Janitza E-Learning Portal

Manual
Energy Invoice Professional

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These instructions explain how to create an energy invoice in GridVis Desktop.

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- ▪ Explanation of reactive energy and increased reactive energy
- ▪ Creating a new data export
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- ▪ Execute the export
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The **"Energy Invoice Professional"** function creates a report with the following content:

- ▪ Energy invoice with position table.
- ▪ Optional column display and description.
- ▪ Addresses, information and labeling fields.
- ▪ User-defined customer logo.
- ▪ 6 price brackets with additional information.
- ▪ <u>Output of increased reactive energy.</u>
- ▪ Fixed and relative costs.
- ▪ Bar chart for history and comparative period.
- ▪ Additional tables for history and comparative period.
- ▪ Position markings for overruns.
- ▪ Energy quantity as area ratio.

You can also create the **"Energy Invoice Professional"** as an **XLS, XLSX** or **PDF** file containing:

- ▪ Performance values (AVG, MAX),
- ▪ Electrical energy values
- ▪ User-defined energy values (e.g. gas, water, oil or other values).

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Rechnungs-Nr.:	RN-789123

Zeitraum: 01.07.2017 - 31.07.2017

Pos	Kostenstelle	Verbrauch	Startwert	Endwert	Preis	Einheit	Summe
1	Beleuchtung	178,68 kWh	1.818,00 kWh	1.996,00 kWh	0,1000	€/kWh	17,87 €
2	Klimaanlage	533,28 kWh	60.234,00 kWh	60.766,00 kWh	0,1000	€/kWh	53,33 €
3	Maschine 1	0,53 MWh	60,00 MWh	61,00 MWh	0,1000	€/MWh	0,05 €
4	Gesamt	0,00 GWh	0,00 GWh	0,00 GWh	0,1000	€/GWh	0,00 €

Grundgebühr:	10,00 €
MwSt. 19.0%:	15,44 €
Summe (Brutto)	96,69 €

Monatsübersicht, Beleuchtung (#1)
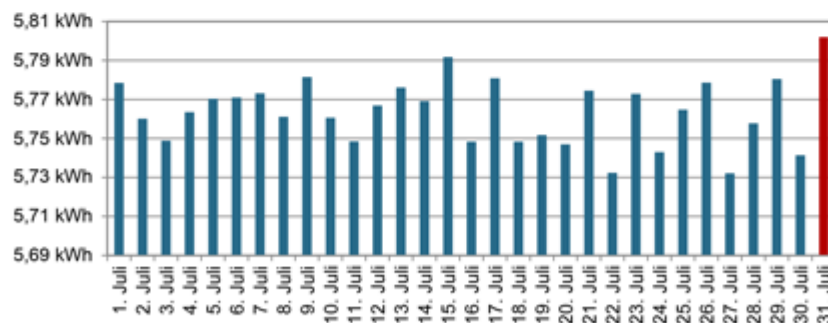
powered by
Janitza®

Muster Bank IBAN : DE02120300000000202051 BIC : BYLADEM1001

ℹ The configuration of the **"Energy Invoice Professional"** requires recorded values (historical values) of your measuring device and the corresponding type of measured value.

The active power factor is important when preparing energy invoices.

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The ratio of active power **P** to apparent power **S** is called active power factor or active factor. The power factor can be between 0 and 1.

With sinusoidal currents, the active power factor corresponds to the cosine (cos φ). It is defined by the ratio P/S. The active power factor is a measure of which part of the apparent power is converted into active power. When active power and voltage is constant, the higher the active power factor cos φ, the smaller the apparent power and current.

The tangent (tan) of the phase shift angle (φ) makes it easy to convert the reactive and active unit.

The system tries to achieve the highest possible power factor to avoid transmission losses in power supply units. Ideally, it is exactly 1 but is practically only about 0.95 (inductive). Power utility companies frequently prescribe a power factor of at least 0.9 for their customers. If this value is not reached, the active energy drawn will be invoiced separately. This is irrelevant, however, for private households. Systems for power factor correction serve to increase the power factor. If capacitors of suitable size are connected in parallel to the loads, the reactive current oscillates between the capacitor and the inductive load. The higher-level network is no longer under an additional load. If a power factor of 1 is reached through a correction, only active current is transmitted.

You can find more information about this subject on our website.

The electricity supply contract specifies an active power factor ("target cosphi") of 0.95.

According to the formula: Target tanphi = tan(arccos 0.95) = 0.33, the customer has 33% of his active energy as reactive energy at no charge:

Active energy of 100,000 KWh results in free reactive energy of approximately 33,000 kvarh. For reactive energy of 75,000 kvarh, 42,000 kvarh are charged separately to the customer as increased reactive energy.

