pie chart:

3. 3. Hover mouse cursor over the section of chart that corresponds to desired building (see key below pie chart)


### How to highlight peak energy usage

Click the white box to the right of 'Peak Usage Highlight' and select category from the drop-down menu. Peaks are displayed in shades of red in the time interval headers of the bar chart.


### How to switch between energy, cost and carbon

By hovering over the bar chart, you can see your energy translated into cost and carbon before your eyes. For even more insight, switch the pi chart from kWh to cost to CO2. Insights like these showing how carbon usage varies across buildings can trigger conversations which can really influence a business to go forward with their Net Zero or sustainability journey.

### How to download Dashboard data


Download data for the selected building(s), energy usage category, and time period by clicking the  button. The data will be saved as a .csv file.

How to return to the default Dashboard view

Click the  to return to the default Dashboard view (all buildings and consumption categories selected, over a monthly period).

## Executive

The Executive tab is focused on what has happened recently within a business. Its focus on the last 7 & last 30 days means that if anything changes within your business, it can be spotted and actioned on quickly maximising energy asset performance and savings.

The Executive tab strikes the balance between providing insights at an immediately actionable level without needing to complete a full energy audit. Hide the sidebar or make the page full screen by clicking the 'Maximize' or  button respectively.

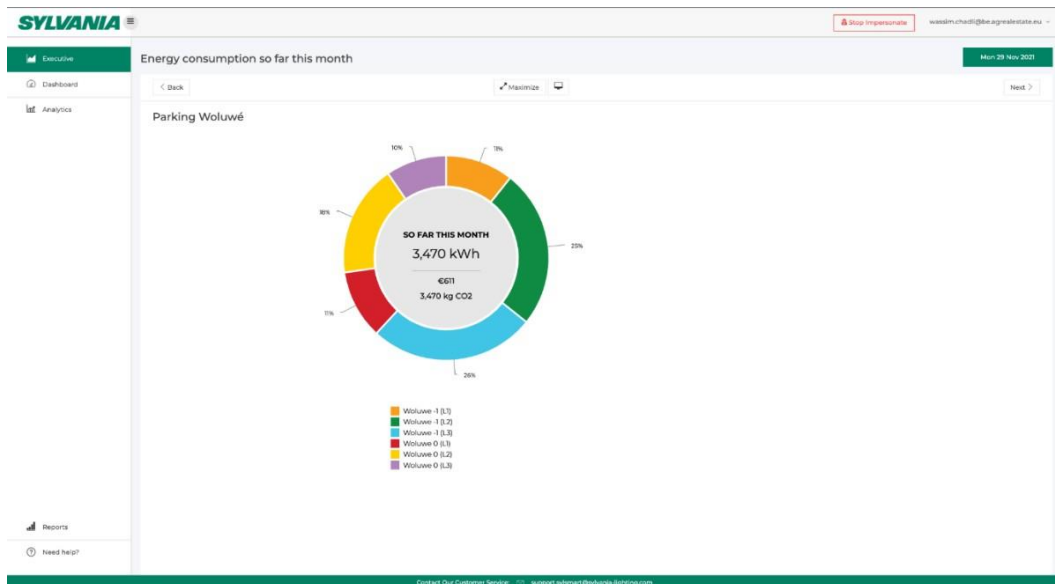


Figure 1: Executive tab view

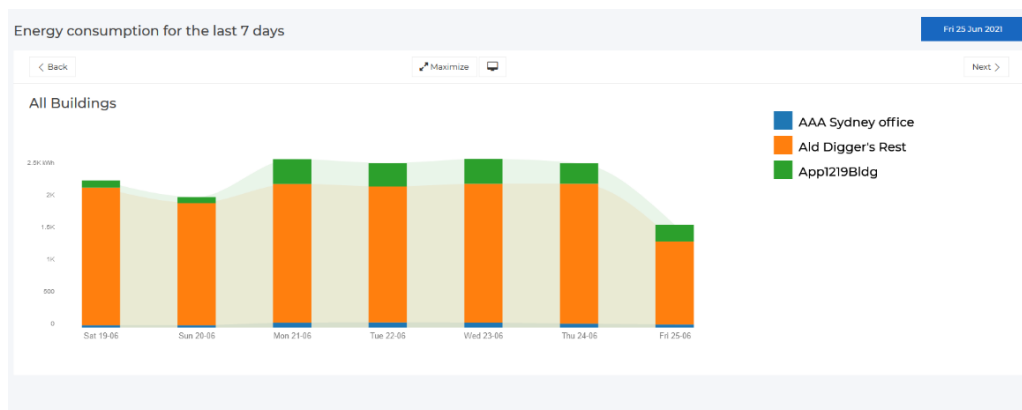


Figure 2: Executive page bar chart

### How to change time period of data displayed

Click back/next to switch between monthly usage for each building (as a pie chart), and usage over the last 7 days.

### How to view consumption data of a specific circuit

Hover your mouse cursor over the pie chart section that corresponds to the desired energy load to see its individual consumption data.

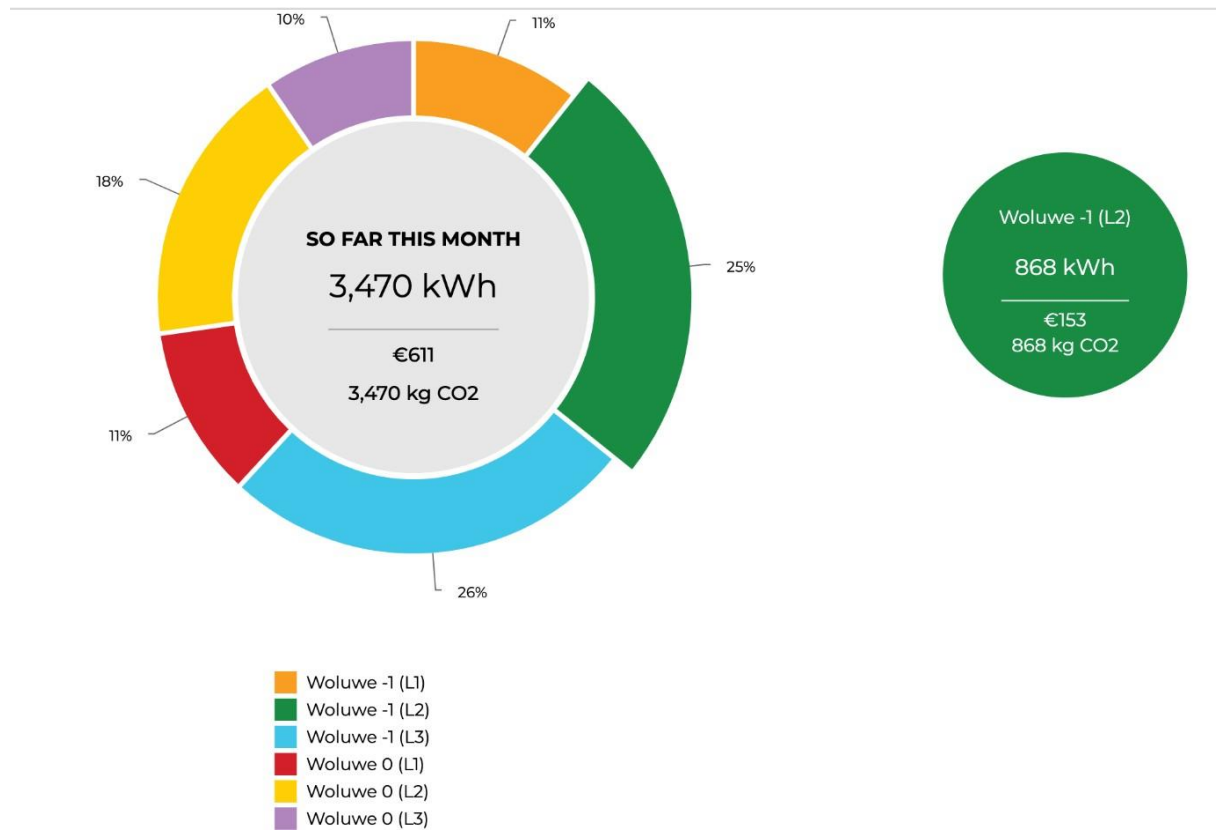
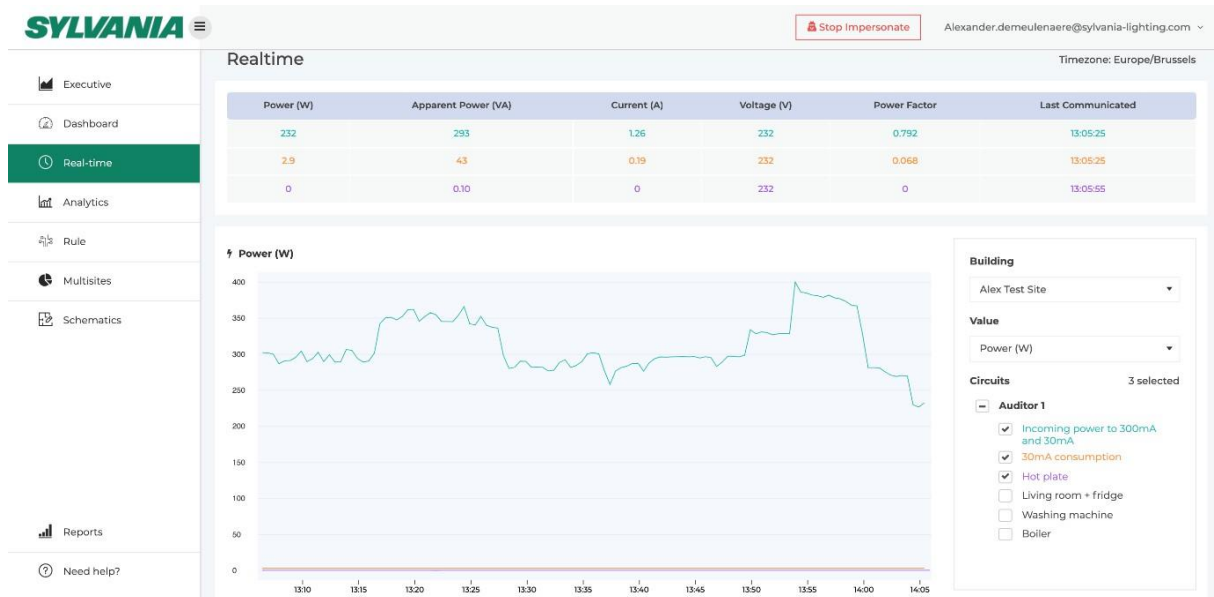


Figure 3: Executive page pie chart detailed view

## Realtime Analysis

The real time tab provides extremely high granularity data at an individual circuit level and what is happening onsite right now. This live updating page provides you with the ability to see before your eyes how the energy profile of your business changes and understand exactly where your energy is going.

