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University of Applied Sciences

Interreg
(Ko-)finanziert von der Europäischen Union
(Mede) gefinancierd door de Europese Unie
Deutschland – Nederland

CREATE

CREATE

Energetic Utilization of Wastewater from Industry Today and in the Future

M.Sc. Sören Kamphus
Prof. Dr.-Ing. Elmar Brügging

Stegerwaldstr. 39
D-48565 Steinfurt

+49 1573 7054544

soeren.kamphus@fh-muenster.de
www.fh-muenster.de

Agenda

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- Presentation of the research team Prof. Brügging and Prof. Wetter
- Current research projects within the research team

VEBIT: Connecting biogas technology in the Münsterland region

Nährwert: Technically supported nutrient management in combination with biogas plants and cultivation areas

BOOST: Boosting cross-border green hydrogen in industry, research and education

- Presentation of the **CREATE** project

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Research Team

Prof. Brügging and Prof. Wetter

Research Team Prof. Brügging and Prof. Wetter

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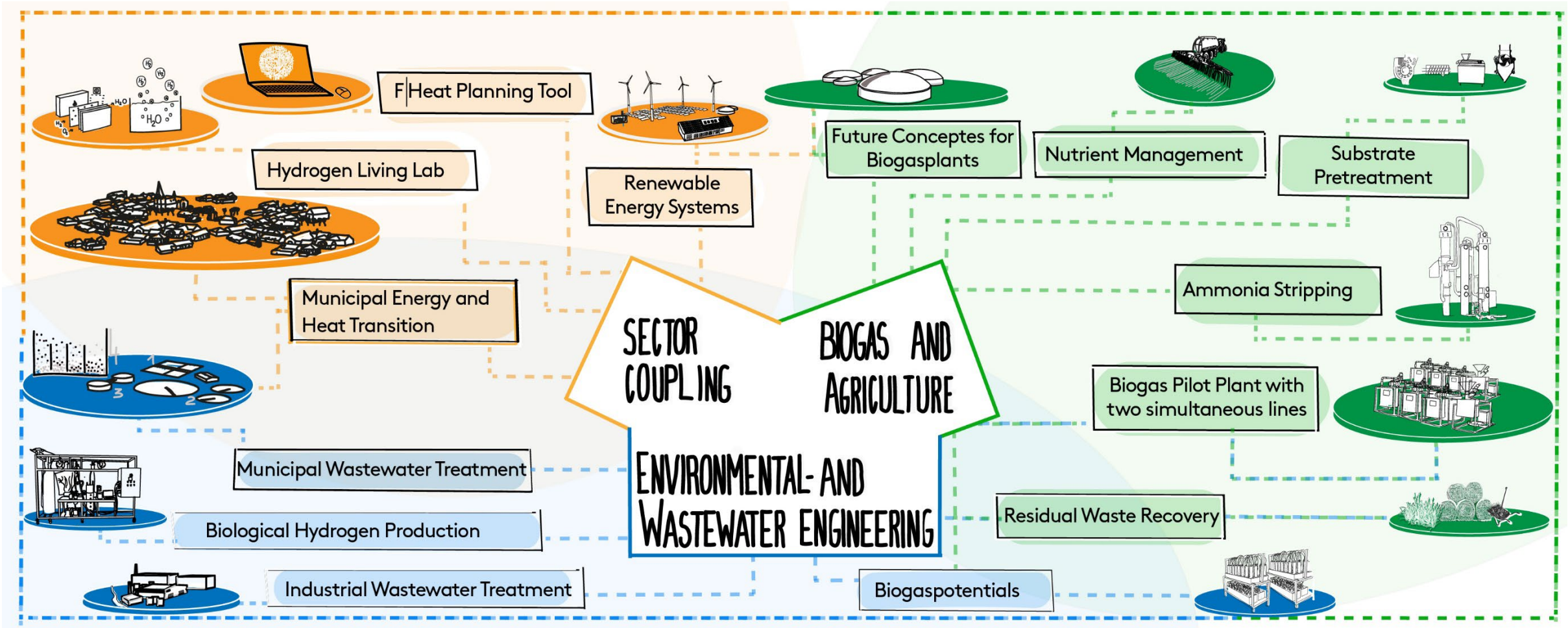
Part of the IEP and IWARU Institutes at the FH Münster

Research Topics of the Team

The Working Groups



Research Facilities

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FH Münster

Technology-Campus Steinfurt
Stegerwaldstraße 39
48565 Steinfurt

FHOrt Saerbeck
Im Bioenergiepark 7
48369 Saerbeck

Scan the QR-Code for a Virtual Tour !