> **i** Free increased reactive energy of 50% corresponds to a cosine phi target of 0.9.
>
> **i** If you invoice apparent power or apparent energy (occurs abroad, for example), enter the **target cosphi = 1**. Apparent power and apparent energy appear in the Energy Invoice Professional in kVA or kVAh.
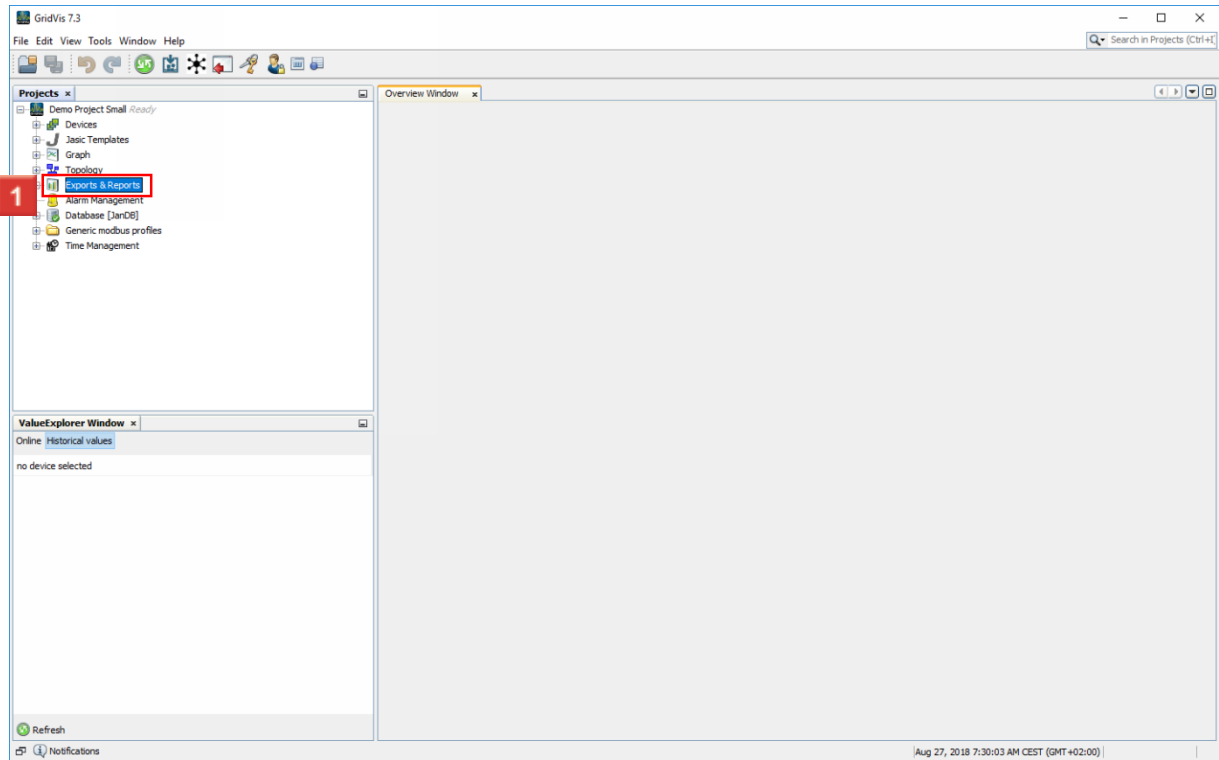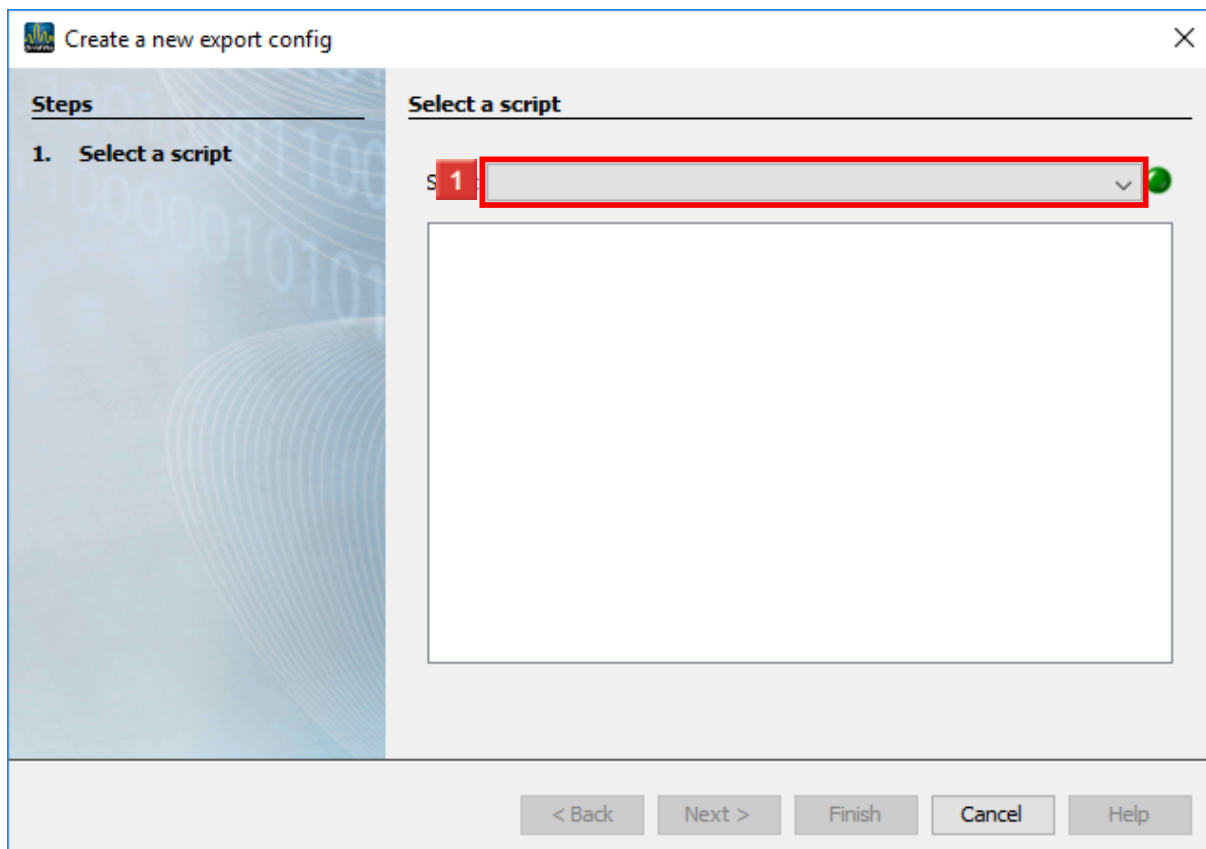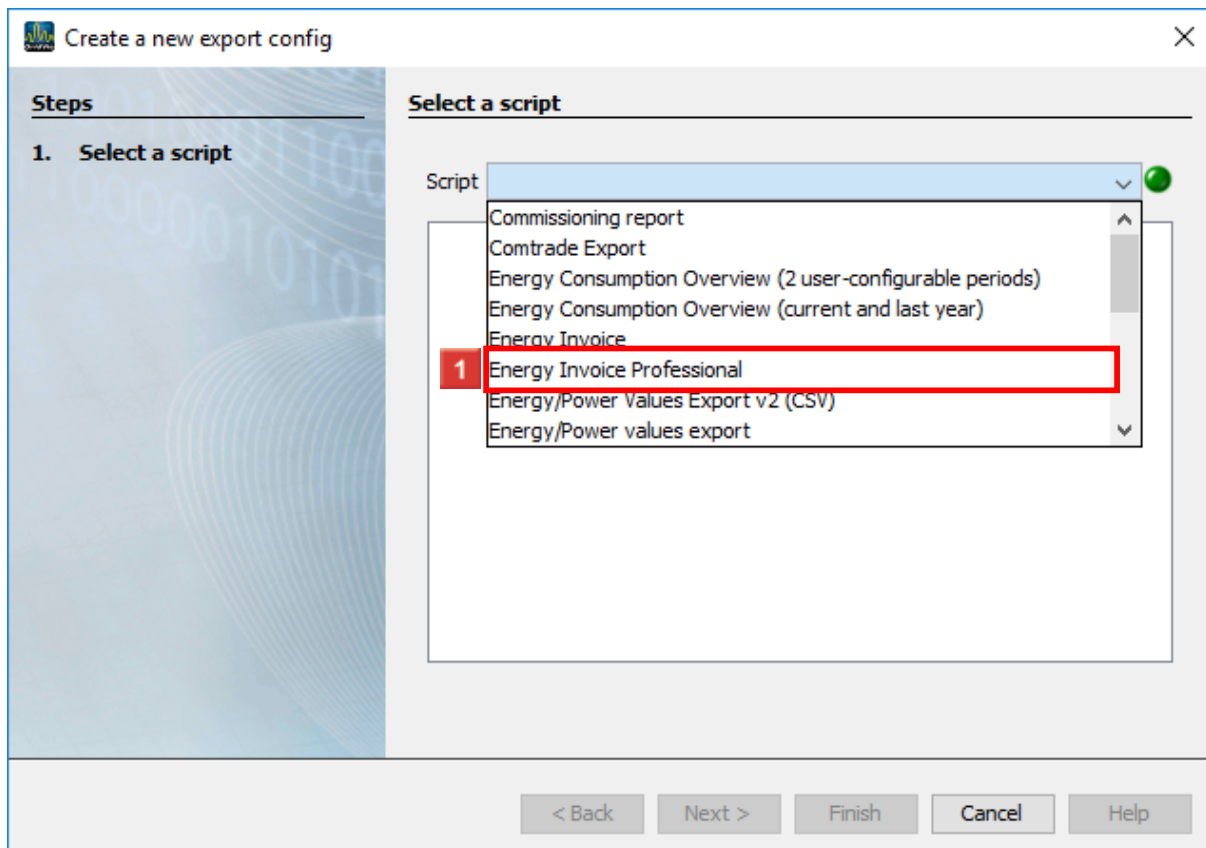
1 Right-click the **Exporte & Reporte** tree item.
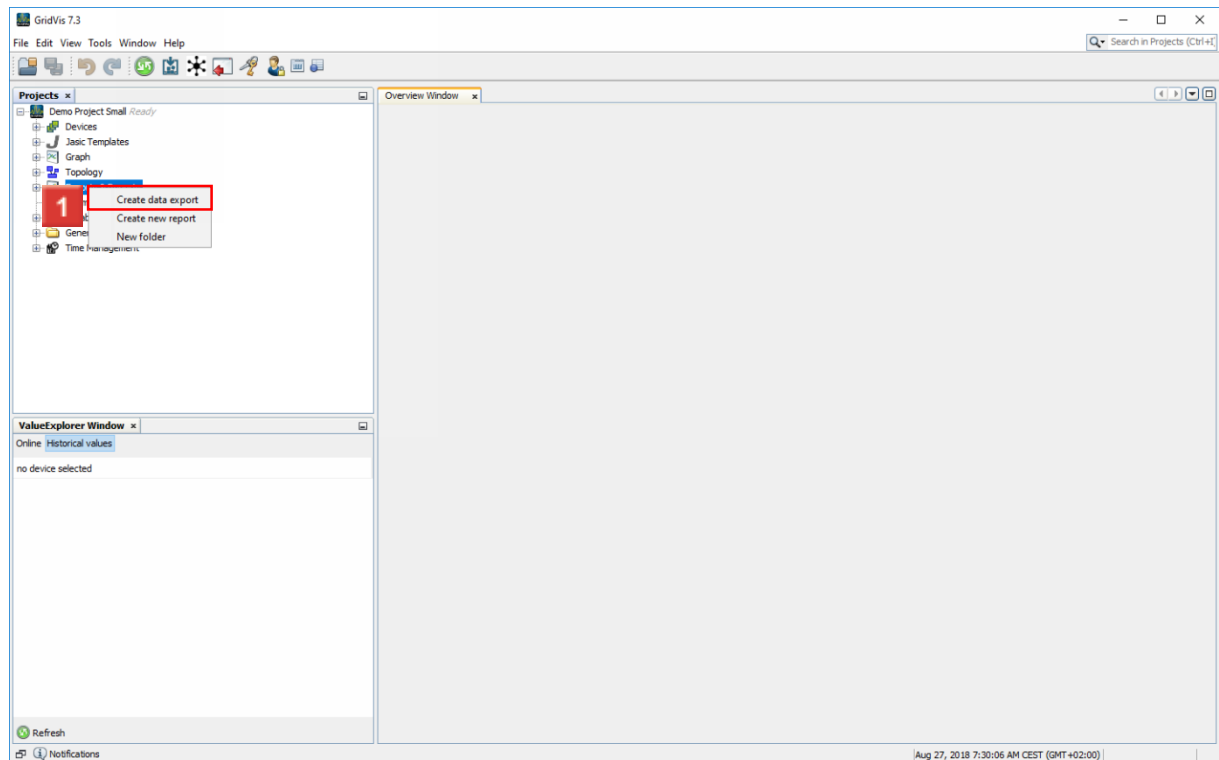
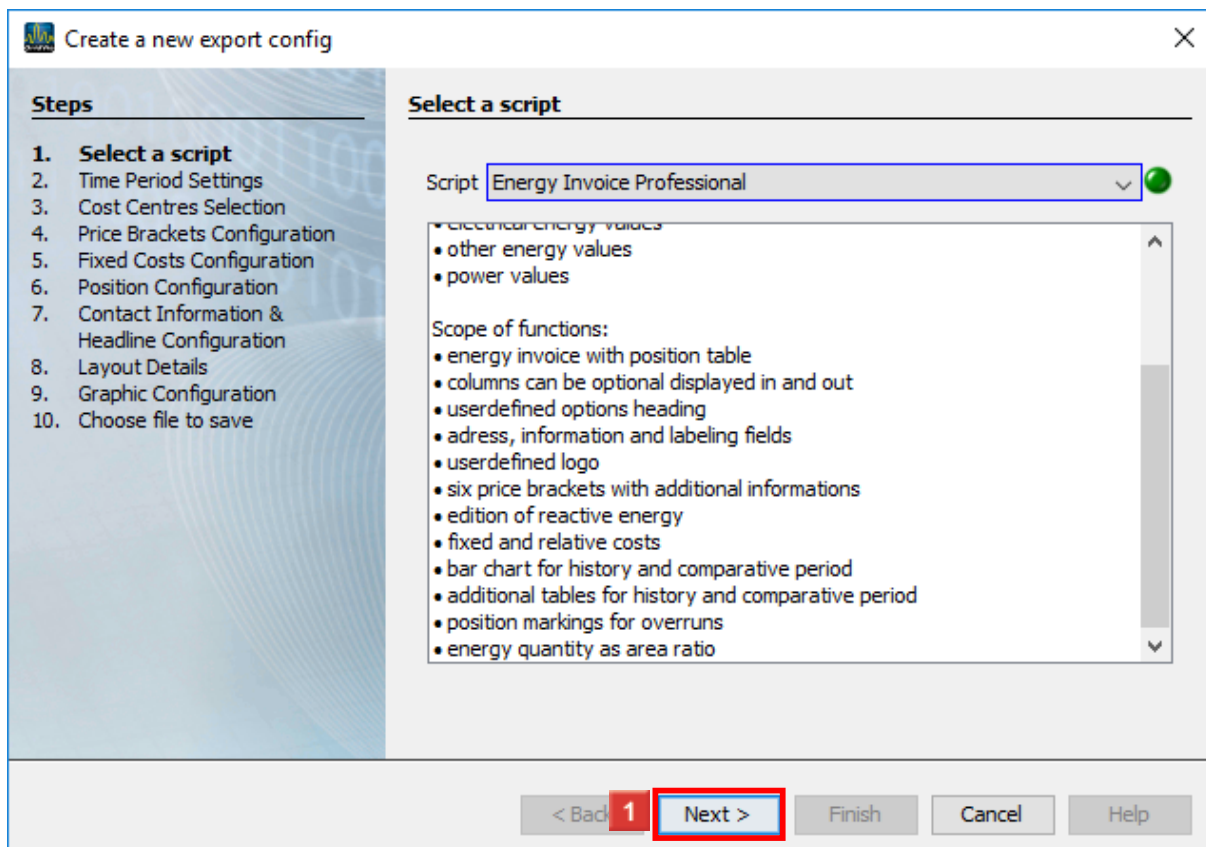**1** Click the **Create data export** list item.

