



Unlocking Biomass Potential

World Bioenergy Association
Webinar - June 25th 2026

Subject:
Biocoal: The Ideal Drop-in Substitute for
Fossil (Steam) Coal



The Yilkins Company

Company details

- Dutch company founded in 2015
- Demo plant in Ruurlo, The Netherlands
- Large Worldwide Project portfolio
- 25 years of biomass conversion practice

Our proposition

- Offering Drying and Torrefaction technology
- Patented drying and torrefaction equipment
- Modular Skid solutions
- Offering Performance warranty back-stop insurance guarantee (via NER)



*Demonstration plant in Ruurlo, The Netherlands,
2017 – today. Capacity: 0.25 ton per hour*

Yilkins' feedstock flexibility

Forest residues



Sawdust



Straw



Bagasse



Digestate



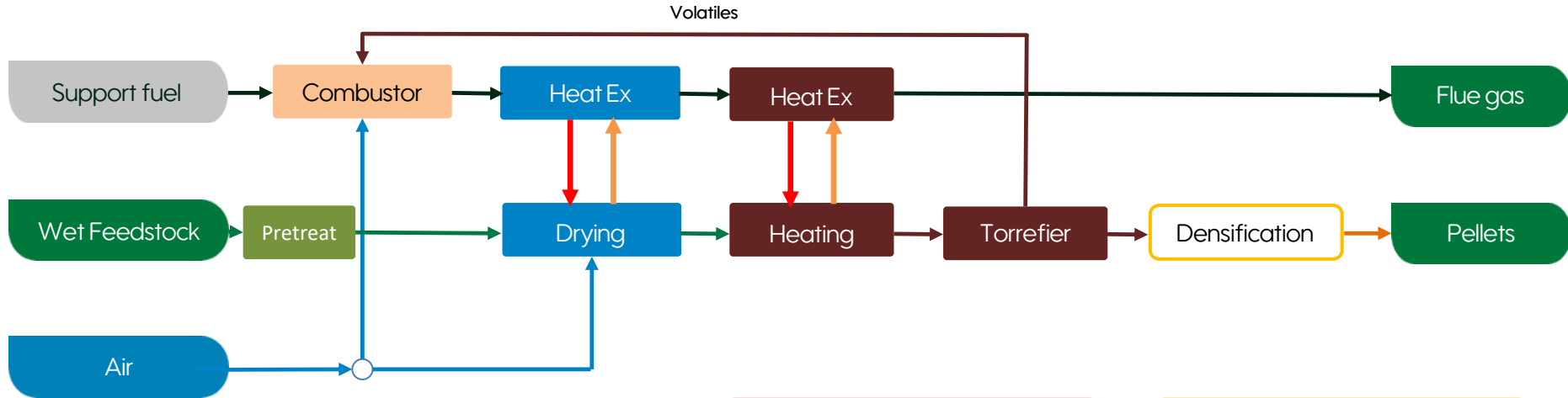
OWF of MSW



*OWF = Organic Wet Fraction
MSW = Municipal Solid Waste*

Yilkins integrated solution

Lowest total cost of ownership and lowest installation factor due to skid building



Yilkins Drying

- Energy savings over 50%
- Inherently safe due to the absence of oxygen in the drying medium
- Stack building – small footprint

Yilkins Torrefaction

- Staged torrefaction with swirl bed technology
- Max. control conditions (\pm °C)
- Homogeneous product qualities
- Scale-up; straightforward and easy

Yilkins Pelleting

- Durability >97,5%
- No binding agents needed

Proven technology: Due Diligence

Ensuring confidence through comprehensive due diligence and insurance

"A comprehensive due diligence underscores Yilkins' commitment to providing reliable and high-performing solutions for its clients."



Insurance backed

Project insurance co-developed with and provided by New Energy Risk (NER) and Markel Insurance SE.

This collaboration includes a performance warranty backstop insurance program supporting the low-carbon fuel production using innovative biomass drying and torrefaction technology.

