



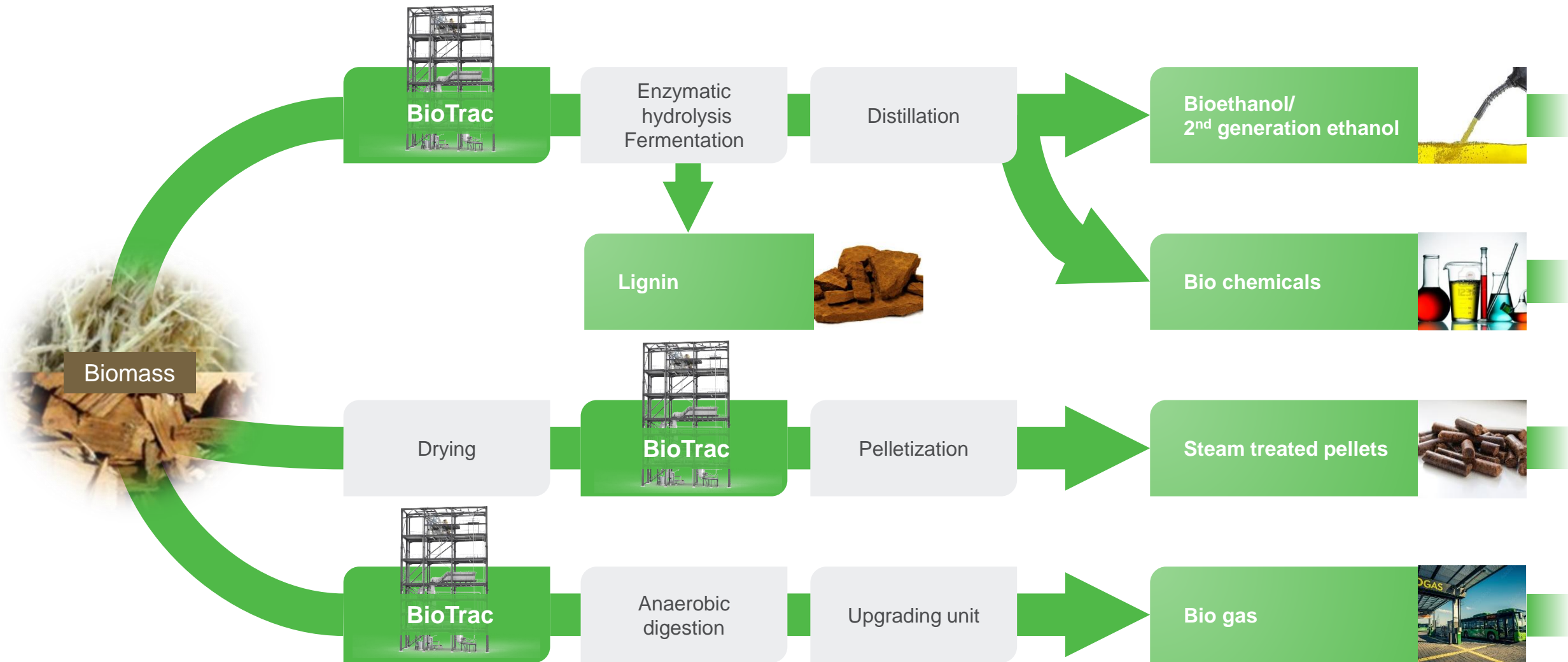
Valmet Biomass Conversion

Technology and Offering

Presented By : Sandeep Bhaskar, Head of Sales, Valmet India

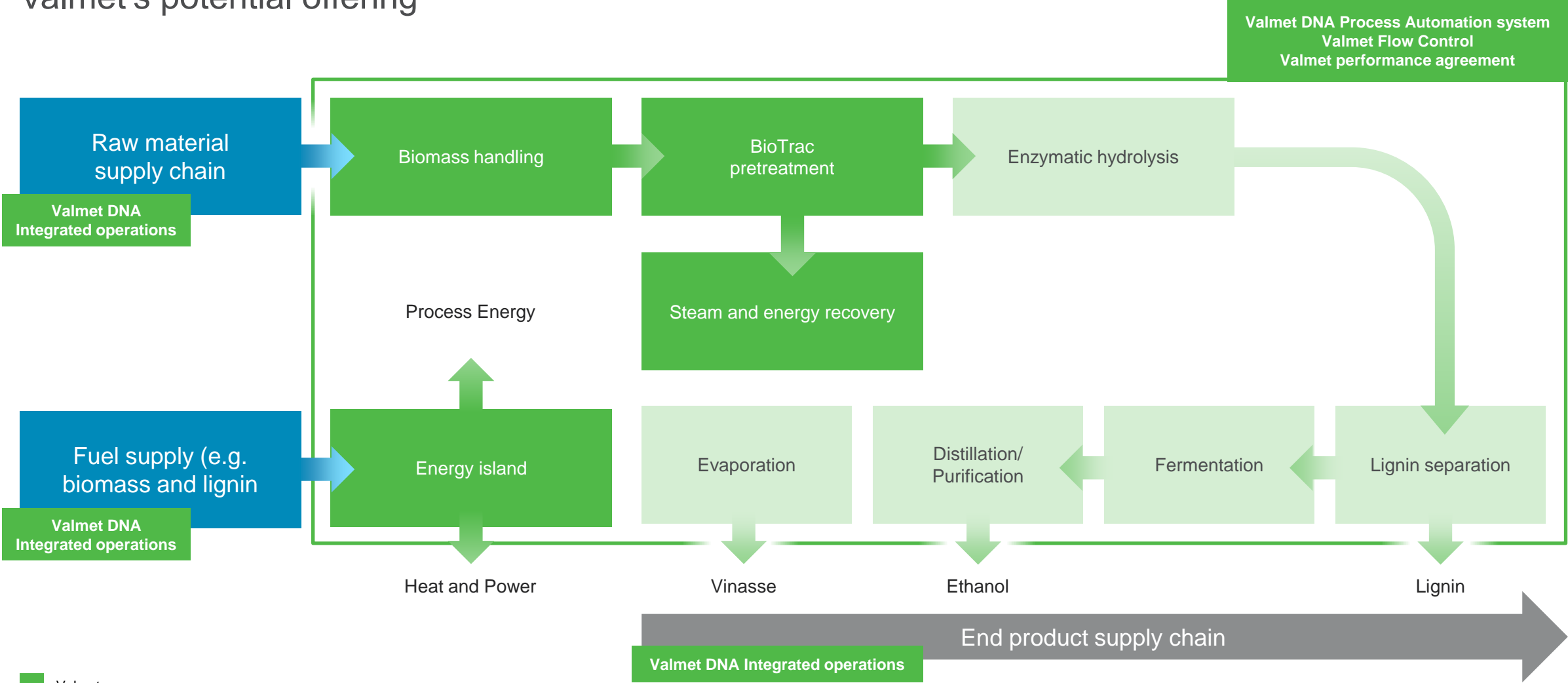
10.09.2024, CII, Hyderabad

Biomass Conversion – BioTrac main pathways



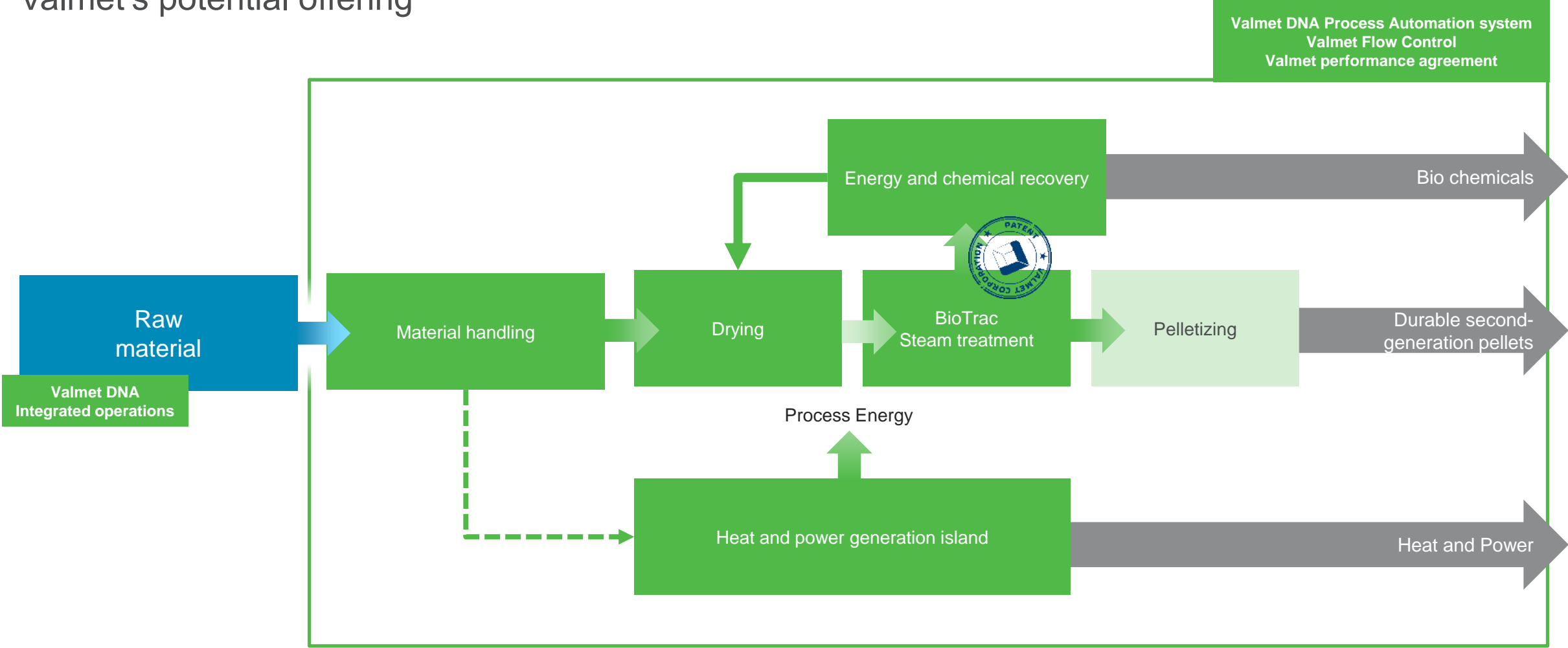