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Research Projects:
VEBIT, Nährwert and BOOST

VeBiT

Networking biogas technology in the Münsterland region

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VeBiT MSL

Background:

- Expiry of the 20-year EEG funding poses major challenges for AD-plants in the Münsterland region
- Large number of possible follow-up concepts:
  - Follow-up tendering under the EEG and flexible plant operation as well as value creation through heat generation
  - Clustering of existing plants
  - Feeding biomethane into the natural gas grid
  - Direct energy supply to companies

Research activities:

- Direct support for plant operators in the strategic realignment for the post-EEG phase
- Identification of blueprints for successful continued operation and inclusion of the concepts in a database
- Macroscopic analysis of the plant portfolio for non-monetary effects
  - System services for agriculture
  - Energy system services for MSL

Project duration: 01.03.2024 – 28.02.2027

Kofinanziert von der Europäischen Union

Gefördert durch:
Ministerium für Wirtschaft, Industrie, Klimaschutz und Energie des Landes Nordrhein-Westfalen

Nährwert

Technically supported nutrient management in combination with biogas plants and cultivation areas

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Nährwert

Background:

- 53.1 million t/a of organic fertilizers are produced in Lower Saxony
  - 113 kg N/ha
  - 56 kg P/ha
- Existing challenges due to local/regional nutrient surpluses
- Biogas plants are at the center of this problem while also offering strong solution potential

Research activities:

- Technical evaluation of different processes for the treatment of fermentation products
- Development of practice-proven integrated process chains for nutrient management
- Further development of the treatment processes in cooperation with plant manufacturers
- Advancement of NIRS technology through shared use of the collected data

Duration: 01.07.2021 – 31.12.2024

Project partners : DBFZ, Kompetenzzentrum Niedersachsen · Netzwerk Nachwachsende Rohstoffe und Bioökonomie e.V. 3N

Gefördert durch:
Bundesministerium für Ernährung und Landwirtschaft
aufgrund eines Beschlusses des Deutschen Bundestages
FNR Fachagentur Nachwachsende Rohstoffe e.V.

BOOST

BOOSTing cross-border hydrogen in industry, research and education

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Background:

- Development of regional H_2 production capacities
- Accelerating the integration of electrolyzers into energy systems to increase the efficiency of green hydrogen production

Project duration: 03/2024 - 02/2027

Funding: Interreg VI A

Project partners:

BEN-Tec
MERECS Engineering
UNIVERSITY OF TWENTE.
SAXION
HYGEAR THE GLOBAL HYDROGEN SOURCE
PONDERA
powerspex

Research activities:

- Development of a validated, software-based electrolyzer toolbox for industrial use
- Techno-economic analysis of low-temperature electrolysis processes
- Development of concepts for using simulation tools in the training and continuing education of professionals in the hydrogen economy

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Interreg VI Project:
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CREATE

Energy use of organically loaded wastewater

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Background:

- Unlocking untapped potential for energy generation from wastewater and other renewable sources in SMEs
- Supporting SMEs in reducing GHG emissions by utilising wastewater
- Cross-border exchange of experience and knowledge in the field of anaerobic wastewater treatment

Research activities:

- Analysis of wastewater and residual material streams in SMEs (heat and biogas)
- Testing of in-situ methanisation in anaerobic wastewater treatment
- Integration of electrolysis with wastewater treatment
- Support for SMEs

