



VÄGARI  
DEVELOPMENT

# BLUEPRINT FOR A GREEN INDUSTRY



# Purpose of this meeting:

- 1) To inform the Põltsamaa municipality about our Vägari development
- 2) To start the approval process with reference to the option selection to proceed with Detailed Planning (DP) and Strategic Environmental Assessment (SEA) for the Vägari development

# CONTENT



1.

## **ABOUT US**

Perpetual Next  
company  
introduction

2.

## **OUR VISION**

Blueprint for  
biomethanol

3.

## **BLUEPRINT**

Typical Data

4.

## **PROJECT**

Vägari, Estonia



# **ABOUT PERPETUAL NEXT**



**WE CONVERT  
ORGANIC WASTE  
INTO  
RENEWABLE  
COMMODITIES**





# ORGANIZED IN THREE BUSINESS UNITS

## BIOCARBON & DEVELOPMENTS

CONVERTING ORGANIC  
WASTE TO BIOCARBON  
AND METHANOL

## CONVERSIONS

CONVERTING FOOD- AND  
ORGANIC WASTE TO HEAT,  
GAS, POWER AND  
BIOFERTILIZER

## TECHNOLOGIES

BIOCARBON  
PROPRIETARY TECHNOLOGY  
AND KNOWLEDGE BASE





WE BUILD, OWN AND OPERATE  
**PLANTS THAT PRODUCE  
BIOCARBON AND BIOGAS ON  
AN INDUSTRIAL SCALE**

WE OFFER **NON FOSSIL  
ALTERNATIVES** FOR THE  
INDUSTRY

WE DEVELOPED A **METHANOL  
BLUEPRINT** BASED ON  
**ENTRAINED FLOW  
GASIFICATION**



# **THE METHANOL VALUE CHAIN**



# WHY METHANOL?



Transportable commodity

Clean fuel for the maritime industry

Precursor for green chemical manufacturing

Torrefaction enables gasification at commercial scale

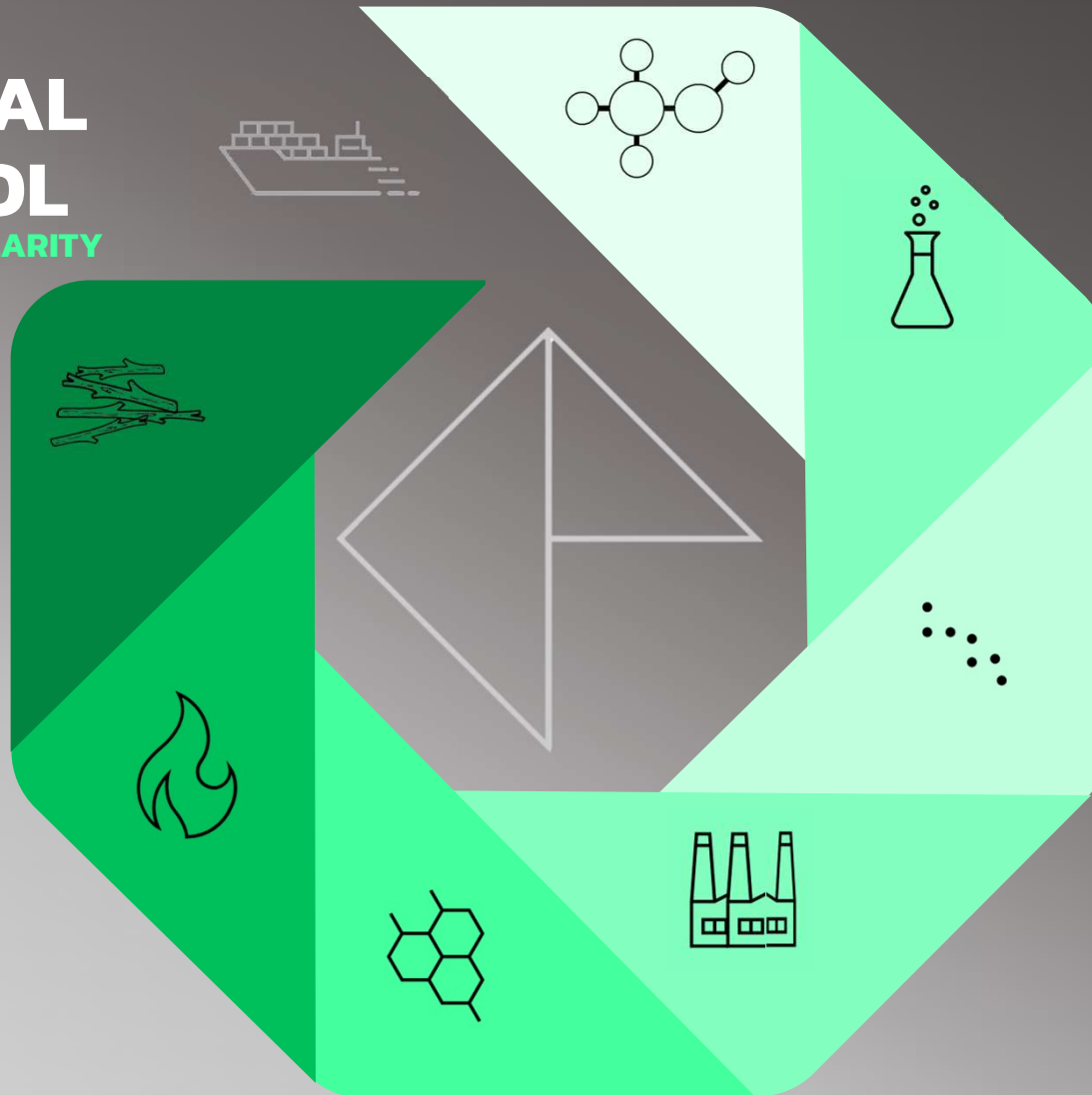
Integration of available technologies & our torrefaction operational experience