1 Create a new export config

1 Click the **Skript** dropdown button.

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Create a new export config ✕

Steps

Select a script

1. **Select a script**

Script [   ] ⌄ 🟢

Commissioning report
Comtrade Export
Energy Consumption Overview (2 user-configurable periods)
Energy Consumption Overview (current and last year)
Energy Invoice
1 Energy Invoice Professional
Energy/Power Values Export v2 (CSV)
Energy/Power values export

[< Back] [Next >] [Finish] [Cancel] [Help]

1 Click the **Energy Invoice Professional** list item.

Create a new export config ✕

Steps

Select a script

1. **Select a script**
2. Time Period Settings
3. Cost Centres Selection
4. Price Brackets Configuration
5. Fixed Costs Configuration
6. Position Configuration
7. Contact Information &
   Headline Configuration
8. Layout Details
9. Graphic Configuration
10. Choose file to save

Script [Energy Invoice Professional] ⌄ 🟢

• electrical energy values
• other energy values
• power values

Scope of functions:
• energy invoice with position table
• columns can be optional displayed in and out
• userdefined options heading
• adress, information and labeling fields
• userdefined logo
• six price brackets with additional informations
• edition of reactive energy
• fixed and relative costs
• bar chart for history and comparative period
• additional tables for history and comparative period
• position markings for overruns
• energy quantity as area ratio

[< Back] **1** [Next >] [Finish] [Cancel] [Help]

1 Click the **Next** button.

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1 In the **Report creation** area, you can have the report created automatically.

In the **Report Timescale** area, you can select time periods from a list over which the report is created.

Click the **Next** button to access the next step**.**
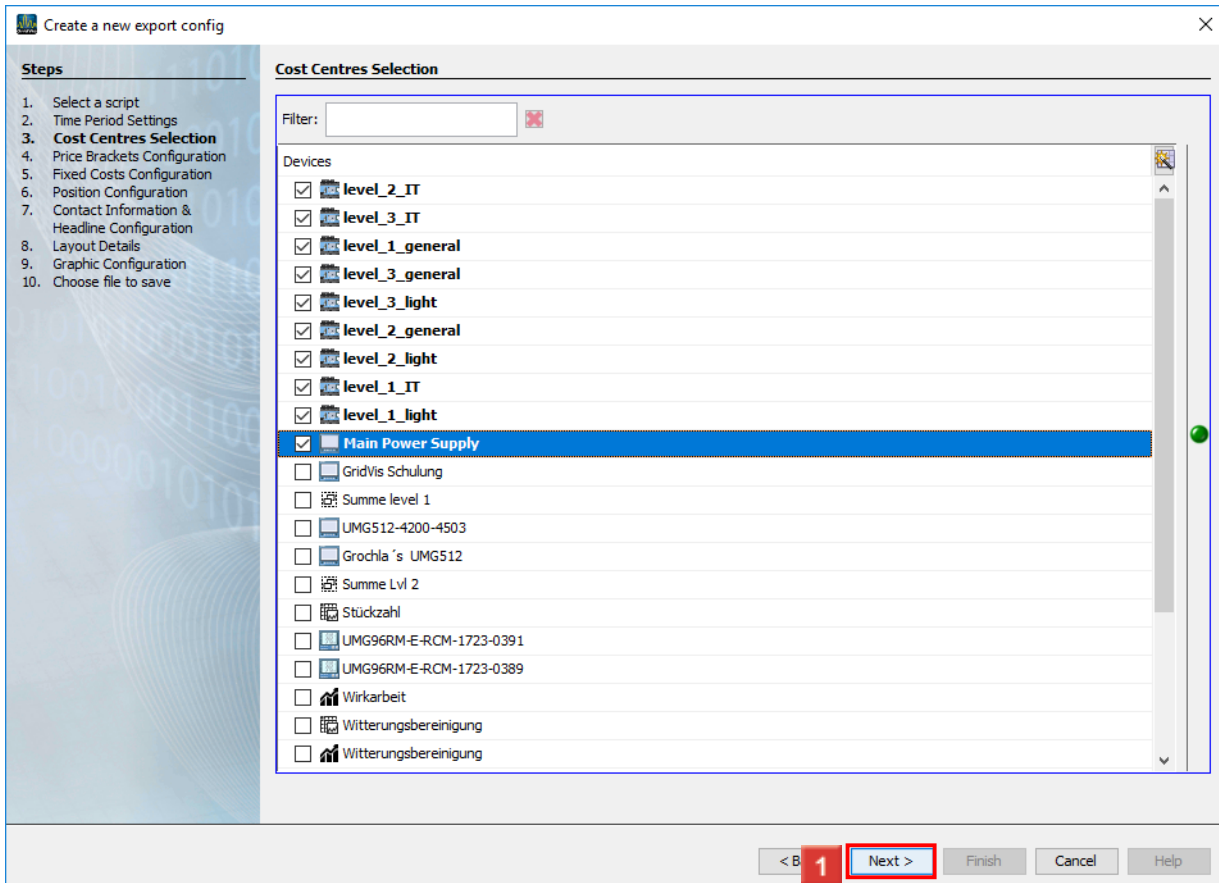
1 In this step, you select the measurement devices that provide the values for the invoice.

Click the **Next** button to access the next step.

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 In this step, you configure up to six price brackets.

Click the **Next** button to access the next step.

ℹ	The following types are available for the energy invoice:
ℹ	
ℹ	▪ Active energy
ℹ	▪ Reactive energy
ℹ	▪ Apparent energy
ℹ	▪ Active power
ℹ	▪ Reactive power
ℹ	▪ Apparent power
ℹ	▪ User-defined
ℹ	
ℹ	
ℹ	With the **Power** type, you can display the average value (**AVG**) or the maximum value (**MAX**).

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1 In this step, you configure up to six fixed costs.

Click the **Next** button to access the next step.

> **i** In this sketch on the right, you see the area that you are configuring in the current step highlighted in black.