Not only that, but this page can indicate to your site engineers & energy managers the performance and electrical signatures of various equipment and assess their performance and electrical characteristics.



*The most granular insights into how your business is using energy right now*



*Figure 4: Real-time data detailed view*

Data for a specific time period can be highlighted by hovering your mouse cursor over the datapoint on the line graph.

### How to view data for a specific building

1. Click 'Building' on the right-hand side of the line diagram
2. Select desired building from drop-down menu.

### How to change the displayed measurement value

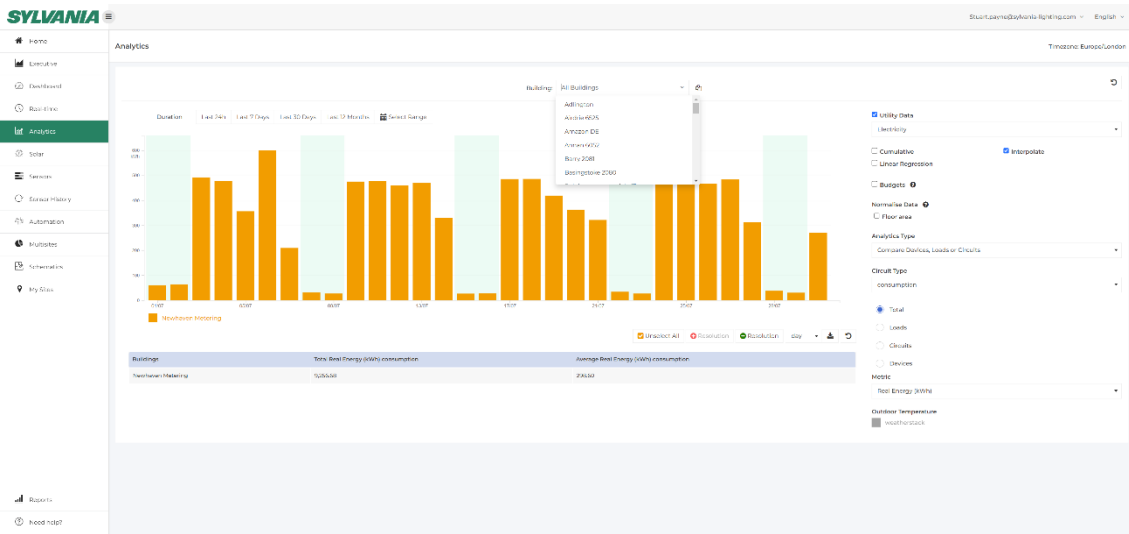
1. Click 'Value' on the right-hand side of the line graph
2. Select desired value from the drop-down menu to view real-time measurements of quantities such as voltage, current, frequency and power factor.

### How to see data for specific circuits

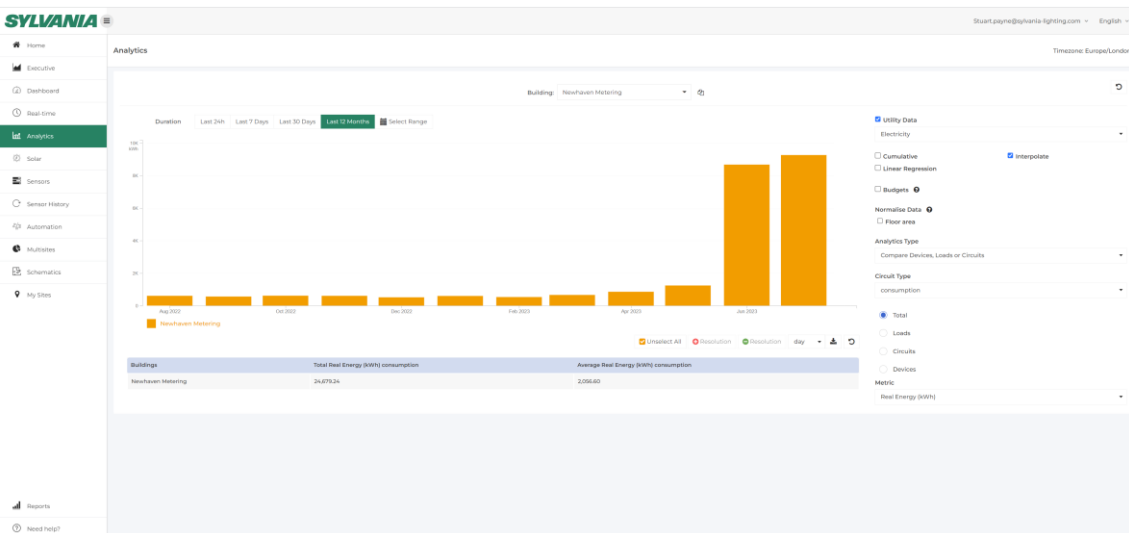
To show a circuit on the line graph, tick the white box adjacent to its name in the 'Circuits' section on the right-hand side by clicking it.

# Analytics

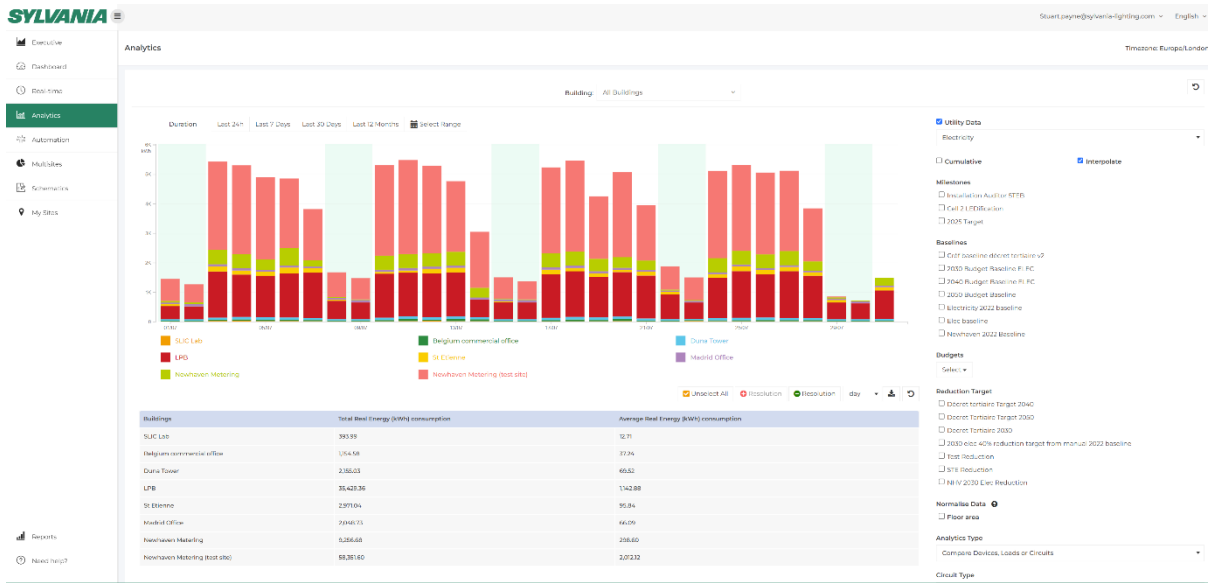
The analytics tab enables users to get an in-depth understanding of their energy consumption and production. It is for serious energy managers who need the most detailed level of analysis to understand the energy profile. The analytics tab enables you & your team to interact with your energy data in totally new, highly user friendly ways. You can switch between extremely granular and detailed circuit level analysis, comparing how your site's energy use has changed from year to year, to being automatically shown savings calculations for energy efficiency upgrades. Here, you can view how your circuits have been conveniently grouped into loads, providing personalised insights that are relevant for your business. The two figures below show the analytics tab, with the total energy values shown for total consumption and production.



Analytics tab—total consumption



Analytics tab—total production



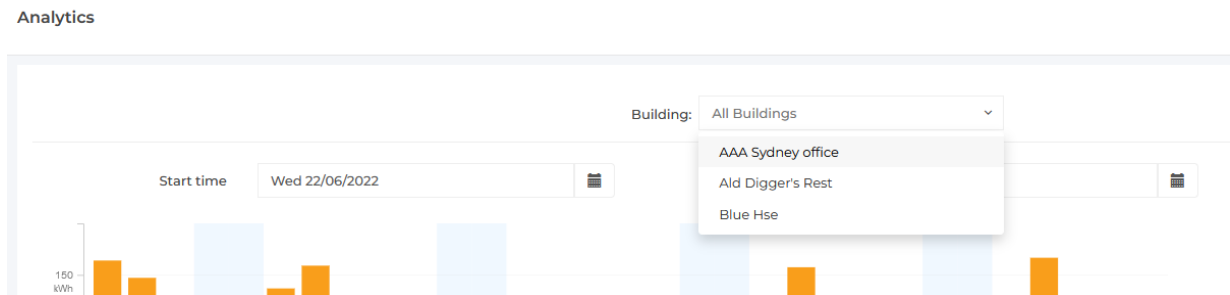
The figure below shows how to view consumption from all buildings:

*Analytics tab—consumption from all buildings*

The following sections outline how to use the various features of the analytics tab.

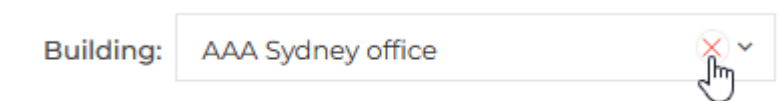
### Building selection

If you have multiple buildings on your account, select the building you would like to view from the dropdown menu at the top of the page, as shown in the figure below. If there are many sites, you can search for a building, or scroll down and select one.