# PERPETUAL METHANOL

ROADMAP TO CIRCULARITY

- 1 Feedstock:  
Perpetual Next is able to work with a wide variety of residues
- 2 Torrefaction  
Perpetual Next's proprietary technology
- 3 Biocoal bringing to the same properties as fossil coal

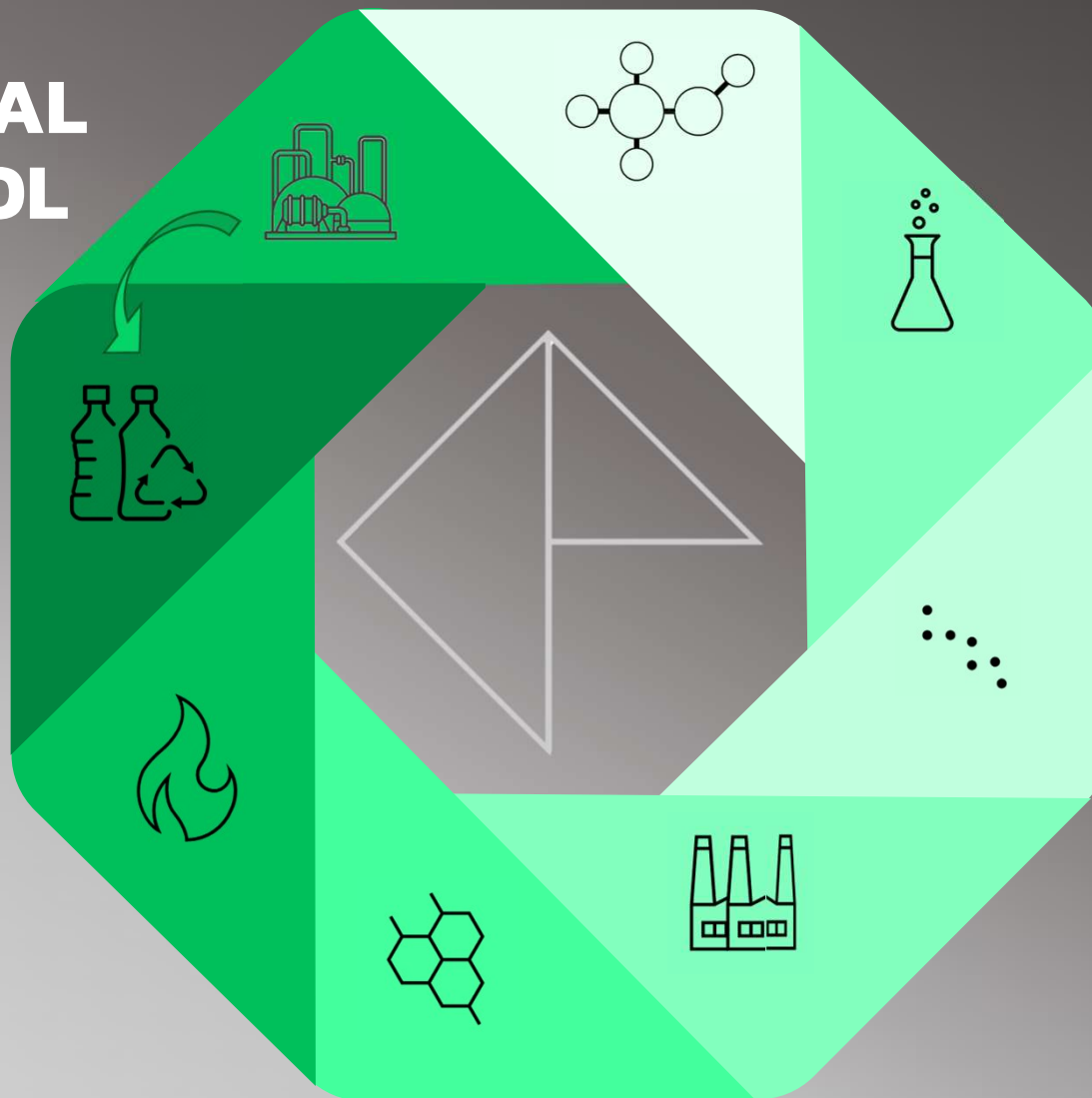


- 7 Bio methanol can replace grey methanol 1-to-1
