



Expert Power Pro

Operation Manual

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1 Introduction

Expert Power Pro is used for monitoring the electricity consumption and the electric bills from the electric grid it is connected to.

Safety Instructions

Refer to Satec general safety instructions.

Safety Conventions



Note

Notes contain additional important information.



Tip

Tips contain helpful information.



Warning

Warnings contain important hazard information.

2 System Operation

Logging into the System

1. Enter the web address <http://www.expertpowerplus.com> or the local server address in the browser address bar.
2. Type the username (1).
3. Type the password (2).
4. Click **LOGIN** (3).



Tip

For better web performance, use Internet Explorer or Firefox.



Note

The system operates over a network. Make sure there is network connection at all times.

User Interface Overview

Once logged in, navigation is done using menus. The user interface includes the following elements:



Note

The dashboard user interface includes different elements and is detailed in the [Dashboard User Interface](#) section.

- **Manager level (1)** – the system operates on two user levels:
 - Manager – can view data and generate reports (see [Manager Level Menus on page 8](#)).
 - Administrator – has administrative privileges such as adding and canceling sites and devices (see [Administrator Settings on page 34](#)).
- **Menu bar (2)** – the displayed menus vary according to the user level.
- **Manager level selection button (3)**
- **Date range for data display (4)** – see [Setting Data Range on page 6](#).
- **Toolbar (5)** – enables exporting to PDF and Excel formats and viewing of previously exported files.
- **Device tree panel (6)** – a hierarchical menu that allows a user to choose from which devices data is displayed.
- **Data display area (7)**

The screenshot shows the expertpower™ software interface with the following numbered elements:

1. Manager level selection button (highlighted in red)
2. Manager level menu bar (highlighted in red)
3. Manager level selection button (highlighted in red)
4. Date range for data display (highlighted in red)
5. Toolbar (highlighted in red)
6. Device tree panel (highlighted in red)
7. Data display area (highlighted in red)

Device Tree Panel (6):

Devices Tree
Customer: SATEC Site: site for Market... Location: R&D department v Device: Virtual By Form...
Phase Power & Demand Customize
Customer: SATEC Site: site for Market... Location: R&D department v Device: Virtual By Form...
Graphs
Voltage Trend
Parameter Min. Max. Avg.
Voltage L1/L12, V 228 237 233.51
Voltage L2/L23, V 230 238 235.43
Voltage L3/L31, V 229 238 234.88

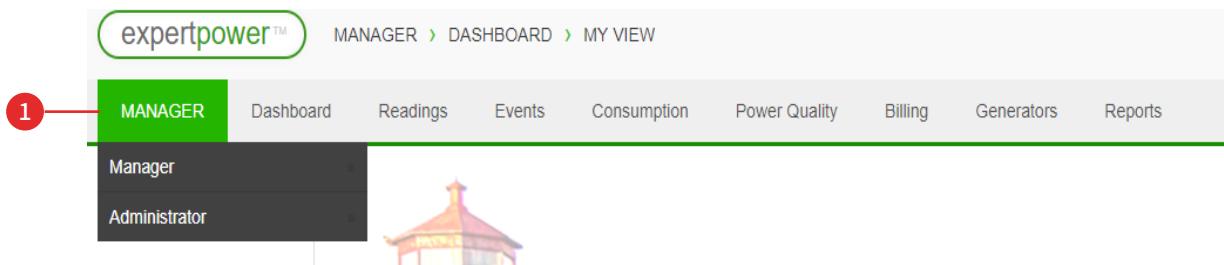
Record Time	Voltage, V			Current, A			Active Power, kW				
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	
5/21/2018 11:02:59	228	230	230	14.14	19.02	7.45	3.22	4.37	1.68	-0.	
5/21/2018 10:31:21	230	232	232	13.19	14.81	7.39	3.02	3.41	1.68	-0.	

User Level Selection

There are two user levels in the system:

- **Manager** – a user who is granted manager access can see and track information and produce reports (see [Manager Level Menus on page 8](#)).
- **Administrator** – a user who is granted administrator access can define and set meters, users, calculations, and more (see [Administrator Settings on page 34](#)).

In order to select the user type, click on the current manager level and select the desired level (1).

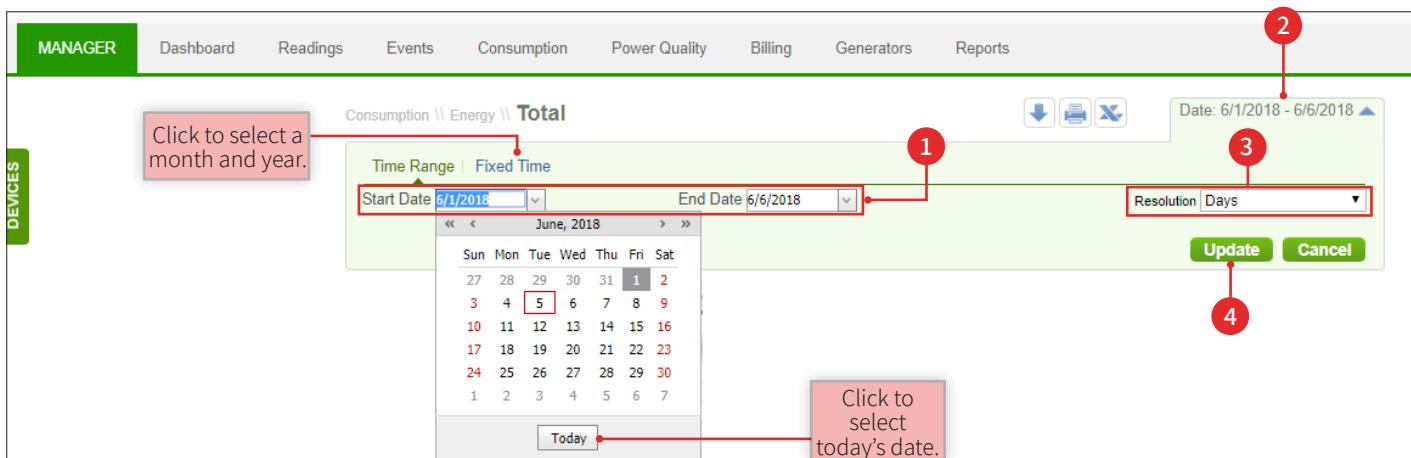


Setting Data Range

Data can be displayed by a specified date range.

To set the date range:

1. Click on the current date range (2). The data range panel opens.
2. Choose the resolution (3).
3. Choose the time range (1).
4. Click **UPDATE** (4) to affirm the selection.



Selecting Devices

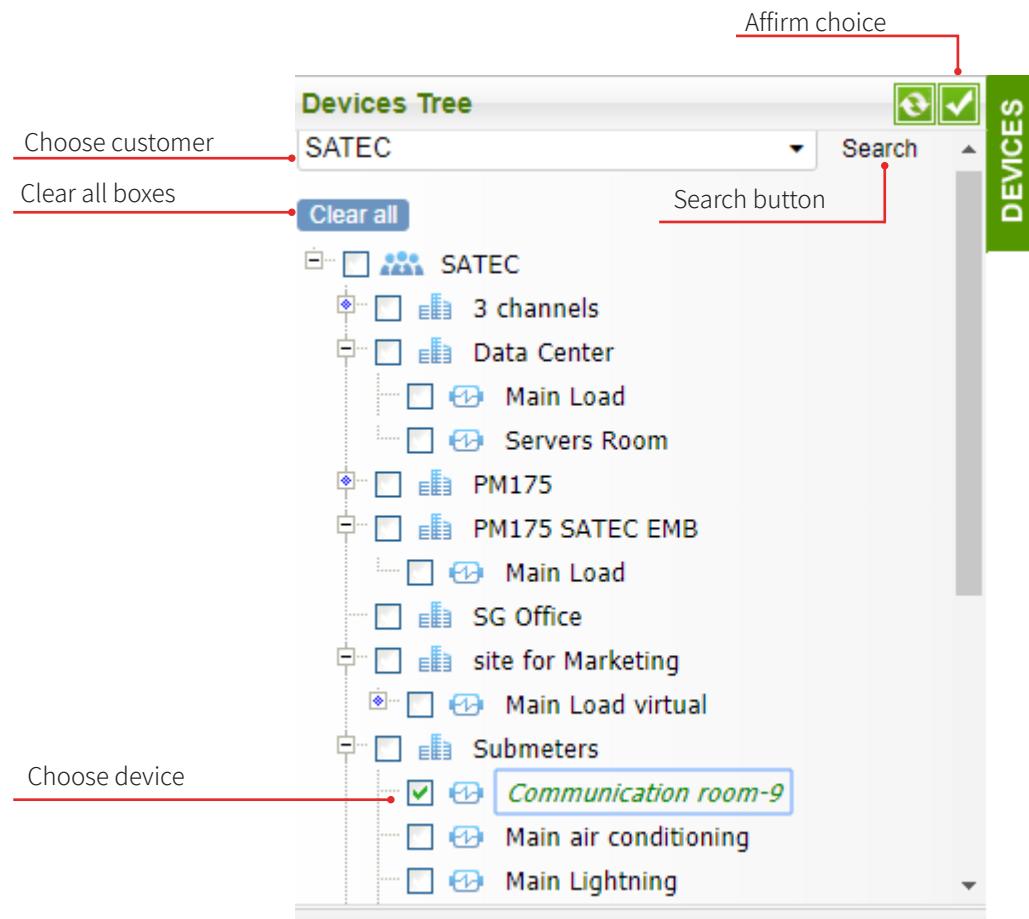
The Device Panel is a hierarchical menu for selecting one or more measuring devices for which data is displayed.

To select one or more devices:

1. Click **DEVICES** (1) to open the Device Panel.



2. Indicate the desired device(s) by checking the appropriate boxes.



Meaning of icons in the device tree:

Customer	
Counter Group	
Counter	
Communication Device	

3 Manager Level Menus

The manager level menus include the following options:

- [Dashboard](#) – display general data and define manager display settings.
- [Readings](#) – display device readings.
- [Events](#) – display system events and alerts.
- [Consumption](#) – display consumption data.
- [Power Quality](#) – display and analyze power quality events.
- [Billing](#) – generate bills and display past bills.
- [Reports](#) – create and generate reports.