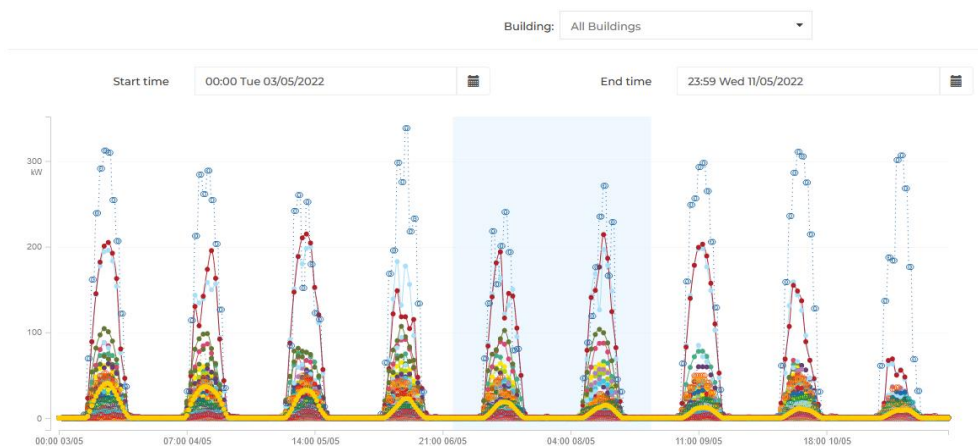
*Selecting a building in the analytics tab*

If you hover over the down arrow of the building dropdown menu, a red cross will appear next to it, as shown in the figure below. If you click on that, all buildings will be shown, as shown in the second figure below. Note that for multisite analysis, see the [Multisites tab](#).



*Clicking on the red cross to get to “All buildings”*

*How to view all buildings at once in the analytics tab*



*A demonstration of "All buildings" being selected*

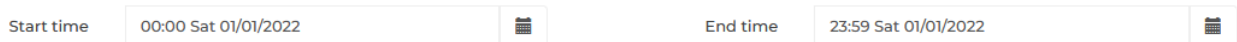
**Time and date selection**

There are 5 different options on offer for duration: Last 24h, Last 7 Days, Last 30 Days, Last 12 months and Select Range.



**How to select a range**

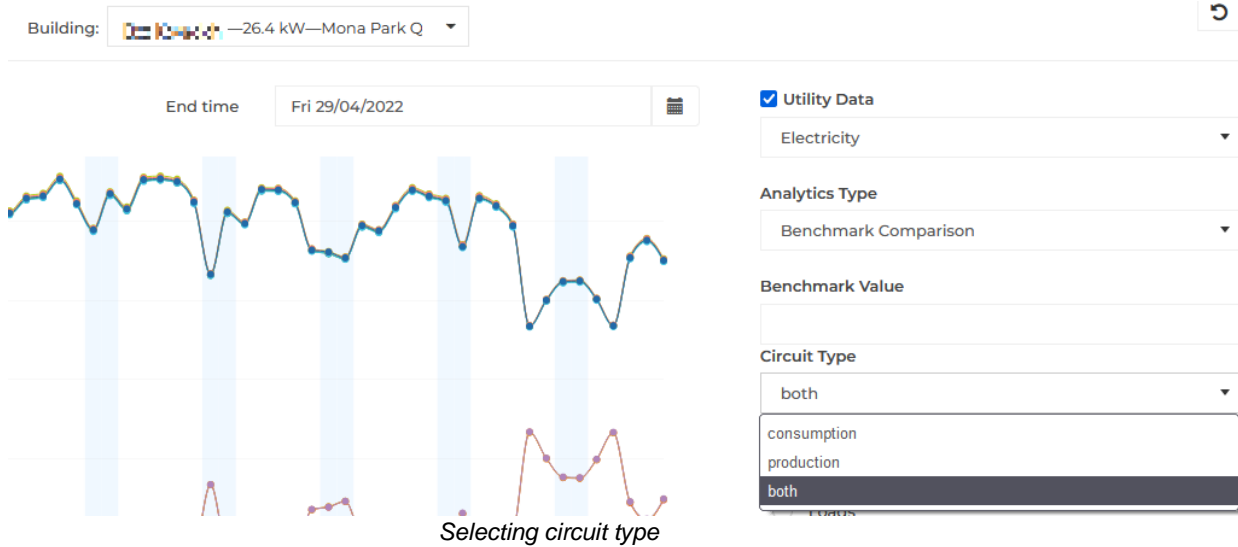
1. Set a start date and end date.



2. Click and drag horizontally in the graph to select the desired period.
3. With the compare analytics type selected, click on a bar to focus on that interval, and expand it to show any subintervals.

## Viewing data components

Select the Circuit Type: consumption, production, or both. Note that “both” will only appear as an option when “Circuits” is selected as a data category (rather than total, loads, supplies, or devices).



Before explaining in detail the meaning of the data type options (which are, namely: total, *supplies*, *loads*, *circuits* and *devices*), and the meaning of the analytics type options, it is important to understand the relationship between parent and child circuits, which will be explained in the following section.

## Understanding parent and child circuits

SylSmart Energy enables the ability to set parent-child relationships between circuits to avoid double counting. Parent-child relationships affect which circuits contribute to total production and consumption, and which circuits are displayed in the different analytics type options. If a circuit is the child of another circuit, this child circuit will not contribute to the total production or consumption. Conversely, if a circuit is not a child of any other circuit (a “top-level” parent circuit), its data will contribute to the total production or consumption of a building. To distinguish between a top-level parent circuit and parent circuits that are not top-level ones, a top-level circuit is not a child of any other circuit (as defined above), whereas the latter type are parents of at least one circuit, but are also a child of at least one circuit. Parent-child relationships are set by a user with management access.

To see how parent and child circuits are displayed in the [analytics type](#) options, please jump to that section, although it is also helpful to read the following section on data types first, which is then followed by the analytics type section.

## Circuit type

There are three circuit types: consumption, production, and both. Consumption circuits are any loads, or mains power. Note that when a Wattwatcher device has mains power circuits, they are often labelled as beginning with “Grid connect”. Production circuits are directly measured by or related to on-site generation, e.g. from solar PV systems. Production circuits may also include export or self-consumption circuits, which can be calculated as virtual circuits when both gross generation and mains power is measured (as net import and export power, site-wide). Circuit types were illustrated above in the introduction to the analytics tab.

## Data categories (total, supplies, loads, circuits and devices)

Circuit Type

consumption ▼

- Total
- Loads
- Circuits
- Devices

Circuit Type

production ▼

- Total
- Supplies
- Circuits
- Devices

*Data types under consumption*

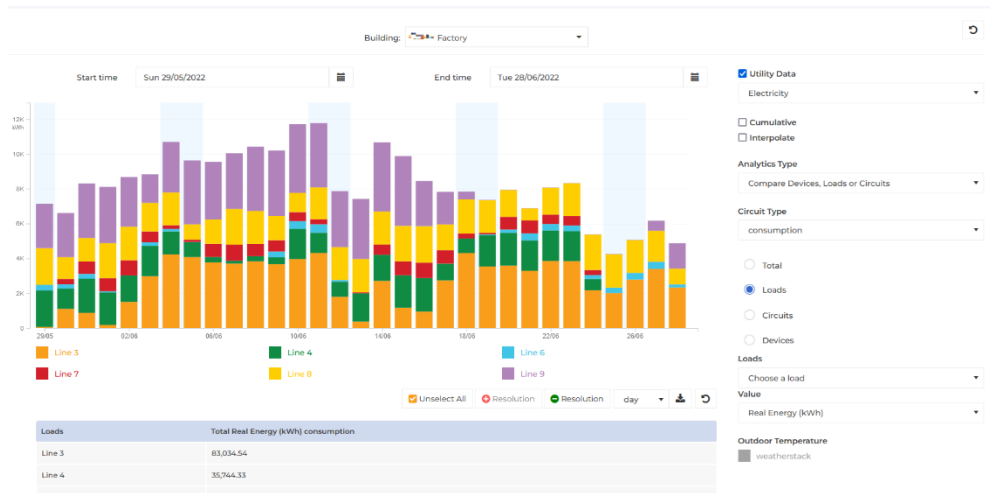
*Data types under production*

Select an option for the data type, as listed in the following five options.

### Total

Total displays the total production or consumption, over the selected period. (The total production is displayed if the production circuit type is selected, whereas the total consumption is displayed if the consumption circuit type is selected.) Note that only top-level circuits contribute to the total, and not any child circuits. For more information, see [Understanding parent and child circuits](#) above.

### Loads



*An example of loads*

Loads are a convenient grouping or aggregation of consumption-type circuits (or virtual circuits) into a single data series. For example, there may be several lighting circuits being measured and a *load* lets you sum them. As another example, a building may have many different three-phase circuits, which can be collected into loads, as shown in the example above, with each production line in a factory being a load.

Loads can also be displayed in [schematics](#). Circuits that are in the same room or area of a building can also be aggregated into loads.

See also the next section on supplies, which are aggregations of production-type circuits. The aggregation of circuits into loads and supplies simplifies the visualisation of data, rather than having multiple disparate but related data series, and this can be particularly useful when a building has many circuits.

## Supplies

Supplies are a convenient grouping or aggregation of production-type circuits (and virtual circuits) into a single data series. An example of where this may be useful is when a building has many production circuits, and they can be grouped (e.g. grouping three phase circuits together), to simplify the display of data, and make it easier to visualise.

## Circuits

Circuits in SylSmart Energy are typically electrical circuits, i.e. “A configuration of electrically or electromagnetically connected components or devices.”<sup>1</sup> However, “circuits” may also be other data series, such as from gas, water, air, and heat, when these are selected as [utility data](#). Note that if the [Compare analytics type](#) is selected, only the top-level production or consumption circuits are displayed. If the [benchmark comparison analytics type](#) is selected, both top-level circuits and child circuits can be selected and displayed in the same chart.

## Virtual circuits

Virtual circuits are a data series that is not directly measured, but is rather calculated by adding or subtracting one or more measured circuits. A filter can also be applied to extract only positive or negative values to get a final result. A filter could even be applied on a virtual circuit that has only one circuit component, e.g. in the case of calculating single-phase export, or LGCs. The Management Manual details how to create virtual circuits. Examples of when virtual circuits may be created include to calculate the following

- building usage, solar export and self-consumption—when both solar generation and mains power are measured.
- the balance of power when site-wide power is measured, along with a subset of loads or circuits.
- [Large-scale generation certificates \(LGCs\)](#), which are calculated by applying a positive filter to solar generation, to not include auxiliary power from inverter power consumption.
- Total solar generation, as measured by CTs or a Modbus device. This can be useful for viewing in a benchmark comparison chart together with export, self-consumption, mains power, and building usage.