Project duration: 12/2023 - 11/2026

Funding : Interreg VI

Project partners:

cew centre of expertise water technology

BEON Biogrondstoffen en duurzame Energie Oost-Nederland

SÖBBEKE Pauls Biomolkerei

BRUNO GELATO

Interreg Deutschland – Nederland

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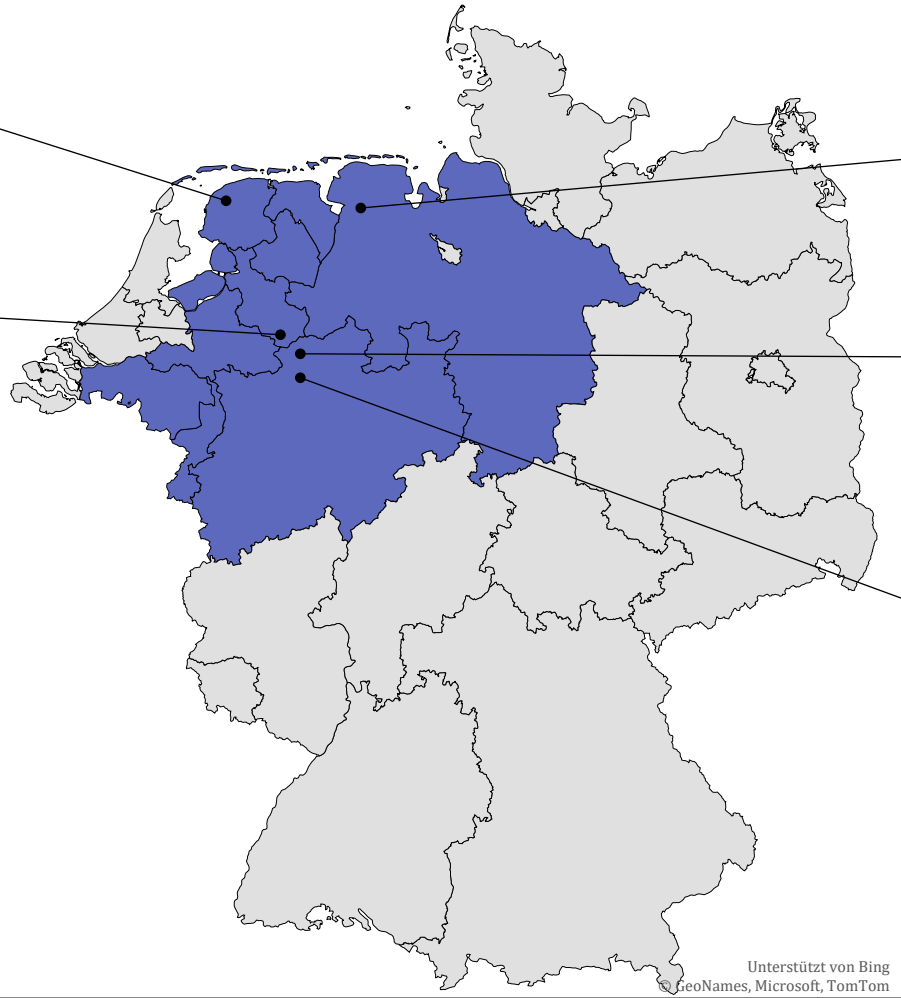
cew
centre of expertise
water technology

BEON
Biogrondstoffen en duurzame
Energie Oost-Nederland



BRUNO GELATO

SÖBBEKE
Pauls Biomolkerei

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Task distribution

Anaerobic Wastewater Treatment with In-Situ Methanisation

cew
centre of expertise
water technology

Anaerobic Wastewater Treatment

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Cross-Border Exchange and Cooperation

