User Guide
Self-Assessment Tool

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Introduction

Every energy cooperation project has a common start: to identify local opportunities by examining the energy supply and demand, the stakeholders, and the existing infrastructure of the region. Often a lot of knowledge is available, but it is spread among different stakeholders. For example, companies do not know the needs and potentials of their neighbors. The self-assessment tool facilitates the process of collecting the different information sources and bringing them together in one simple overview. With the tool, users make an inventory of data in four categories that are important when exploring opportunities for energy exchange: energy supply (heating, cooling, electricity), energy demand (heating, cooling, electricity), stakeholders and existing infrastructure. By answering several questions, users can also self-assess the information completeness and quality of the inventory and identify the next steps for the region.

The Self-Assessment Tool consists of three parts: a region description, a self-assessment questionnaire and a results sheet. This user guide describes all the steps in using the Self-Assessment Tool:

- **Getting started: how to download and open the Self-Assessment Tool and how to navigate between tabs**
- **Region Description**
- **Self-Assessment questions**
- **Self-Assessment results**
- **Next steps**

Use Excel

Before getting started, make sure you have Microsoft Excel installed. The tool was built in Microsoft Excel and is not guaranteed to work in another spreadsheet editor. It has been tested on both MacOS and Windows. We advise to make a copy of the self-assessment tool so that you always have an empty version of the self-assessment tool. In case you forget to do this, you can always download a new version from our website.
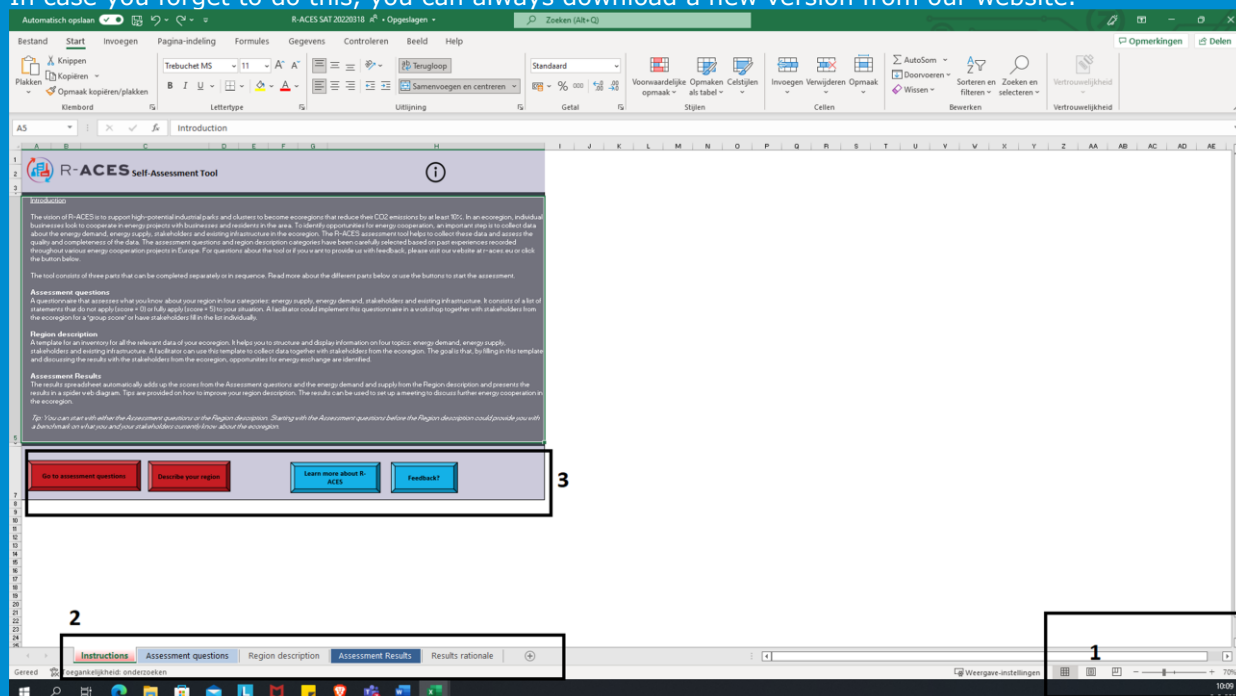
There are a few elements on the screen that we will explain here and that help to navigate in the Self-Assessment Tool. The numbers correspond to the numbered elements in the picture.

1. **Zoom scroll bar.** Use the scroll bar to zoom in or out by clicking and dragging the bar left or right. Alternatively the scroll function of your mouse or mousepad can be used.
2. **Tabs.** The Self-Assessment Tool is split into five separate tabs. You can access different parts of the self-assessment tool by clicking here.
3. **Buttons.** An alternative way to navigate between the different tabs of the Tool is by clicking on the red buttons.