## Devices

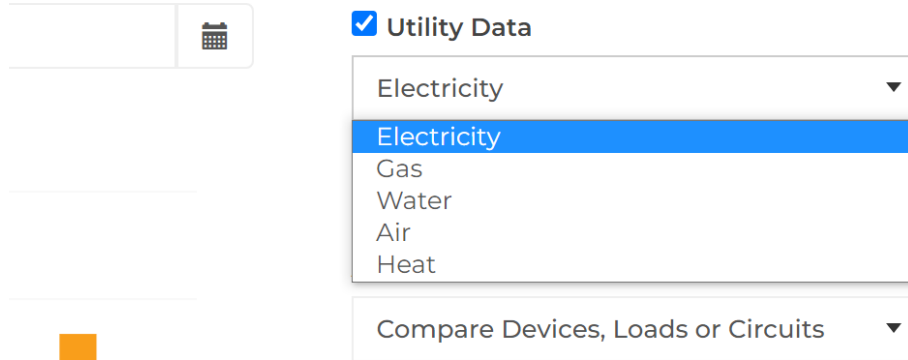
Devices show the total net energy consumption or production for a selected device or devices. Note that if there are consumption and production circuits in a device, the total consumption for the device will show as the net consumption/production. This can be confusing or misleading, so generally it may be simpler to avoid using the devices data category.

---

<sup>1</sup> Circuit definition, sense 3 b. <https://www.thefreedictionary.com/circuits>

## Utility data (electricity, gas, water, air and heat)

Use the utility data dropdown menu to select which data to show. The current options include electricity, gas, water, air and heat. Electricity is the default.



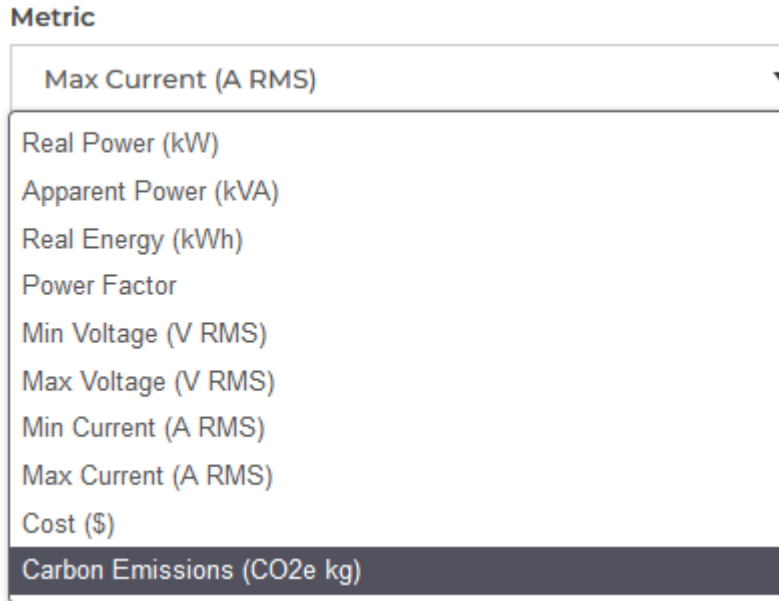
*Utility data dropdown menu*

## Metrics

Different metrics are available for the different [utility data](#) options: electricity, water, gas, etc.

For electricity, the available metrics are:

- real energy in kWh
- real power in kW
- apparent power in kVA
- power factor
- minimum voltage ( $V_{RMS}$ ) and maximum voltage ( $V_{RMS}$ ): these voltage thresholds are useful for tracking whether the voltage stays within safe limits. This prevents loss of solar generation if the voltage deviates outside mandated limits, and also prevents damage to equipment.
- minimum and maximum current
- value (for production circuits) or cost (for consumption circuits)
- emissions (kg CO<sub>2</sub>-e): this metric is particularly useful for tracking performance against emissions reduction targets.



*Electricity metrics*

For gas, the available metrics are:

- Real Energy (kWh)
- Cost (in the local currency, e.g. \$, £, etc)
- Carbon Emissions (CO2e kg)

For water, the available metric is Litres (L).

## Analytics type

Select the appropriate Analytics Type, as outlined in the following four sections.

### Compare Devices, Loads or Circuits

The “Compare Devices, Loads or Circuits” analytics type has a stacked bar chart showing a breakdown of consumption or production by total, loads, circuits, or devices, and with different [Metrics](#).

See the [total](#) consumption or total production; [loads](#), [supplies](#); [top-level parent circuits](#) (when selecting “Circuits”); or choose a given parent circuit to see its child circuits (again when “Circuits” is selected).

### Benchmark Comparison

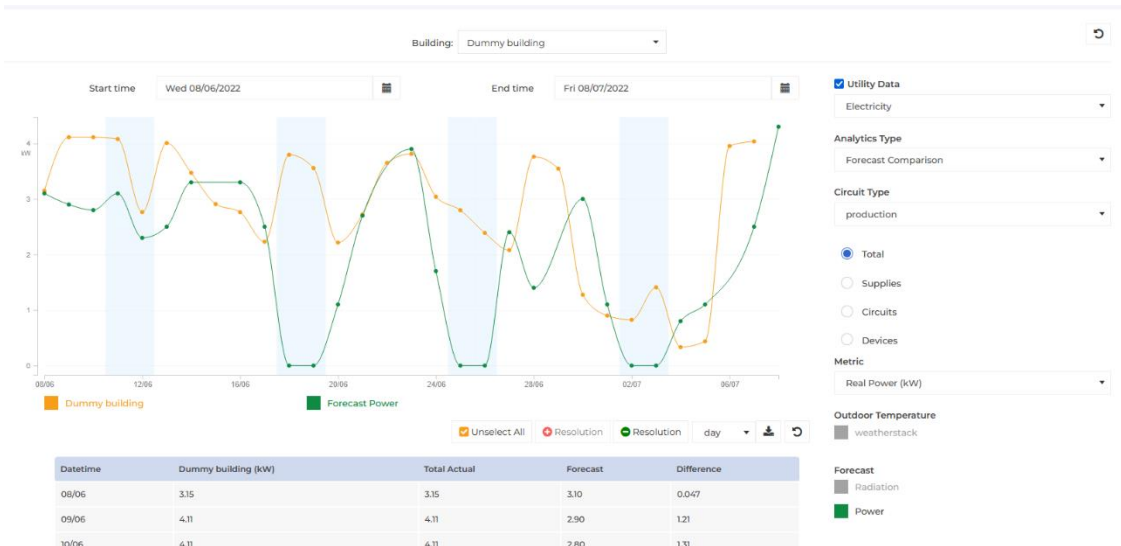
The benchmark comparison analytics type contains line graphs of the selected data, with the ability to set a benchmark to compare against. It is useful for:

- Showing the consumption circuits, production circuits, or both, of all [parent and child circuits](#), all together in the same line graph. For example, compare solar CT circuits (connected directly to a Wattwatcher device), and CET PMC-340 solar circuits (which is a Modbus-connected device that is used for pattern-approved trade purposes such as PPA billing). Additionally, it can be used to show solar export, self-consumption, total generation, the total building usage, mains power flow (showing both net import or export in one data series over time, with net import at night and often with export during the day), and loads, all in the one graph..

- Tracking performance of emissions (or other metrics) against a benchmark target. For example, it allows you to easily visualise when a threshold value is exceeded. One application of this feature is to detect if or when over- or under-voltage or frequency faults occur, which, when they occur, can stop or reduce the production of solar inverters in Australia.
- Tracking ageing equipment as it becomes more energy inefficient over time.

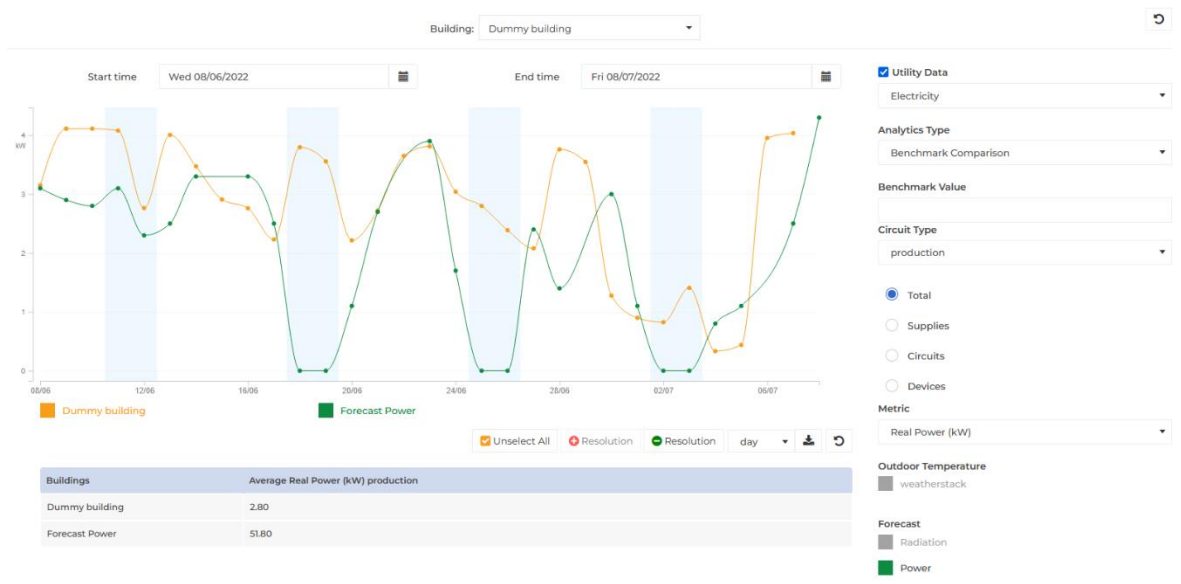
Currently, child circuits of child circuits (grandchild circuits), great-grandchild circuits, and so on, are not supported, and will not show in the benchmark comparison at all. If there is a particular need for this, this feature can be developed on request. This feature is not essential, as the main function of separating [parent and child circuits](#) is so that parent circuits contribute to total production or consumption, whereas child circuits do not. This helps to avoid scenarios of double counting where child circuits are subcomponents of parent circuits, e.g. mains circuits are designated as parents, or a total building usage virtual circuit is designated as the parent, whereas all other consumption circuits are child circuits.

### Forecast Comparison



#### *Forecast comparison*

Currently, you can use the forecast comparison tool to compare electricity data, particularly solar production data, against forecast radiation and power data. Forecasting power data is useful to determine whether a system is underperforming or overperforming, compared to the expected power generation, which is based on system size, location, and weather data. Forecast data can also be shown when the Forecast power or radiation overlay is selected with kW selected as the metric, as shown below.



