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BioSynGas: Next generation biogas production

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Teknologi for et bedre samfunn

What is BIOSYNGAS?

- KSP project financed through ENERGIX (RCN)
- Budget: 17.7 MNOK (RCN), Total 22.3 MNOK
- Project period: 2021 – 2025
- Project manager: SINTEF Energi AS, (roger.a.khalil@sintef.no)
- Partners:
  - Oslo Kommune Renovasjons- og Gjenvinningsetaten (REG)
  - Bergen Kommune
  - FREVAR KF
  - LINDUM AS
  - Veas
  - Hadeland og Ringerike Avfallsselskap AS (HRA)
  - Antec Biogas AS
  - NIBIO
  - NMBU (PhD)
  - NTNU (PhD)
  - Zhejiang University of Technology (China)

Background

Biogas plants in Norway have some challenges related to digestate utilization

- BIOSYNGAS will:
  - **Convert the digestate to new and valuable products** that can be utilized locally
  - Recover **nutrients**
  - **Increase biomethane** production
  - **Widens the types of waste fractions** that can be converted in existing plants

Objectives

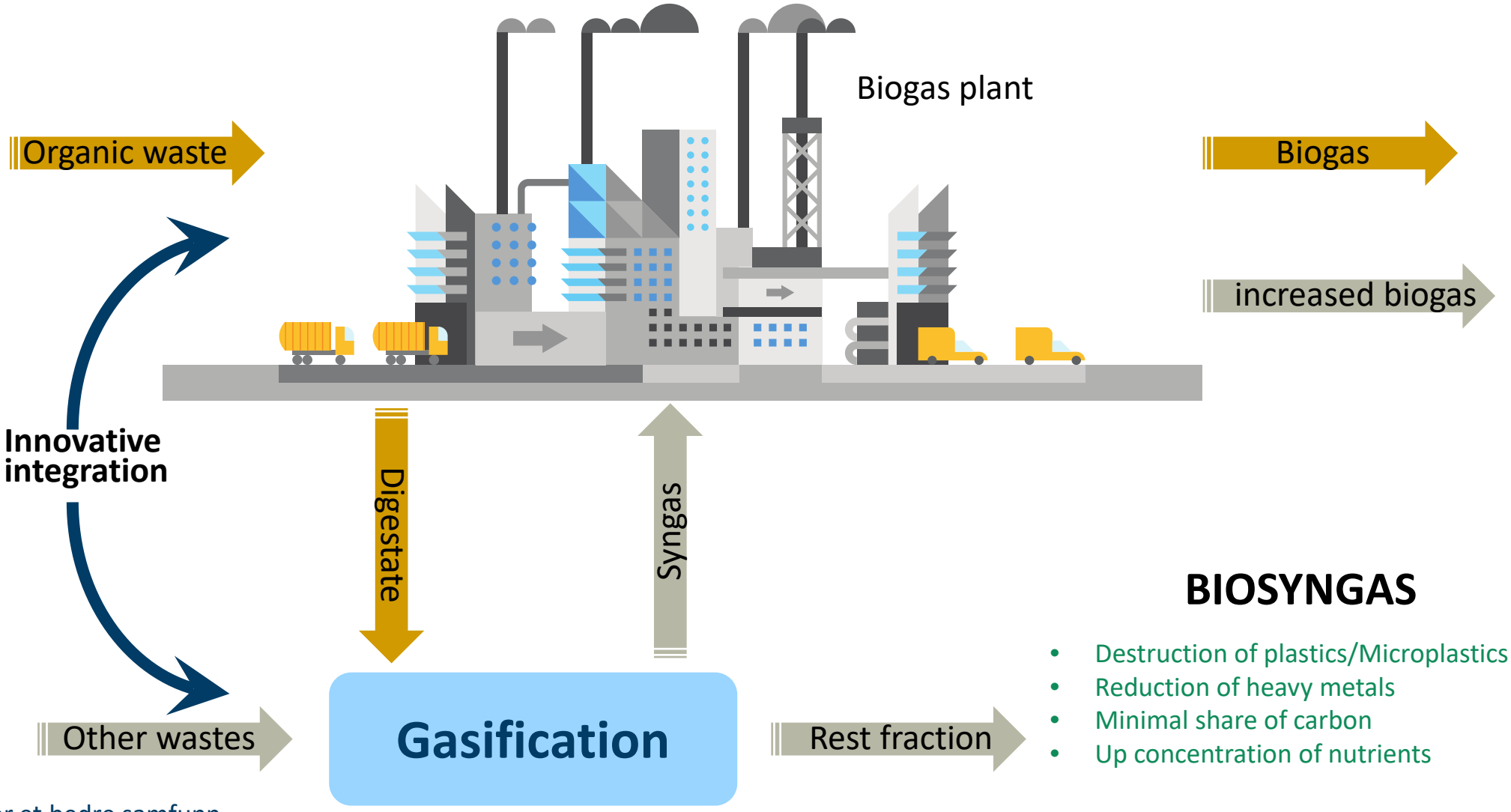
- Improve the energy and environmental performance of biogas plants through increased carbon conversion to biomethane and reduced metals content in the liquid residue
  - Develop gasification technologies (for wet and dry feeds) for the conversion of low value fuels to syngas and study the recycling of nutrients as soil supplements using thermal hydrolysis and HTG
  - Maximize biogas production and digestate quality by adding biochar, syngas, and hydrothermal liquid and solid products to a biogas process.
  - Build and evaluate a detailed process design for the integration into a commercial biogas plant and compare with the conventional design approach.
  - Manage the project to reach its goals, disseminate results to the relevant players and public, educate two PhD and four MSc students, monitor progress in the field and enable spin-off implementation projects.