Getting started

To download the R-ACES Self-Assessment Tool, visit https://r-aces.eu/tools/, navigate to the Self-Assessment Tool and click on "Download the tool". The file will then usually be available from your downloads folder.

To open the tool, double click on the .xlsx file and Microsoft Excel is started up. The first screen you see is an introduction screen.

The tool consists of three parts that can be completed separately or in sequence. You are also invited to change the order if this is more suitable in your situation.

> Assessment questions
> A questionnaire that assesses what you know about your region in four categories: energy supply, energy demand, stakeholders and existing infrastructure. It consists of a list of statements that do not apply (score = 0) or fully apply (score = 5) to your situation. A facilitator could implement this questionnaire in a workshop together with stakeholders from the ecoregion for a 'group score' or have stakeholders fill in the list individually.

> Region description
> A template for an inventory for all the relevant data of your ecoregion. It helps you to structure and display information on four topics: energy demand, energy supply, stakeholders and existing infrastructure. A facilitator can use this template to collect data together with stakeholders from the ecoregion. The goal is that, by filling in this template and discussing the results with the stakeholders from the ecoregion, opportunities for energy exchange are identified.
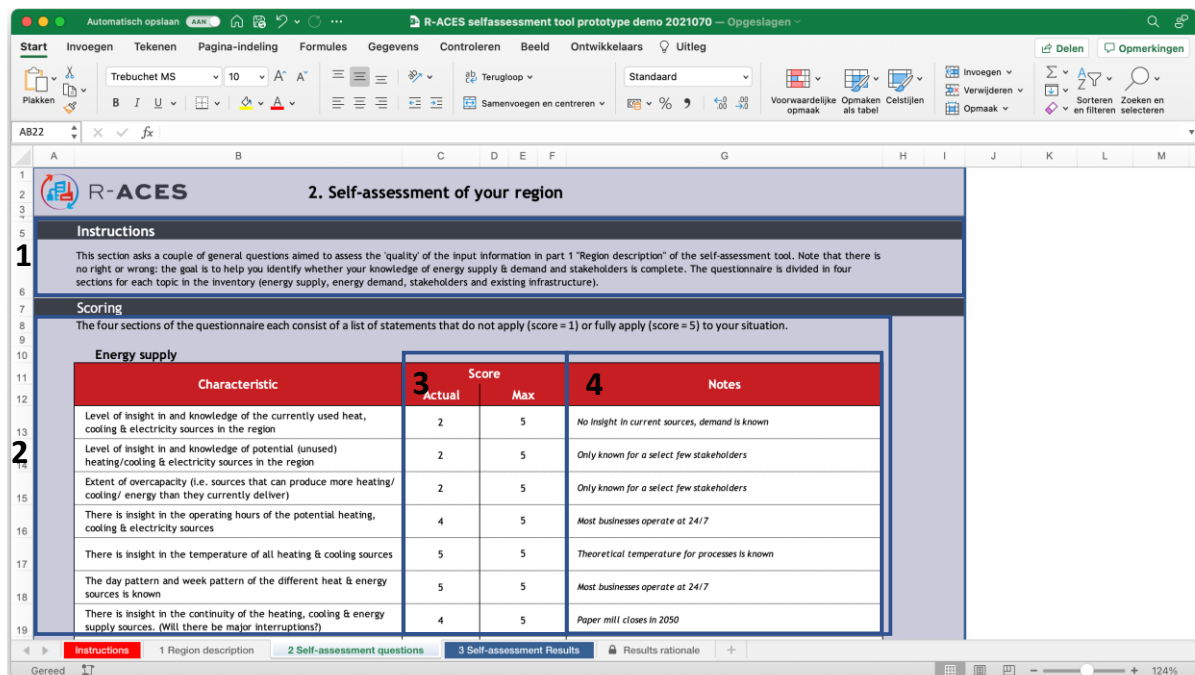
> Assessment Results
> The results spreadsheet automatically adds up the scores from the Assessment questions and the energy demand and supply from the Region description and presents the results in a spider web diagram. Tips are provided on how to improve your region description. The results can be used to set up a meeting to discuss further energy cooperation in the ecoregion.

Assessment questions

This part of the tool consists of self-assessment questions. These questions measure the information quality and completeness for the region. The idea is that a user scores these questions on their own or together with the other stakeholders from the perspective of the region. E.g. the questionnaires can be filled in individually and then using the group average. Another possibility is to discuss the questions together with the stakeholders and agree on a value.

The starting screen looks like this. We will now explain some important elements.

