Modelling Renewable Energy Integration Technologies in the EnergyPLAN Tool

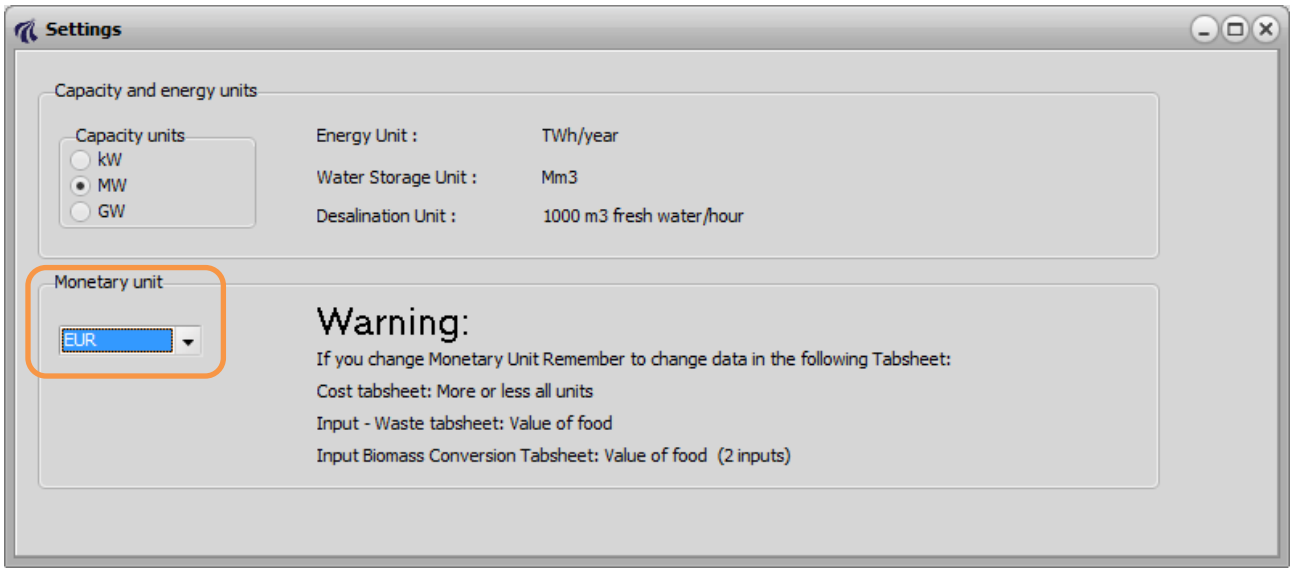
Exercise A: Creating the Reference Scenario (~60 minutes)

The name of our 'starting point' or 'case study' is Energyland. It is very similar to a typical country today. The only major difference is that there would be a greater variety of fuels and energy plants than utilised here. Below is an overview of the demand and supply for Energyland.

Sector	Demand (TWh)	Supply
Electricity	30	6000 MW of gas power plants
Heat	27	2 million individual oil boilers
Industry	25	Coal
Transport	70	Oil
Petrol	*35*	*2 million cars*
Diesel	*25*	*70,000 trucks*
Jet Fuel	*10*	

Try to model this in the EnergyPLAN tool. Before you do, make sure that you:

- Open the EnergyPLAN Tool
- Open the "initialize.txt" file. This will set all values in the tool to zero or for non-zero inputs such as efficiencies, to their default values.
- Go to "File->Save As" and save the file as "Energyland_step0_REF.txt"
- Go to the "Settings" tabsheet and change the "Monetary Unit" to "EUR" (euro).
- Save your file again.



Results:

Metric	Electricity Sector Only	Electricity & Heat Sectors	Electricity, Heating, and Transport	Electricity, Heating, Transports, and Industry	Unit
Primary Energy Supply (PES)	66.67	98.43	168.43	193.43	TWh
Annual CO2 Emissions (CO2)	13.608	22.069	40.717	49.267	Mt
Annual Energy System Costs (Costs)	2914	6418	16655	17060	Million Euro (M€)

The Energyland system is now modelled in EnergyPLAN. Next, we will need to model some scenarios to analyse the impact of various integration technologies.