



SWEET Call 1-2020: SWEET EDGE

Deliverable report

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Table of contents

Summary2

1 Introduction3

2 Deliverable content3

3 Conclusion3

Appendix3



Summary

This deliverable is related to a non-public technical report and operating concept for a planned biogas plant in Wittenbach. The biogas plant “an der Sitter” is being planned by the LAVEBA cooperative in collaboration with Energie-Wenden and NQ Anlagentechnik. A yearly output of 9.3 GWh of biogas is targeted, utilizing manure and whey as primary feedstock. Beside the biogas output, a valuable and stabilized fertilizer is produced.

The project is supported by SWEET-EDGE, aiming to deliver a project with a high extent of decarbonized heat supply and carbon capture, to decrease the overall climate impact of the produced biogas.



1 Introduction

A consortium of Laveba Genossenschaft, the municipality of Wittenbach, and other interested stakeholders plan to build an agricultural biogas plant in Wittenbach, on the site of the former wastewater treatment plant “Sitter”. Within the scope of the EDGE-project, the aspects of digester heating and CO₂ capture have been studied extensively (see deliverable reports D5.11 and D5.13, respectively), with some of the solutions presented now being integrated into the refined project plan. The biogas plant with an expected annual output of approximately 9.3 GWh (0.93 mio. m³ biomethane) will directly feed the processed biogas into the gas grid connected to St. Gallen.

2 Deliverable content

The non-public technical project plan details the planned biogas plant with all peripheral installations. The biogas plant and its construction are described, as well as all relevant energy flows, control systems, logistics, carbon capture, administrative details, and more. Notably, the cascade of heating systems combining a heat recovery stage, heat recuperation from gas conditioning, as well as optionally a novel server heating concept with the alternative of a heat pump using the digestate storage as a thermal reservoir is described in detail.

3 Conclusion

The technical report as well as the separate deliverable reports relating to digester heating (D5.11) and CO₂ capture (D5.13) show a pathway to emissions reduction in a biogas plant under real-world conditions. The project consortium is currently producing the special land use plan (“Sondernutzungsplan”), with a building permit estimated to be obtained by early spring 2025 – provided that the consultation process within the municipality does not produce any excessive delays. Start of construction activities should be soon thereafter, while the start of operations is planned for autumn 2026.

Appendix

Technischer Bericht, Biogasanlage “an der Sitter“, Wittenbach (T. Keel & M. Scheibler, 2024). Please note that this report is confidential. It may not be distributed and the information it contains may not be used.