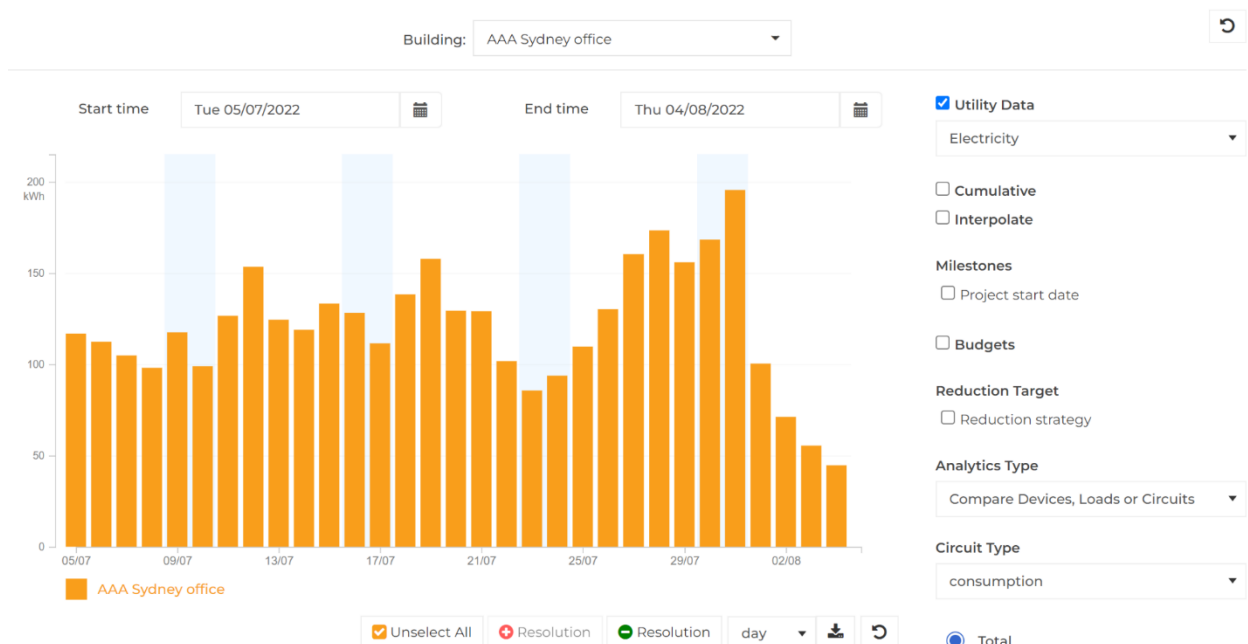
*Forecast power overlay with kW and benchmark comparison*

**Measure & Verify**

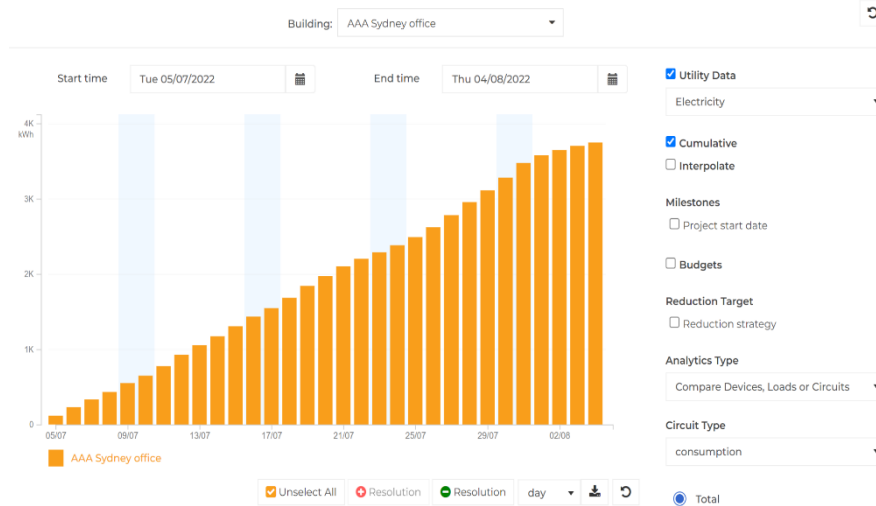
This feature allows you to compare energy data from an overlaid time period to the current period, given that the data is available. This is useful for measuring and verifying energy savings, e.g. after upgrading equipment or changing behaviour. See also the documentation on the [Projects](#) tab.

**Cumulative**

The  **Cumulative** feature allows you to represent the cumulative total for the circuit. Here's an example of its use below:



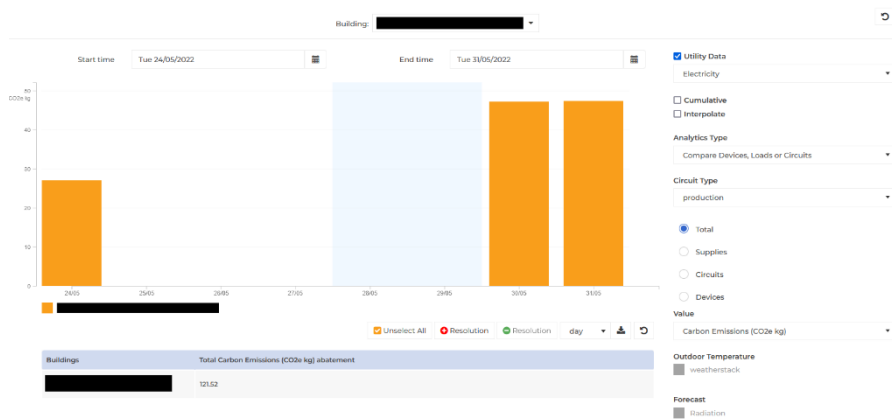
*Cumulative off*



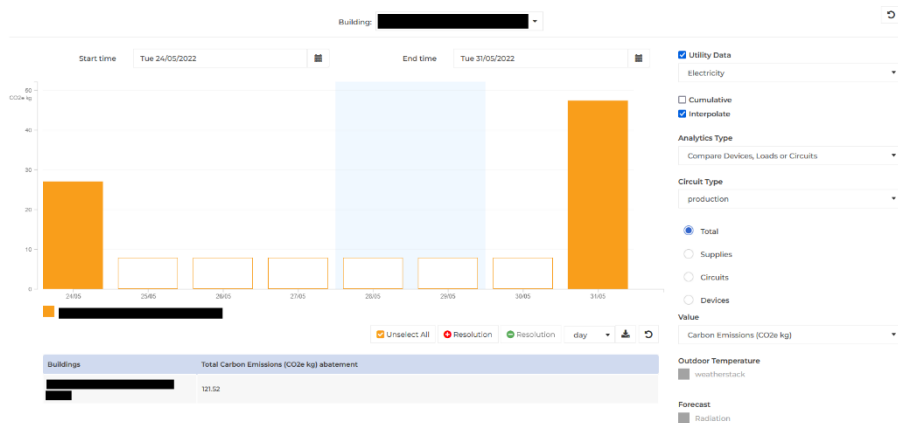
*Cumulative on*

## Interpolate

The  **Interpolate** feature is used to interpolate missing data e.g. when a device goes offline. By averaging the data, it fills in gaps across the missing period. Note that the total value for the interpolated period does not change (i.e. it remains the same whether interpolation is on or off), only the displayed interpolated values in empty fill bars during when the gap occurs. An example of the interpolate feature is given below:



*Interpolate off*



*Interpolate on*

As can be seen above, when interpolation is on, the first bar after the data gap changes into interpolated data over the gap and the day after the gap. Specifically in the example above, with interpolation off, there is just under 50 kg CO<sub>2</sub>-e measured on 30/5. Then, with interpolation on, this ~50 kg CO<sub>2</sub>-e is interpolated to ~8 kg CO<sub>2</sub>-e over 6 days, from the first day of the gap (25/5), to the day after the last day of the gap (30/5).

## Linear Regression Analysis

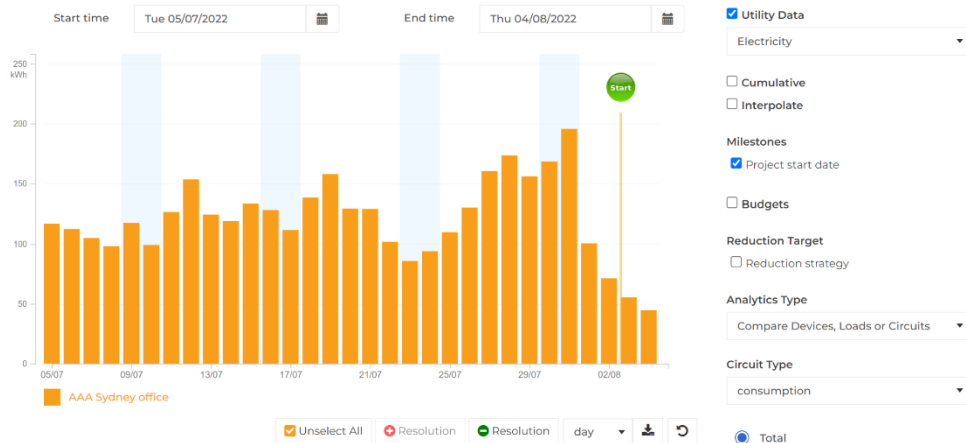
Uses of the  **Linear Regression** analysis feature include:

- model how trend lines fit with energy consumption data, e.g. to see whether energy consumption has increased or decreased over time, and observe changes over time.
- predict energy consumption into the future, with the limitation that future consumption may not continue on a linear trend with previous consumption.
- analyse energy savings from energy efficiency upgrades
- determine the degradation rate of PV production over a number of years, and compare this with PV manufacturers' performance warranties.

