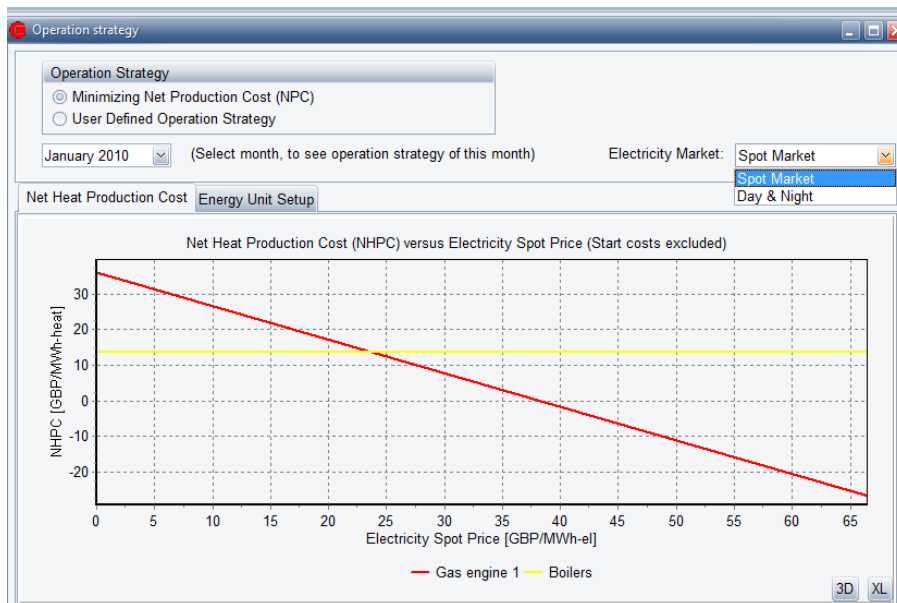
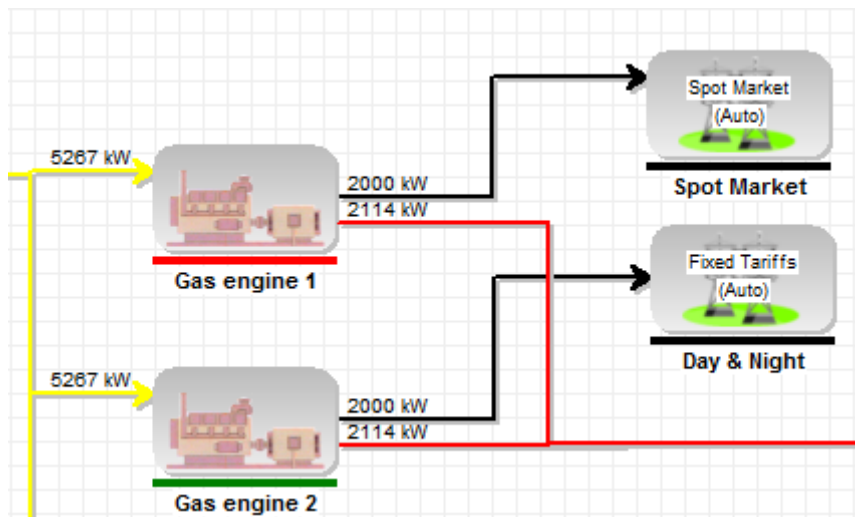