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2 Invoice positions

1 Click the **Measurement device** drop-down button.

> ℹ You can optionally define a threshold value. If the calculated power or energy values overrun this threshold value, this value is marked in red in the bar chart.
>
> ℹ The **Reference value** field is only required for the calculating reactive power and reactive energy. Here, enter the active power or active energy to which the calculation is to refer.
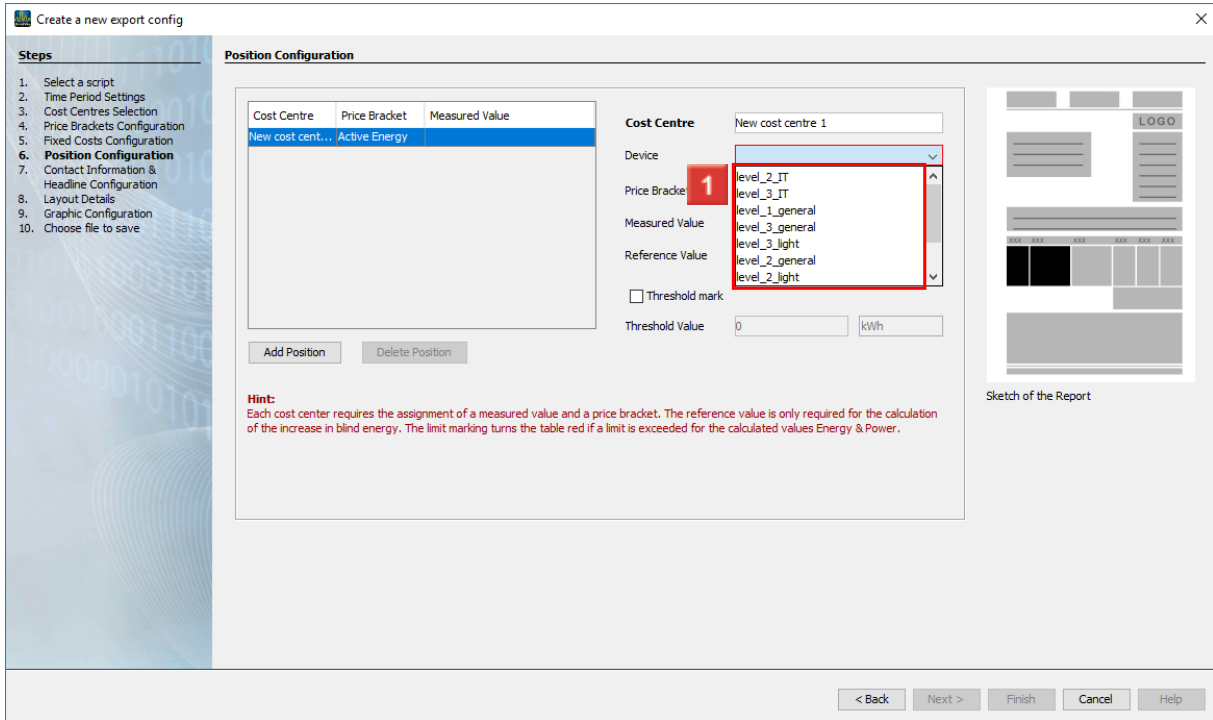
1 Select a device from the list.
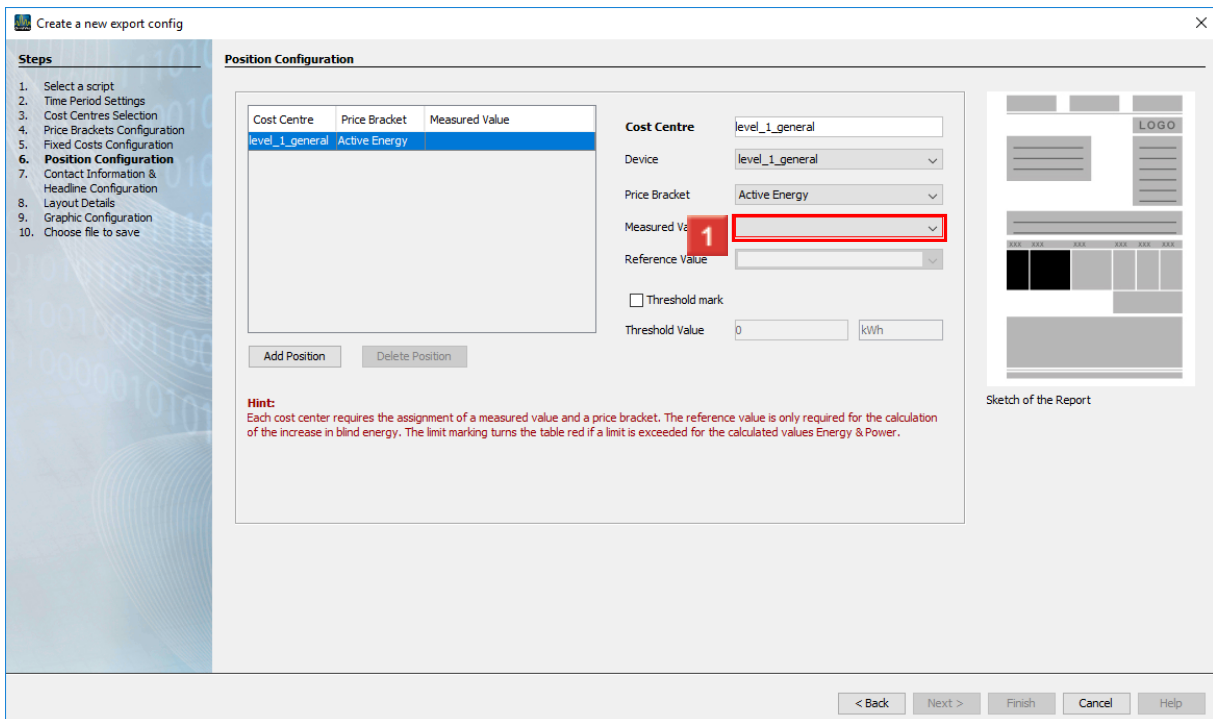
1 Click the **Measured Value** dropdown button.

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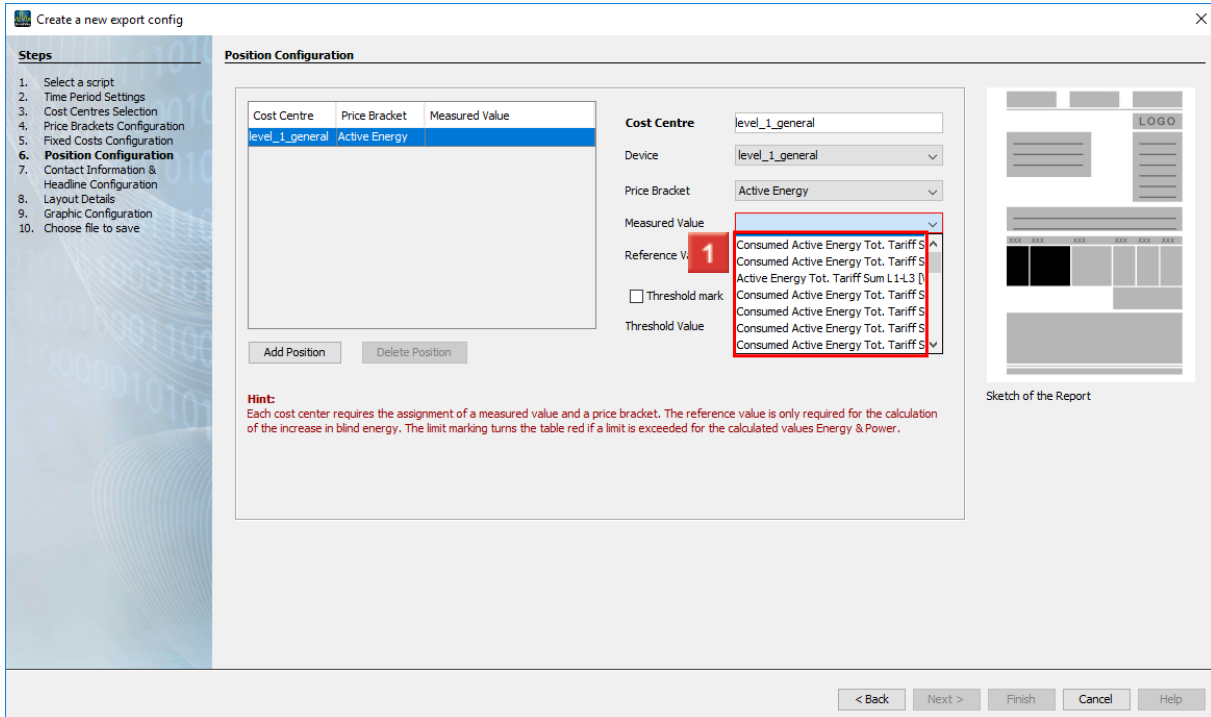
1 Select the desired measured value from the selection list.