How to achieve these goals?

- Plastics/Microplastics
- Heavy metals
- High water content
- Still a lot of unconverted carbon
- Nutrients

existing plant

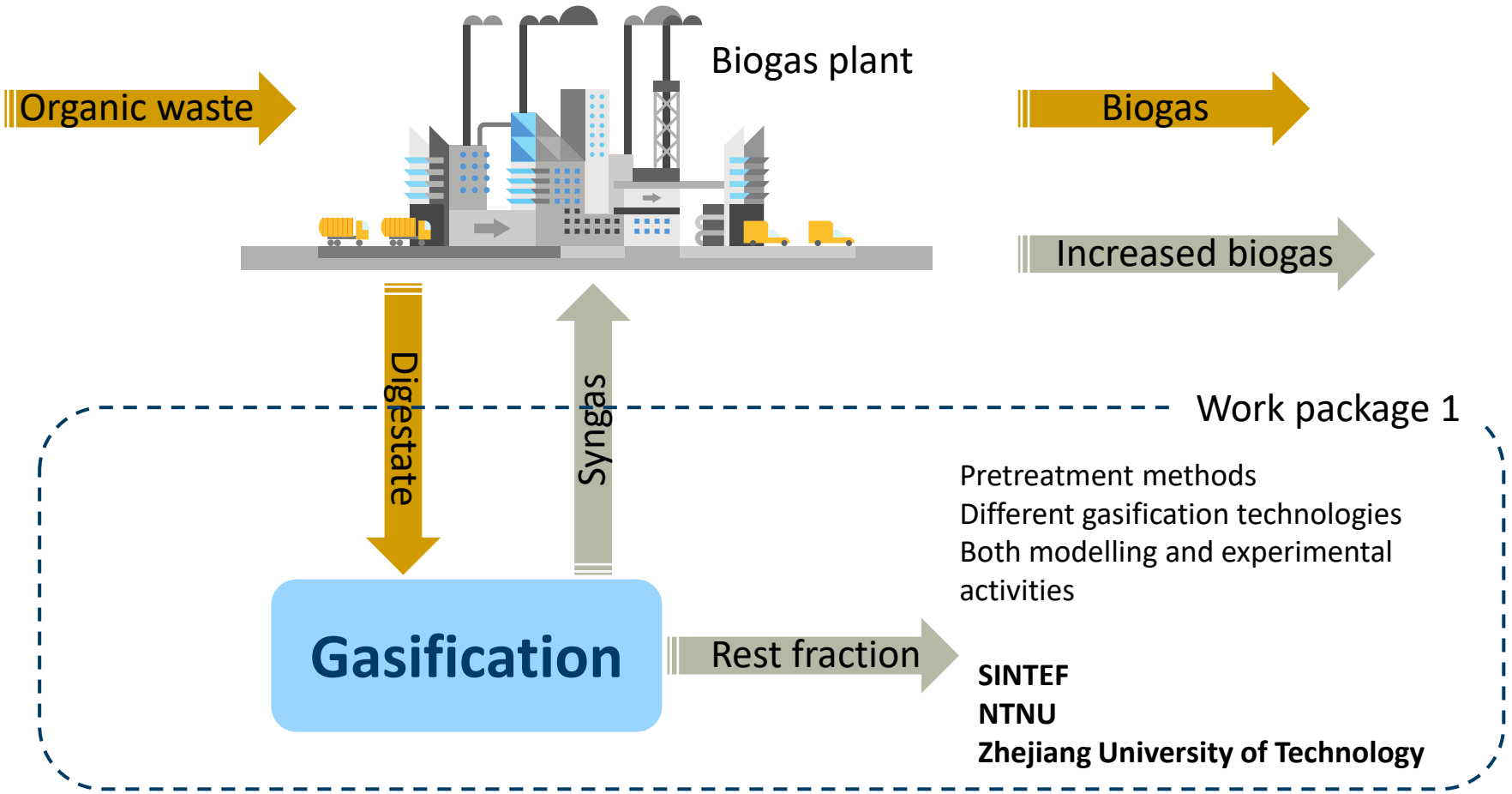
How to achieve these goals?