2G ethanol/biochemicals typical unit operations

Valmet's potential offering




A complete steam treated pellet plant with CHP integrated

Valmet's potential offering



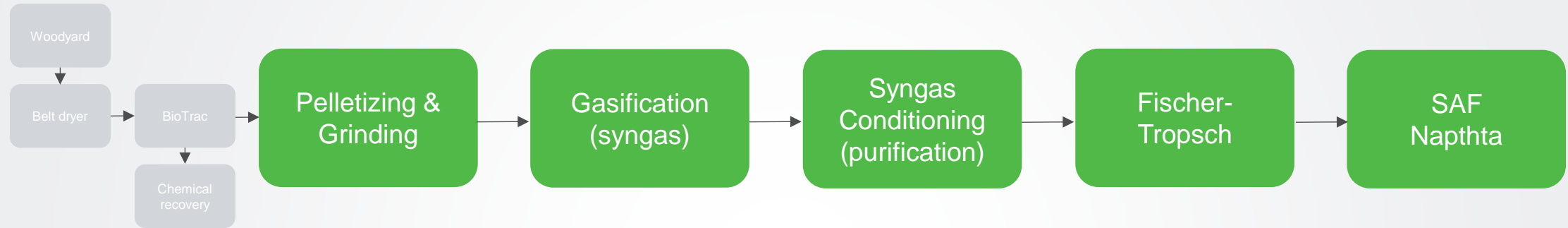
- Valmet
- Other



A photograph of three construction workers standing in a construction site. They are wearing white hard hats and high-visibility safety vests. The worker on the left is wearing a yellow vest, the middle worker is wearing a yellow vest, and the worker on the right is wearing a grey vest. They are all smiling slightly. The background is a blurred construction site with scaffolding and rebar.

