Circular Economy in Food Industry Waste Management (BIVALIA Workshop2 - 2026)

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P.III.3 — De-risking investments and maximizing energy output in advanced Waste-to-Energy (WtE) and Waste-to-Hydrogen (WtH) infrastructure

O. Chumachenko[1*], H. Ruiz[1], W. Stewen[1], M. Ortiz[1], Y. Moran[1]

1: Tokef Energia

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Poster Presentations #35

P.III.3 — De-risking investments and maximizing energy output in advanced Waste-to-Energy (WtE) and Waste-to-Hydrogen (WtH) infrastructure

O. Chumachenko[1], H. Ruiz[1], W. Stewen[1], M. Ortiz[1], Y. Moran[1]*

[1] Tokef Energia

**Correspondence: oleg.ch@tokef.eu*

Keywords: *advanced Waste-to-Energy (WtE), Waste-to-Hydrogen (WtH), torrefaction technology, Sustainable Waste-to-Energy Solutions*

The transition to a circular economy requires technologies that can convert waste streams into reliable resources while reducing environmental impact and improving project viability. Tokef Energia develops advanced engineering and consulting solutions for waste-to-energy and biomass conversion, with a focus on gasification and torrefaction technologies. Our approach addresses one of the most persistent challenges in circular systems: how to transform heterogeneous, underutilized feedstocks into high-value energy products at industrial scale.

Our gasification expertise supports the conversion of municipal solid waste, agricultural residues, commercial biomass, and mixed plastics into synthesis gas, biohydrogen, electricity, and heat.

We will present our own Advanced Gasification with Waste-to-Hydrogen (WtH) technology, led by our business partner Dr. Hector A. Ruiz, where thermochemical conversion without complete combustion produces clean Synthetic Gas (Syngas) and Biohydrogen with zero-leaching ash and net-zero carbon footprint.

Our methodology rests on three pillars: engineering precision, vendor neutrality, and lifecycle support.1. Deep Technical Expertise Our scientific consultants are field-tested engineers, not just theorists. We design systems that bridge the gap between academic potential and commercial scale. 2. Vendor-Neutral Advice We hold no exclusive ties to specific equipment manufacturers. Our technology selection is driven solely by your unique feedstock profile and RoI goals.3. End-to-End Support From the initial concept and feasibility models to commissioning and day-to-day operations, we remain a persistent partner throughout the asset lifecycle. We are the essential bridge:

combining the rigorous expertise of elite engineers with the risk- mitigation mindset of top-tier consultants to transform global waste into guaranteed yield; thereby we help partners turn waste management challenges into sustainable infrastructure and resilient revenue streams.

In parallel, we are advancing torrefaction technology and projects that upgrade biomass into a denser, more stable, and transportable solid fuel, improving logistics and expanding its commercial use. Together, these technologies create flexible pathways for resource recovery and renewable energy generation.

We also focus on solving the operational and financial risks that often prevent successful circular economy projects. We provide vendor-neutral engineering support, detailed feedstock assessment, feasibility studies, FEED engineering, and lifecycle project assistance to help clients reduce uncertainty, avoid technology lock-in, and improve long-term performance.

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