

RESCUE TOOLBOX – Calculator – 1 Page Quick Reference

The calculator helps to number the potential benefits and saving of District Cooling system compared to a base case. It comes in form of an Excel sheet. **Green** Sheets need input from the user, whereas **Cells which need input** are marked with an orange background and blue text. The results are presented on the **red** OUTPUT Sheet.

INPUT-Sheet

Enter Info for demand calculation

B4 A country has to be chosen to get the factors for prices and emissions, which are country specific. The price level can be changed in cell **B5**.

- If the demand is known, then it should be entered in cell **B10**
- If the demand is unknown a city has to be chosen **B11** and the area should be given in **B15**. If a city from the list is chosen, a demand calculation can be performed automatically, otherwise the ECI **B13** or annual temperature **B14** has to be given.

specify demand

B20-23 In any case the type of demand in the area has to be given in percentages. Take care that the sum of percentages is 100%. If there are industrial costumers the specific demand has to be given **B24**, because this can hardly be generalized. As a first guess the demand is assumed to be similar to the service sector demand.

define base case

The base case could be the existing case or a freely chosen base case. The most common case is 100% of "room air conditioner". **B27-30**

give info on existing sources

B33, B36-41, please insert whether or not different sources are available. If there is a District Heating network the share of different heat sources in this network should be given in **D36-40**.

costs

To be able to compare the costs of a district and a distributed solution some information have to be given on the costs-sheet

Define Distributed system as a base case

by entering the number, full load hours, recooling, investment type and capacity of three different machines **D11:F15**

Define District Cooling System

by giving capacity and full load hours **Column J** It has to be checked, that the cooling production (**D4, J4**), which is calculated from the above given numbers, is in accordance to the demand, which is given in cell **W4** for information.

OUTPUT

Now the graphs on the output sheet are updated. You can compare information on

PEF

which is the ratio between cooling produced and primary energy used for that

Electricity demand

which is an important indicator on investments that might become necessary to the electricity grid or can be skipped when using a DC technology

CO2 emissions

which is an important environmental indicator

Costs range

including operating and capital costs