Dashboard

The dashboard is a central display for monitoring the user's measurement devices. Pre-designed templates are provided that can be customized for user preference. The dashboard menu includes the following options:

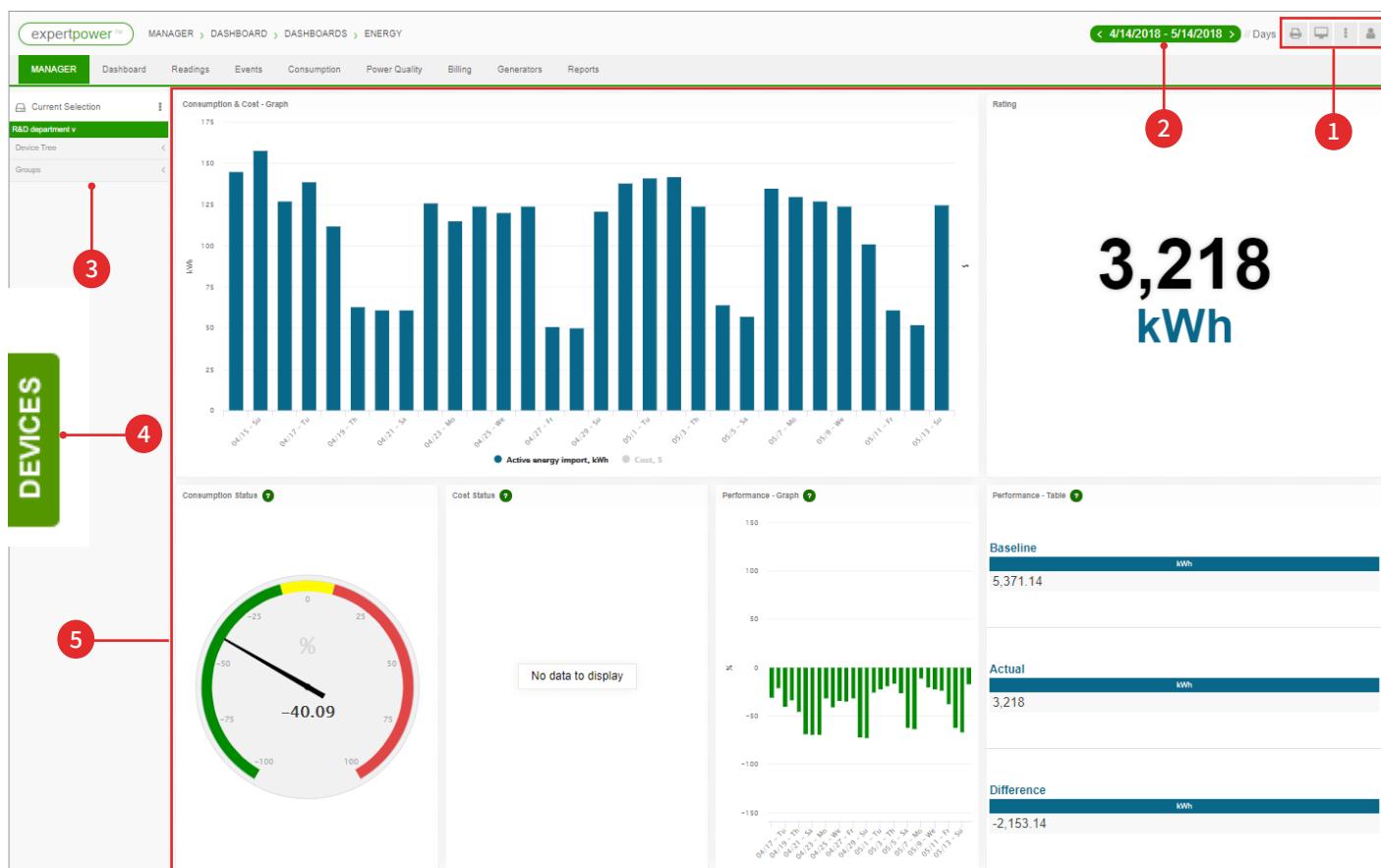
- My View
- Dashboards
- Analysis
- Geolocation
- My Dashboards

Dashboard User Interface

The dashboard user interface opens to the last group of devices selected. To select another group, expand the group area (3) and click the preferred group.

The areas in the main screen include:

- **Toolbar (1)** – enables printing, choosing view modes, creating dashboards, and switching users.
- **Date range for data display (2)** – see [Setting Display Data in the Dashboard on page 10](#).
- **Device Panel (4)** – a hierarchical menu for selecting one or more measuring devices for which data is displayed.
- **Data display area (5)**



Setting Display Data in the Dashboard

To define the date range in the dashboard menu screens:

1. Click on the current date range (3).
2. Choose from the suggested ranges (2), or click **CUSTOM** (1) to set a customized data range.

The screenshot shows the Energy Dashboard interface. On the left, there is a date range selector with a 'Custom...' button (1) highlighted with a red circle. The 'From' field shows 'April - 2018' and the 'To' field shows 'May - 2018'. Above the date range selector is a green header bar with the date range '4/15/2018 - 5/15/2018' and a 'Days' button. To the right of the date range selector is a 'Cost Summary' section. The 'Total Cost' is shown as '\$0'. Below it, 'Total Energy' is listed as '12,993 kWh'. In the bottom right corner of the dashboard, there is a 'Resolution' dropdown menu (2) with options: Hours, Days (highlighted with a red circle), Weeks, and Months. A red circle (3) also highlights the '4/15/2018 - 5/15/2018' date range in the green header bar.

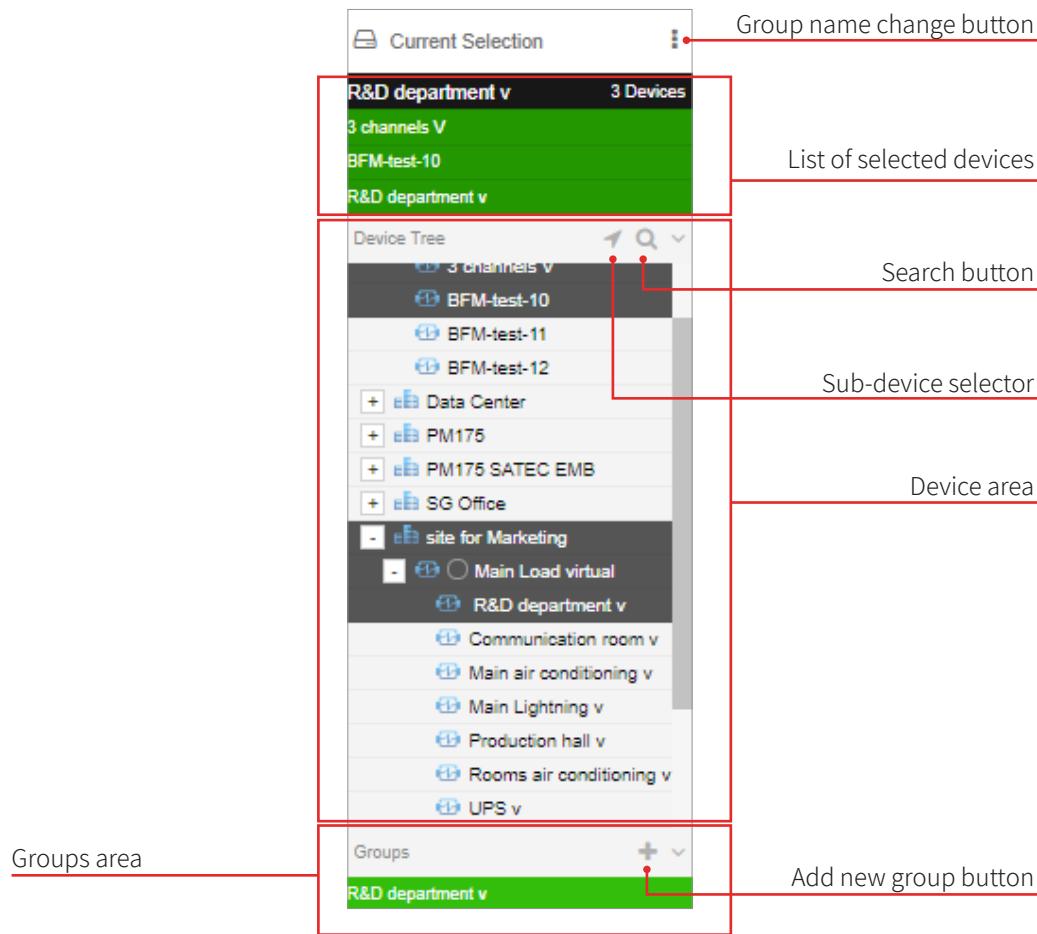
To set the data resolution

1. Click on the current resolution (1).
2. Choose from the resolution options (2).

The screenshot shows the 'DETAILED VIEW' screen. At the top, there is a green header bar with the date range '4/15/2018 - 5/15/2018' and a 'Days' button. To the right of the header is a 'Resolution' dropdown menu (1) with options: Hours, Days (highlighted with a red circle), Weeks, and Months. A red circle (2) also highlights the '4/15/2018 - 5/15/2018' date range in the green header bar. The main area of the screen displays energy summary data, including 'Value' (5.683 kW), 'Energy Summary' (Max. 597, Min. 51, Avg. 333.15), and 'Cost Summary' (Total Cost \$0). The 'Resolution' dropdown menu is open, showing the options: Hours, Days, Weeks, and Months.

Device Panel

The device panel in the dashboard menu includes:



Add New Group

To add a new group:

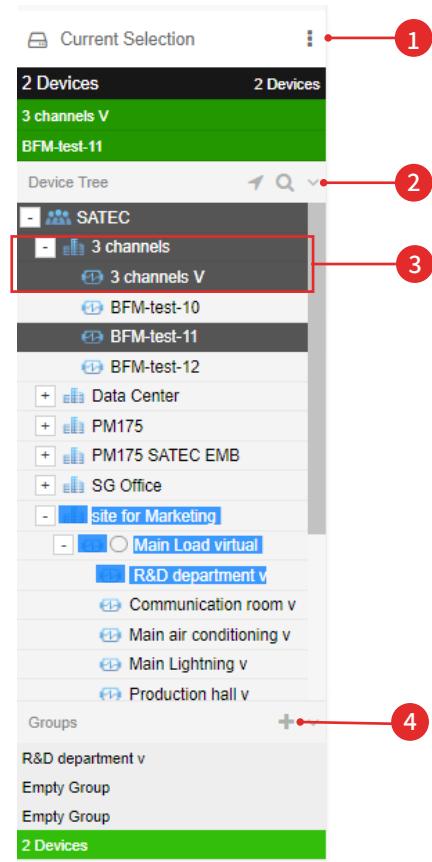
1. Click + (4) in the groups panel to add a new group.
2. Expand (2) the device area and select one or more devices (3).

The selected devices appear in the upper area of the panel.

To change the group name, click on the **Group Name Change** button (1).

Tip

Any group or meter selection can be cancelled by clicking X displayed above it.

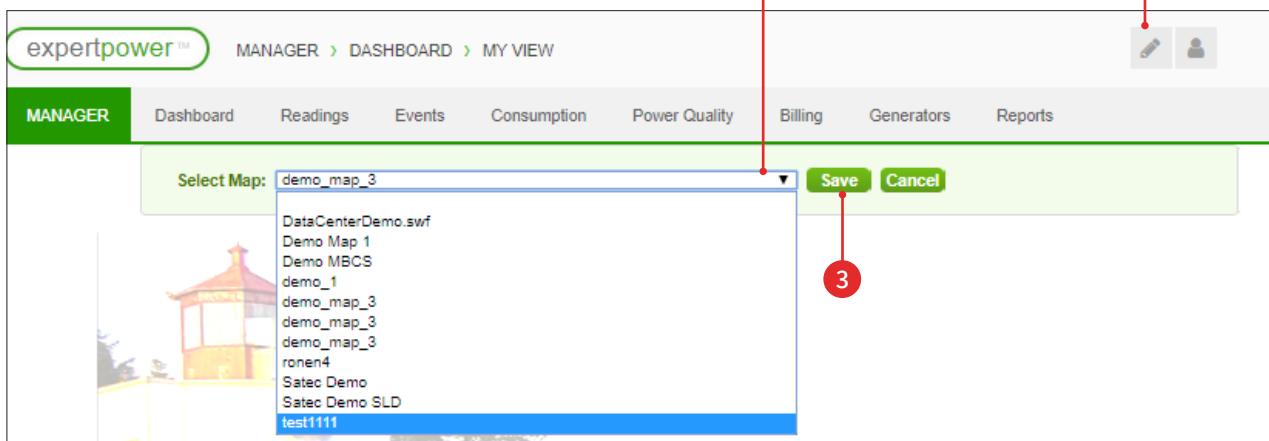


My View

In the My View screen the manager can customize the home screen view.

1. Select **My View** from the Dashboard menu.
2. Click the **Edit** icon (2).
3. Choose a map from the displayed options (1).
4. Click **SAVE** (3).

The selected map appears on the screen.