BIOSYNGAS

- Destruction of plastics/Microplastics
- Reduction of heavy metals
- Minimal share of carbon
- Up concentration of nutrients

How to achieve these goals?



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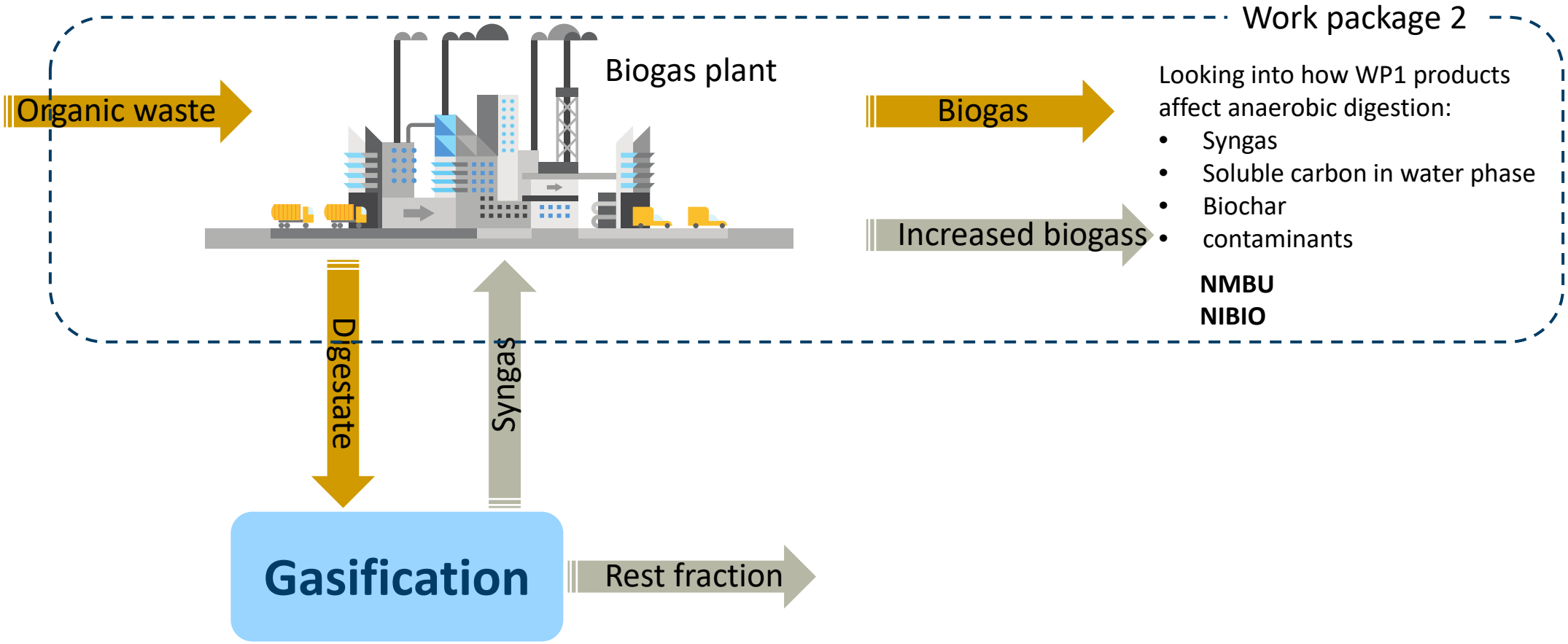