- 6 Methanol Synthesis , converting syngas to biomethanol using proven technology
- 5 Syngas treatment - purification and bringing the syngas to the right properties
- 4 Gasification of biocarbon to syngas



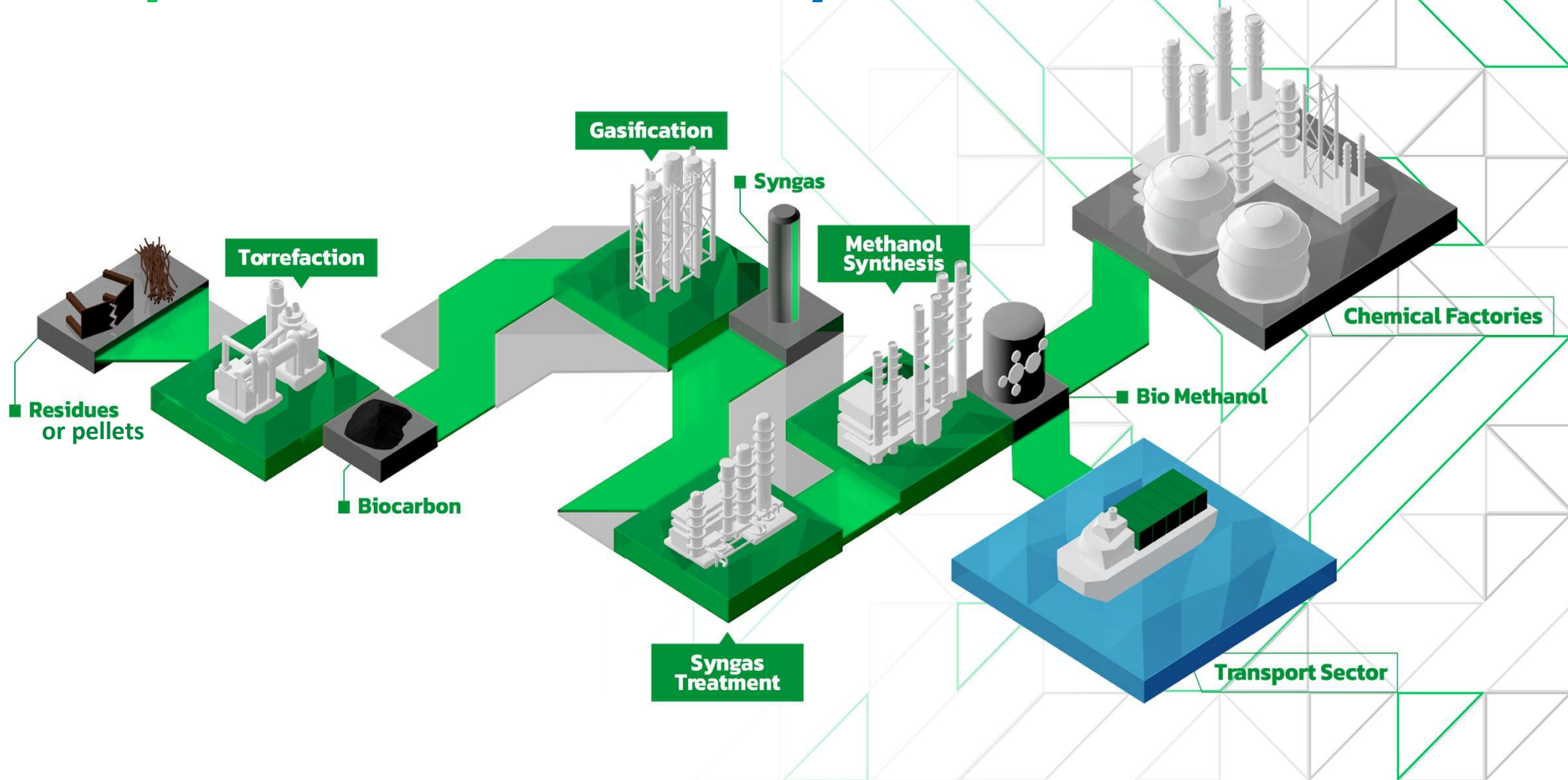
the future of  
**PERPETUAL  
METHANOL**