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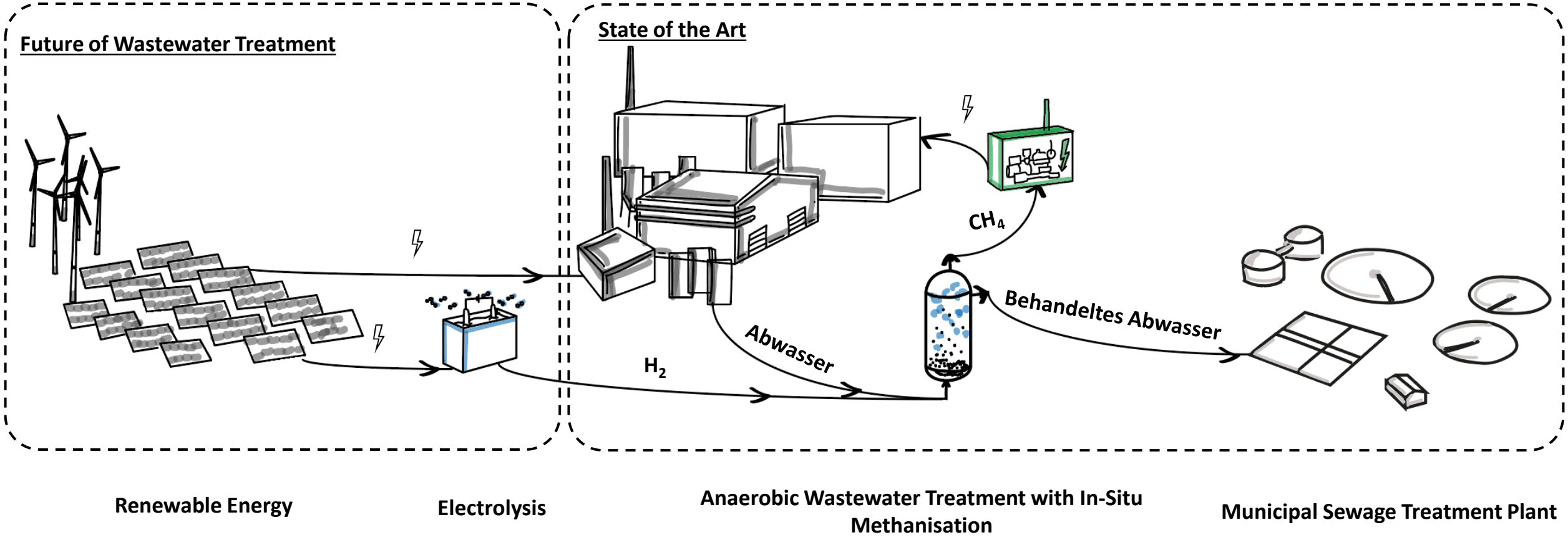
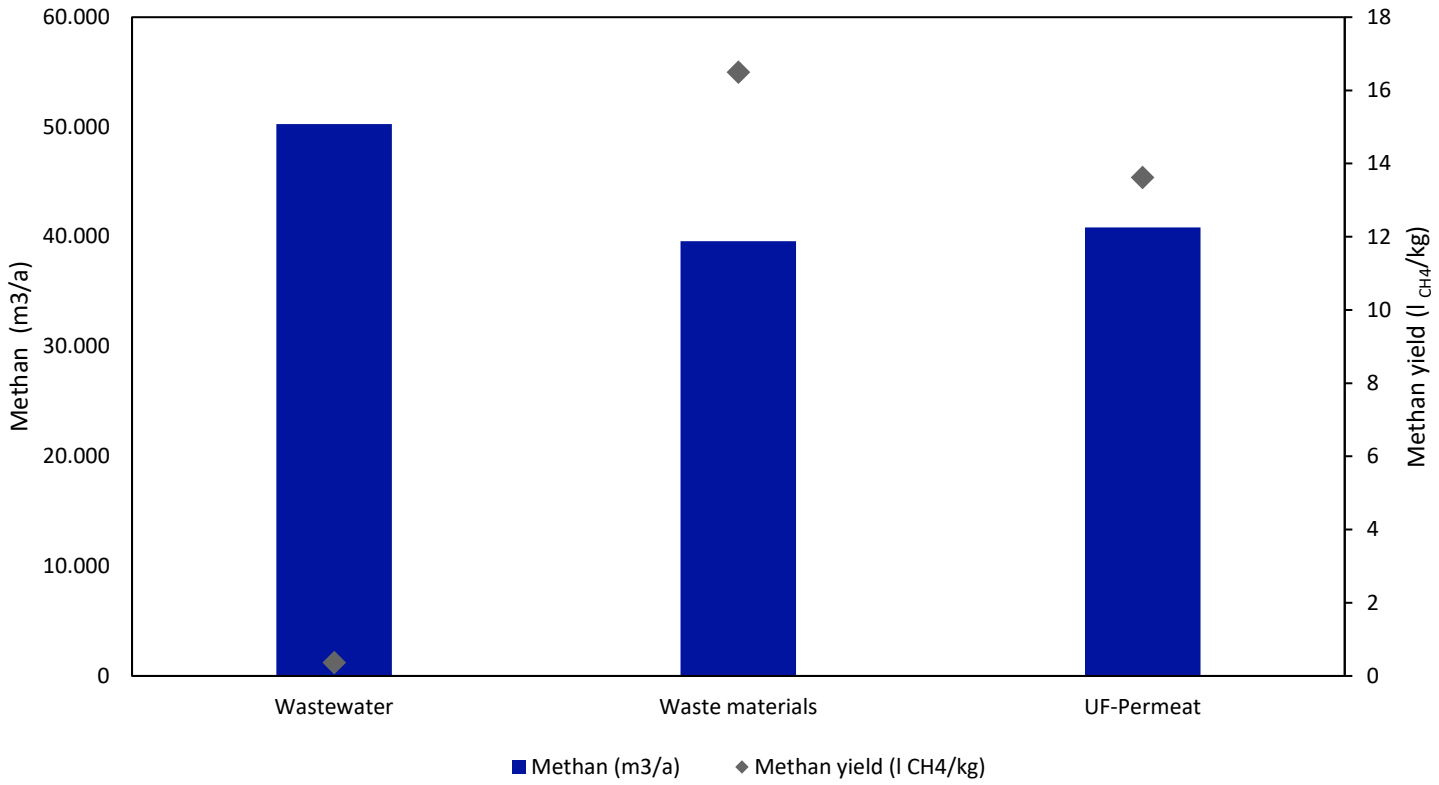
Biogrondstoffen en duurzame Energie Oost-Nederland