Volpert is the partner you can trust
to move your energy performance forward.

SAF (Sustainable aviation fuel)



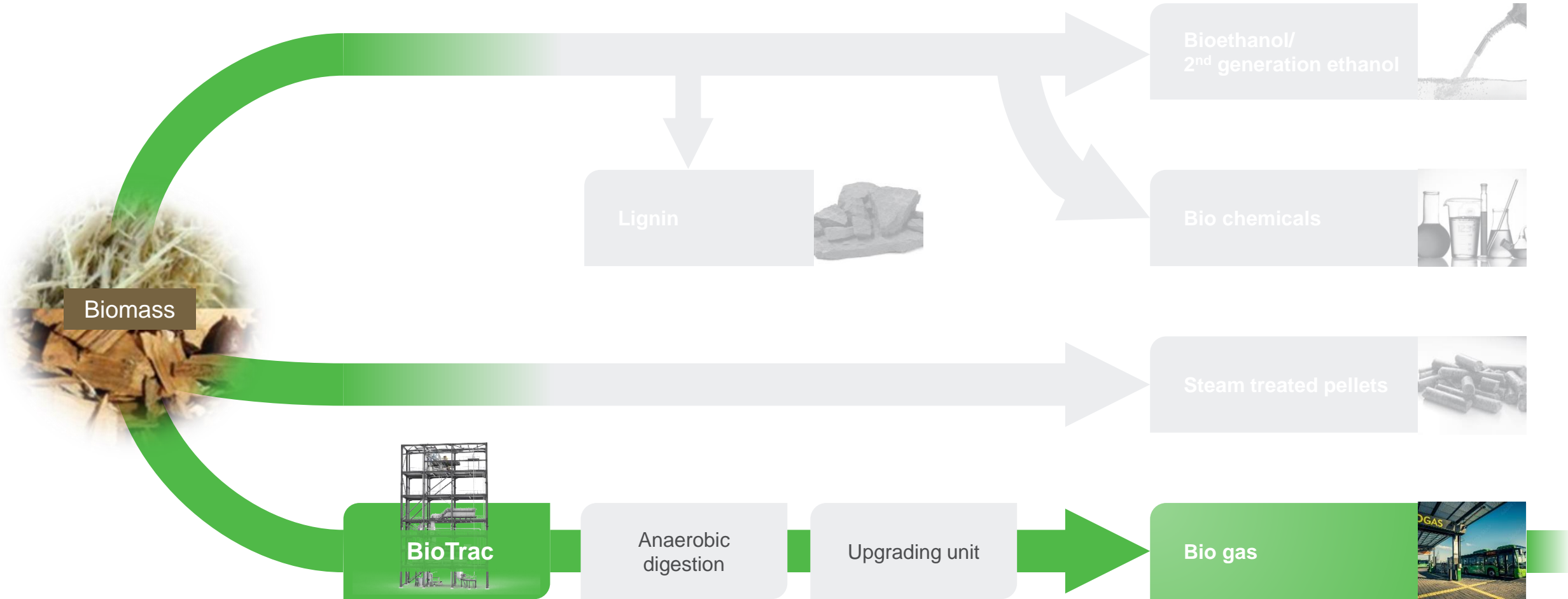
Why SAF production?