- 1 Feedstock:  
Perpetual Next is  
able to work with  
a wide variety of  
residues
- 2 Torrefaction  
Perpetual Next's  
proprietary  
technology
- 3 Biocoal bringing  
to the same  
properties as  
fossil coal



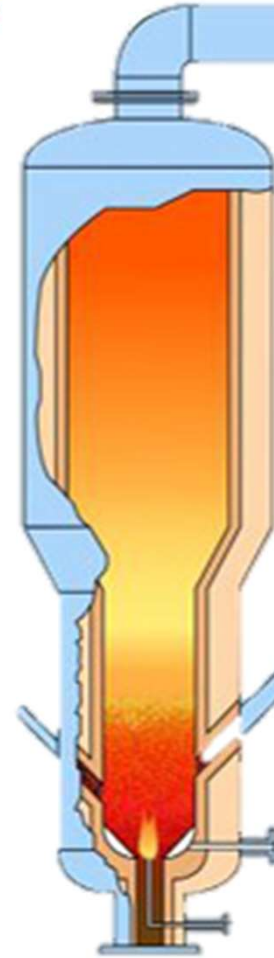
- 7 Bio-methanol as  
feedstock for the  
chemical industry
- 6 Methanol Synthesis ,  
converting syngas to  
biomethanol using  
proven technology
- 5 Syngas treatment -  
purification and  
bringing the syngas  
to the right properties
- 4 Gasification of  
biocarbon to  
syngas