1. **Instructions.** A short instruction for the Self-assessment questions.
2. **Assessment questions.** For Energy supply, demand, existing infrastructure and stakeholders there is a box with self-assessment questions, a field to score (3) and a field for notes (4).
3. **Score field.** In this column, for each statement, a score between 1 and 5 can be selected. A score of 1 means that the statement does not apply to your situation. A score of 5 means that the statement fully applies to your situation. The maximum score for each statement is set to 5 in the current version.
4. **Notes field.** In this column, for each statement, notes can be added. The field is formatted as an open text field with no limits.

Region description

This part of the self-assessment tool is the region description. Here, you will describe available energy sources, energy demand, stakeholders and existing energy infrastructure for the region. It is expected that a single organization is only able to fill in their own information and not that of other stakeholders in the region. The idea is that multiple 'partial' region descriptions add up to a fully detailed and complete region description. Alternatively, in the case stakeholders already work together, filling in the region description can be a collaborative effort. The end goal of this part of the self-assessment tool is that by describing the region fully, opportunities for energy cooperation are discovered and users learn what type of information is important to collect.

The starting screen looks like this. We will now explain some important elements.

1. **Instruction.** A short instruction for region description.
2. **Color legend.** The columns (see number 3) can have a dark red or light red color. A dark red color indicates that information in the corresponding field (see number 4) is important. A light red color indicates that information in the corresponding field is helpful but not essential in early stages of energy cooperation.
3. **Columns.** Columns provide the title for the content in the corresponding fields (see number 4). **Columns with an asterisk** have an additional explanatory text that pops up when the column is selected. See for an example:

4. **Input field.** Users can fill in their input here by selecting the specific cells. The column titles and descriptions (for columns with an asterisk) describe the type of content for the input field. In some cases a unit (e.g. kWh) is provided.
5. **Total**. For some input fields, there is a cell in this row that totals a number. For example the total yearly energy production in kWh. Some of these cells are used in the Results section of the tool.

Assessment Results

The results of the self-assessment are summarized and presented in a spider web diagram. The spider web diagram includes the total score of the four self-assessment question categories – energy supply, energy demand, existing infrastructure and stakeholders – as well as an indication of the electricity potential and the heating or cooling potential. The potentials are based on a simple analysis of the match between energy demand and energy supply, where a maximum score is given when the demand and supply are perfectly balanced. Finally, the tool also provides the user with suggestions based on whether the user has received a low score or a high score. A full overview of suggestions for either score is included in the tab 'Results rationale'.

The screen looks like this. We will now explain some important elements.

1. **Self-assessment information.** In this field, a name for the ecoregion, date of completion and name of the user can be provided.
2. **Ecoregion statistics.** Here, the total demand and total supply in kWh is calculated using the Region description from the first part of the Self-Assessment Tool. The Gap / Potential is the difference between total demand and total supply. When the value is 0, there is a perfect balance between demand and supply, which will yield the maximum score of 30. If there is a gap between supply and demand, the score is reduced using two simple formulas:
    a. **When supply > demand**: Score = Max Score * Total demand / Total supply
    b. **When demand > supply**: Score = Max Score * Total demand / Total supply * 0.75
   As you can see, an additional penalty (factor 0.75) is used when the demand > supply, since in this case there is a scarcity in energy supply.
3. **Spider web diagram**. The total scores of the self-assessment questions (part 2), the electricity potential and heating or cooling potential are visualized in a spider web diagram. The red diagram is the maximum possible diagram, the blue diagram displays the actual scores from the self-assessment.
4. **Self-assessment results**. Here, suggestions are automatically generated on how to further improve the data quality and completeness. For each category, there are two possible 'result rationales', one for a low score (< 33%) and one for a high score (> 33%).
5. **Read the full results rationale**. This button brings the user to the results rationale tab. Here all the possible outcomes of the self-assessment are listed.

Next steps

After having completed the R-ACES Self-Assessment, you will have an inventory of data in four categories that are important when exploring opportunities for energy exchange. Ideally, the process of collecting data, answering the self-assessment questions and interpreting the results is done together with the stakeholders in the region. In that case, the data is validated and useful for taking the next steps in designing new energy systems.
If this was not done, a (partially) completed self-assessment can also be discussed and validated afterwards.

The results page provides some suggestions on how data of the inventory can be improved based on answers in the self-assessment questionnaire. The suggestions are automatically generated and are by design generic. We hope that by answering the questions together with stakeholders and discussing the suggestions, more concrete next steps are determined.

Disclaimer

This is a user guide to the second public release of the R-ACES Self-Assessment Tool, published in May 2022 and available for download on the R-ACES website. The content of this user guide has been selected by the R-ACES consortium with the utmost care. In case of errors or when instructions are not clear, please contact agata.vanoosten@ispt.eu.

Exporting your results

Microsoft Excel has a built-in print functionality. Where you can find this function depends on the version of Excel you are using, your operating system and language. Please consult the official Microsoft Excel documentation for further help.

We suggest to print in landscape format.

Alternatively, you can also save your progress on your hard disk.