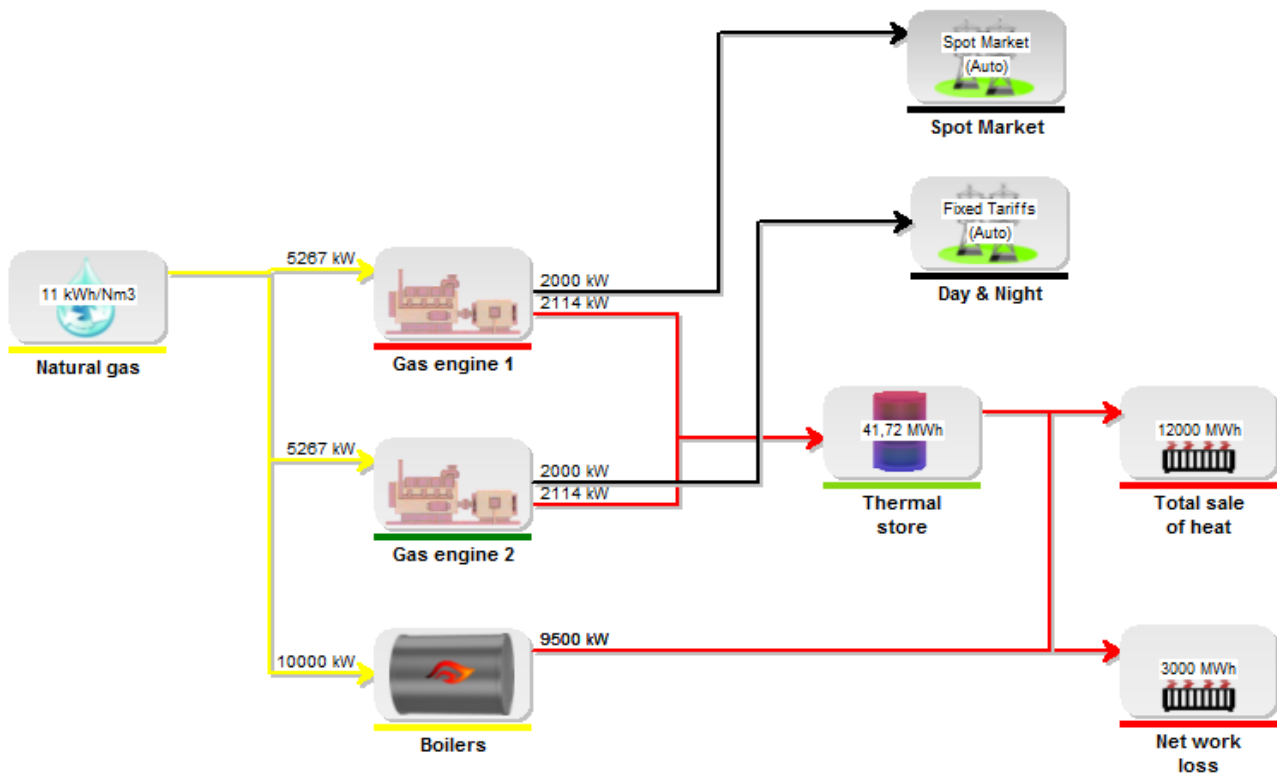


MARKETS in energyPRO



1. Introduction

With energyPRO 4.1.2 we introduce a new module: MARKETS. With MARKETS you can have more electricity markets in the same project.



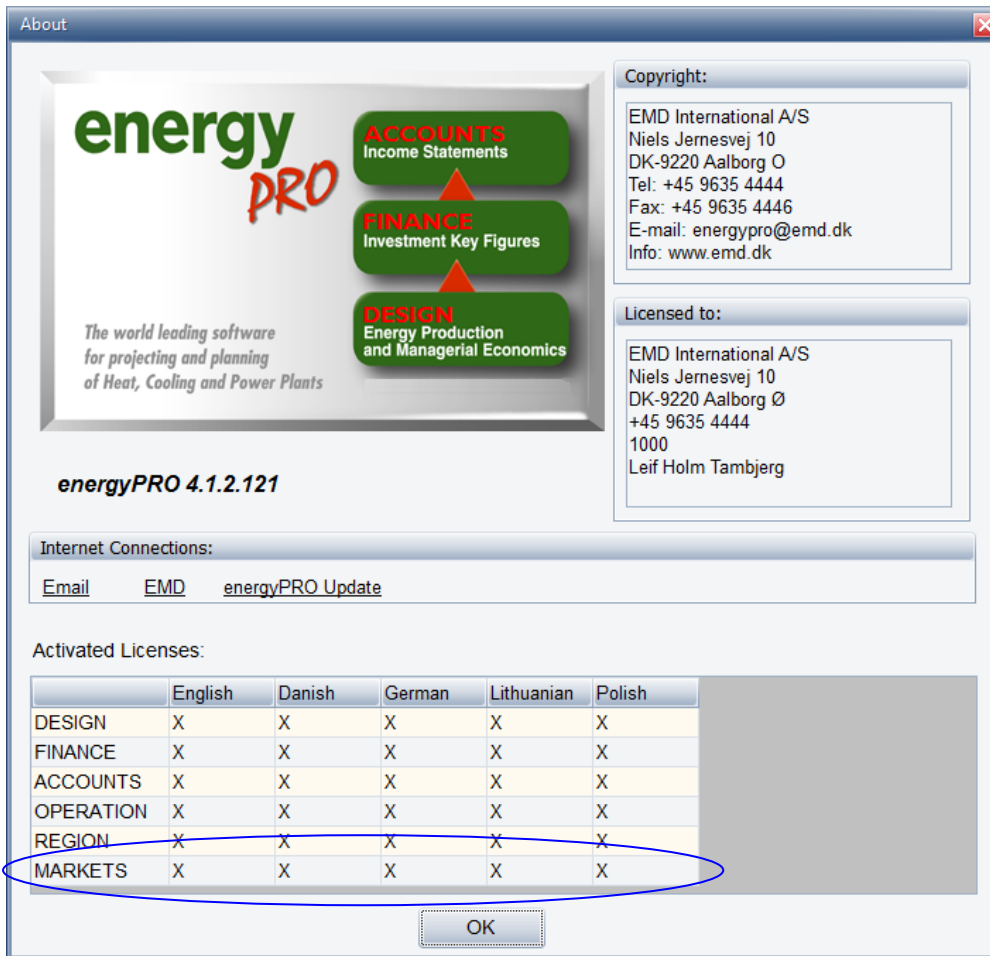
This makes it possible to e.g. sell electricity production on spot market or fixed tariffs and purchase of electricity for your electricity demand on a flat rate.