1 Create additional positions by clicking the **Add Position** button.

Click the **Next** button to access the next step.
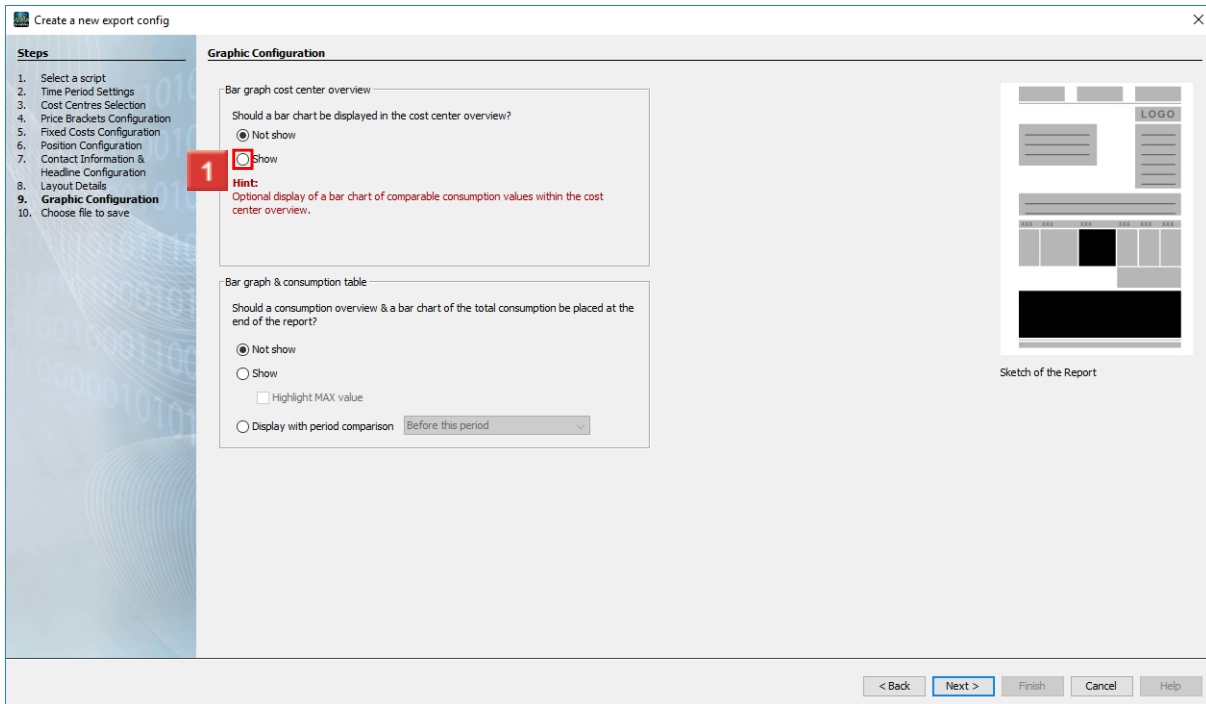
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3 Display options

1 Click the **Next** button.

1 In this step, you can adjust the designation of individual columns or hide them using the selection fields.

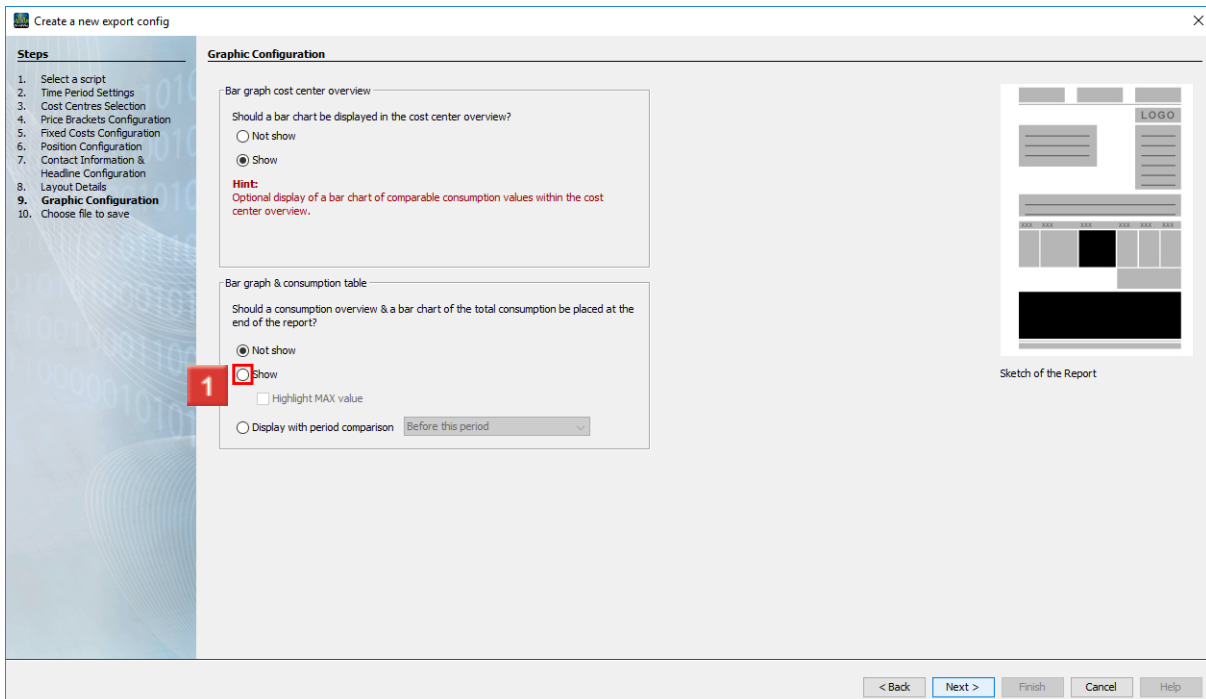Click the **Next** button to access the next step.