Readings

The Readings menu enables viewing of a device's meter readings, including:

- Last Reading
- History
- Max Demands
- Data Logs
- Live Data

Last Reading

To display the last meter reading:

1. Select **Last Reading** from the Readings menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).

The last meter reading data for the selected device is displayed on the screen.

When selecting multiple devices, the Last Reading screen displays a table that coordinates the data of all selected devices. Each device in the table is a link to the last reading of that device.

To navigate to the [History](#) screen and view previous readings of a device, click **History** (1).

The screenshot shows the expertpower™ Manager interface with the following details:

- Header:** expertpower™, MANAGER > READINGS > LAST READING, Click to scroll between readings, a user icon, and a toolbar with icons for back, forward, download, and print.
- Navigation:** A green bar at the top left contains the word "MANAGER". Below it is a vertical "DEVICES" sidebar.
- Content Area:**
 - Header:** Header contains details of the device and time of the last reading. It shows Customer: SATEC, Site: site for Market..., Location: R&D department v, Device: Virtual By Form..., and Date: 5/17/2018 17:12.
 - Tables:** Two main tables are displayed:
 - Phase Basic Measurements:** Shows data for Voltage (Primary), Current (Primary), Active Power, Reactive Power, Apparent Power, and PF across phases L1, L2, L3 with their respective units.
 - Total:** Shows Total Active Power, Reactive Power, Apparent Power, and PF with their respective values and units.

History

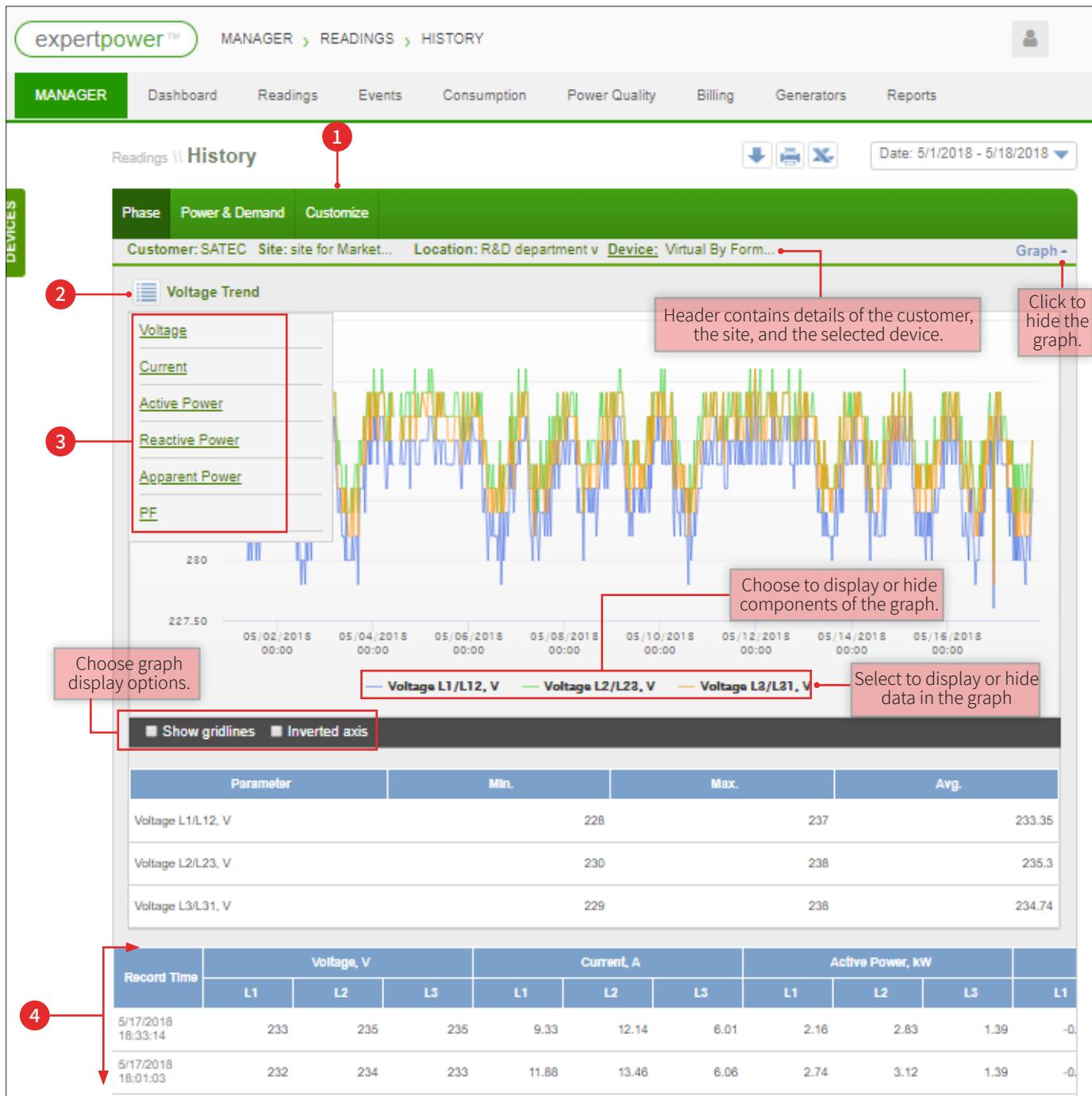
To display a history of device readings:

1. Select **History** from the Readings menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

The data history is displayed as a graph and a table (4).

To display a graph of a different type, click the **Graph Options** button (2) and choose the desired graph type from the displayed options (3).

4. Select the **Customize** tab (1) to set parameters for viewing the history screen.



Max Demands

To view peak data for a device or multiple devices:

1. Select **Max Demands** from the Readings menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

Peak data for the selected device(s) is displayed on the screen.

The screenshot shows the expertpower Manager interface with the following details:

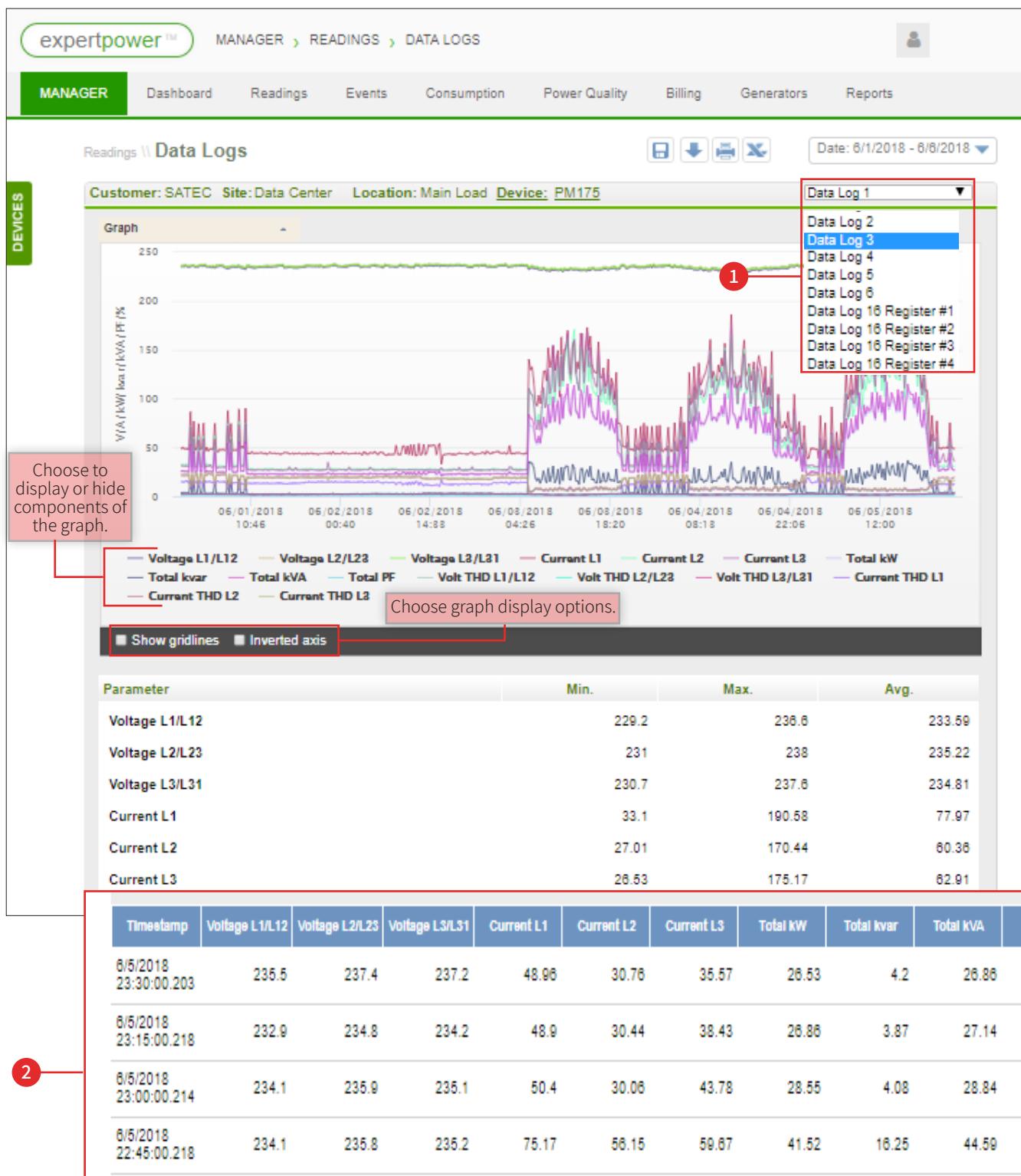
- Header:** Contains details of the customer, the site, and the selected device.
- Navigation:** MANAGER > READINGS > MAX DEMANDS
- Top Bar:** Includes links for Dashboard, Readings, Events, Consumption, Power Quality, Billing, Generators, and Reports.
- Sub-Header:** Readings // Max Demands, Date: 5/1/2018 - 5/23/2018.
- Customer Information:** Customer: SATEC Site: 3 channels Location: BFM-test-12 Device: BFM136-036 Logs
- Data Table:** Max Demands (Week) table showing weekly data for four weeks from May 1 to May 21, 2018.
- Graph:** A dual-axis bar chart showing kW and kVA over time. The left Y-axis is kW/kVA (0-20), and the right Y-axis is % (0-100). The chart displays four pairs of bars per week, with the first bar in each pair being blue (kW) and the second being green (kVA). A legend at the bottom indicates: Bar, Show gridlines, Inverted axis, and Stacked chart.
- Annotations:**
 - A red box highlights the header area with the text: "Header contains details of the customer, the site, and the selected device."
 - A red box highlights the "Customer" information with the text: "Customer: SATEC Site: 3 channels Location: BFM-test-12 Device: BFM136-036 Logs".
 - A red box highlights the "Graph" section with the text: "Click to hide the graph." and "Choose graph display options."
 - A red box highlights the "Bar" button in the graph legend.

Data Logs

To display data that is stored in user device(s):

1. Select **Data Logs** from the Readings menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).
4. Choose a data log entry from the options in the drop-down menu (1).

The data stored on the memory of the selected device(s) appears in the form of graph, along with more detailed information at the bottom of the screen (2).