Or you can have more CHP sites connected in REGION, where the different sites are connected to different markets.

2. License to MARKETS

You have to have a license to MARKETS. See About:

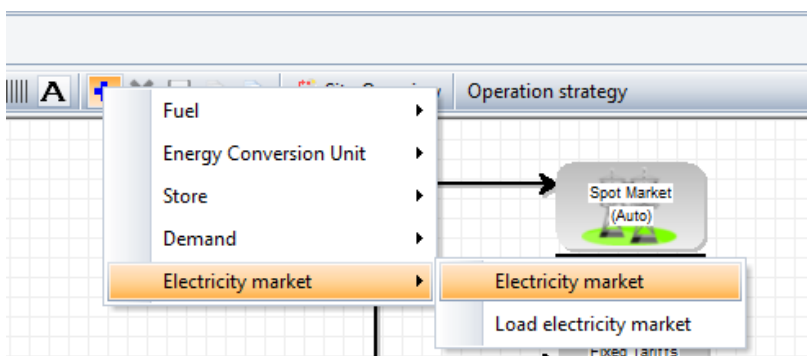
Adding market



The license can be purchased by contacting our sales department: sales@emd.dk

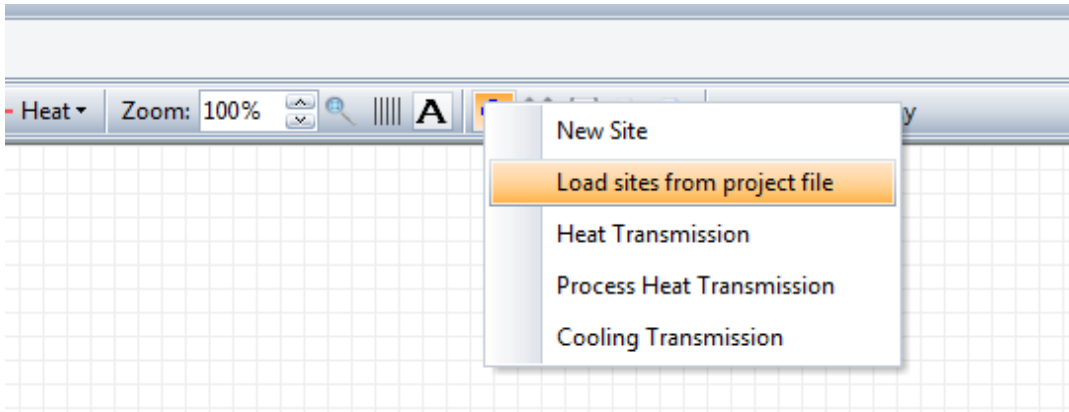
3. Adding market

Like any other component, you add a market by clicking the blue cross:



4. Loading site

With energyPRO 4.1.2 and a license to REGION, it is possible to load a site from a project file.



