

Warning Messages Explanation

A number of different input combinations will create an error in the EnergyPLAN tool. If this occurs, a warning is created by EnergyPLAN outlining the type of error. The following warnings are included:

(1) Critical Excess:

This warning appears if the excess production of electricity during one hour or more exceeds the capacity of the transmission line out of the system; this is known as critical excess electricity production (CEEP). If such critical excess production appears, the electricity supply system will not be able to operate. To avoid this, one may want to activate one or more of the CEEP strategies available in the “Regulation” Tab sheet. Conversely, one may not want to avoid it in the analysis so it is possible to calculate the size of it.

(2) Grid Stab. Problem:

This warning appears if the electricity production during one hour or more does not meet the input requirements specified in the Regulation Tab Sheet. EnergyPLAN divides the electricity producing units into two types: those that play and those that do not play an active role in the task of grid stabilization. For example, they may be part of supplying regulating power and primary automatic reserve. EnergyPLAN assumes by default that large CHP and Power Plants in group 3 have such abilities. In the Regulation Tab Sheet and the Renewables Tab sheet, one can specify to which extent this is also the case of small CHP plants in group 2, V2G, and Wind Power. Moreover, it is possible to specify the minimum share of the total electricity production that should come from the active units (in the Regulation Tab Sheet). If this minimum share is not met during one or more hours, the model will give this warning.

(3) PP/Import problem:

If there is not enough capacity to meet the electricity demand, EnergyPLAN will import the electricity. However, if the import during one or more hours exceeds the capacity of the transmission line, this warning will appear. To avoid this, one must either add more electricity production capacity (by increasing PP for example) or increase the capacity of the transmission line.

(4) Syn/biogas shortage:

This warning appears if one (in the SyntheticFuel Tab Sheet) has specified a demand for either Biogas or Syngas from Gasification which exceeds the supply on an annual basis. To avoid this situation, one must either lower the demand and/or increase the production in the BiomassConversion Tab sheet.

(5) V2G connection too small

This warning is displayed if one has specified an electricity demand for electric vehicles such as EV or V2G in the Transportation Tab sheet which cannot be supplied with the specified charging connection. To avoid this situation, one must either lower the electricity demand or increase the charging capacity.

(6) Negative Eldemand:

In the ElecDemand Tab Sheet, the electricity demand for heating/cooling is subtracted from the total 'Electricity demand' using the distributions provided. Depending on the distributions used and the annual totals, this subtraction may cause negative hourly values during one or more hours: During such hours, EnergyPLAN will adjust the demand to zero and, consequently, the subtraction of electricity will not match on an annual basis. When this occurs, this warning will appear, and to avoid this, one must make sure that the annual demands and the distribution files specified are designed in such a way that this problem is not generated.

Transport Electrolyser is too small. Must be xx MW

This warning appears if one has specified a demand for hydrogen without specifying a sufficient capacity (and storage) for hydrogen production. The demand for hydrogen can be specified either for transportation in the Transportation Tab Sheet and/or for Hydrogenation in the SyntheticFuel Tab Sheet. To avoid this problem, one must do one of the following: lower the demand for hydrogen and/or increase the capacity of the electrolysers and/or increase the hydrogen storage in the ElecStorage Tab Sheet. Please, note that EnergyPLAN calculates the hourly hydrogen demands using the specified distribution for transportation. As a consequence, one may be able to lower the electrolyser capacity required by adding or increasing the capacity of the hydrogen storage.

Indv. CHP Electrolyser is too small. Must be xx MW

This warning appears if one (in the Individual Tab Sheet) has specified a demand for hydrogen for micro CHP without specifying a sufficient capacity (and storage) for hydrogen production. To avoid this problem, one must either lower the demand for hydrogen and/or increase the capacity of the electrolyser and/or the hydrogen storage in the ElecStorage Tab Sheet. Please, note that EnergyPLAN calculates the hourly demands for hydrogen using the individual heat demand distribution for micro CHPs. As a consequence, one may be able to lower the electrolyser capacity required by adding or increasing the capacity of the hydrogen storage.