Live Data

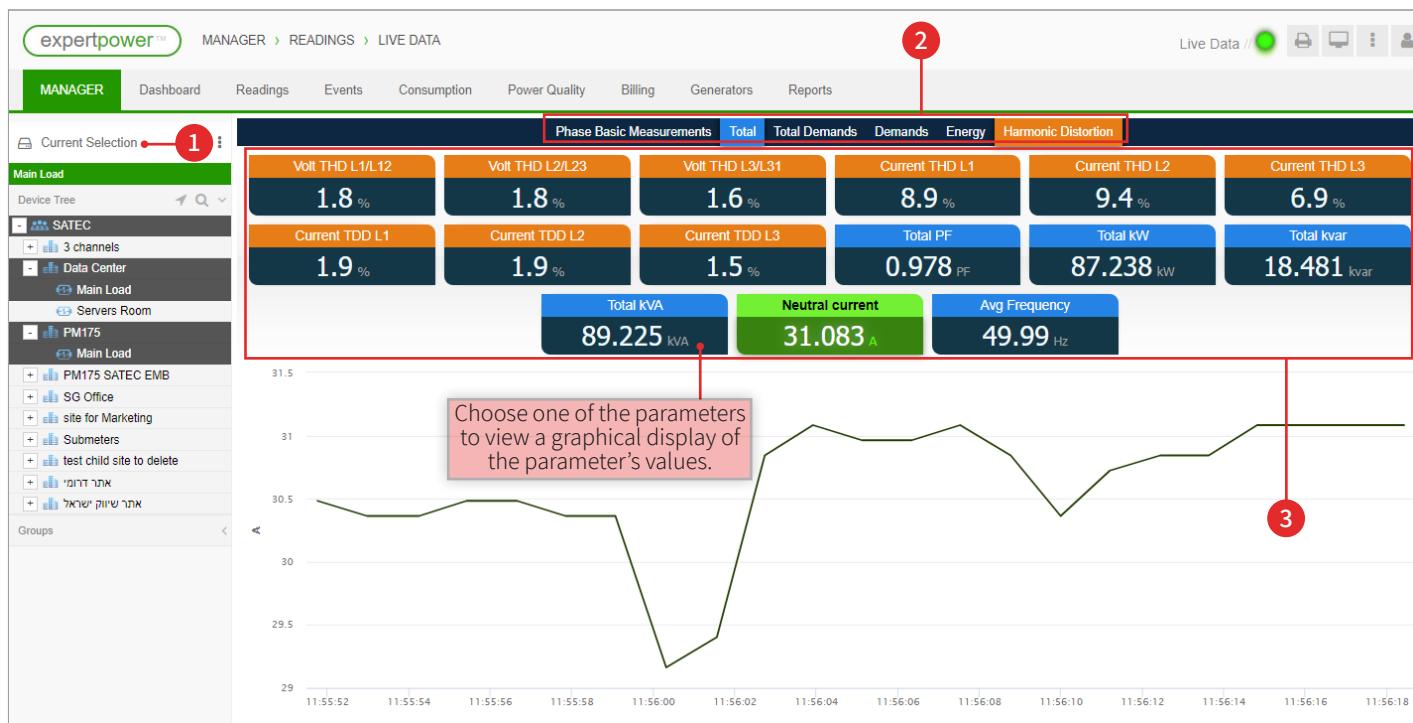
The real-time data feed provides current meter readings in the following categories:

- Phase Basic Measurements
- Total
- Total Demands
- Demands
- Energy
- Harmonic Distortion

To display meter readings in real time:

1. Select **Live Data** from the Readings menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)). The current device is displayed (1).
3. Choose one or more of the various meter categories to simultaneously display current readings (2).

The selected device data is displayed according to the selected parameters on the screen (3).



Events

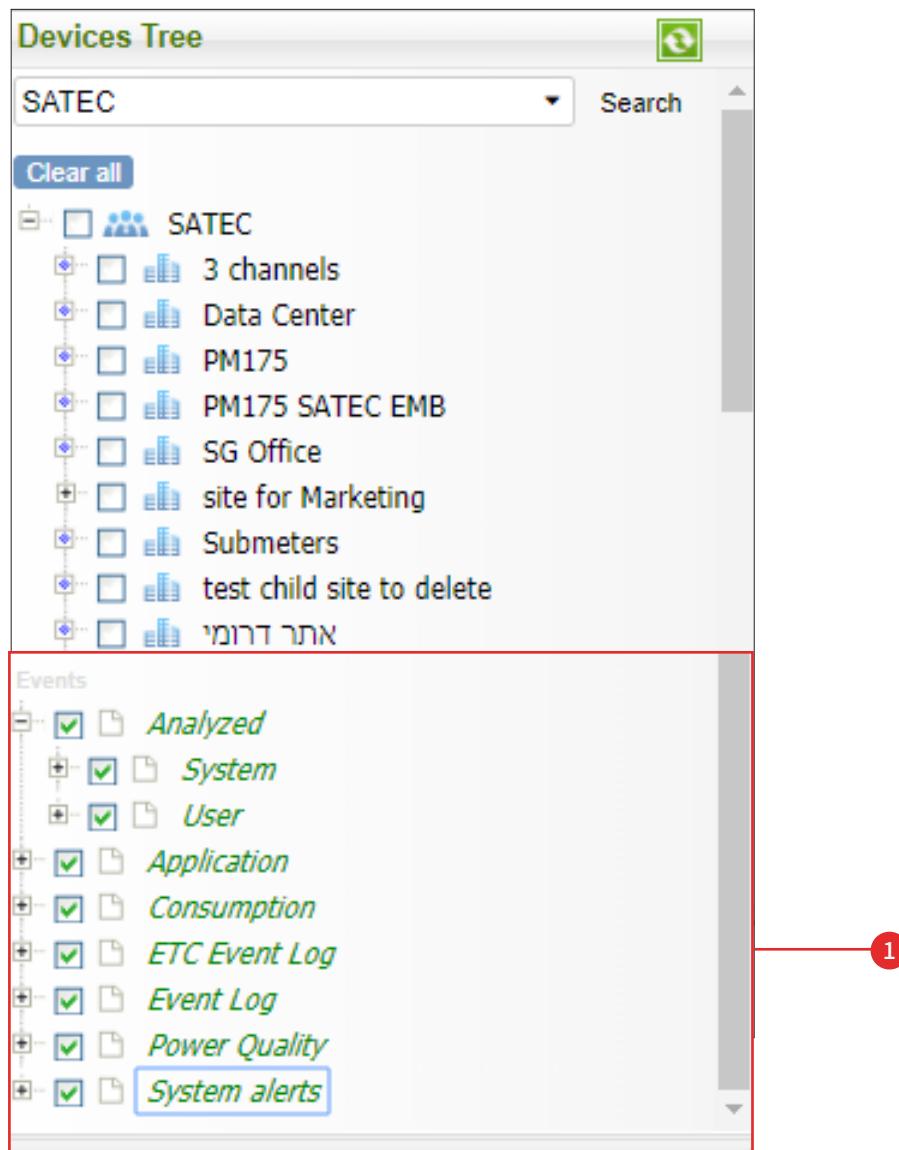
The Events menu enables viewing of all system events, and includes:

- Event View
- Event Log
- Event Summary
- Notifications



Note

The device tree in the Event screens and Alert screens include an option to filter by events (1).



Event View

The Event View screen displays the events which have accumulated in the system in chronological order. The types of events displayed on this screen are set in the Administrator page (see [Event View Definition on page 39](#)).

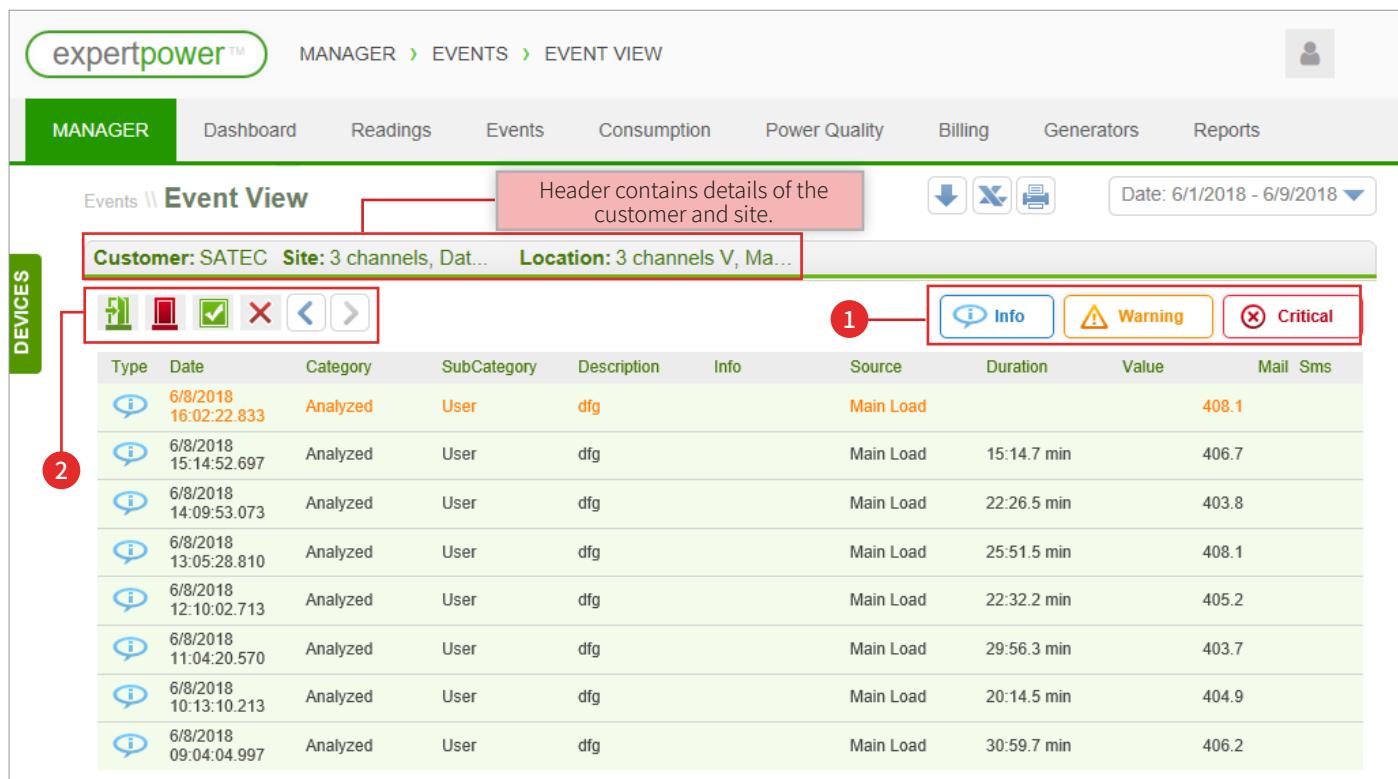
To display events:

1. Choose **Event View** from the Events menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

The events displayed on the screen are ranked by importance: critical, warning, and info. Clicking the status buttons (1) shows or hides events of different status levels. Active events appear in orange and inactive events appear in black.

Clicking one of the icons (2) shows or hides events according to the following categories:

-  **Open Events** – events that have not yet met their closing conditions.
-  **Closed Events** – events that are not active.
-  **Checked Events** – events closed by the manager (even though the closing conditions had not yet taken place).
-  **Unchecked Events** – events that were not approved by the manager.



The screenshot shows the Event View screen with the following details:

- Header:** Contains details of the customer and site.
- Customer:** SATEC Site: 3 channels, Dat... Location: 3 channels V, Ma...
- Date Range:** 6/1/2018 - 6/9/2018
- Status Buttons (1):** Info (blue), Warning (yellow), Critical (red). A red circle with the number 1 points to the Info button.
- Event Table Headers:** Type, Date, Category, SubCategory, Description, Info, Source, Duration, Value, Mail, Sms.
- Events:** A list of 10 events, all categorized as 'Analyzed' and 'User'. The first event is highlighted with a red border. A red circle with the number 2 points to the row of event icons.