1 Click the **Show** radio button to display the cost center consumption as a bar chart.


1 Click the **Show** radio button to include the bar chart and consumption table of the total consumption in the report.

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> ℹ️ You can integrate a detailed consumption overview in tabular form and as a bar chart in the report. You can choose whether this view is only created for the selected time period or whether the consumption is to be compared with that of a comparison period.
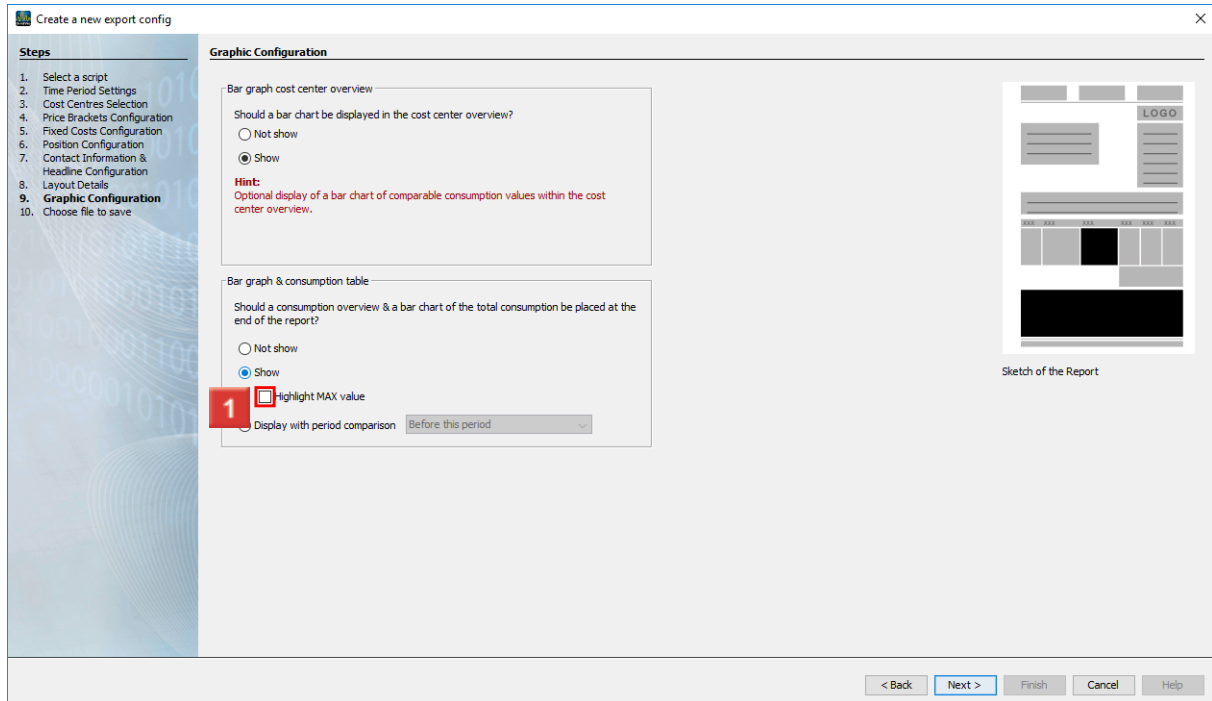
1 Click the **Highlight MAX Values** radio button to highlight the maximum values in the report in red.
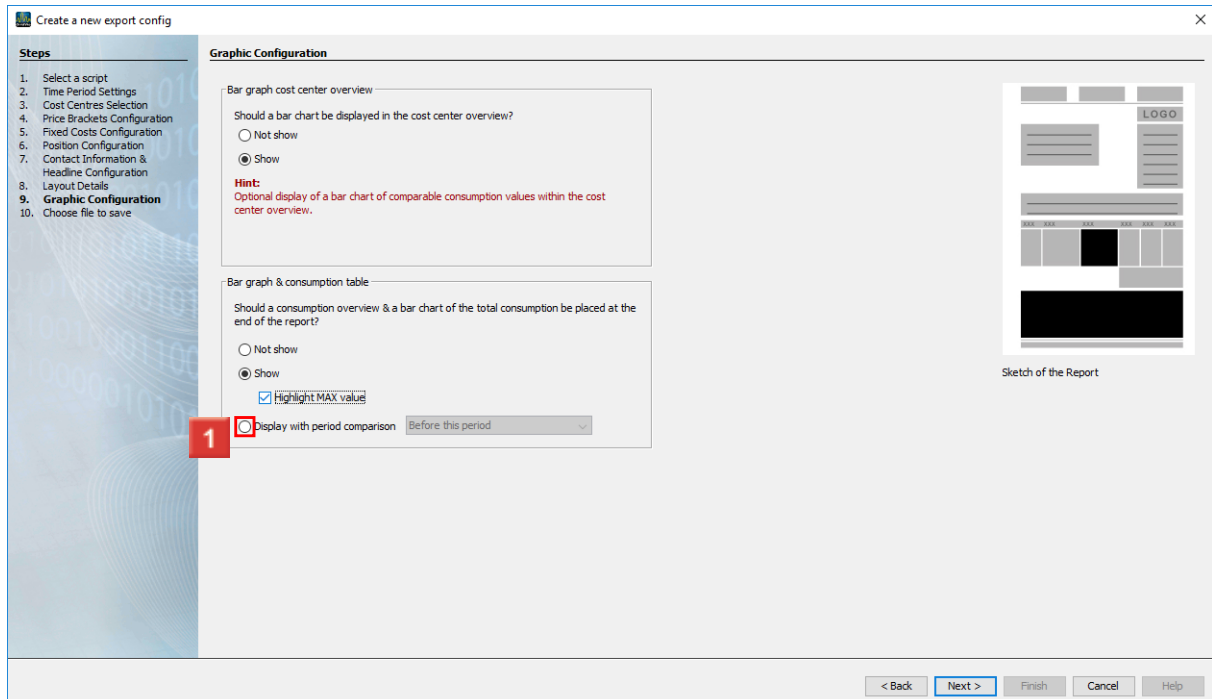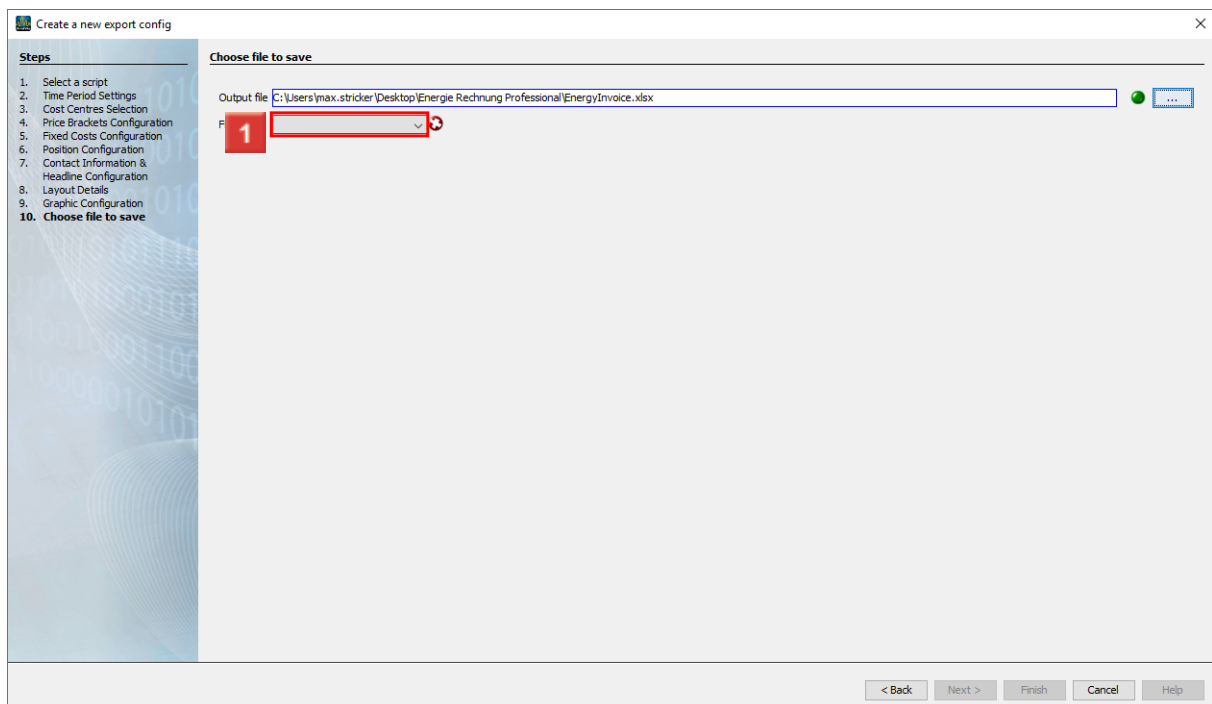

1 Click the **Display with period comparison** radio button to integrate a comparison with a comparative period in the chart and table.

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Sketch of the Report

1 Click the **Next** button.

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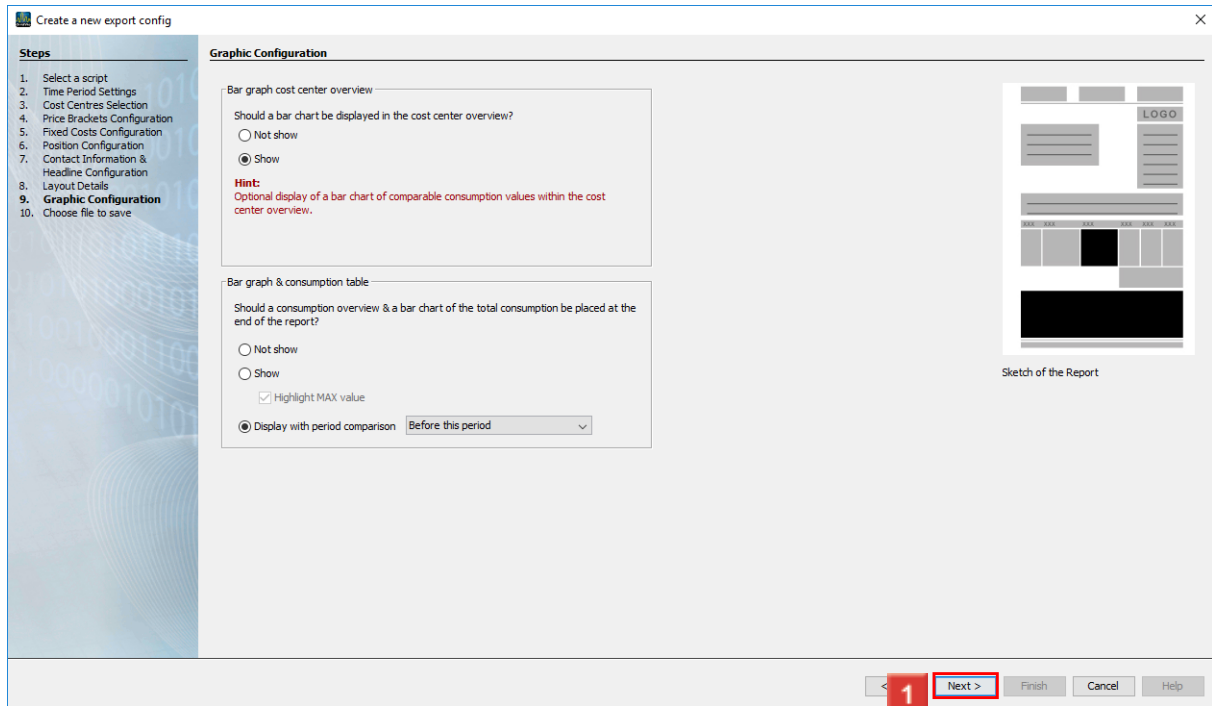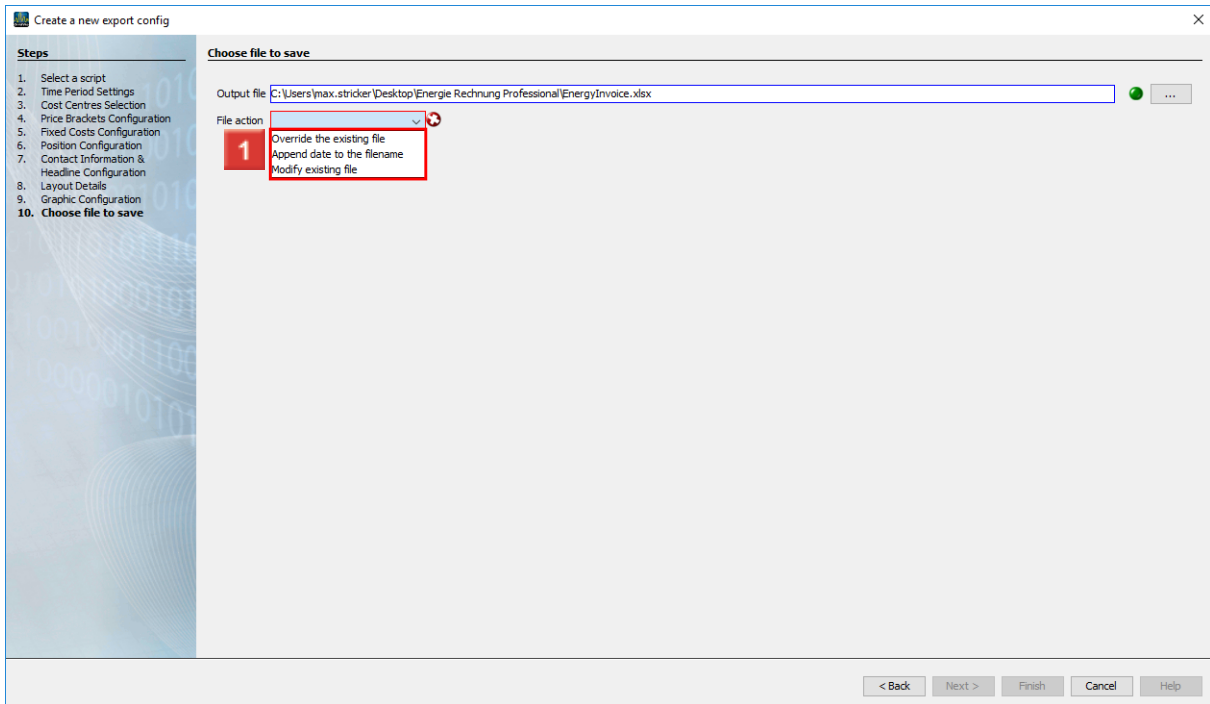
4 Storage location