## Milestones

Milestones are specific points in time used to highlight important dates relating to your project. They can be added when in management view on the [projects tab](#). Watch this video for a demonstration of using the projects tab to implement milestones, budgets and reduction strategies:

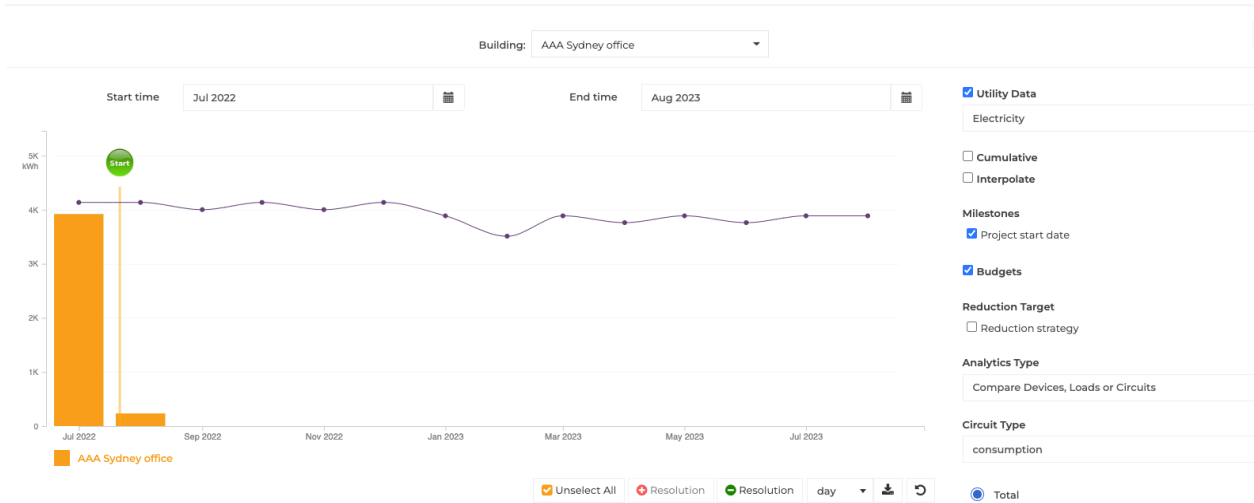
An example of a Milestone is given below, where the 'start' icon and title 'Project start date' are customised in the management view.



*Milestone 'Project start date'*

## Budgets

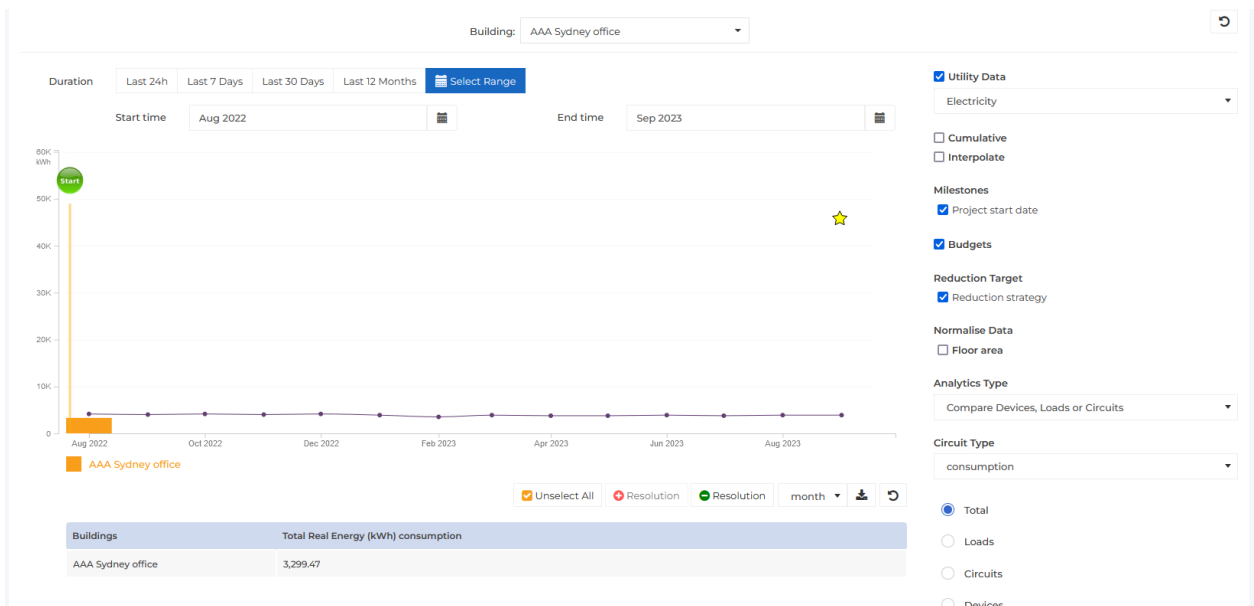
Budgets can be set up directly by SylSmart Energy management users in the buildings tab (which is only accessible to management accounts).



## Reduction strategy

A reduction strategy creates a target value for utility usage in the future by specifying a desired reduction in this usage, based on a set baseline value. The aim of the project would therefore be to decrease utility usage from its baseline value to the target value chosen for the reduction strategy.

The final reduction target is marked by a yellow star as seen in the image below.

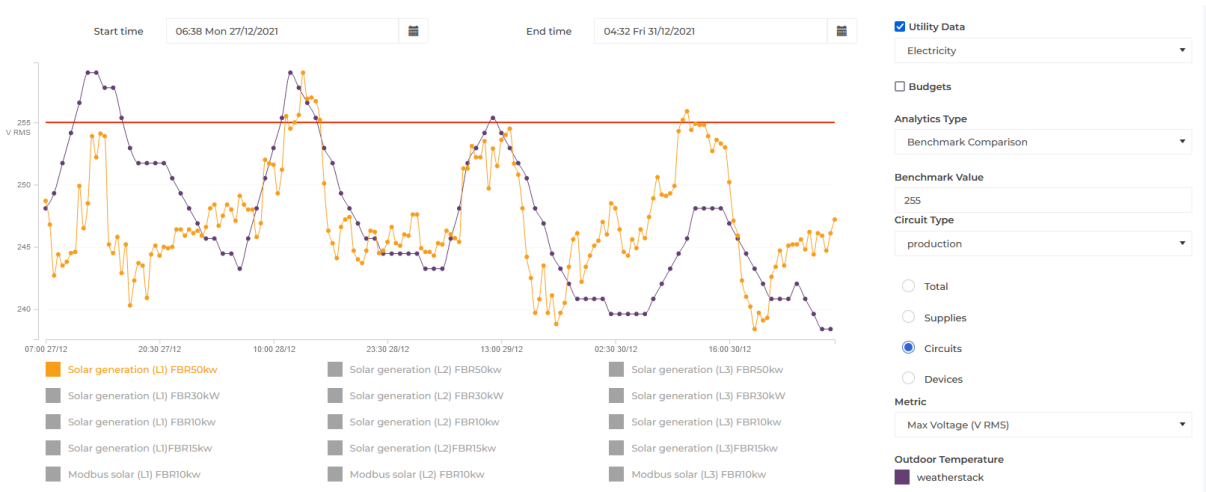


*Reduction strategy*

## IoT and weather

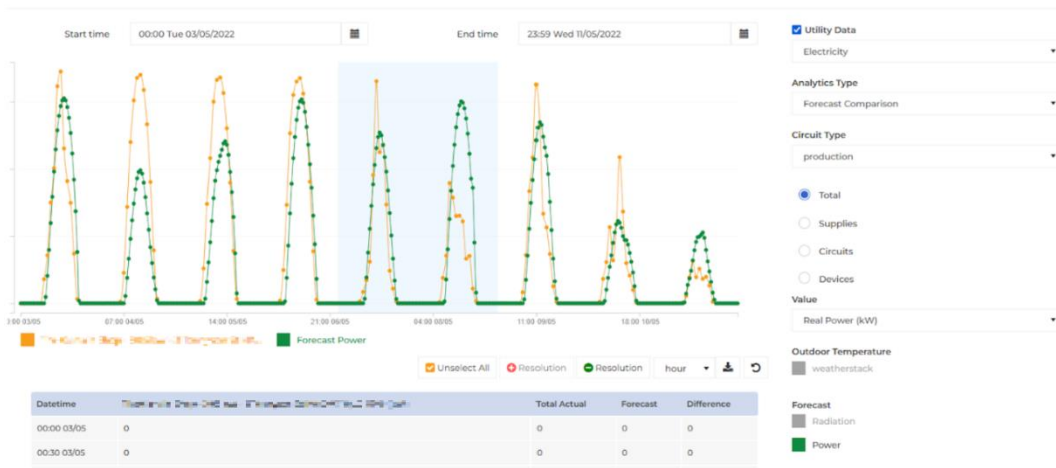
**Outdoor temperature:** Useful for comparing energy consumption or production. For example, temperatures that deviate further from a comfortable range may correlate with a higher energy consumption, due to increased HVAC loads.

Also, it can be used for comparing grid overvoltage<sup>2</sup> with temperature, along with a benchmark value, as shown below:



**Forecast:**

- Radiation shows the incident solar insolation in watts per square metre (W/sqm) at the selected site. Higher radiation should correlate with higher energy generation.
- Power shows the expected solar production in average kW per interval, which varies according to the system size and weather data.



*Demonstration of forecast tool*

**IoT Sensors:** This option is only shown if IoT sensors have been connected or integrated. They can measure various metrics such as air quality, temperature, humidity, or the opening of doors and windows.

<sup>2</sup> Grid overvoltage causes solar photovoltaic (PV) inverters to derate, typically when the voltage rises above 255 V in Australia. Once the average voltage over 10 minutes goes over 258 V, inverters must disconnect from the grid. For grid-tied inverters, this means that they cease to produce energy.

## Graph Controls (resolution, select/deselect, download)

The following information outlines how to use the features below the graph:

- + Resolution - Resolution: Increase or decrease the resolution by clicking the plus or minus buttons. The highest resolution is 5-minute intervals over a day, although 30 second intervals are available in the real-time tab.
- : resets the graph back to its default time period and resolution.
- Unselect All: Click unselect all to remove the data series selections from a graph. From here, you can choose which ones you would like to see on the graph by clicking on them. This helps to be able to visually see and breakdown energy consumption by *building*, *loads*, *circuits*, or *devices*. Similarly, click a *circuit* to select or deselect it from the graph.
- : Download raw data at the selected time interval and other selected configurations (period, circuit type, data type, etc.)

## Solar tab

The solar tab allows you to view solar energy production and energy consumption in the same graph, as well as the net flow of imports and exports. Like with the analytics tab, you can select different value metrics to view on the graph, e.g. real and apparent power, energy, current, voltage, power factor, cost, and emissions.

