

INCREASED RENEWABLE ENERGY AND ENERGY EFFICIENCY BY INTEGRATING, COMBINING URBAN WASTEWATER AND WASTE MANAGEMENT SYSTEM

TAKING
COOPERATION
FORWARD



REEF 2W Final Conference 26/06/2020



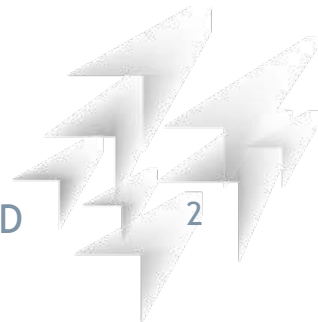
REEF 2W objectives and results



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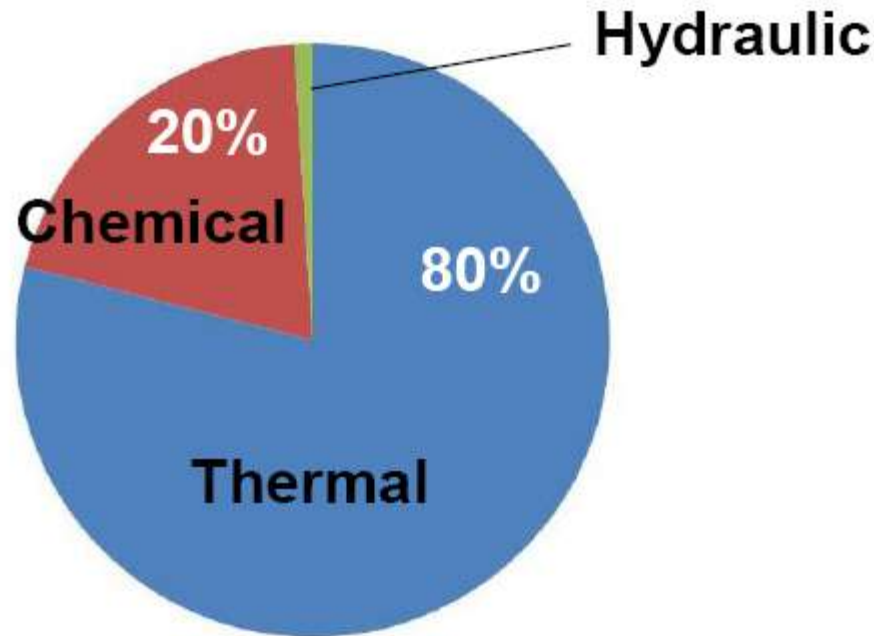
Energy consumption in the water cycle

In USA the energy consumed to provide drinking water and ensure the treatment of the waste water correspond about the 3% of the total electric energy consumption of the country (US EPA 2006)