# Perpetual Next' *Methanol Blueprint*



**WITH TORREFACTION WE CAN TAILOR  
BIOMASS PROPERTIES  
FOR GASIFICATION**

**TO *MIMIC* FOSIL COAL**





# BENEFITS OF TORREFACTION

**1. Increases  
the feedstock  
calorific value**

**2. Changes the structure  
of fibrous materials to  
more coal like, brittle,  
grindable material**

**3. Reduced  
volatiles**

**4. Reduced  
moisture content**

**5. Produces a  
product which  
can mimic fossil  
coal**

Enables Using Conventional Proven Gasification Technologies

# **Methanol Blueprint Technical Information**

# PERPETUAL NEXT's METHANOL BLUEPRINT

250 MW entrained flow gasification technology  
Syngas cleaning, Water Gas Shift and Methanol Synthesis

Option for (future) hydrogen co-feed

Torrefied biomass feedstock: 313 000 tons /year

Methanol production: 220 000 tons/year



PERPETUAL  
NEXT



## Typical 3D Impression BioMethanol Plant

### BaltaNor:

Gas cleaning  
Water Gas Shift  
Distillation

Methanol Synthesis

Gasifier Structure

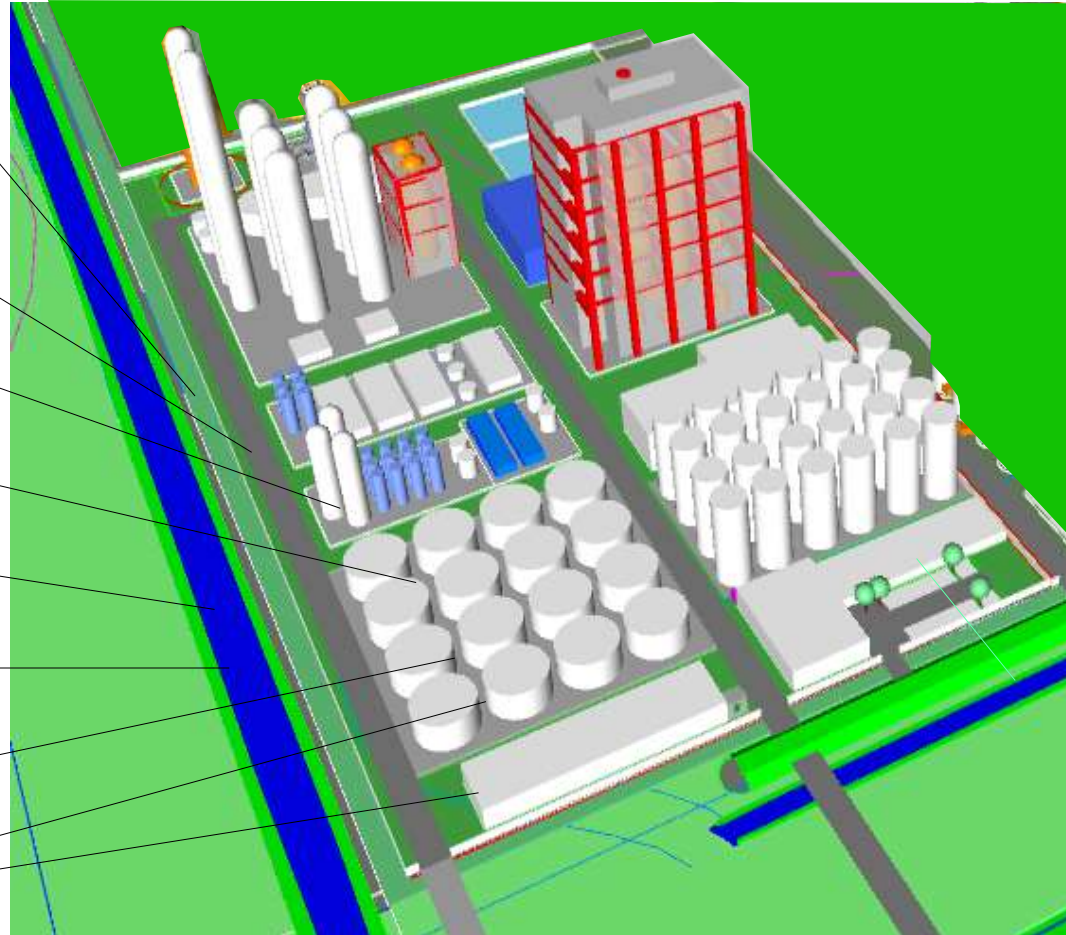
Biocarbon Milling

Air Separation Unit

Methanol Storage

BioCarbon Storage

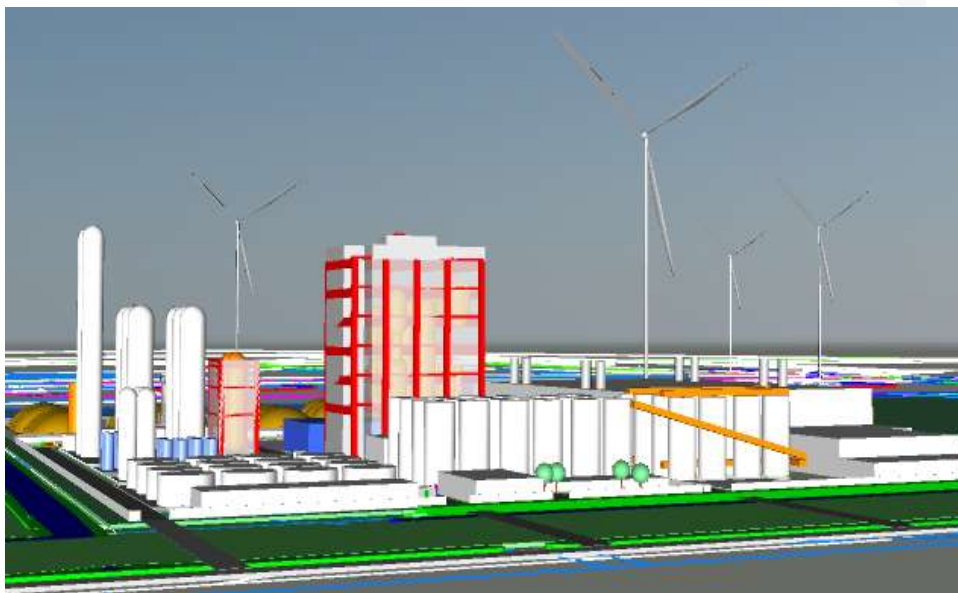
Offices/ Control Room /  
Maintenance Building