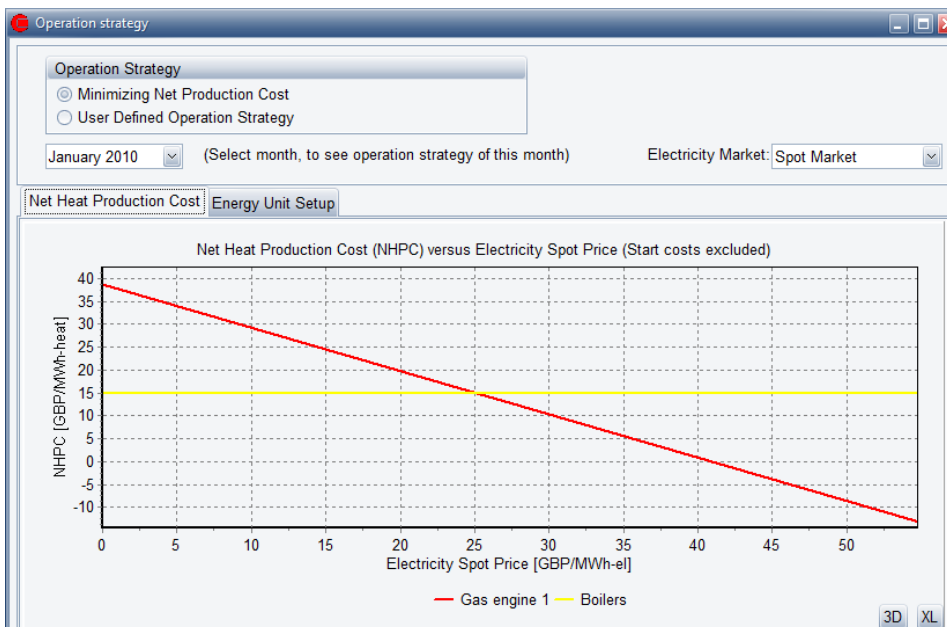
Next, a file browser opens and you select a project file.

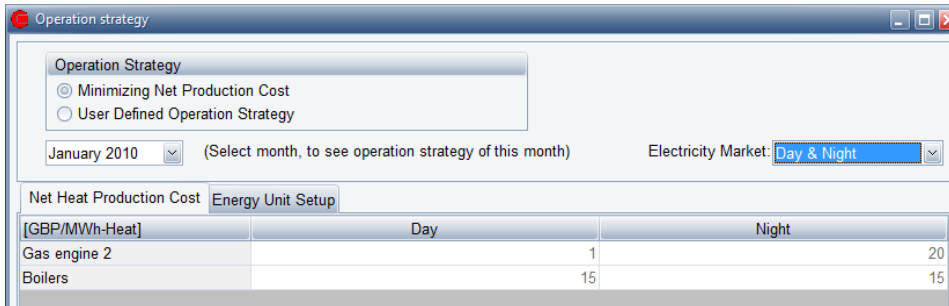
This is a great advantage if you need to analyze the benefits of connecting e.g. two district heating systems.

5. More markets in the Operation strategy

In this example we have two engines. The electricity produced on Gas engine 1 is sold on a spot market and the electricity produced on Gas engine 2 is sold on a two tariff market.

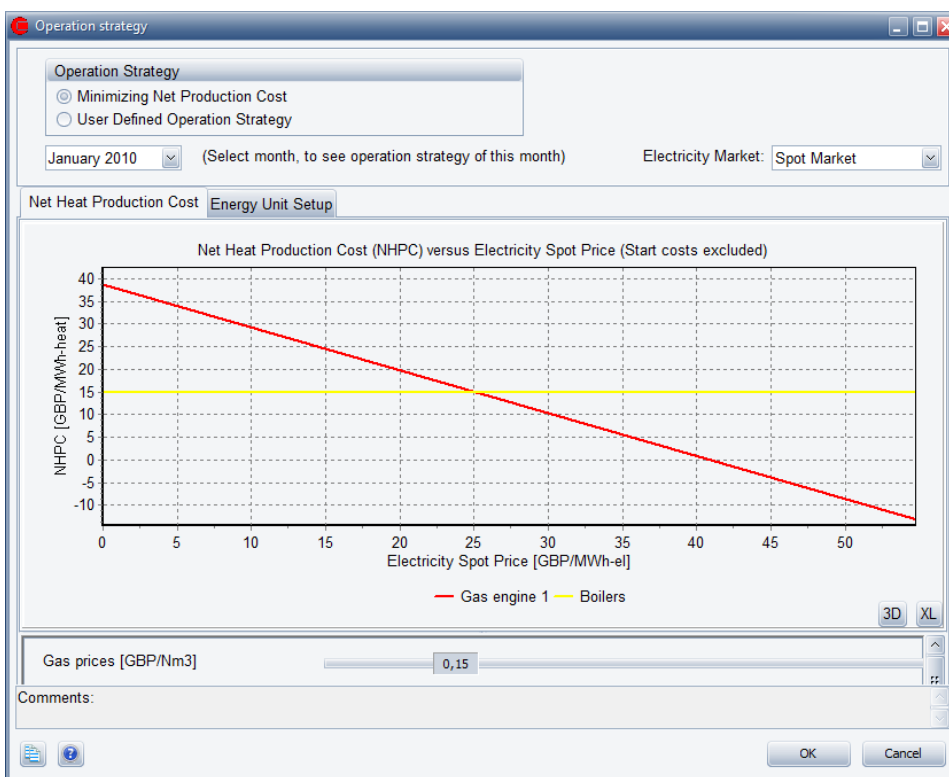
In the operation strategy you select which electricity market shall show the Net Heat Production Cost.