Potential energy recoverable from wastewater

There is more energy in wastewater than is needed for treatment about 5X more

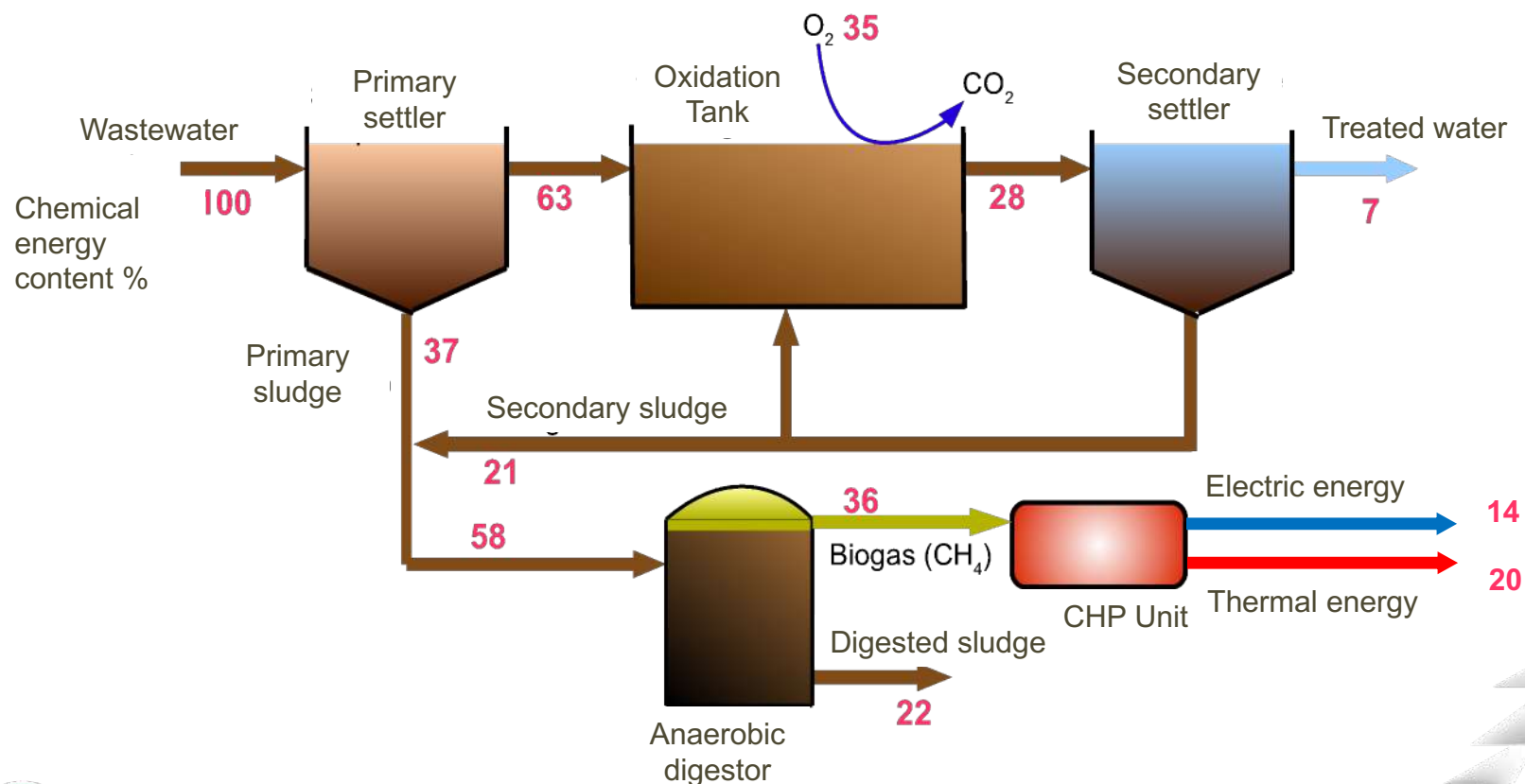


But not only from wastewater. Energies recoverable from solar radiation, hydraulic power, gasification and incineration processes is considered



WHY THIS PROJECT

Chemical energy recovery



REEF 2W PROJECT



SCOPE OF THE PROJECT

- To identify possible critical points for the energy efficiency of the WWTPs
- Help to define strategies and technologies and evaluate possible future scenarios for the waste treatment platforms integrating waste, wastewater and other renewable energy sources
- To provide an assessment on the excess of energy available and where it can be delivered as electricity, heat, biofuel, biomethane to the nearby community to decrease its energetic impact.
- To provide a simple interactive TOOL able to help policy makers and stakeholders to define the health state of the treatment plant and to identify possible improvements



SCOPE OF THE PROJECT

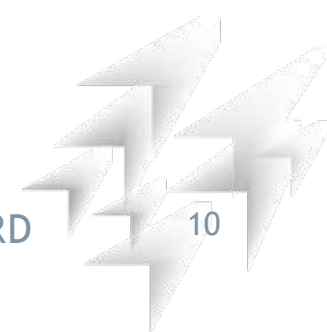
- To provide an environmental assessment of the actions implemented
- To provide an economic assessment for the implementation of different technologies
- Identify obstacles and barriers for the implementation of more efficient system to recovery energy from organic wastes
- Involve local authorities to test the tool, and use it to contribute at a better design of the energetic planning