Financial guarantees

Secured financial guarantees through Atradius DSB and Rabobank under the Fair Calling Facility.

These guarantees provide robust coverage for critical project stages, including down payments and maintenance periods, reinforcing financial stability and reliability in meeting contractual obligations.

Technical validation

Extensive technical due diligence using proprietary techno-economic models that integrate scientific, engineering, and financial analyses, by DNV, NER, clients and Yilkins.

This rigorous evaluation has validated the efficiency and reliability of Yilkins' torrefaction and drying processes, further enhancing its credibility.

Client due diligence by



Convert organic residues. Create net-zero strategies

Biomass residues



Herbaceous residues

- Spend Grain
- Rice Husk
- Bagasse
- Bana Grass



Wood residues

- Forestry Residues
- Prunings
- Bark



Other residues

- Sludges
- Empty Fruit Bunch
- Palm Kernel Shell

Residues pretreatment



Minimal recycling

- Washing
- Demineralisation
- Destoning



Sizing

- Milling
- Crushing
- Schredding

Yilkins technologies



Torrefaction

- Torrefied pellet
- Volatiles/Chemicals Ingredients



Carbonization

- Biochar
- Green Carbon



Drying

- Dried Fibre/Sludge
- Wood Pellets
- Herbaceous Pellets

Downstream technologies



Power plant



Steel Industry

- Blast Furnace