Wastewater treatment combined with electrolysis



Figur: Graphical summary of the CREATE project (FH Münster)

Biogaspotential of organic waste streams



Three main organic waste streams at Söbbeke:

1. Wastewater
2. Waste material
3. Ultrafiltration permeate (UF-Permeate)

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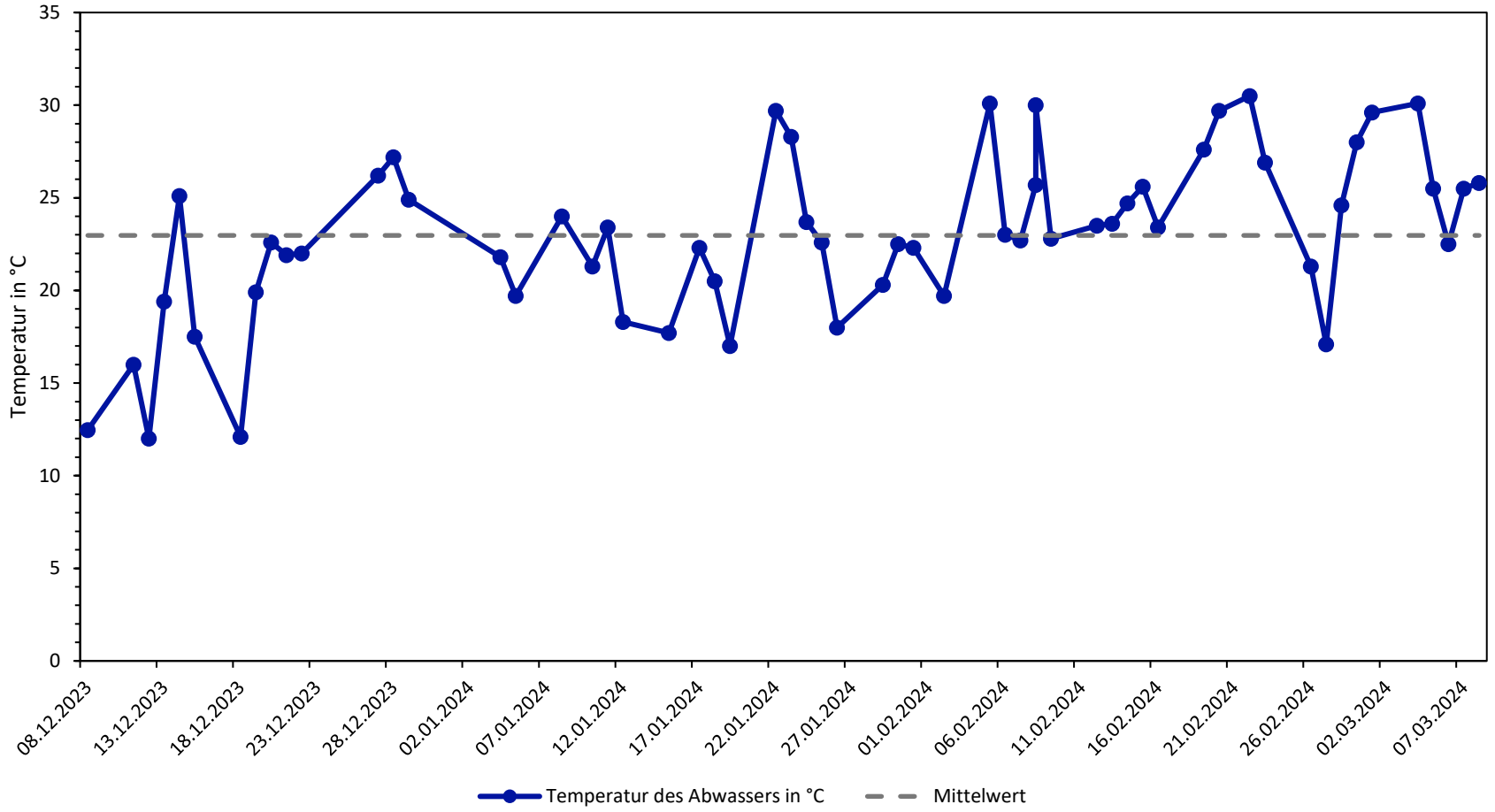
Wastewater temperatur in winter (Söbbeke)