- Market Growth and Demand
- Brand Reputation and Differentiation
- Regulatory Compliance and Incentives
- Collaboration Opportunities
- Investment in Research and Development



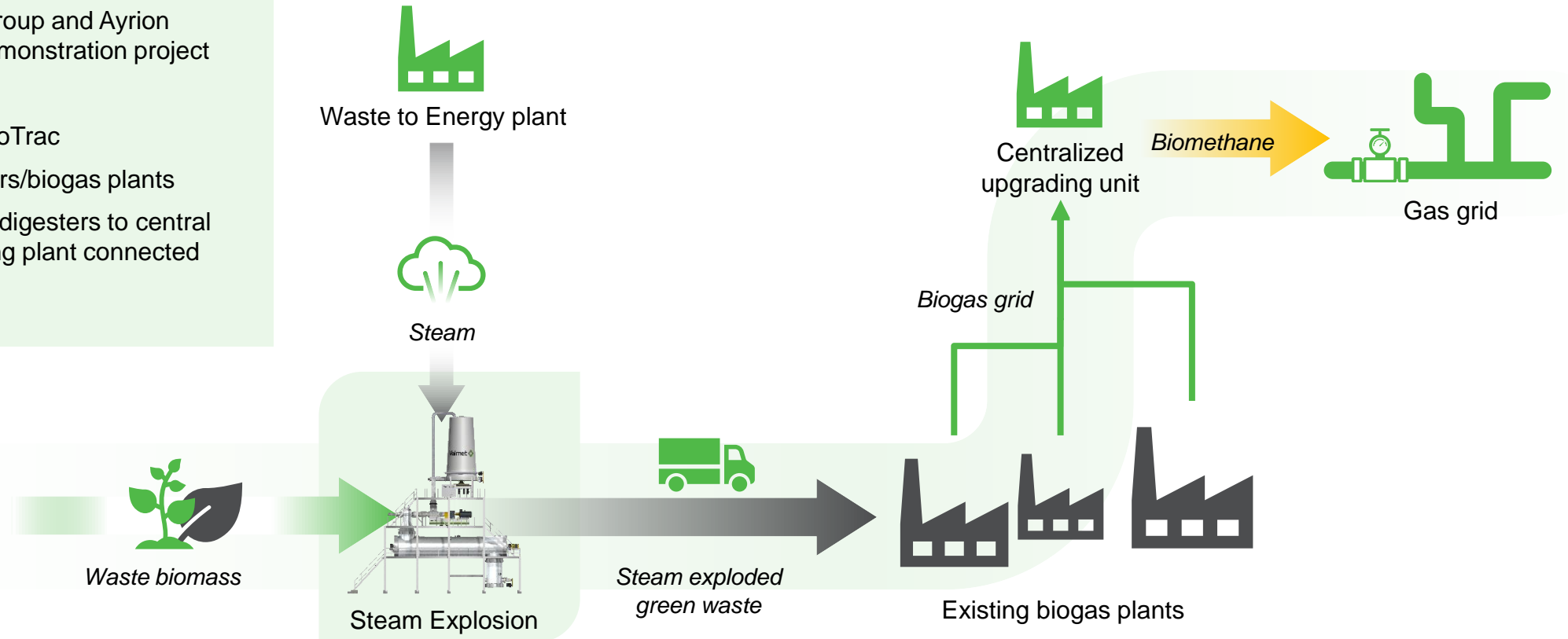
Biomass Conversion – BioTrac main pathways

Bio gas



Biogas - A new opportunity for BioTrac technology

- Valmet, Hera Group and Ayrion EU-financed demonstration project
- Waste biomass
- Pretreated in BioTrac
- Existing digesters/biogas plants
- Connecting the digesters to central biogas upgrading plant connected to the gas grid