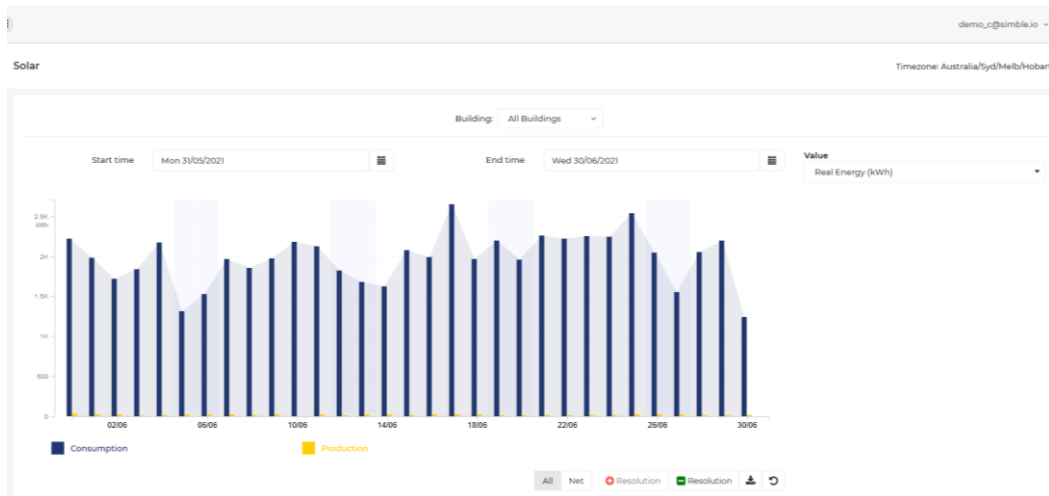
The following figures show various examples of viewing data in the solar tab.



The solar tab showing consumption and production data over a one day period



*The solar tab showing the net energy flow (import/export) over a one day period*



*The solar tab demonstrating the insignificance of production relative to consumption, in this particular instance*

## Carbon emissions

We provide location-based emission reporting, and can also provide market-based emissions.

Using the solar tab, see the net carbon emissions for all sites over time, or for individual ones, along with the carbon emissions for electricity consumption, and the carbon abatement for renewable energy production.



*Viewing carbon emissions in the solar tab*

# 1. Automation

SylSmart Energy can automatically notify your business when your energy usage meets certain criteria so that you always know right away what is happening with your business' energy.

Select Building

Send an email alert if the demand (kVA) crosses a set level (either above or falls below) in any 5 min period for a 3-phase load

Select template

Rule settings

Alert me when Real Power (kW) exceeds the maximum threshold and decrease below the minimum threshold

Act when demand (kVA) crosses above or below a threshold

Cancel    Back    Next

*Figure 6: Rule templates*

Rules can be configured as follows:

**Rule 1: Send an email alert if the demand (kVA) crosses a set level (either above or falls below) in any 5 min period for a 3-phase load**

1. Go to Rule tab
2. Click 'Add Rule' in the top right-hand corner
3. Select the building from the drop-down menu and click 'Next'
4. Select rule 'Send an email alert if the demand (kVA) crosses a set level (either above or falls below) in any 5 min period for a 3-phase load' and click 'Next'
5. Enter rule information such as:
  - a. Rule name, e.g., "kVa demand high".
  - b. The threshold.
  - c. Desired action. This can be sending an email, SMS, or toggling a switch. In this case, select 'Send email'. You will be asked to provide the necessary information to do this.
6. Click save once complete.

**Rule 2: Alert me when Real Power (kW) exceeds the maximum threshold and decrease below the minimum threshold**

1. Go to Rule tab
2. Click 'Add Rule' in the top right-hand corner
3. Select the building from the drop-down menu and click 'Next'
4. Select rule 'Alert me when Real Power (kW) exceeds the maximum threshold and decrease below the minimum threshold' and click 'Next'
5. Enter rule information such as:
  - d. Rule name, e.g., "Power level high"
  - e. The minimum and maximum thresholds
  - f. Desired action.
6. Click save once complete.

**Rule 3: Anomalous working detection**

How

1. Go to Rule tab
2. Click 'Add Rule' in the top right-hand corner
3. Select the building from the drop-down menu and click 'Next'
4. Select rule 'Anomalous working detection' and click 'Next'
5. Enter rule information such as:
  - g. Rule name.
  - h. The expected power consumption of your device and the threshold for action to take place.
  - i. Desired action.
6. Click save once complete.

**Rule 4: Act when demand (kVA) crosses above or below a threshold**

1. Go to Rule tab

2. Click 'Add Rule' in the top right-hand corner
3. Select the building from the drop-down menu and click 'Next'
4. Select rule 'Act when demand (kVA) crosses above or below a threshold' and click 'Next'
5. Enter rule information such as:
  - j. Rule name.
  - k. The threshold for action to take place
  - l. Desired action.
6. Click save once complete

## 6. Multiple Sites

The Multisite tab lets you compare energy usage across many different sites. If you have many buildings spread across multiple countries or regions, you can easily compare these buildings performance to identify where the over & under performance is based on geography.

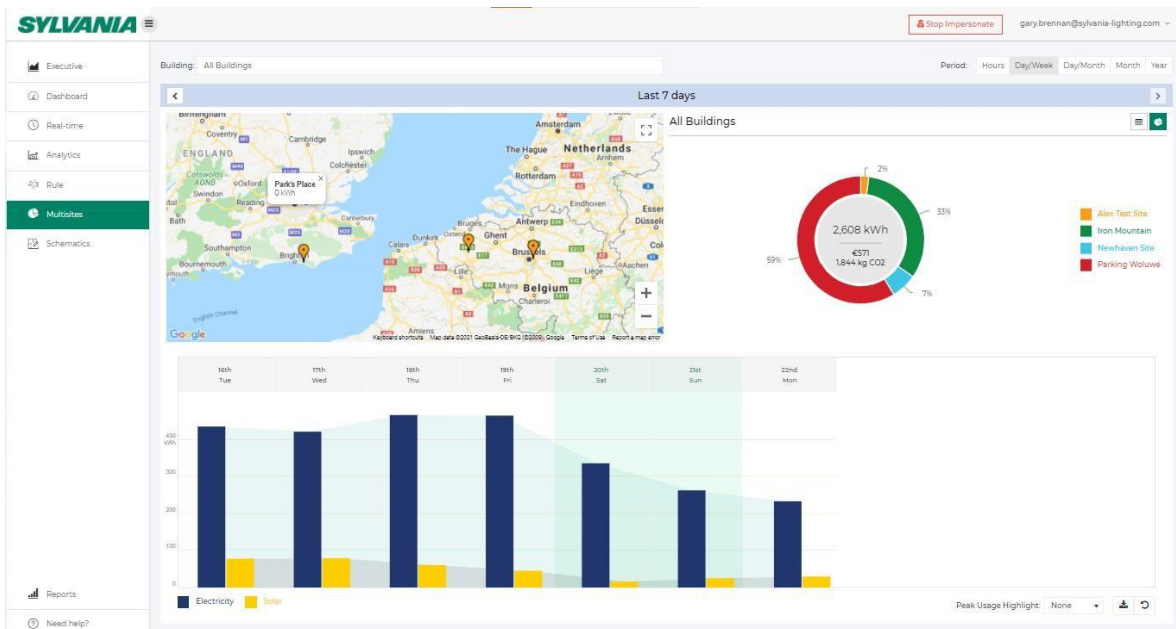


Figure 7: Multisites tab view

### How to view Multisite Data

1. All buildings are selected by default. Select the building(s) you would like to compare by typing the name in the box that reads 'All Buildings'. Or by selecting from the drop- down menu that appears after clicking it.
2. Select comparison period in the top right-hand corner, i.e., Hours, Day/Week, Day/Month, Month, Year
3. Toggle between a table or pie chart using the icons in the top right-hand corner.
4. Click the left and right arrows in the banner at the top to navigate in sets of your selected interval.

## Schematics

Schematics enable the ability to upload images for a building from the management view and view them in the dashboard. Examples of schematics include floorplans or electrical layouts. Add on dynamic loads, which display the loads in real-time.

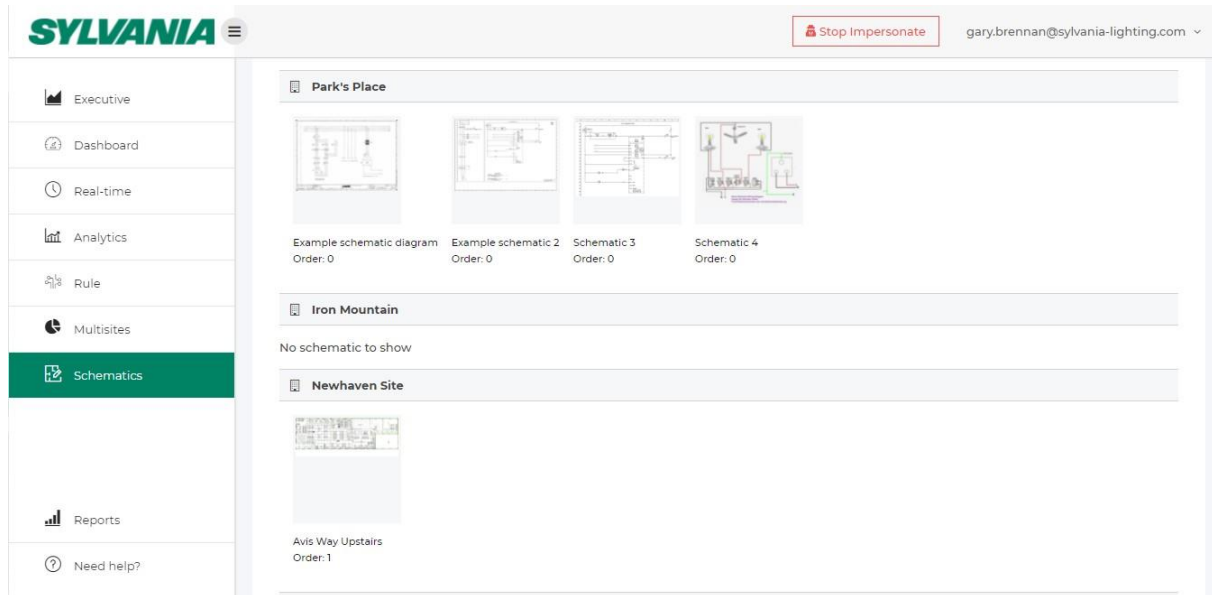


Figure 8: Schematics tab view (user view)

### How to overlay loads on a schematic

Loads location should be pre-configured for you as part of the set up process.