 Click the **File action** dropdown button.

> The possible output formats include:
>
> - PDF
>
> - xls
>
> - xlsx

1 Select a file action that will be executed if the specified file already exists.
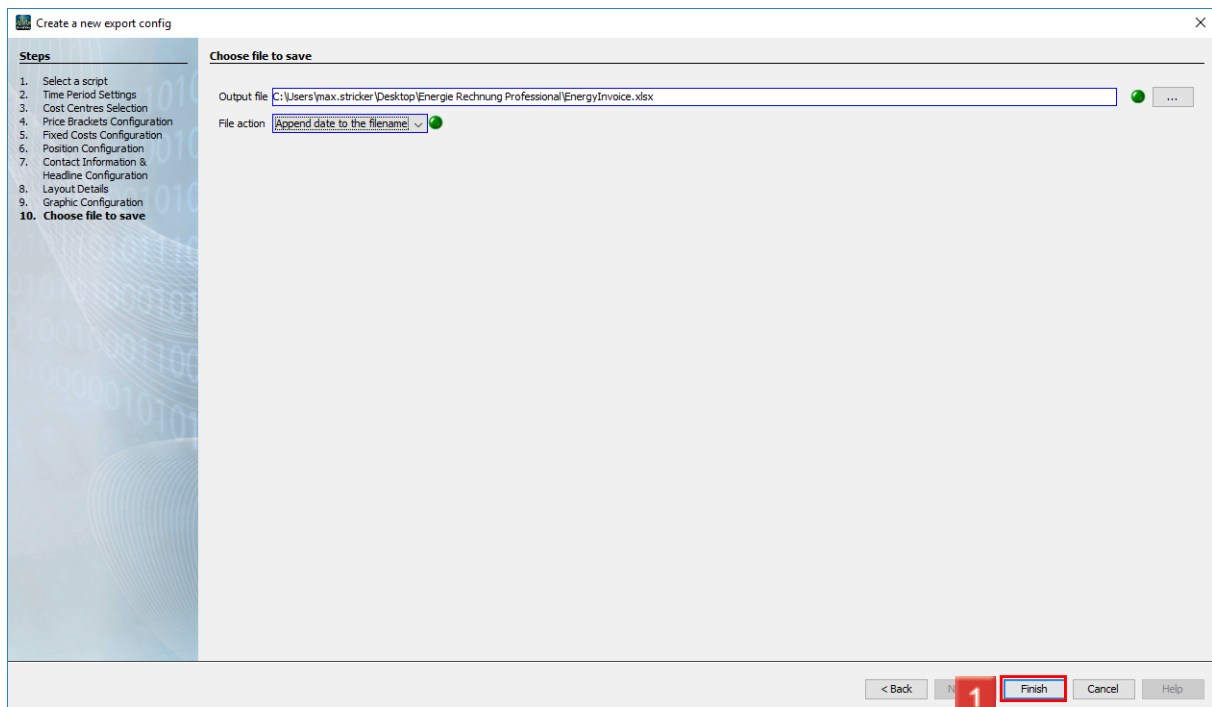
i **Append a date to the file name:**

i Creates an additional file and appends the execution date of the report to the file name

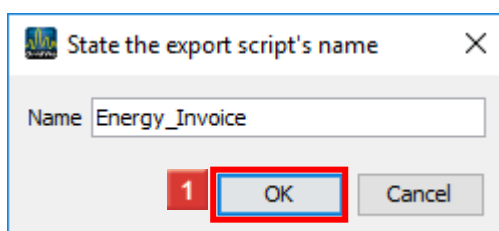**i** **Modify existing file:**

i Edits the data in an existing file. Spreadsheets added in an Excel file are kept.

i **Overwrite existing file:**

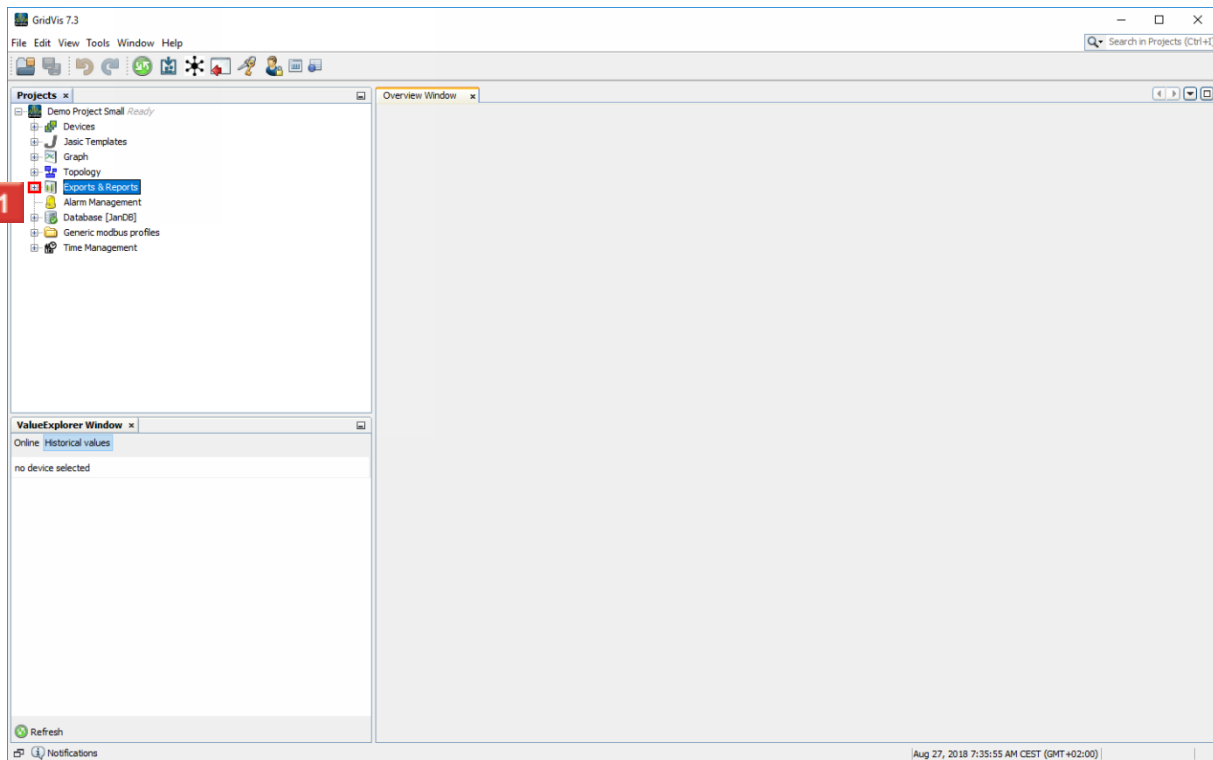**i** Overwrites an existing report. Edits made by a user in the document are lost.
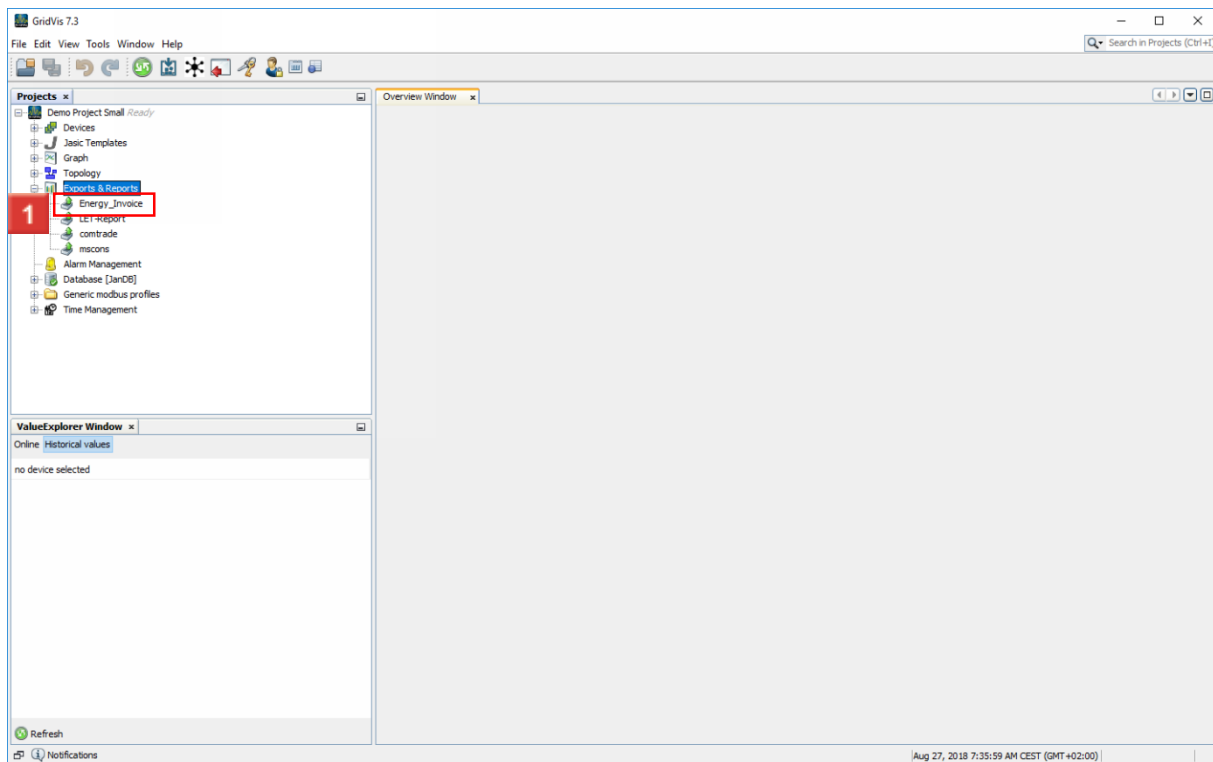
1 Click the **Finish** button.