6. Time series in Operation strategy

You can include time series in the payments. This affects the operation strategy:



By using the slider for Gas prices you can see the net heat production cost versus the spot prices at a given natural gas prices. The range of the slider represents the range of the time series in the selected month.

7. Prognosis

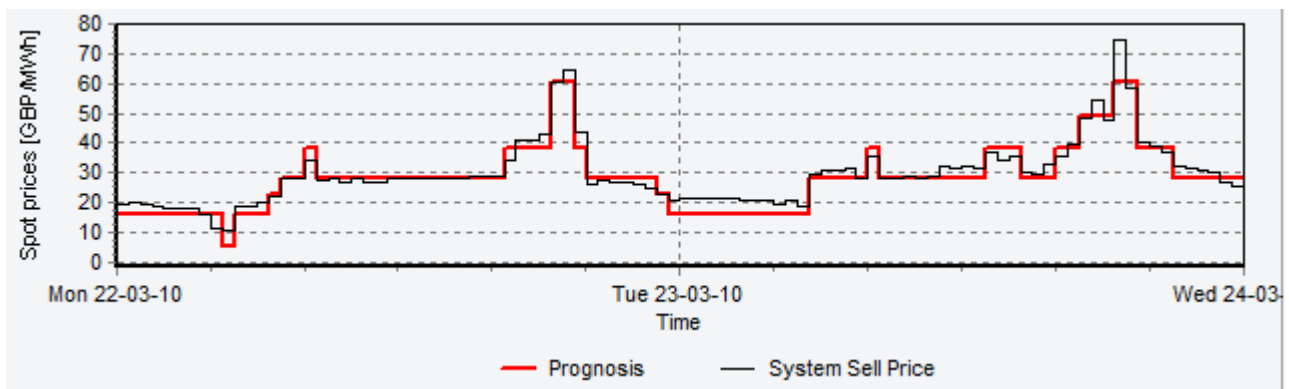
Each spot market has a spot prognosis.

Prognosis

The screenshot shows a software window titled "Spot Market". It contains several configuration panels:

- Market Type:** Three radio buttons are visible: "Flat Rate (Auto)", "Fixed Tariffs (Auto)", and "Spot Market (Auto)". The "Spot Market (Auto)" option is selected.
- System Sell Price:** A dropdown menu is present, with the text "(Select Spot prices from time series)" below it.
- Quality of Spot Prognosis:** Four radio buttons are visible: "Rough" (selected), "Detailed", "Perfect", and "Time series".
- Advanced Options:** A checked checkbox labeled "Advanced" is present. Below it are two input fields: "Hours in extreme price hours [%]" with the value "5", and "Intervals in Rough Prognosis" with the value "5".

With Rough prognosis the spot price time series is divided into 5 intervals plus 2 extreme price hours interval for the given month, high peak and low peak hours. Thus, when calculating the operation strategy only 7 spot price levels are used, see example below.