Type	Date	Category	SubCategory	Description	Info	Source	Duration	Value	Mail	Sms
	6/8/2018 16:02:22.833	Analyzed	User	dfg		Main Load		408.1		
	6/8/2018 15:14:52.697	Analyzed	User	dfg		Main Load	15:14.7 min	406.7		
	6/8/2018 14:09:53.073	Analyzed	User	dfg		Main Load	22:26.5 min	403.8		
	6/8/2018 13:05:28.810	Analyzed	User	dfg		Main Load	25:51.5 min	408.1		
	6/8/2018 12:10:02.713	Analyzed	User	dfg		Main Load	22:32.2 min	405.2		
	6/8/2018 11:04:20.570	Analyzed	User	dfg		Main Load	29:56.3 min	403.7		
	6/8/2018 10:13:10.213	Analyzed	User	dfg		Main Load	20:14.5 min	404.9		
	6/8/2018 09:04:04.997	Analyzed	User	dfg		Main Load	30:59.7 min	406.2		

Event Log

The Event Log screen displays the events stored in the device event history.

To display the events:

1. Select **Event Log** from the Events menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range](#)).
4. Choose types of events to display (1).
5. Click **SUBMIT** (2).

Header contains details of the customer, the site, and the selected device.

Customer: SATEC Site: test child site... Location: UPS Device: BFM136-036 Logs

Select Event Types

Setpoint Event Setpoint activity Comm. activity Front panel activity
Self-check Self-update Run-time Error Hardware Event
External Event Corrupted

Drag a column header here to group by that column

No	Date / Time	Description	Details	Value
317254719	5/23/2018 00:29:59.947	Comm. activity: DATA KEEPING	CLR TOU DEMD	
317254713	5/23/2018 00:29:41.030	Comm. activity: DATA KEEPING	CLR DEMANDS VOLT/AMPERE	
317254704	5/23/2018 00:29:34.547	Comm. activity: DATA KEEPING	CLR DEMANDS POWER	
317062192	5/22/2018 00:39:07.166	Comm. activity: DATA KEEPING	CLR TOU DEMD	
317062189	5/22/2018 00:39:06.510	Comm. activity: DATA KEEPING	CLR DEMANDS VOLT/AMPERE	
317062188	5/22/2018 00:39:06.464	Comm. activity: DATA KEEPING	CLR DEMANDS POWER	
316879016	5/21/2018 00:32:32.412	Comm. activity: DATA KEEPING	CLR TOU DEMD	

Event Summary

The Event Summary screen displays a list of the active events categorized by type of event.

To display the event summary:

1. Choose **Event Summary** from the Events menu.
2. Click on the blue triangle (1) to display the device(s) for which event(s) were recorded.

The screenshot shows the expertpower™ Manager interface with the following details:

- Header:** expertpower™, MANAGER > EVENTS > EVENT SUMMARY, User icon.
- Navigation Bar:** MANAGER (highlighted), Dashboard, Readings, Events, Consumption, Power Quality, Billing, Generators, Reports.
- Title:** Events || Event Summary.
- Content Area:**
 - A list of event types:
 - Disconnected Devices
 - Disconnected Comm. Devices
 - Problematic devices requests
 - Problematic Total Energy (marked with a red circle labeled '1')
 - A section for SATEC - 16:
 - + SATEC - 16
 - Problematic TOU Energy
 - Daily consumption difference between General and TOU Tariffs
 - A section for SATEC - 2:
 - SATEC - 2
 - A table for SATEC - 16:

Device ID	Device name	Start Date
105935	Reception area virtual	2018-05-22 00:00:00
105990	Servers Room	2018-05-22 00:00:00
 - A section for TOU Differences.

Notifications

The Notifications screen displays events for which a notification has been defined and has been triggered. To display these events:

1. Select **Notifications** from the Events menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).

A list of events with active notifications is displayed on the screen.

Header contains customer name and name of objects.

Customer: SATEC Objects Main Load

Event Number	Date	SubCategory	Description	Source Name	Notifications
689702018	5/16/2018 11:08:49.453	User	מתוך עליה מעל 220 וולט	Main Load	Details
689702018	5/16/2018 10:30:14.947	User	מתוך ייד מתחת ל-220 וולט	Main Load	Details
689393811	5/16/2018 00:25:15.337	User	מתוך עליה מעל 220 וולט	Main Load	Details
689393811	5/15/2018 23:30:11.557	User	מתוך ייד מתחת ל-220 וולט	Main Load	Details
689017508	5/15/2018 08:30:58.637	User	מתוך עליה מעל 220 וולט	Main Load	Details
689017508	5/15/2018 08:01:53.873	User	מתוך ייד מתחת ל-220 וולט	Main Load	Details
685873236	5/10/2018 18:04:52.613	User	מתוך עליה מעל 220 וולט	Main Load	Details
685873236	5/10/2018 17:34:54.637	User	מתוך ייד מתחת ל-220 וולט	Main Load	Details
685799830	5/10/2018 16:33:40.957	User	מתוך עליה מעל 220 וולט	Main Load	Details
685799830	5/10/2018 16:08:46.690	User	מתוך ייד מתחת ל-220 וולט	Main Load	Details
685703994	5/10/2018 14:37:21.440	User	מתוך עליה מעל 220 וולט	Main Load	Details

Click **Details** to display details about the notification.

Notifications

User Name	Full Name	SMS Status	SMS Time	Email Status	Email Time
slava	Rostyslav			Not On Schedule	

Consumption

The consumption screens display consumption data of the selected device(s) over a defined period, and include the following areas (depending on the user):

- Energy
- Water
- Air Conditioning Usage
- Gas
- Fuel

Each sub-menu includes the following options:

- **Total** – summation of consumption data by time periods.
- **TOU** – consumption data is summed by time of use (TOU) per rate, load, and time.
- **Total distribution** – device consumption arranged by energy source. Enables monitoring of the energy balance by examining the difference between the sum of the meters and the measurement of the main meter which is above them.
- **TOU distribution** – device consumption arranged by source of voltage and time of use (TOU).

Energy Consumption Data

The Total Energy screen displays energy consumption data of the selected device(s) in tabular and graphical formats.

1. Select **Energy > Total** from the Consumption menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

A summary of the data is displayed at the top of the screen (1), and detailed data is shown below (2).

Header contains details of the customer, the site, and the selected device.

Customer: SATEC Site: site for Market... Location: R&D department v Device: Virtual By Form...

Cost is calculated based on the default device setting (see [Setting Default Price on page 37](#)).

Breakdown

Date	Weekday	kWh Import	kvarh Import	kWh Export	Cost (\$)	KW Max DMD Import	Power Factor
5/1/2018	Tuesday	141	0	0		1	1
5/2/2018	Wednesday	142	0	0	9.46	1	1
5/3/2018	Thursday	124	0	0	10.08	1	1
5/4/2018	Friday	64	0	0	8.22	1	1
5/5/2018	Saturday	57	0	0	6.01	1	1
5/6/2018	Sunday	135	0	0	2.5	1	1
5/7/2018	Monday	130	0	0	11.55	1	1
5/8/2018	Tuesday	127	0	0	10.3	1	1
5/9/2018	Wednesday	124	0	0	9.25	1	1

Graph

kWh/kvarh

Bar Show gridlines Inverted axis Stacked chart

Choose to display or hide components of the graph.



Tip

The structure of this screen is identical to the other consumption sub-menus (Total, TOU, Total Distribution, and TOU Distribution).

Energy Consumption Distribution Data

The Total Distribution screen shows the flow of energy at different levels, and flags a loss of energy. To view consumption distribution data:

1. Select **Energy > Total Distribution** from the Consumption menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

The table (1) lists a summary of the energy distribution data. Below the table this data appears in graph form (2), and below the graph a summary of the data is displayed (3).

Device	kWh Export	kWh Import General	kWh Total	PF	Max Demands, kW
Main Load	0	26,889	26,889	0.981	118
Main Lighting	0	5,801	5,801	1.000	30
Workstations sockets	0	1,412	1,412	1.000	9
UPS	0	496	496	1.000	2
Rooms air conditioning	0	141	141	1.000	5
Main air conditioning	0	3,112	3,112	0.905	30
Ventilation	0	422	422	0.972	3
R&D department	0	2,494	2,494	1.000	12
Production hall	0	1,640	1,640	1.000	8
Communication room-9	0	18,819	18,819	1.000	39
Reception area virtual	0	242	242	0.064	
Other		-7,690	-7,690		

Header contains customer name and chosen site.

Customer: SATEC Site: אטר שיק ישראל

Click to display sub-devices

1

Main Lighting: 21.57 %	Workstations sockets: 5.25 %
UPS: 1.84 %	Rooms air conditioning: 0.52 %
Main air conditioning: 11.57 %	Ventilation: 1.57 %
R&D department: 9.28 %	Production hall: 6.10 %
Communication room-9: 69.99 %	Reception area virtual: 0.90 %
Other: -28.60 %	

2

Total: 0	26,889	26,889		
----------	--------	--------	--	--

3

Total: 0	26,889	26,889		
----------	--------	--------	--	--

Power Quality

The Power Quality screens display events affecting power quality and enable monitoring and analysis of these events. Power quality screens include:

- EN50160-2007 Standard
- EN50160-2010 Standard
- Power Quality Events
- Waveforms
- Faults

Billing

The Billing screens provide a means for viewing accounts and producing bills, and include:

- [Billing Data](#)
- [Billing Comparison](#)
- [Total Cost Distribution](#)
- [TOU Cost Distribution](#)

Billing Data

The Billing Data screen displays account details generated for the selected device. To generate an account breakdown:

1. Select **Billing Data** from the Billing menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 27](#)).

Header contains details of the customer, the site, and the selected device.

Customer: SATEC Site: site for Market... Location: R&D department v Device: Virtual By Form... Electricity

Click to view display options.

Display Options

- Bill: Show readings table Split on 1st of month
- Graphs: Total Usage Total Cost

Click to display definitions.

Indicates whether a bill can be produced. If not, a reason is provided.

No user defined for device

Can be invoiced	Name for Bill	R&D department v
Bill period	Number of days in bill period	24
Metering period	Number of days in metering period	23
Billing month	Method of Charge	Billing--TOU Low Voltage, PF, MAX DEMAND & Fixed Charge TOU Low Voltage \$
Meter No.	Device name	R&D department v

Energy Measurements

Description	Season	Tariff	Previous Reading		Present Reading		Usage (kWh)	Cost per kWh (cents)	Total Price (\$)
			Previous Date	Previous Reading	Present Date	Present Reading			
TOU Energy	Fall/Spring	Peak	05/01/2018	63,324.0	05/24/2018	65,088.0	1,764	12.07	212.95
TOU Energy	Fall/Spring	High	05/01/2018	21,904.0	05/24/2018	22,161.0	257	10.02	25.74
TOU Energy	Fall/Spring	Low	05/01/2018	74,937.0	05/24/2018	75,485.0	548	8.20	44.94
Subtotal			05/01/2018		05/24/2018		2,569		283.62
0.92 ₪									
Fixed Charge	General		05/01/2018		05/25/2018				47.45
Total Charge			05/01/2018		05/25/2018				331.08

Usage

Tip

The display options and settings can be set when creating or editing the billing program (see [Billing Administration on page 27](#)).

Invoices History

The Billing menu enables viewing of bills that were previously generated.

To view invoice history:

1. Select **Invoices History** from the Billing menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

The buttons (1) on the screen enable the following actions:

- **Approval** – approve invoices (see [Invoice Approval on page 29](#)).
- **Latest exports** – view all invoices that were recently generated by the manager.
- **Delete invoices** – delete selected invoices.
- **Delete all** – delete invoices based on a selected date range.
- **Concatenate invoices** – create a PDF which contains all the displayed invoices.
- **Export to Excel** – generate an Excel spreadsheet of the invoice history file.
- **Export to PDF** – generate a PDF of the invoice history file.

The serial number of each invoice (2) serves as a link to display that invoice.

Header contains details of the customer and the site.

Scroll right to reveal additional columns.

