

O.T1.2 GUIDING DOCUMENT ON BENEFITS OF REEF 2W PLANTS, SHOWING HOW TO CONDUCT A SUITABLE FEASIBILITY STUDY

Conducted by **Universität für
Bodenkultur Wien**

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Output factsheet: Tools

Version 1

Project index number and acronym	CE946 REEF 2W
Lead partner	ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development
Output number and title	O.T1.2 Guiding document on benefits of REEF 2W plants, showing how to conduct a suitable FEASIBILITY STUDY
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Delivery date	03.2018

Summary description of the key features of the tool (developed and/or implemented)

Max. 2.000 characters

The scope of the tool (one Excel including software tool N.1 and N.2) is to provide a first evaluation on the benefits of applying innovative technological processes on Waste Water Treatment Plants (WWTPs) concerning waste and wastewater treatment in order to increase energy efficiency (EE) and the implementation of renewable energy sources (RES) at WWTPs. Additionally, an urban compatibility assessment (UCA) in the surroundings of the WWTP is carried out. Finally, environmental and economic aspects are included in the calculations. Split into four sections (according to the ISA approach) the tool evaluates:

1. Energy efficiency (EE) and renewable energy sources (RES) at the WWTP [*software tool N.1*] (evaluation of waste water treatment process, optimization of energy efficiency at the WWTP, renewable energy source application at WWTP)
2. The spatial context of the WWTP (UCA) including energy supply scenarios [*software tool N.2*] (compatibility check of utilizing surplus energy in the surroundings of the WWTP)
3. The environmental context (Life Cycle Assessment)
4. The economic context (Life Cycle Costing)

The “report” section of the tool provides a detailed comparison of input and output parameters. Thus, the user can compare different scenarios and derive potential strategic decisions for the utility or the municipality.

NUTS region(s) where the tool has been developed and/or implemented (relevant NUTS level)

Max. 500 characters

The tool has been developed and/or implemented in NUTS level 0 including:

- Austria
- Germany
- Italy
- Czech Republic and
- Croatia.

Expected impact and benefits of the tool for the concerned territories and target groups

Max. 1.000 characters

With the help of the tool WWTP operators and decision-makers can derive strategic decisions concerning energy efficiency and the increase of renewable energy use at the WWTP. Furthermore, a first assessment of potential energy consumers in the vicinity of the WWTP can be carried out. Consequently, WWTPs can be seen as regional energy cells having the potential to offer surplus energy. The tool offers an integrated assessment, also including environmental and economic aspects on which many decisions are based upon. In terms of the feasibility study, Annex 1 shows an overview on how to conduct these studies. It includes the basic idea of the REEF 2W software tools that have been developed.

Sustainability of the tool and its transferability to other territories and stakeholders

Max. 1000 characters

The holistic approach (resulting in the strategic character of the tool) of the Integrated Sustainability Assessment (ISA) makes the tool easily transferable and applicable in multiple countries. Besides national values (Austria, Croatia, Czech Republic, Germany, Italy) also European values are included and used for the calculations. Main target group of the tool are WWTP operators. However, the goal is that also decision makers on the municipal level can use the tool and initiate strategic planning activities on how to integrate WWTPs into local/regional energy concepts etc. Sustainability is fully given, since the ISA approach, on which the tool is based on, integrates multiple levels of sustainability (also see D.T1.5.1 and D.T1.5.4). Surplus energy in the form of gas, electricity or heat can be produced sustainably and locally at the facilities. Besides economic and environmental benefits, the local provision of energy might also trigger social benefits by offering new employment opportunities.

Lessons learned from the development/implementation process of the tool and added value of transnational cooperation

Max. 1000 characters

The tool is currently still at an early stage of development. However, first feedback was collected and the overall approach of the REEF 2W project, including the Integrated Sustainability Assessment, were generally well received. Concerning the development, the single parts of the tool have to be connected more deeply in order to gain more realistic results that can consequently be used for deriving planning decisions in practice. The specially deployed tool developer workshops within the project proved to be essential in order to develop a tool that is applicable across Central Europe and incorporates all aspects across different disciplines.

References to relevant deliverables and web-links If applicable, pictures or images to be provided as annex

Max. 1.000 characters

DT.1.4.3
DT.1.5.1
DT.1.5.4

Annex 1: Working steps of the feasibility study procedure