- Average temperatures of **23°C** even in winter
- Use of a heat pump possible

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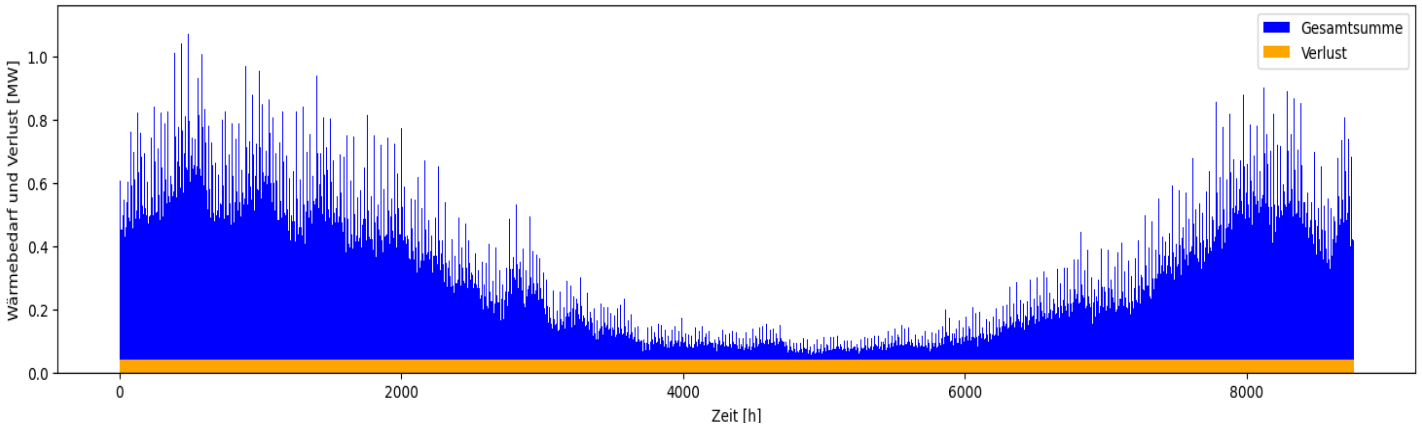
F|Heat Tool – Heat recovery from wastewater (Söbbeke)