Check to delete the invoice.

Number	Invoice ID	Start Date	End Date	Consumer	Serial number	Channel	Number of days	Description	Chargeable	Peak	High	Low	Total Usage	Total Cost			
1	404220	5/31/2018	6/1/2018	מנ. לב שגיא מחילת פיתוח בית סיטיק	1007850		1	216 -- תענ"א יבנ פ, מ, נ פאל קנס לשנות - מ, מ, שיא בקוש, בל תשלום קבוע	✓	1126	68	283	1,477.00	757.46			
Total														1,126.00	68.00	283.00	1,477.00

Invoice Approval

Invoice approval is done in two stages: review and approval. Upon completion of both steps, the invoice may be e-mailed. To approve invoices:

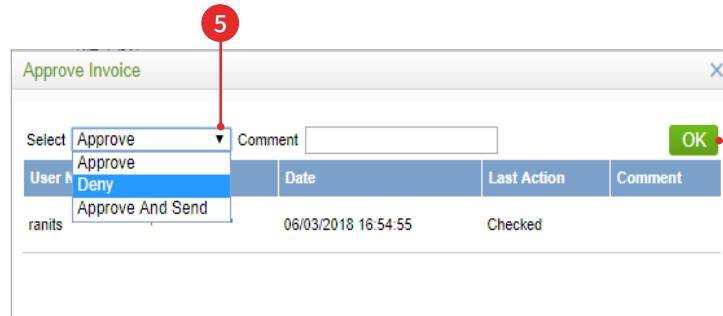
1. Display an invoice by performing steps 1-3 in the section [Invoices History on page 28](#).
2. Click on the invoice status (1) in the Approve column (2).
3. Choose either **Check** or **Deny** (3) and click **OK** (4).
4. Invoice status (1) changes to checked, and the approval window fields change (5).
5. Choose **Approve**, **Deny**, or **Approve and Send** from the drop down menu (5). Selecting **Approve and Send** approves the invoice and sends it in an e-mail.
6. Click **OK** (6).

Billing **Invoices History**

Customer: SATEC **Site:** 3 channels, Dat... **Location:** 3 channels V, BF...

Number	Invoice ID	Start Date	End Date	Consumer	Serial number	Channel	Number of days	Description	Chargeable	Peak	High	Low	Total Usage	Total Cost	Delete	Approve
1	404220	5/31/2018	6/1/2018	מנו ללב שגיא מלתקת פיתוח בית סיטיק	1007850			216 -- תשתי" ובס מ"נ, PF, לאן כנס לשנות - מע"מ, שיא בקוש, בלי ⁺ תשלום קבוע	✓				1,477.00	757.46		None

Total



Billing Comparison

The Billing Comparison Utility screen enables (for auditing purposes) the comparison between the charge received from the electric company and the charge generated by the system.

To compare charges:

1. Select **Billing Comparison** from the Billing menu.
 2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
 3. Set the desired date range (see [Setting Data Range on page 6](#)).

The billing data shown for comparison are:

- **Energy Measurements (1)** – consumption data measured in the system.
 - **Billing (2)** – cost measured in the system.
 - **Electric company account details (3)** – consumption and cost data as measured by the electric company.

4. Enter the invoice data of the electric company (3).

5. Click **CALCULATE** (4).

Results of the comparison appear in the Differences column (5).

expertpower™ MANAGER > BILLING > BILLING COMPARISON

MANAGER Dashboard Readings Events Consumption Power Quality Billing Generators Reports

Billing **Billing Comparison Utility** Header contains details of the customer, the site, and the selected device. Date: 5/1/2018 - 5/26/2018

Customer: SATEC **Site:** test child sit... **Location:** UPS **Device:** BFM136-03... Electricity

Split on 1st of month Merge On Price Change **Calculate**

Description	Energy Measurements					Billing		Utility			
	Usage code	Season	Tariff	Previous Date	Present Date	Usage (kWh / kW)	Cost per kWh (agorot)	Total cost (NIS)	Usage (kWh / kW)	Cost per kWh (agorot)	Total cost (NIS)
TOU Energy	777	Fall/Spring	Peak	5/1/2018	5/25/2018	255	46.96	119.75		46.96	
TOU Energy	778	Fall/Spring	High	5/1/2018	5/25/2018	73	39.12	28.56		39.12	
TOU Energy	779	Fall/Spring	Low	5/1/2018	5/25/2018	185	32.52	60.16		32.52	
Subtotal				5/1/2018	5/25/2018	513		208.47			
kW Max DMD		General	General	5/1/2018	5/26/2018	1.564					
PF		General	General	5/1/2018	5/26/2018	1					
סך נדרש 0.92											
VAT				5/1/2018	5/25/2018		17.00%	35.44			17.00%
Total Charge				5/1/2018	5/26/2018			243.91			

5 Scroll right to reveal additional columns

	Difference				
Total cost (NIS)	Usage (kWh / kW)	Total Cost	Pricing (NIS)	Total (NIS)	

Cost Distribution

There are two types of energy cost distributions:

- **Total Cost Distribution** – cost comparison by period for multiple meters.
- **TOU Cost Distribution** – cost comparison by peak, high, and low levels.

To view billing information by cost distribution:

1. Choose the desired distribution type from the Billing menu (1).
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Set the desired date range (see [Setting Data Range on page 6](#)).

The screenshot shows the 'Billing' menu with several options: 'Billing Data', 'Invoices History', 'Billing Comparison', 'Total Cost Distribution', and 'TOU Cost Distribution'. A red box highlights 'Total Cost Distribution', and a red circle with the number '1' points to the 'Billing' menu item at the top left.

The following billing data is displayed:

The header contains customer name and site details: Customer: SATEC Site: 3 channels Electricity

Device	kWh, Cost, NIS			Total Cost, NIS
	Peak	High	Low	
BFM-test-10	683.74	116.58	233.82	1,034.13
BFM-test-11	661.67	98.58	194.14	954.39
BFM-test-12	622.69	95.06	188.62	906.37
3 channels V	1,968.09	310.22	616.58	2,894.89
Total	3,936.19	620.44	1,233.16	5,789.79

TOU Cost Distribution

Legend: BFM-test-10: 17.86 %, BFM-test-11: 16.48 %, BFM-test-12: 15.65 %, 3 channels V: 50.00 %

Reports

The report generation wizard enables defining a report type and selecting which parameters to display. Each generated report is noted in the list of reports and can be edited at any time.

To produce a new report:

1. Select **Reports Wizard** from the Reports menu.
2. Enter a report title (1).
3. Choose report type from the list (2).

The screenshot shows the 'Report Wizard' interface. At the top, there's a navigation bar with tabs: Manager, Dashboard, Readings, Events, Consumption, Power Quality, Billing, Generators, and Reports. Below the navigation bar, the title 'Reports \ Report Wizard' is displayed. A modal window is open, divided into two sections: 'Set report title' (containing a text input field) and 'Choose report type' (containing a dropdown menu with several report options listed). Red numbered circles (1 and 2) point to the 'Set report title' input field and the 'Choose report type' dropdown, respectively, corresponding to the steps in the instructions above.

The following screen opens to define report settings.

The screenshot shows the 'Report Wizard' interface on the 'Select report items' step. The top navigation bar is identical to the previous screenshot. The main area is titled 'Report Wizard' and contains four main sections: 'Set report title' (with 'Demo report' entered), 'Choose report type' (set to 'Bill Data Report'), 'Select report items' (with a 'Select device' button and a large empty box for device selection), 'Schedule' (with 'One-Time' selected), and 'Select dates' (with 'Start' and 'End' date pickers). A red box highlights the 'Select device' button in the 'Select report items' section. Another red box highlights the 'One-Time' radio button in the 'Schedule' section. A callout bubble points to the 'Periodic' radio button with the text: 'Choose **Periodic** to choose a recurring period of time instead of a date range.' A red box also highlights the 'Click to submit selections' button at the bottom right. A green 'Next' button is visible at the bottom right of the form.

To select a report from a list of reports:

1. Select **Reports List** from the Reports menu.
2. Choose the desired action from the drop-down menu (1).
 - **Update** – change the report definitions.
 - **Save As** – save a copy of the report with a different name.
 - **Delete** – erase the report from the list of reports.
 - **Share** – share a copy of the report with someone else.
 - **Generate** – create a report.
 - **Export to PDF**
 - **Export to Excel**
 - **Results** – display the periodic reports generated (this option exists only in periodic reports).

expertpower™ MANAGER > REPORTS > REPORTS LIST

MANAGER Dashboard Readings Events Consumption Power Quality Billing Generators Reports

Reports \ Reports List

User: ranits

Number	Name	Type	Last Updated	Periodic	Completed	Action
8378	demo report7	Bill Data Report	5/27/2018 6:59:12 PM	X	✓	Generate ▾
8377	demo report2	Bill Data Report	5/27/2018 3:13:42 PM	X	✓	Generate ▾
8371	demo report	Bill calculations report	5/27/2018 1:20:13 PM	X	✓	Generate ▾

First Previous 1 Next Last

Click to filter the report list by customer, by type, or by title of report. + Filter List

1

4 Administrator Settings

The following system options are set at the administrator level:

- [Company Settings](#)
- [Billing Administration](#)
- [Link a Billing Program to a Device](#)
- [Site Setup](#)
- [Event View Definition](#)
- [Analyzed Events](#)
- [Notification Settings](#)
- [Add Meter](#)

Company Settings

To define a new company:

1. Select **System Setup** from the Maintenance menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Select the **Companies** tab (4).
4. Click **+ Add New Definition** (2).
5. Enter information for the new company, including the payment program and start date (1).
6. Click **ADD** (3).

The screenshot shows the 'Customer Companies' screen in the System Setup module. The top navigation bar includes tabs for ADMINISTRATOR, MAINTENANCE, DATA ENTRY, PERMISSIONS, EVENTS, BILLING, and LICENSE MNGMT. A red circle labeled '2' points to the '+ Add New Definition' button in the top right corner. A red circle labeled '1' points to the 'Company' input field where 'ANDE' is entered. A red circle labeled '3' points to the 'Add' button in the bottom right corner of the form. A red circle labeled '4' points to the 'Companies' tab in the main navigation bar. The main content area displays a table with columns for Details, Comm., Sites, Companies, Status, Configuration, Users, Consumption, Baseline, Forecasting, and Email. One row is selected, showing 'Customer: SATEC' and 'Company: Israel Electric Company V2'. The 'Start Date' is listed as 2/1/2010 12:00:00 AM. Action buttons for Programs, Default price lists, and Delete are also visible.

Details	Comm.	Sites	Companies	Status	Configuration	Users	Consumption	Baseline	Forecasting	Email
Customer: SATEC										
Company				Start Date					Action	
Israel Electric Company V2				2/1/2010 12:00:00 AM		Programs Default price lists			Delete	

Link a Billing Program to a Device

1. Select **System Setup** from the Maintenance menu.
2. Select the relevant device(s) in the device tree (see [Selecting Devices on page 7](#)).
3. Select the **Companies** tab (1).
4. If a company is not defined, define a new company (see [Company Settings on page 35](#)).
5. From the drop down list (2), select **Programs** (3) to choose a program (see [Choose Billing Program below](#)).
6. From the drop down list (2), select **Default price lists** (4) to choose a default price (see [Setting Default Price on page 37](#)).

expertpower™ ADMINISTRATOR > MAINTENANCE > SYSTEM SETUP

ADMINISTRATOR Maintenance Data Entry Permissions Events Billing License Mngmt.