- 5 pilot sites have been identified and studied; to evaluate technical solutions, social and legislative barriers and obstacles
- Involved in the pilots:
 - Small and big municipalities
 - Waste and wastewater treatment plants
- IT: SWTP Novafeltria
- HR: WWTP Zabok
- AT: WWTP RHV Trattnachtal
- CZ: WWTP Prague
- DE: WWTP Berlin



- Technologies considered are
 - Anaerobic digestion, biogas upgrading, power to gas, CHP
 - Heat recovery from treated wastewater
 - Gasification, Hydrothermal carbonization, composting, incineration
 - Photovoltaic, thermal and hybrids panels
 - Hydroelectric power
 - Others will be possible to implement in future (effects of nutrients recovery, filtration technologies, wind, etc.)



INTEGRATED SUSTAINABILITY ASSESSMENT (ISA)

- ISA approach has been used to connect all the relevant aspects:
 - Energy assessment
 - Spatial assessment
 - Environmental assessment
 - Economic assessment
- Strong involvement of the user in defining future credible scenarios



Information about WWTP and Plant type and



REEF 2W TOOL

Tool progress status:

Status quo

Future situation



Energy Assessment



Information about WWTP and Plant type



Spatial Assessment



Environment Assessment



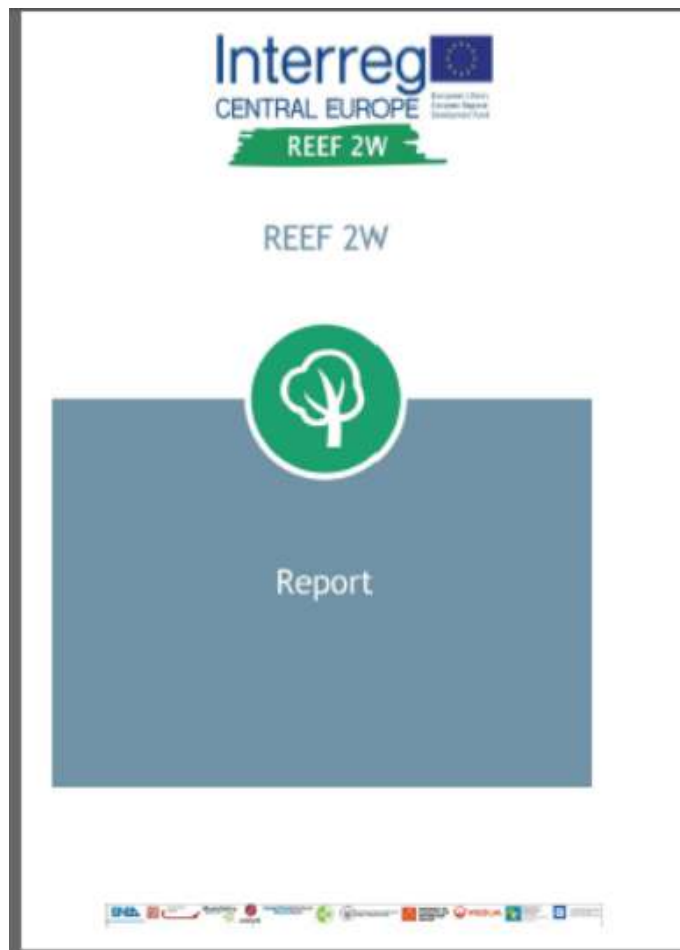
Economic Assessment

Future situation

Report

Reset





Involvement of Public Administrations and Stakeholders

- Training courses for groups of Public Administrations and Stakeholders have been delivered in the 5 countries to help them in the evaluation of possible opportunities to decrease the energy impact recovering energy from wastes
- Training courses will be conducted to train advisors (Reef2w@gmail.com)
- Setting up of action plans at a regional levels to promote the use of REEF 2W approach in energy and waste planning and signature of MoUs with political authorities
- Book with the description of the experience developed in the project



Thank You for your attention
REEF 2W Team



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