Demand



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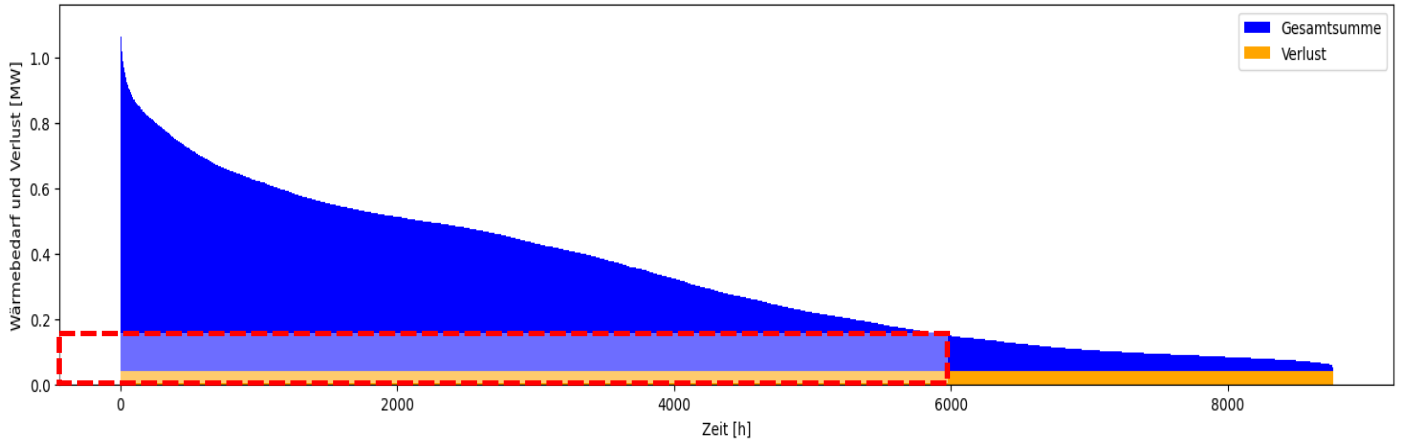

- **200 kW** theoretically available through a heat pump
- Feed-in to a heating network (local use)
- Demand for > 200 kW heat approx. 6000 hours per year