Gasification

- Bio-fuel Synthesis
- Fisher Tropsch
- Biorefinery Fermentation



Fibre processing

- Bio-based Panel Production

Applications



Heat/Electricity



Green Steel

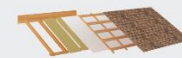


Green Fuels

- Bio-fuels
- Methanol
- Ethanol
- SAF

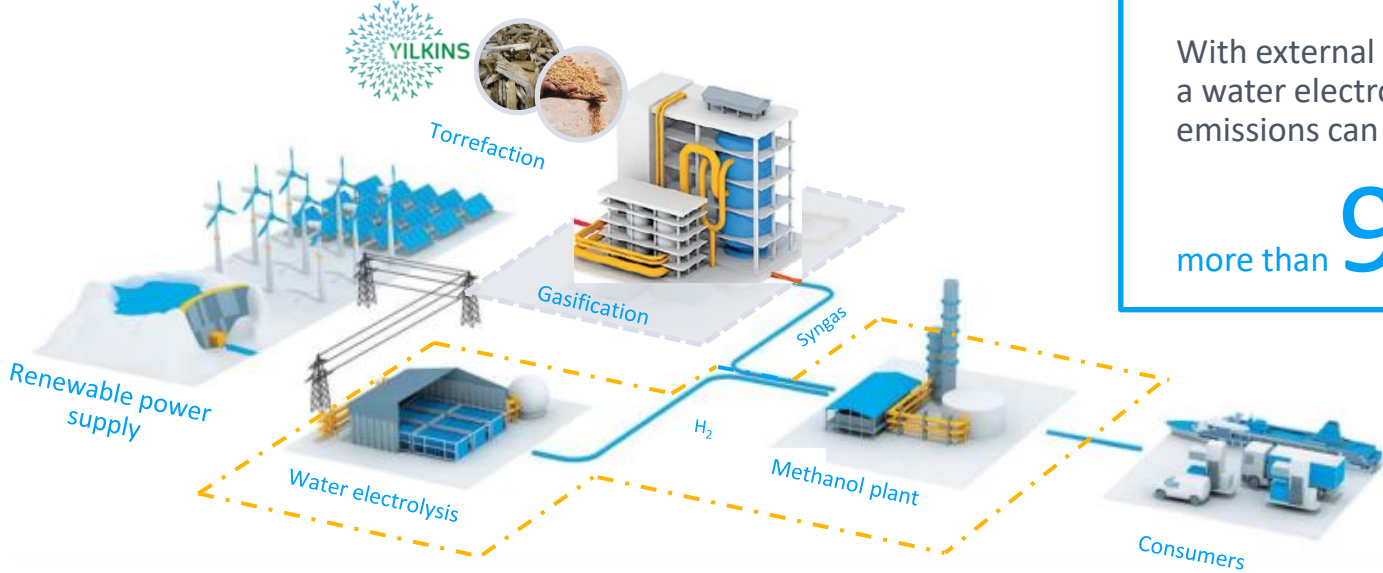
Other Bio Products

- Fertilizers
- Flavour/Fragrances
- Chemicals
- Biochar



Building materials

Biomass to Green Methanol – typical performance data



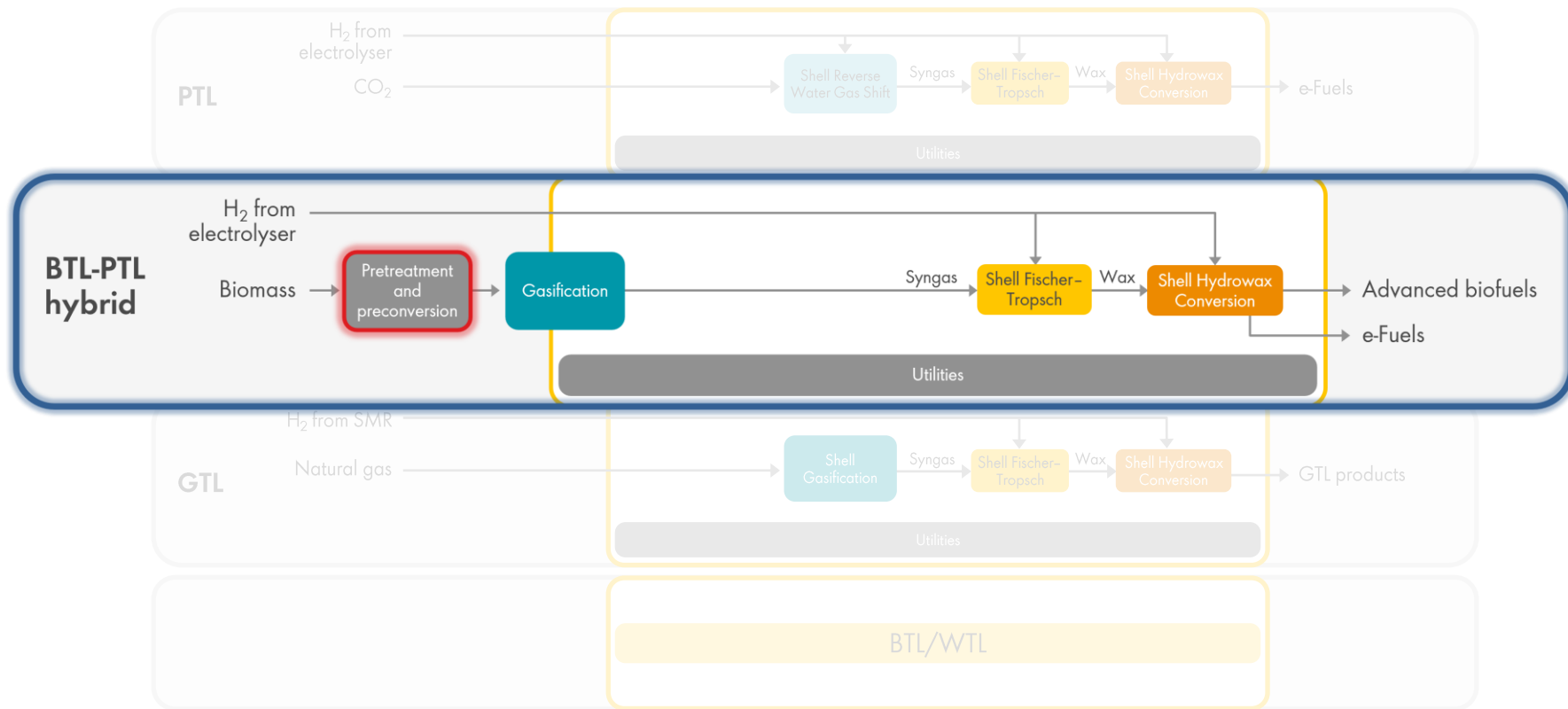
CO₂ emissions

With external hydrogen from a water electrolysis CO₂ emissions can be reduced by

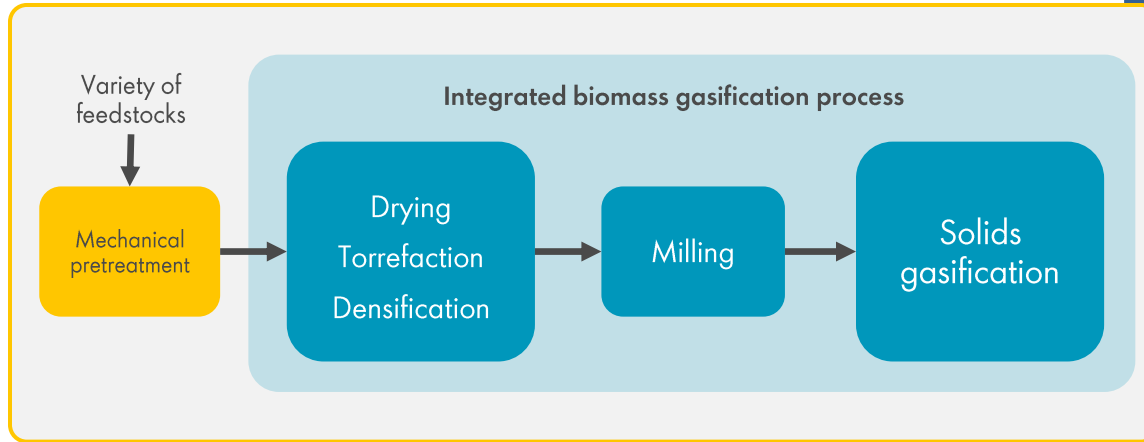
more than **90%**



Enabling biomass-to-liquids through technology collaboration



Torrefaction to convert biomass into gasifier feedstock



- Broad feedstock range
- Homogeneous gasifier feed
- Higher density feeding
- Integrated pretreatment optimisation
- Lignite-like gasification

Decarbonize metallurgy Industry – from Biomass to Drop-in Feed



TECNORED YILKINS

@ Biomass Source (biomass-to-black pellet)

LOGISTICS

TECNORED

@ Steel Mill (black pellet-to-engineered briquette)

- **Geographic Co-location:** Positioned upstream, directly near the biomass origin, eliminating the need to transport high-moisture, low-density biomass over long distances.
- **Thermal Pre-treatment (Torrefaction):**
 - Dries the raw biomass, aggressively dropping moisture levels from 50% down to just 10%.
 - Torrefy the material at approximately 300°C in an oxygen-free environment.
- **Logistical Optimization:** Delivers a highly stable, hydrophobic (water-resistant), and energy-dense black pellet. Because it is hydrophobic, it can be shipped and stored outdoors without degrading, utilizing standard global freight infrastructure.

- **On-Site Carbonization:** Final volatiles are removed directly at the mill, maximizing fixed carbon content just prior to use.
- **Advanced Briquetting:** The carbonized material is engineered into high-strength briquettes by precisely compounding it with:
 - Iron/Carbon-bearing reverts, turning waste streams into valuable burden.
 - Best-in-class technology to agglomerate into feed-grade briquettes.
 - Binders tailored for mechanical strength, process chemistry, and metallurgy.
- **True Drop-in Flexibility:** The final engineered briquette serves as a seamless, high-performance drop-in burden requiring zero modifications to existing infrastructure.

In practise : Successful commissioning of Tokuyama and Reliance

Tokuyama, Yamaguchi, Japan



Commercial plant.
Capacity: 1.0 ton per hour

Reliance, Jamnagar, India



Commercial plant.
Capacity: 4.0 ton per hour



Let's get in touch

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