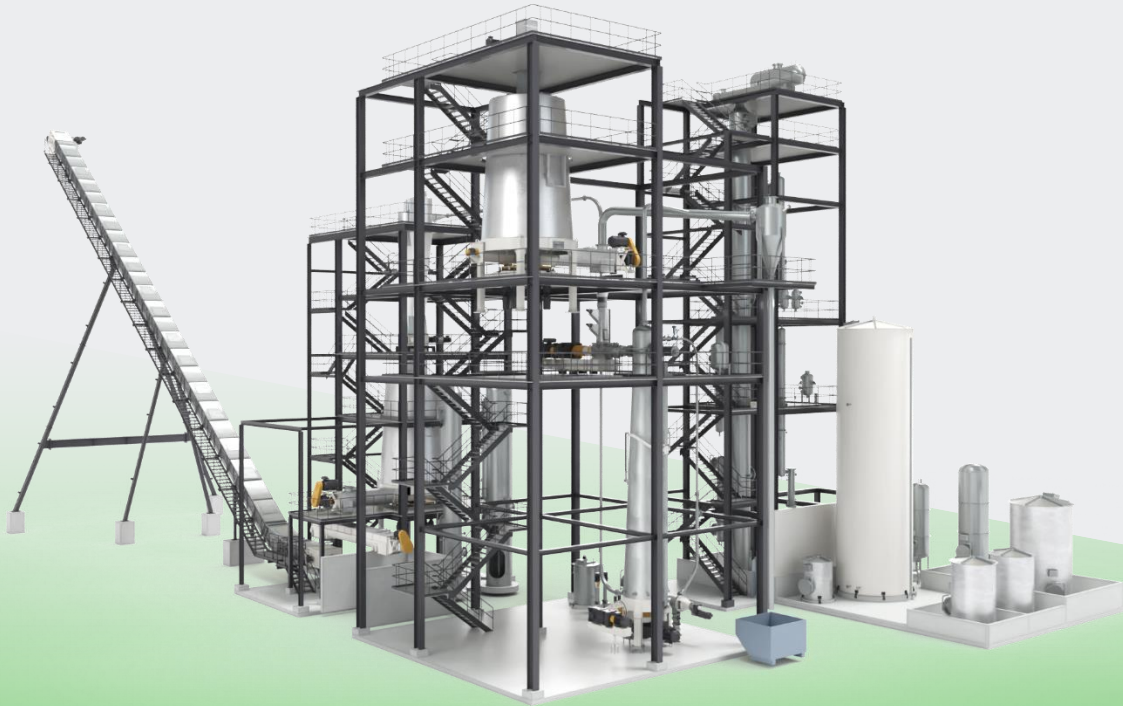


Valmet Pretreatment BioTrac

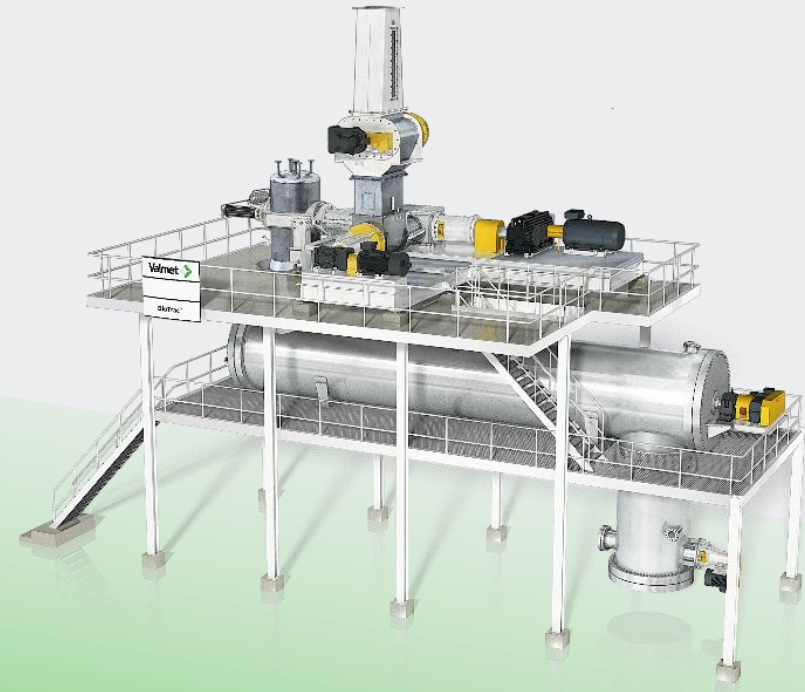
Valmet Pretreatment BioTrac

Designed to needed process

Pretreatment BioTrac System Vertical reactor



Pretreatment BioTrac System Horizontal reactor

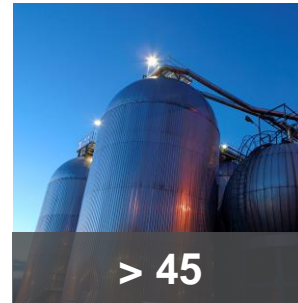


Designing systems to process biomass is in our DNA

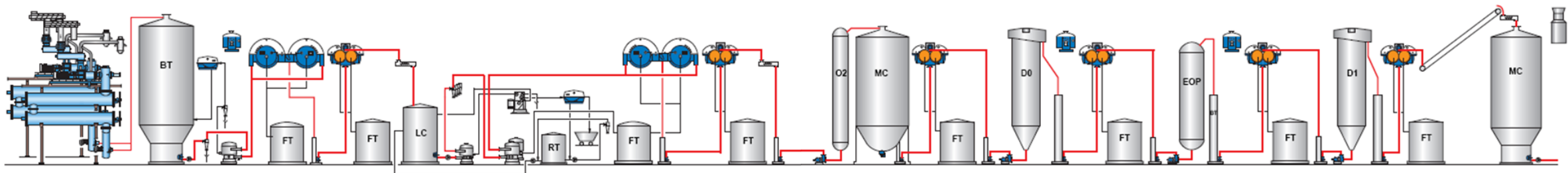
Technology background - BioTrac

- Technology developed from Pulping and Fiberboard
- Several hundred deliveries done wood based
- Market leader in agro pulping >50 deliveries done
- >25 BioTrac systems delivered