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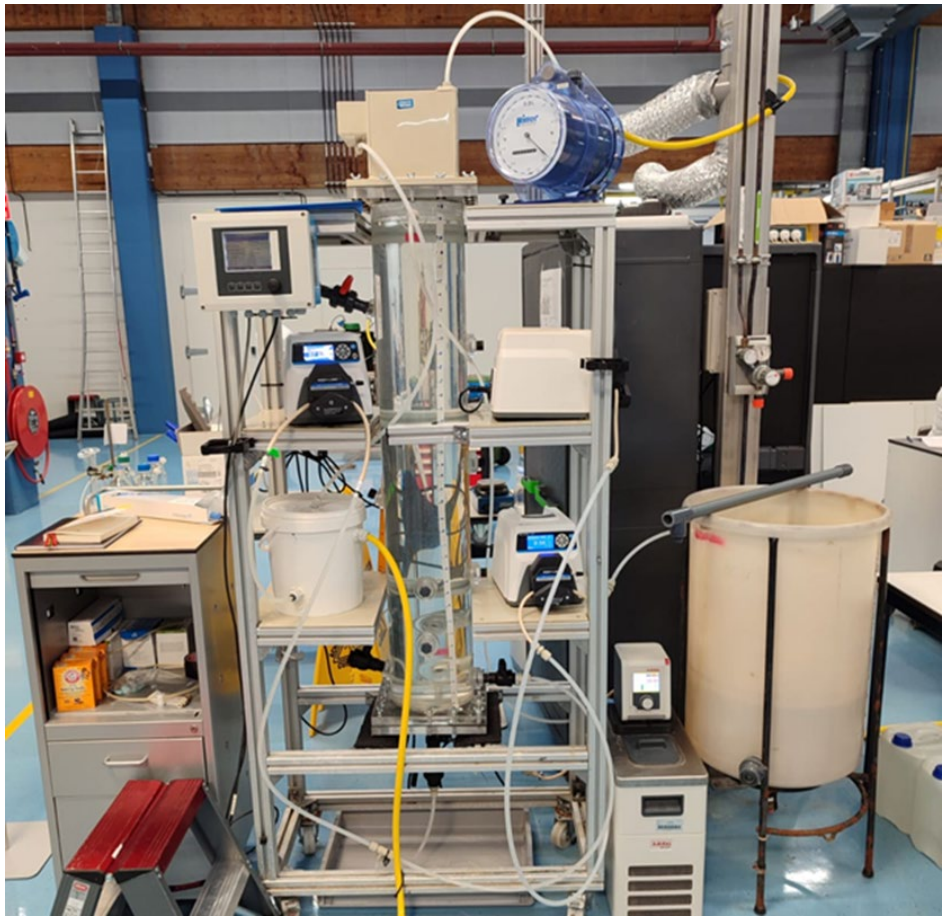
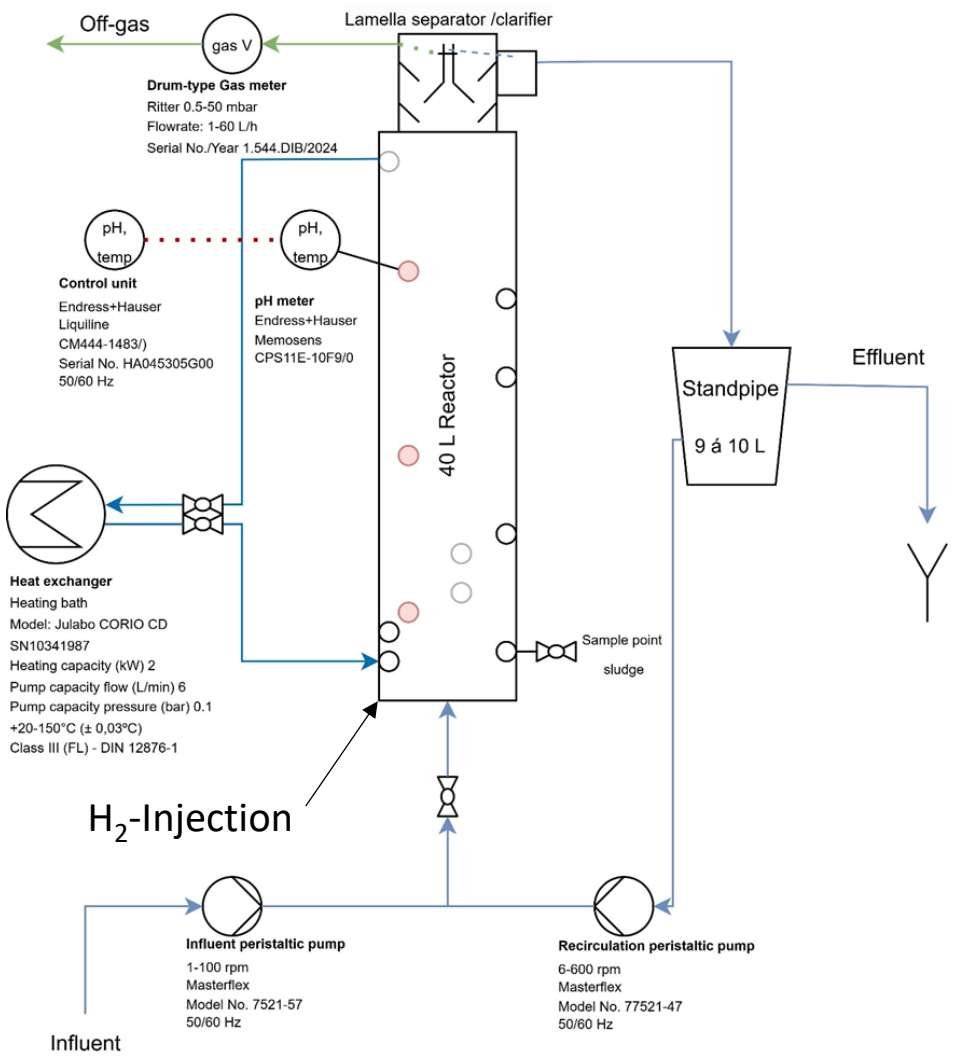
Pilot plant for In-Situ Methanation at CEW





Visit to the Bioenergy Park in Saerbeck Germany

+

Workshop on Energetic Utilization of Wastewater

on the 20. of January at 12:00

CREATE-Interreg@fh-muenster.de

Contact Person

Research Team Prof. Brügging and Prof. Wetter

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Research Team Head

Prof. Elmar Brügging
brueggging@fh-muenster.de
+49 179 5495281

Head of the Working Group
Wastewater and Enviromental Technology
Sören Kamphus M. Sc.
soeren.kamphus@fh-muenster.de
+49 2551 962021

Registration for the **excursion** and **workshop** in Saerbeck on the **20.01.2026** via Mail :

CREATE-interreg@fh-muenster.de