Maintenance > System Setup > Customers List > Comm. Devices List > Devices List > **Device Companies**

Device Companies

Customer: SATEC Comm Device: PM175 SATEC Device: Main Load virtual Electricity

Company	Start Date	Periodic Reports	Action
Demo company	1/1/2015 12:00:00 AM		Select... Select... Programs Calculations Thresholds Current Thresholds Factors Current Factors Customized Report Prices Device Company Factors Delete Default price lists

Choose Billing Program

1. Click **Update** (2) to change a program selection or edit the start date.
2. Click **Add** (1).

expertpower™ ADMINISTRATOR > MAINTENANCE > SYSTEM SETUP

ADMINISTRATOR Maintenance Data Entry Permissions Events Billing License Mngmt.

Maintenance > System Setup > Customers List > **Customer Companies**

Customer Companies

Customer: SATEC Electricity

Details	Comm.	Sites	Companies	Status	Configuration	Users	Consumption	Baseline	Forecasting	Email
Customer										
Company										
Israel Electric Company V2										

Click for drop-down program menu

Payment Program: 8- IEC V2 Total energy general tariff

Start Date: 2/1/2010 12:00:00 AM

Action: Programs, Default price lists, Delete

Add New Definition (1)

Add (2)

Cancel

Program: לא לשנות - מע"מ, שייא בקיוש, בל תשלום קבוצת PF, תוויי"ז יבוא מ"נ -- 216

Start Date: 2/1/2010 12:00:00 AM

Action: Update (2)

Setting Default Price

When choosing default price lists (see [Link a Billing Program to a Device on page 36](#)), the default price list window opens.

1. Choose usage type (1).
2. Choose from the prices that appear in the drop-down menu (2).
3. Click **Save** (3).

The screenshot shows the expertpower™ software interface. The top navigation bar includes the logo 'expertpower™', the path 'ADMINISTRATOR > MAINTENANCE > SYSTEM SETUP', and tabs for 'Maintenance', 'Data Entry', 'Permissions', 'Events', 'Billing', and 'License Mngmt.'. Below this is a breadcrumb trail: 'Maintenance > System Setup > Customers List > Customer Companies'. On the left, a vertical sidebar has a 'DEVICES' tab. The main content area displays a table for 'Customer Companies' with columns: Details, Comm., Sites, Companies, Status, Configuration, Users, Consumption, Baseline, Forecasting, and Email. A dropdown menu titled 'Customer: SATEC' is open, showing 'Default price lists'. A red circle labeled '1' points to the 'Usage Type' dropdown, which contains 'Active energy import'. To the right, there are checkboxes for 'Use for baseline: Total' (unchecked) and 'TOU' (checked). Below this is a checkbox for 'Set for all devices'. A red circle labeled '2' points to the 'Price List' dropdown in the first row of the table, which is set to 'NONE'. The table rows represent different seasons and tariffs: General (General, General, NONE), Summer (Peak, Peak, NONE), Summer (High, High, NONE), Summer (Low, Low, NONE), Winter (Peak, Peak, NONE), Winter (High, High, NONE), Fall/Spring (High, High, NONE), and Fall/Spring (Low, Low, NONE). A red circle labeled '3' points to the 'Save' button at the bottom right of the table.

Site Setup

A site is a set of meters which appear together in the device tree and which are often chosen simultaneously.

To define a site:

1. Select **System Setup** from the Maintenance menu.
2. Choose the desired customer from the list of customers.
3. Select the **Sites** tab (1).
4. Click **+ Add Site** (2).

The screenshot shows the 'Sites List' page under the 'System Setup' section. At the top, there's a navigation bar with tabs: ADMINISTRATOR, Maintenance, Data Entry, Permissions, Events, Billing, and License Mngmt. A red circle labeled '2' points to the '+ Add Site' button in the top right corner. Below the navigation bar, the title 'Maintenance \\ System Setup \\ Customers List \\ Sites List' is displayed. To the left, a vertical sidebar labeled 'DEVICES' has a green header. The main content area shows a table with columns: Details, Comm., Sites, Companies, Status, Configuration, Users, Consumption, Baseline, Forecasting, and Email. The 'Sites' column is highlighted in green. A red circle labeled '1' points to the 'Sites' tab. The table lists several devices:

- X 101417 3 channels
- X 100537 Data Center
- X 101025 PM175
- X 100174 PM175 SATEC EMB
- X 101848 SG Office

5. Define a name for the site (3).
6. Select device(s) to add to the site and click **MOVE SELECTED** (4).
7. Click **SUBMIT** (5).

The screenshot shows the 'Site Details' page. At the top, the title 'Maintenance \\ System Setup \\ Customers List \\ Sites List \\ Site Details' is shown. A red circle labeled '1' points to the 'Site Details' tab in the top navigation bar. Below the title, there are two tabs: 'Site Details' (selected) and 'Configuration'. A red circle labeled '2' points to the 'New Site' section. In this section, there are fields for 'Name' (with a red circle labeled '3') and 'Parent Site' (with a red circle labeled '4'). A note says: 'Optional: select to define the new site as a sub-site of an existing site.' On the left, a list of devices is shown: R&D department v, 3 channels V, BFM-test-10, BFM-test-11, BFM-test-12, and Communication room v. On the right, a sidebar titled 'Devices in site' contains buttons: Move Selected >, Move All >, Remove Selected <, and Remove All <. A red callout box points to the 'Remove Selected' button with the text: 'To remove a device from the site, select it and click REMOVE SELECTED'. At the bottom right, a red circle labeled '5' points to the 'Submit' button.

Event View Definition

Defining event views enables the selection of events displayed in the Event View screen (see [Event View on page 19](#)). The customer has the option to add, edit, and download various events.

1. Select **View Definition** from the View menu.
2. Select the desired customer or site from the device tree (see [Selecting Devices on page 7](#)).
 - When selecting a site, events belonging to associated devices are displayed.
 - When selecting a device, events and communication converters are displayed.
3. Choose the desired category from the drop down menu (1).
4. Choose the desired event type (2).
5. Choose the warning level (3).



Tip

The warning level affects alarm scheduling (see [Set Alarm Scheduling on page 42](#)).

6. Click **ADD** (4).

The selected event now appears in the list of existing events.

The screenshot shows the 'View Definition' screen in the expertpower™ software. The top navigation bar includes 'expertpower™', 'ADMINISTRATOR > EVENTS > VIEW DEFINITION', and a user profile icon. The main menu bar has tabs: ADMINISTRATOR, Maintenance, Data Entry, Permissions, Events, Billing, and License Mngmt. On the left, there's a vertical menu with 'DEVICES' and a 'Customer: SATEC Site: site for Marketing' dropdown. The central area is titled 'Events \ View Definition'. A red box highlights the 'Header contains customer name and site details.' message above the event list. The 'Customer: SATEC Site: site for Marketing' dropdown is also highlighted. The interface is divided into four main sections:

- 1 Select Category:** A dropdown menu showing 'Analyzed' (selected) and other options like 'Monitored' and 'Historical'. A red circle with '1' points to 'Analyzed'.
- 2 Select Event Types:** A tree view of event categories. A red box highlights the 'System' category, which is expanded to show various event types such as 'Analog Input Source Burnt Out', 'Generator Back To Auto Operation Mode', etc. A red circle with '2' points to the 'System' category.
- 3 Choose Warning Level:** A section with three icons: a speech bubble (Information), a triangle (Warning), and a circle with an X (Error). A red circle with '3' points to the warning icon.
- 4 Display in map:** A checkbox labeled 'Display in map' followed by a green 'Add' button. A red circle with '4' points to the 'Add' button.

To the right, a list titled 'Existing Events' shows a scrollable list of events categorized by source. A red box highlights the 'Click to delete an event from the list of existing events.' link next to the 'Remove All' button. A red circle with '5' points to the 'v>233' event entry in the list.

Category	Event Description	Action
Analyzed \ System	Daily Energy Zero	X
Analyzed \ System	Low weekly Power Factor (< 0.92)	X
Analyzed \ System	Technician working on Generator	X
Analyzed \ User	consumption event test	X
Analyzed \ User	Demo Event	X
Analyzed \ User	v>233	X
Application \ Communication	ETC stopped connecting XPW. Switching to polling	X
Application \ Communication	IP Address and Port are not unique, changed connection type to Blocked	X
Application \ Communication	No connection to device	X
Application \ Communication	No connection to ETC	X
Application \ Counter decreased	Counter decreased	X
Application \ Counter decreased	Energy counter decreased	X
Application \ Counter decreased	Energy counter decreased. It can be a manual reset.	X
Application \ Counter decreased	Export Energy counter decreased	X
Application \ Counter decreased	Export Energy counter decreased. It can be a manual reset.	X
Application \ Counter decreased	Export TOU Energy counter decreased	X
Application \ Counter decreased	Export TOU Energy counter decreased. It can be a manual reset.	X
Application \ Counter decreased	Pulse counter decreased	X
Application \ Counter decreased	Pulse counter decreased. It can be a manual reset.	X
Application \ Counter decreased	Reactive Energy counter decreased	X

Analyzed Events

Analyzed events are events which are analyzed based on criteria defined by a user.

To define an analyzed event:

1. Select **Analyzed Events** from the Events menu.
2. Click **New** (1).

Customer: SATEC

SATEC ▾

1

New

consumption event test

3. Define event details (2).
4. Choose an event source from the drop-down menu (5).



Tip

Data sources for energy and demand data require defining a formula. To define a formula, select **Energy & Demand** (4) and click **CHOOSE FORMULA**, which replaces the **CONDITIONS** button (7).

5. Select the desired sites or devices (6).
6. Click **CONDITIONS** (7) to set conditions for the event (see [Defining Criteria for Analyzed Event on page 41](#)).
7. Click **SAVE** (3).

Analyzed events are added to the list of events, and notifications may be set for them (see [Notification Settings on page 42](#)).

expertpower™ MANAGER > DASHBOARD

MANAGER

Customer: SATEC Event Name:

2

3

Clear Back Save

Select Event Source

Basic measurements

Basic measurements

ETC Event Log

Event Log

Generator Controller

Energy & Demand

Digital Inputs

PM175 SATEC

PM175 SATEC EMB

SATEC PM135

SATEC SG

SG Office

site for Marketing

Submeters

test child site to delete

אזר דרום

אזר שוק ישראל

Info

Warning

Critical

Description

The selected warning level is marked in blue.

7

Conditions

Defining Criteria for Analyzed Event

An analyzed event is opened and closed based on pre-defined conditions. To set these conditions:

1. Click **CONDITIONS** (see [Analyzed Events on page 40](#)).
2. Click **ADD** (3) to begin a new event definition.
3. Choose a triggering parameter from the drop-down menu (1).
4. Set threshold triggers (5) for the open and close actions.
5. Click **SAVE** (4).
6. Click **DEFINE TIME CRITERIA** (2).

The screenshot shows the 'Define Event Criteria' window. At the top, there are buttons for 'Define Time Criteria', 'Remove', 'Add', 'Back', and 'Save'. Below these buttons, there are two input fields: 'Starting Threshold' and 'Ending Threshold', each with a dropdown arrow. A red box highlights the first input field, and a red callout bubble labeled '1' points to it. Another red callout bubble labeled '2' points to the 'Define Time Criteria' button. A red box highlights the second input field, and a red callout bubble labeled '3' points to the 'Add' button. A red callout bubble labeled '4' points to the 'Save' button. A red callout bubble labeled '5' points to the 'Ending Threshold' input field. A red box highlights the entire row of buttons at the bottom.

The Define Time Criteria window opens.

7. Click **ADD** (6).
8. Choose the time frame (9) from the drop down menu.
9. Define beginning and ending parameters for the time frame (8).
10. Click **SAVE** (7).

The analyzed event is added to the list of existing events.