Hundreds of digesters and reactor references for wood

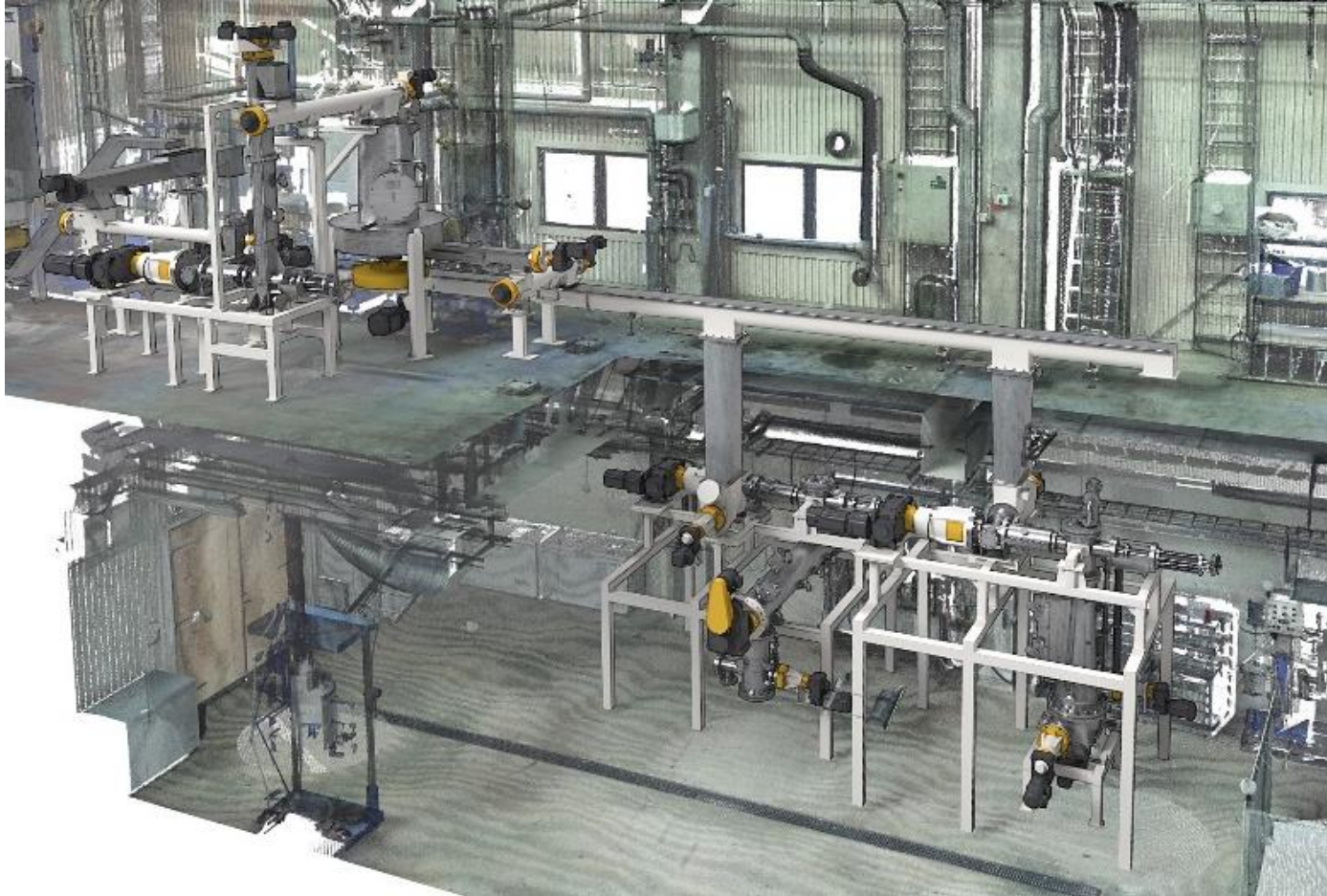


Valmet delivery agro chemical pulping line in India



R&D - New BioTractm pilot, at Fiber Technology Center, Sundsvall

Laboratory and piloting to develop pretreatment technology for biobased chemicals and biofuels



- Pretreatment BioTrac™
 - 50-300 kg/h capacity
- Continuous integrated process
- Valmet DNAe
- Own R&D
- Customer trials





Olof Melander

Senior Manager
Fiber Technology Center

Prehydro
- the first step



Latest references

Commercial break throughs achieved

Example references, > 25 BioTrac systems delivered



130 000 ton/a

ORLEN Południe S.A. second-generation bioethanol in Poland

Engineering, procurement, and construction (EPC) delivery:

- Pretreatment BioTrac system
- BioPower combined heat and power plant
- Valmet DNA Automation system
- Approx 130 000 ton/a dry biomass



120 000 ton/a

World's first BioTrac System for steam treated black pellet

FICAP, Steam treated black pellet in France

Engineering, procurement, and supply (EPS) delivery:

- Pretreatment BioTrac system
- Approx 120 000 ton/a dry biomass



150 000 ton/a

PRAJ Industries, second generation bioethanol in India

Engineering, procurement, and supply (EPS) delivery:

- Pretreatment BioTrac systems
- Approx 150 000 ton/a dry biomass

Second-generation bio refinery project

PRAJ Industries, India

Customer:

Praj Industries is a leading process solutions company with expertise in integrated offerings for bio-energy, high purity water solutions and engineering led businesses namely zero liquid discharge solutions, critical process equipment & systems and brewery plants.

Driver:

PRAJ is progressing on the execution of the first batch of second-generation integrated bio refinery projects in India, contracted by major oil marketing companies.

Valmet delivery scope:

- Valmet Pretreatment BioTrac system
- Machinery
- Engineering
- Site service



This 2G Ethanol Bio-Refinery spans across 35 acres, with a capability of processing two hundred thousand tonnes of rice straw annually to produce around 30 000 ton/year of ethanol using Praj's technology. The facility is expected to create around 1,500 jobs for rural youth and benefit over a hundred thousand farmers..

