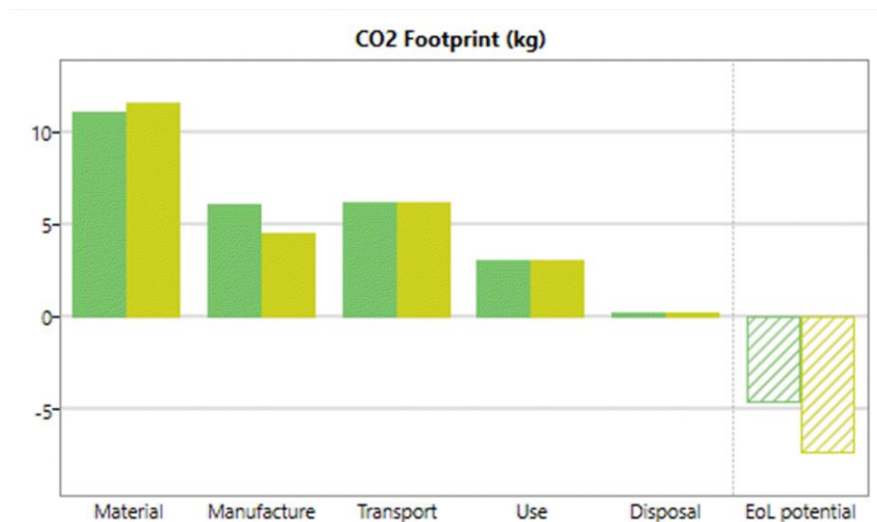# Getting Started with GRANTA Selector

Eco Audit tool

About these exercises

The Getting Started exercises provide an overview of the key tools and features in GRANTA Selector, and form a set of tutorials to help you familiarize yourself with the software. You can choose whether to work through them in order, or complete only the exercises relevant to you. They are intended for use with GRANTA Selector 2020, and may not work correctly with earlier or later versions of GRANTA Selector.

There are also Quick Start Videos provided online to teach you about GRANTA Selector. The exercises can be used independently of the videos, or alongside them, to test and check your knowledge.

This set of exercises guides you through a case study using Eco Audit, comparing the environmental impact of two plastics used to make water bottles.

Document conventions

In this document:

> ❖ Each step of the exercises is shown on a blue background, like this.

More detailed instructions appear below the main instruction.

Text on elements in the software (such as buttons, dialogs and tabs) appears in bold, **like this**. The names of records, datatables, and documents are emphasised *like this*. Words and numbers that you type as you follow the instructions appear in monotype, `like this`.

Introduction to the Eco Audit Tool

The Eco Audit Tool estimates the energy used and CO_2 produced during five key life phases of a product (material, manufacture, transport, use, and end of life) and identifies which is the dominant phase. This is the starting point for eco-aware product design, as it identifies which parameters need to be targeted to reduce the eco-footprint of the product.

In this case study:

- A brand of bottled mineral water is sold in 1 liter PET bottles with polypropylene caps.

- A bottle weighs 40 g, the cap 1 g.

- Bottles and caps are molded, filled, and transported 550 km from the French Alps to England by 14 tonne truck, refrigerated for 2 days, and then sold.

- The overall lifetime of the bottle is one year.

Exercise 1: *Product Definition*

An example product file for this case study is installed with GRANTA Selector in the *Samples* folder, with the filename *Bottle mineral water.prd*. This section details how to recreate the example product file.

For an explanation of the calculations used at each stage, click **Help** ⑦ in the heading.

❖ Define materials, manufacture, and end of life

Create a Bill of materials (BoM), selecting a *Primary process* and *End of life* destination. You can also enter a secondary process (optional).

❖ **Define method(s) and distance of transport**

Transportation from site of manufacture to point of sale.

Stage Name	Transport type	Distance (km)
Bottling plant to point of sale	*14 tonne truck* ▾	*550*

Sea freight
Rail freight
14 tonne truck
Air freight – long haul
…

❖ **Define conditions during use**

Product Life and Country of use:

Product life: *1* years

Country of use: *United Kingdom* ▾

France
Germany
United Kingdom
…

Static Mode:

Energy used to refrigerate product at point of sale (average energy required to refrigerate 100 bottles at 4°C = 0.12kW).

☑ Product uses the following energy:

Energy input and output: *Electric to mechanical (electric motors)* ▾

Power rating: *0.12* *kW* ▾

Usage: *2* days per year

Usage: *24* hours per day

Fossil fuel to thermal, enclosed system
Fossil fuel to electric
Electric to thermal
Electric to mechanical (electric motors)
…

❖ **View the summary chart and report**

The **Summary chart** enables rapid identification of the dominant life phase. Toggle between views of energy usage or CO_2 footprint.
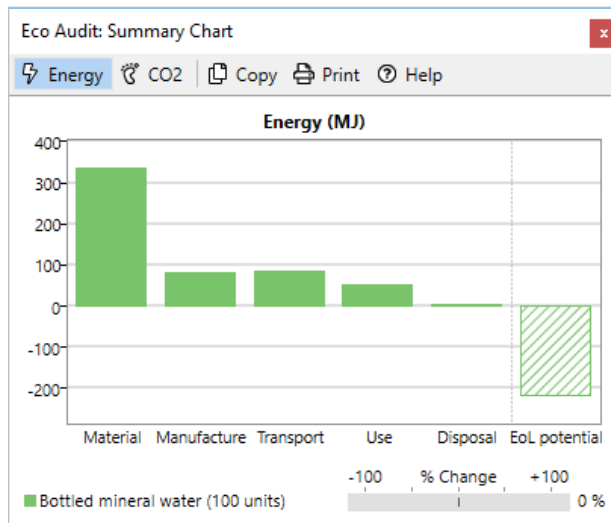
The chart shows that, in this project, *Material* is the dominant life phase. Each life phase can be clicked to show guidance on strategies to reduce its impact.