# Reports

Summary reports of your energy use can be downloaded or scheduled to be sent to your e-mail so you can keep getting insights into your energy use even when you are not using SylSmart Energy.

## How to Download an Energy Consumption Report

- A. Download any time from within SylSmart Energy
  - a. Click 'Reports' tab
  - b. Select 'Energy Consumption Report'
  - c. Select the scope of the report you want to download (i.e., Weekly or Monthly) from the 'Report Type' menu.
  - d. Select the building name from the drop-down menu.
  - e. Select the desired time period for the report.
  - f. Select whether you would like all the data or would prefer to download just that of a specific circuit.
  - g. Click 'Download'

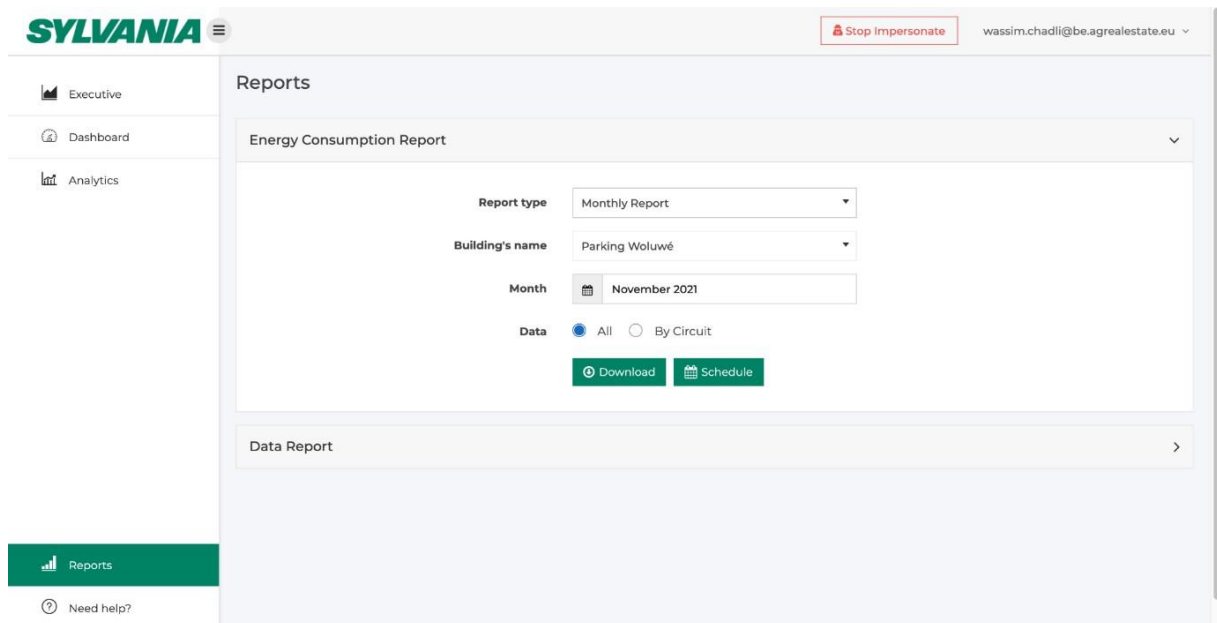


Figure 9: Energy consumption report view

- B. Schedule report
  - a. Repeat steps a-f from previous section.
  - b. Click 'Schedule' to be taken to 'Scheduled Report' menu.
  - c. Click 'Add Scheduled Report' in the top right corner.
  - d. Enter the report name, choose its frequency, and add the email addresses of the desired recipient(s). Any email address can be entered here - they do not need to be registered as SylSmart Energy users.
  - e. Click 'Save Schedule'.

You can expect to receive an e-mail like this to your inbox.

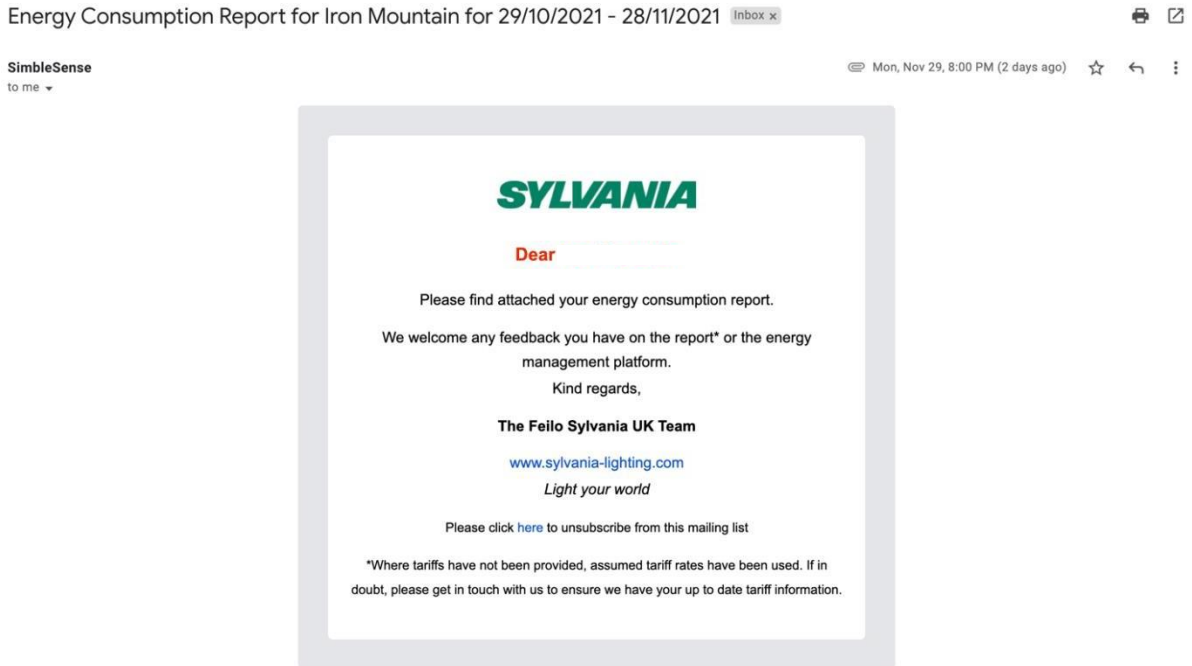


Figure 10: Automated scheduled report delivery via email

# Help & Support

## A. Update pre-configured information

As mentioned in introduction, SylSmart Energy platform is pre-configured for you. If you wish for this information to be updated, please get in touch with us by contacting support.

## B. In-platform support

Click “Need Help?” within platform for answers to frequently asked questions.

## C. Need further support?

Contact SylSmart Support – [support.sylsmart@sylvania-lighting.com](mailto:support.sylsmart@sylvania-lighting.com)

# 5. Appendices

## Roles

### 1. User types

User type	Roles to provide
End Customer – Single Site	User Default, Realtime, Rule Module, Generic Rules, schematic
End Customer – Multiple Sites	User Default, Realtime, Rule Module, Generic Rules, Multisite, Multisite Report, schematic
Sylvania Internal	User Default, Management Default, Realtime, Rule Module, schematic, Generic Rules, Manage, Tariff

### 2. Role descriptions

Role	Description
User Default	Access to the Executive, Dashboard, Analytics & Reports tabs.
Realtime	Access to the Realtime tab
Rule Module	Access to the Rules tab
Generic Rules	Access to a set of specific Rules in the Rules tabs
Schematic	Access to the Schematic tab
Manage	Access to the Manage tab
Management default role	Access to the Customers, Users, Buildings, Loads, Devices & Virtual Circuits tabs within the Management view.
Tariff	Access to the Tariff tab within the Management View
Multisite	Access the Multisite tab
Multisite Report	Access the Multisite report

## Tariff Structures

Tariff Type	Description	Configuration steps
Flat	A flat rate is a fixed cost of energy per unit (kWh) used.	<p>First, follow along with the steps outlined in the in the tariff set up section. Upon reaching the “Condition Type” dropdown menu and select “Flat”.</p> <p>Then, enter the rate in the designated field, in units of [Currency] per kWh.</p>
Block1	Cost of energy is step-fixed, when the usage increases past a threshold, the cost changes.	<p>First, follow along with the steps outlined in the in the tariff set up section. Upon reaching the “Condition Type” dropdown menu and select “Block1”.</p> <p>Enter the usage threshold for each “block” in their respective fields, and the rates for each block in terms of [Currency] per unit kWh.</p> <p>If a 3<sup>rd</sup> block is required, click the “Yes” button when asked “Do you want to create Block 3?”.</p>
TOU (Time of Use)	<p>Cost of unit of energy depends on time of day &amp; day of week it is used.</p> <p>Throughout the day, hours are categorised as being “Peak”, “Off-peak”, “Shoulder”, or “Off-peak Shoulder”.</p> <p>“Peak” refers to hours when the supplier expects a high demand for energy, and “Off-peak” to times of low demand.</p> <p>Shoulder tariffs are used in Australia to cover periods of time that do not fall into either category.</p>	<p>First, follow along with the steps outlined in the in the tariff set up section. Upon reaching the “Condition Type” dropdown menu and select “TOU”.</p> <p>Next to “Select Tariff”, click the boxes for all tariffs that apply and enter each cost per kWh into their respective fields.</p> <p>Underneath, in the “Tariff Period” box, specify the time periods over which each rate is active. To do this:</p> <p>Click the circle next to the rate you want to specify. Click the “Add Tariff Period” button on the right-hand side. Select the ‘Start’ and ‘End’ times by clicking each box and selecting from the dropdown menus. Alternatively, click the circle in the ‘End’ box to make the rate apply from 00:00 to 23:59 for selected days. Click the final box to select whether this rate applies on weekends or weekdays.</p> <p>Repeat steps 1-4 for each type of time of use tariff that applies to the building. If only Peak and Off-peak apply, then after entering the details for one, simply click “Smart Check” to automatically set the other tariff to be active during the times not already specified.</p> <p>Click “Edit” to change or remove a tariff period if required.</p>

## 6. Document Revisions

Rev	Date	Editor	Changes
1.0	05.01.2022	EJAL	Initial version
1.1	01.08.2023	SP	Updated with home page and additional detail on analytics functionality

## 7. Contact Information

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Support:

[support.sylsmart@sylvania-lighting.com](mailto:support.sylsmart@sylvania-lighting.com)

For more information please visit:

<http://www.sylvania-lighting.com/connected-building>

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**Building C. 5th floor**

**Budapest. Hungary H-**

**1138**