1 In this step, you enter the name under which the export is to be saved in GridVis.
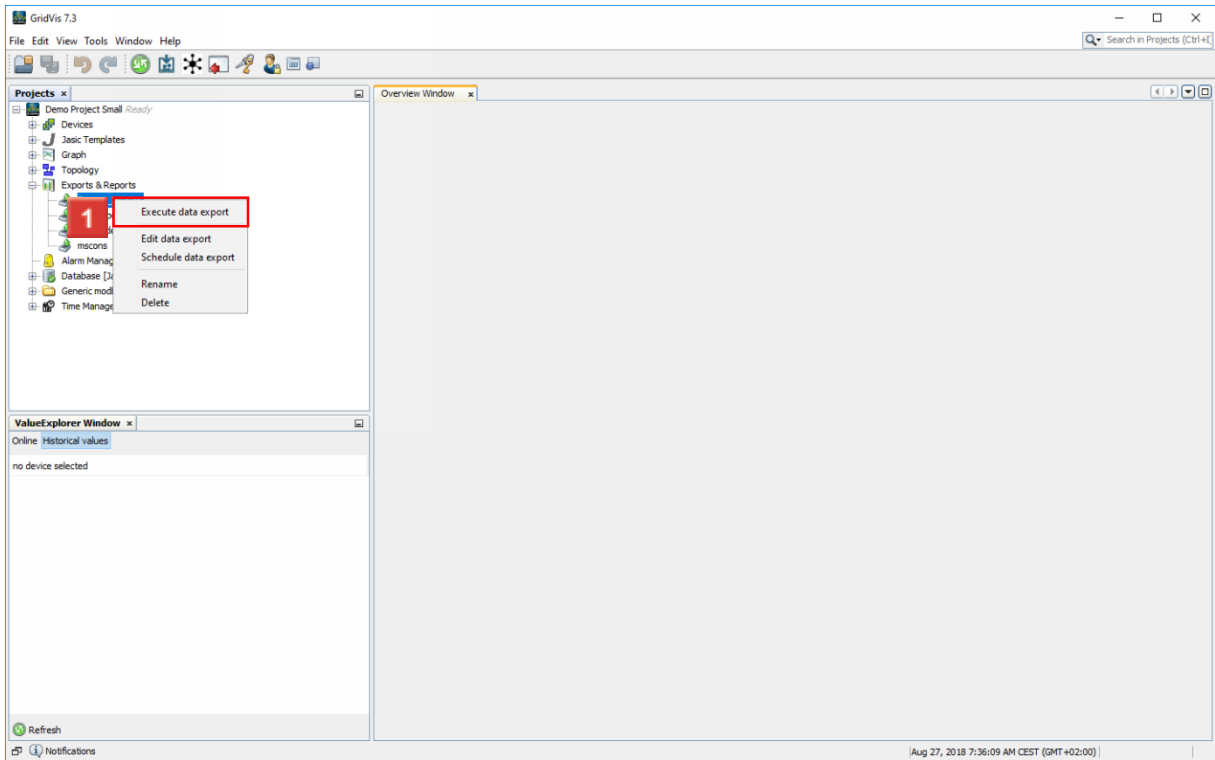
Click the **OK** button.

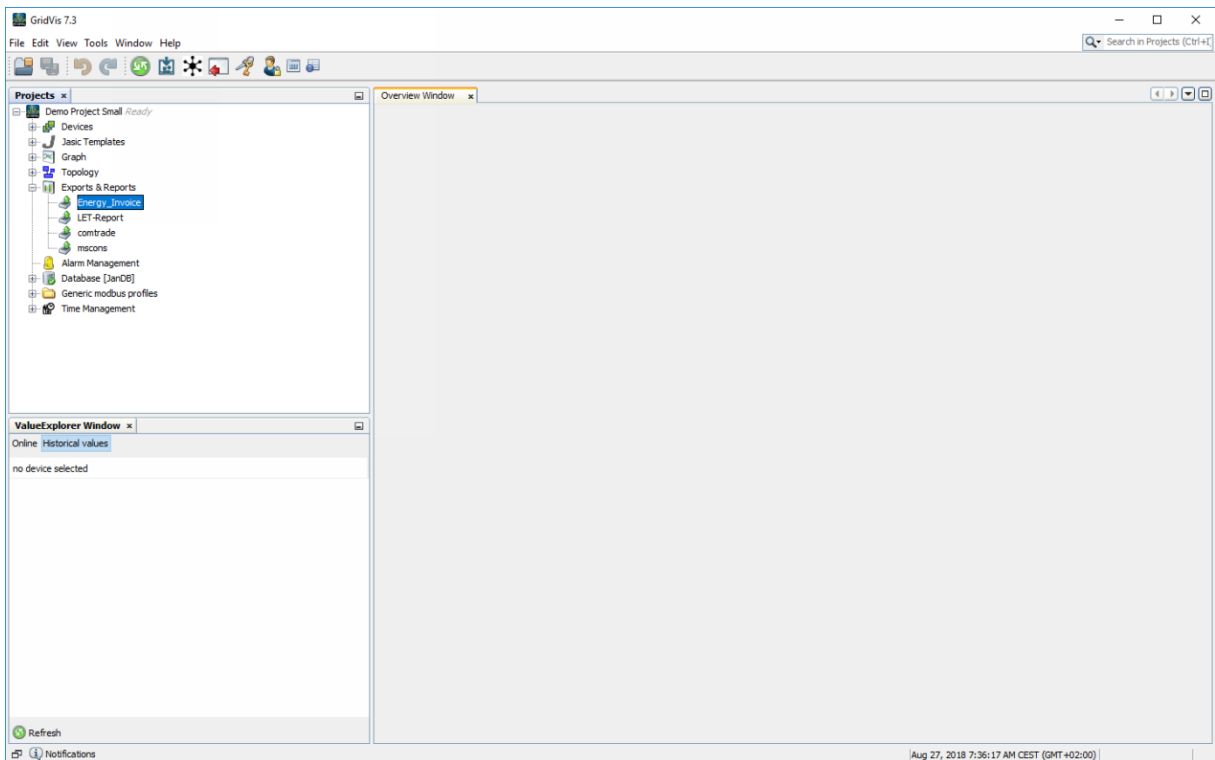*Janitza*®

5 Execute Energy Invoice Professional.

1 Open the **Exports & Reports** tree item

1 Right-click **the desired export**.

 Click the **Execute data export** list item.

Please enter your text here.

Increased reactive energy

The increased reactive energy is calculated from the active energy and the defined active power factor.

Storage options

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If you have subsequently edited an energy invoice created in Excel, select the "Modify existing file" option to retain these changes.

Threshold values

You can configure threshold values, which are marked in the prepared invoice when exceeded.