The **Detailed report** provides a component-by-component breakdown of each life phase, enabling the main contributors to the dominant life phase to be identified.

Exercise 2: *Compare Eco Audits*

❖ Open the *Bottled mineral water* product file.

Click **Open** and locate the sample product file *Bottled mineral water.prd*, located in the Samples folder in your GRANTA Selector installation folder. For example: *C:\Program files (x86)\ GRANTA Selector 2020\Samples\eco_audit\Bottled mineral water.prd*

❖ Create a copy of this product for comparison

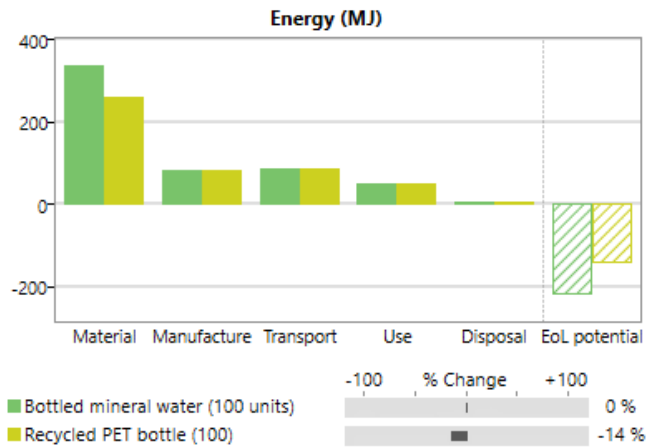Click **Compare with** and select **Copy of current product**.
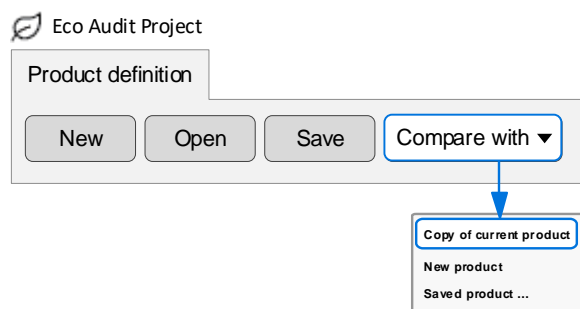
❖ Set the following values for the new product:

Name: Recycled PET Bottle (100)
Recycled content: 35%

❖ Generate the **Summary Chart**

The first life energy (not including EoL potential) is reduced by 14%.

Energy (MJ)

| | Bottled mineral water (100 units) | 0 % |
| | Recycled PET bottle (100) | -14 % |

Note: You can copy the chart into a document or print it by clicking **Copy** or **Print** at the top of the chart window.

Exercise 3: *Saving and Exporting*

Eco Audit projects do not form part of a selection project, so you will need to save them separately.

❖ Save the product definition

Eco Audit Project

| Product definition | Report |

| New | Open | Save | Compare with ▼ |
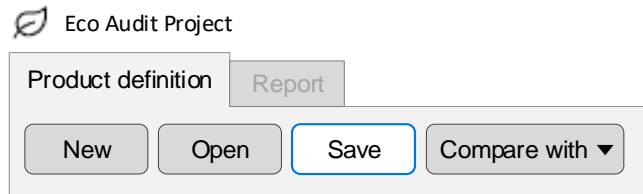
❖ Generate an Eco Audit report

Click the **Report** tab (or click **Detailed Report** on the Product definition tab).

❖ Export the report as a PDF

Eco Audit Project

| Product definition | Report |

|◀ ◀ 1   of 3 ▶ ▶| | 🖨 📖 📖 💾▾

Excel
PDF
Word
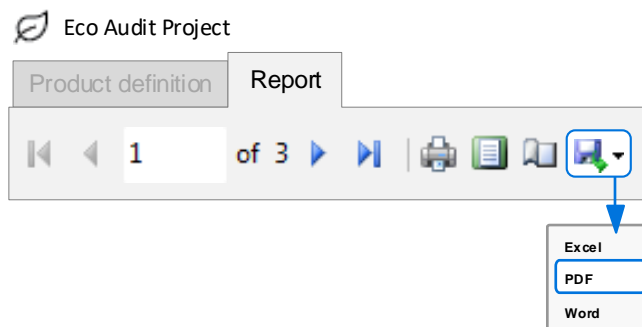
Note: You will require a PDF reader such as Adobe Reader® to view the exported report.

www.grantadesign.com

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