The screenshot shows the 'Define Time Criteria' window. At the top, there are buttons for 'Define Event Criteria', 'Remove', 'Add', and 'Save'. Below these buttons, there are two input fields: 'Starting Threshold' and 'Ending Threshold', each with a dropdown arrow. A red callout bubble labeled '6' points to the 'Add' button. A red callout bubble labeled '7' points to the 'Save' button. A red box highlights the entire row of buttons at the bottom. On the left, there is a dropdown menu with options: 'Day of week', 'Year', 'Month', 'Day of month', 'Hour', and 'Minute'. The 'Day of week' option is selected and highlighted with a blue background. A red callout bubble labeled '8' points to the 'Day of week' option. A red callout bubble labeled '9' points to the 'Day of week' dropdown menu.

Notification Settings

Notifications can be set, per device, for events in the system.

1. Select **Notifications** from the Events menu.
2. Select the desired site or device in the device tree (see [Selecting Devices on page 7](#)).
3. Optional: select an open action (1) to trigger the opening of the event. Select a close action (2) to trigger the closing of the event.
4. Click **SAVE** (3).

The screenshot shows the 'Notifications' configuration interface. At the top, it displays 'Customer: SATEC Site: Data Center Location: Main Load'. On the left, there's a 'DEVICES' sidebar. The main area lists event types under categories: 'Analyzed \ System', 'Analyzed \ User', and 'Application \ Communication'. Each event type has an 'Open Action' and a 'Close Action' dropdown menu. A red circle labeled '1' points to the 'Open Action' dropdown for the first event in the 'Analyzed \ System' list. A red circle labeled '2' points to the 'Close Action' dropdown for the same event. A red circle labeled '3' points to the green 'Save' button at the bottom right.

Set Alarm Scheduling

To schedule an alarm:

1. Select **Preferences** (1) at the bottom of any of the system screens.
2. Schedule e-mail and SMS messages for each alert level.
3. Click **SUBMIT** (2).

A screenshot of a system interface with a dark green header bar. In the header, there are links for 'Contact us', 'About', 'Help', 'Preferences' (which is highlighted with a red box), and 'Tariff'. The 'Preferences' link is circled with a red number '1'.

The screenshot shows the 'Notifications' configuration screen. It features a 'eMail' tab and a 'SMS' tab, with the 'SMS' tab highlighted with a red box and a red arrow pointing to it. A pink callout box above the tabs says 'Click to schedule SMS notifications.' Below the tabs, there's a table for setting up notifications by 'Warning Level'. The table includes columns for 'Warning Level', 'None' (checkbox), 'Immediate' (checkbox), and 'Send Every' (dropdown). For each warning level (Informative, Warning, Critical), the 'Immediate' checkbox is checked and the 'Send Every' dropdown is set to '1 Minutes'. A red circle labeled '2' points to the green 'Submit' button at the bottom right.

Add Meter

To add a new meter:

1. Select **System Setup** from the Maintenance menu.
2. Select the desired customer from the list of customers.
3. Select the **Comm.** tab (1).
4. Click **+ Add Communication Device** (2).

expertpower™ ADMINISTRATOR > MAINTENANCE > SYSTEM SETUP

Maintenance > System Setup > Customers List > **Comm. Devices List**

ADMINISTRATOR Maintenance Data Entry Permissions Events Billing License Mngmt.

Customer: SATEC

ID	Communication Device	MAC	IP address	Port	Connection status	Last date polled	Suspended	Not displayed in site
100107	BFM136 SATEC	0005F0005872	82.166.91.134	502	Connected	5/31/2018 11:37:48 AM	<input type="checkbox"/>	<input type="checkbox"/>
100136	PM175 SATEC	0005F0005039	82.166.91.134	504	Connected	5/31/2018 11:37:17 AM	<input type="checkbox"/>	<input type="checkbox"/>
103137	SATEC SG	0005F000D9E6X		502	No Connection	3/29/2018 11:18:12 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
103138	SATEC PM135	0005F000A5BFX		502	No Connection	3/29/2018 11:18:50 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The New Comm. Device screen appears. In this screen, enter the following data:

- **ID Name** – a unique name that will aid in identifying the device.
 - **Communication device type** – device type is in accordance with the relevant device.
 - **Time Zone**
 - **Password**
 - **MAC** – MAC address appears on the device.
5. Click **Save** (3).

Details

New Comm. Device

* ID:
Name

Communication device type
ETC

Suspended
 Hidden

More Properties

Time zone

Password
Show password

MAC

Serial number

MAC address is printed on the device.

Entering a serial number is optional.

Save

Add a Device

To add a new device:

1. Select **System Setup** from the Maintenance menu.
2. Select the desired customer from the list of customers.
3. Select the **Comm. Devices** tab.
4. Select the desired link in the list of communication devices.
5. Select the **Devices** tab (1).
6. Click **+ ADD DEVICE** (2).

The screenshot shows the 'Devices List' screen. At the top, there are navigation links: Maintenance > System Setup > Customers List > Comm. Devices List > Devices List. To the right are buttons for 'Scan SATEC devices' (with download and print icons) and '+ Add Device'. A red circle labeled '1' points to the 'Devices' tab in the top navigation bar. A red circle labeled '2' points to the '+ Add Device' button. Below the navigation is a green header bar with tabs: Details, Devices (which is selected), Memory Setup, and Requests. The main area displays a table titled 'Customer: SATEC Comm Device: BFM136 SATEC'. The table has columns: ID, Number, Device name, Type, Serial number, Channel, Last Polled, Availability, Reset Availability, Hidden, and Suspended. Two rows are listed:

ID	Number	Device name	Type	Serial number	Channel	Last Polled	Availability	Reset Availability	Hidden	Suspended
102028	1	Main Lightning	BFM136-036 Logs	1002082	1	5/31/2018 1:34:10 PM	0	Reset Availability	<input type="checkbox"/>	<input type="checkbox"/>
103444	2	Workstations sockets	BFM136-036 Logs	1002082	2	5/31/2018 1:34:15 PM	0	Reset Availability	<input type="checkbox"/>	<input type="checkbox"/>

7. Set the device parameters.
8. Enter the serial line address number (3).
9. Click **SAVE** (4).

The screenshot shows the 'Comm. device details' screen. At the top, there are navigation links: Maintenance > System Setup > Customers List > Comm. Devices List > Comm. device details. To the right are download and print icons. A red circle labeled '3' points to the 'Serial line address' input field, which contains the value '99'. A red circle labeled '4' points to the 'Save' button at the bottom right. The main area has a green header bar with tabs: Details, Devices, Memory Setup, and Requests. Below is a section titled 'Customer:SATEC Comm Device: BFM136 SATEC'. It includes fields for Name ('BFM136 SATEC'), Time zone ('(GMT+02:00) Jerusalem'), Password, MAC ('0005F0005872'), and Serial number. A note says 'Entering a serial number is optional.' A red box highlights the Serial number field. On the left, there are sections for 'Communication device type' ('Satec Embedded') and checkboxes for 'Suspended' and 'Hidden'. A 'More Properties' section contains checkboxes for 'Use server and not comm. device to establish a connection' and 'Keep Connection', and dropdowns for 'Connection Speed' ('Regular') and 'Number of retries' ('3'). Other settings include 'Communication protocol' ('Modbus'), 'Timeout for requests' ('4 Seconds'), 'Monitor communication status' (checked), 'Time till alarm' ('125 Minutes'), and a 'Reset schedule of all devices to default' button. The 'Save' button is highlighted with a red circle labeled '4'.

The device now appears both in the communication device lists and in the device tree.

Adding a Calculated Meter

A calculated (virtual) meter applies a formula to multiple devices for billing purposes and for viewing data.

To add a calculated meter

1. Go through steps 1-6 of adding a device (see [Add a Device on page 44](#)).
2. Enter a name for the calculated device (1).
3. Select **Virtual By Formula** from the Device Type drop-down menu (2).
4. Click **SUBMIT** (3).

The screenshot shows the 'New Device' form. At the top left is a vertical 'DEVICES' menu. The main form has a green header bar with 'Device details' and 'New Device'. Below this, there's a 'Last Polled //' section with a 'Device name' input field (1). To the right is a 'Serial number' input field. Under 'Device Type:' is a dropdown menu set to 'Virtual By Formula (65)' (2). To the right of the dropdown are several checkboxes: 'Use For Billing', 'Not chargeable', 'Hidden', 'PV Producer', and 'Suspended [Dates]'. A 'More Properties' link is below the type dropdown. At the bottom right is a green 'Submit' button (3).

Setting a Virtual Device

1. Click on the virtual device in device list (see [Add a Device on page 44](#)).
2. Select the **Virtual** tab (1).
3. Choose device type (2).
4. Click **+ CREATE NEW VERSION** (3).
5. Set a date and name, and click **OK** (4).

The screenshot shows the 'Virtual Device' screen. At the top left is a vertical 'DEVICES' menu. The main area has a green header bar with tabs: 'Device details', 'Companies', 'Virtual' (which is selected), 'Price Lists', 'Consumption Indicators', and 'More Options'. To the right of the tabs is a blue 'Create new version' button (1). Below the tabs, it says 'Customer: SATEC Comm Device: BFM136 SATEC Device: test Current Version: 1.1.0'. A 'Required Processing (Virtual devices schedule)' table is shown, with the first row 'Energy' checked (2). A modal dialog box titled 'Version' is open in the center (4), containing fields for 'From Date', 'Name', and a 'Copy Previous Version' checkbox. At the bottom of the dialog are 'OK' and 'Cancel' buttons. Below the table, there are 'Basic Formula' and 'Special Formula' buttons, and a '+ Add' button. At the very bottom is a table with columns 'Device', 'Factor', and 'Action', showing a single entry 'Main Lightning' with factor '1' and 'Change | Remove' action.

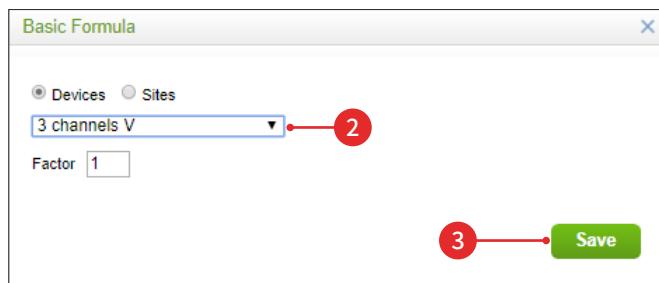
Setting a Formula

1. Click **+ Add** (1) in the Virtual tab (see [Setting a Virtual Device on page 45](#)).

The screenshot shows the expertpower™ software interface. At the top, there's a navigation bar with 'expertpower™' logo, 'ADMINISTRATOR > MAINTENANCE > SYSTEM SETUP'. Below it is a menu bar with 'ADMINISTRATOR' (highlighted in green), 'Maintenance', 'Data Entry', 'Permissions', 'Events', 'Billing', and 'License Mngmt.'. On the left, a vertical sidebar has 'DEVICES' highlighted. The main content area shows 'Customer: SATEC Comm Device: BFM136 SATEC Device: test Current Version: 1.1.0'. A green header bar contains tabs: 'Device details', 'Companies', 'Virtual' (highlighted in green), 'Price Lists', 'Consumption Indicators', and 'More Options'. Below this is a table with rows for 'Type' (checkboxes for 'Energy', 'Basic measurements', 'Demands'), 'Special Processing' (gear icon), 'Recalculate' (calculator icon), 'Process Max Demands' (checkbox), and 'Insert partial data' (checkbox). At the bottom, there's a date '1.1.0 11/4/2015' and buttons for 'Basic Formula' and 'Special Formula'. A red circle labeled '1' points to the '+ Add' button in the 'Special Formula' row.

The Basic Formula window opens.

2. Choose the formula from the drop down menu (2) and click **SAVE** (3).



To add another device, repeat step 1 and select another device in the Basic Formula window.



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