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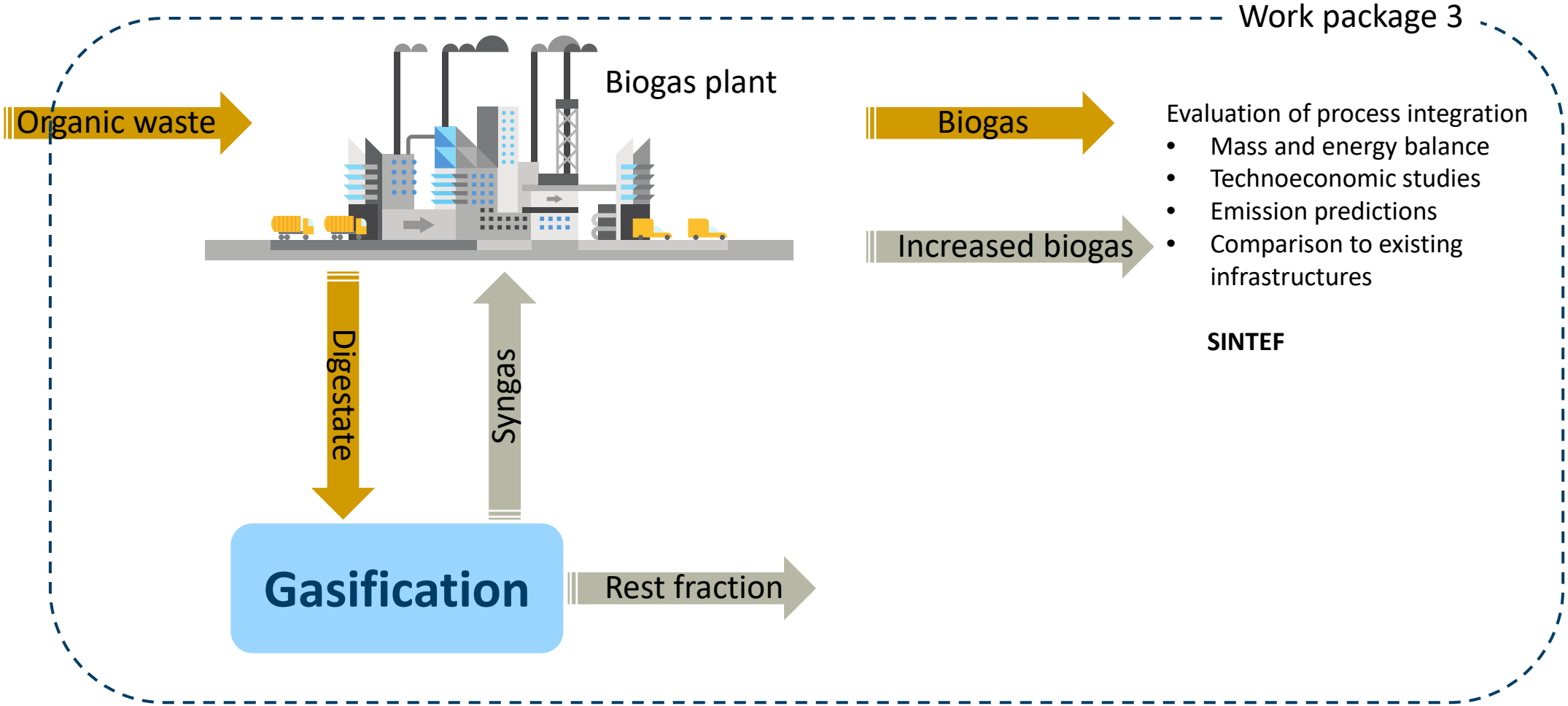

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