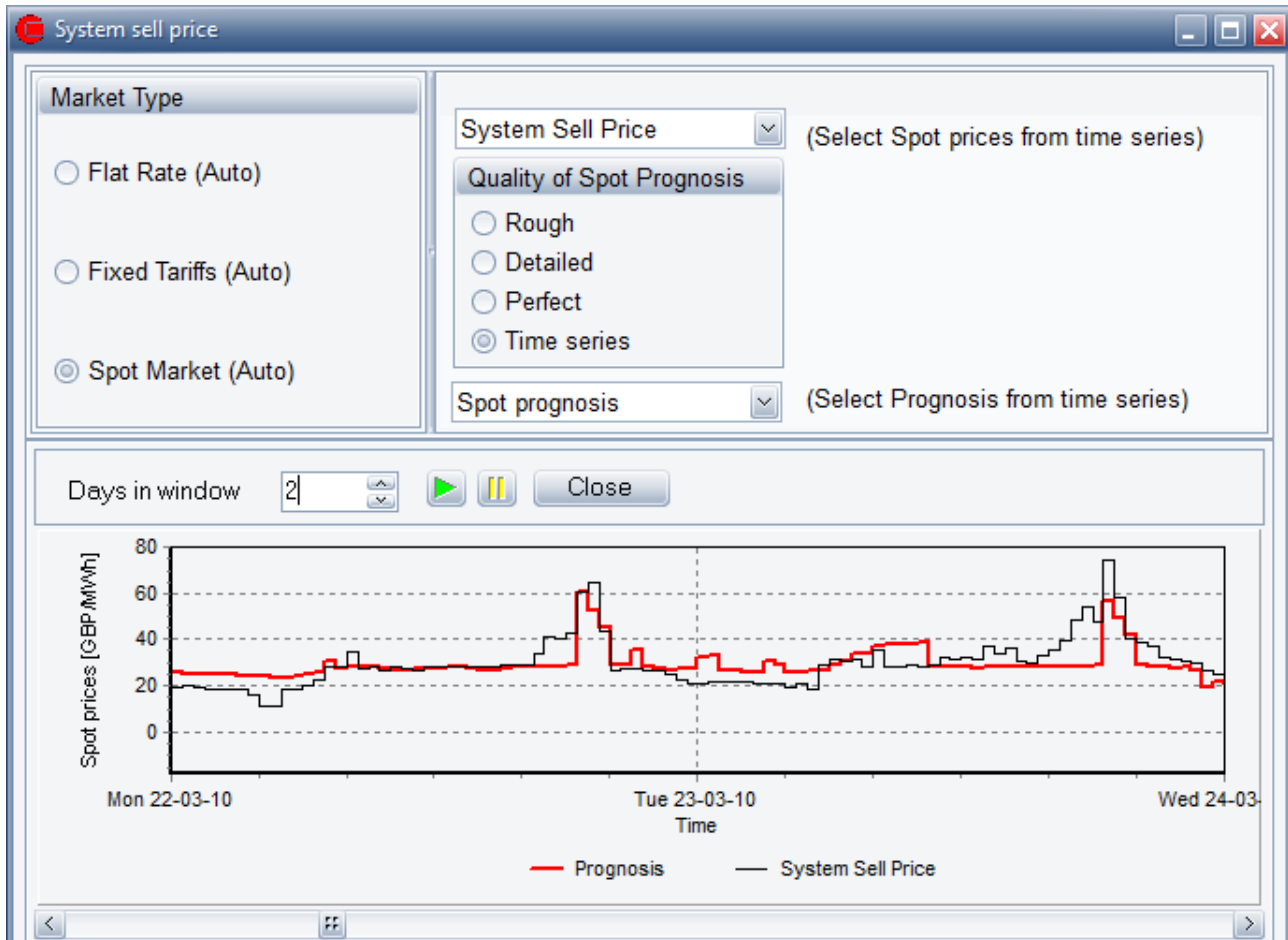


The detailed prognosis is similar only with more intervals.

Under advanced, you can change number of intervals in Rough and Detailed prognosis.

With a Perfect prognosis you assume full knowledge of the spot price. This should give the best result, but is most often too optimistic.

With Time series as prognosis you can select a time series as prognosis.



8. Production, graphic

In energyPRO 4.1.2 the electricity marked graph in Production, graphic has changed. Now the graph shows the priorities of all the production units. Have in mind, that the lower priority number, the better the priority.

You can also choose to see any of the time series or time series functions. In the example below, the spot price time series is shown. Notice that a high spot price result in a low net production cost for the gas engine 1. Gas engine 2 is on a fixed tariff market.

Production, graphic