# Perpetual Next Deltanor Delfzijl, Netherlands

## Key Figures

Methanol Production	220 000 tonnes/ year
Torrefied Biomass Feedstock	313 000 tonnes/year
CAPEX	630 MM EUR
EBITDA	90 MM EUR
Permit Application:	Q3 2024
FID planned for	Q4 2025
Planned start of operation	Q1 2028



Combining proven large scale technologies, including Perpetual Next's Patented Torrefaction

Cooperation with market leaders in gasification and gas treatment technology

Cooperation with parties in the chemical industry and biomass feedstock sector

Plot reservation 16 ha in the industrial area of Delfzijl

Constructive relations with local authorities and stakeholders

Consultant Witteveen + Bos contracted to perform and coordinate M.E.R. (Environmental Impact Assessment)

# Project BALTANOR (Internal codename)

## Vägari, Estonia

THE METHANOL BLUEPRINT PLOTTED  
ON THE EXISTING **PERPETUAL NEXT**  
SITE AS AN ADD ON TO OUR  
TORREFACTION PLANT IN ESTONIA

# Perpetual Next Baltanor Vägari, Estonia

## Key Figures

Methanol Production	220 000 tonnes/ year
Torrefied Biomass Feedstock	313 000 tonnes/year
CAPEX	530 MM EUR
EBIDA	95 MM EUR
Permit Application:	Q3 2024
FID planned for	Q4 2025
Planned start of operation	Q4 2027



Combining proven large scale technologies, including upscaling existing Baltania facility (Perpetual Next)

Cooperation with market leaders in technology

Synergy with the existing Baltania torrefaction plant

Plot (10ha) with industry designation owned by Perpetual Next

Constructive relations with local authorities, municipality, equipment suppliers and stakeholders

Estonian consultant contracted to perform and coordinate. Environmental Impact Assessment process and permit application.



## Existing location Baltania torrefaction plant

Rassi tee 11, Vägari küla, Põltsamaa vald, Jõgeva maakond

Obj
Fit
Show measures
Tilted aerial photo

XY: 6512142.16, 629032.31  
BL: 58.729618, 26.228125  
H: 75 m

Registered parcel  
(61801.001.0172) 1/4
Download
Restrictions
Map of land use

The map layer provides the most up-to-date status of the cadastral units registered in the land cadastre. Cadastral boundaries in the map application are informative!

Identifier	61801.001.0172
Address	Rassi tee 11
Settlement unit	Vägari küla
Parish	Põltsamaa vald
County	Jõgeva maakond
Registration date	03. detsember 2018. a.
Changing date	15. detsember 2021. a.
Intended use 1	Tootmismaa 100%
Intended use 2	-
Intended use 3	-
Area	11.59 ha
Surface area	11.59 ha
Agricultural land	0.11 ha
Courtyard	8.98 ha
Other land	2.50 ha
Register part	2314335
Form of ownership	Eraomand
Land registry area	Tartu Maakohtu kinnistusosakond
Surveying date	06. juuli 2018. a.
Surveyor	Rakendusgeodeesia ja Ehitusgeoloogia Inseneribüroo OÜ
Formation method	möödistatud, L-EST
Evaluation zone	H0573001 100%
Fertility zone	Y0573015 28.79% Y0573013 71.21%
Notes	-

Map sheets 1:10000 (64122) 2/4
Settlement unit (Vägari küla) 3/4
Metadata (512629) 4/4

## Land property of Perpetual Next



## 3D Impression

BaltaNor space allocation:

**Yellow:**

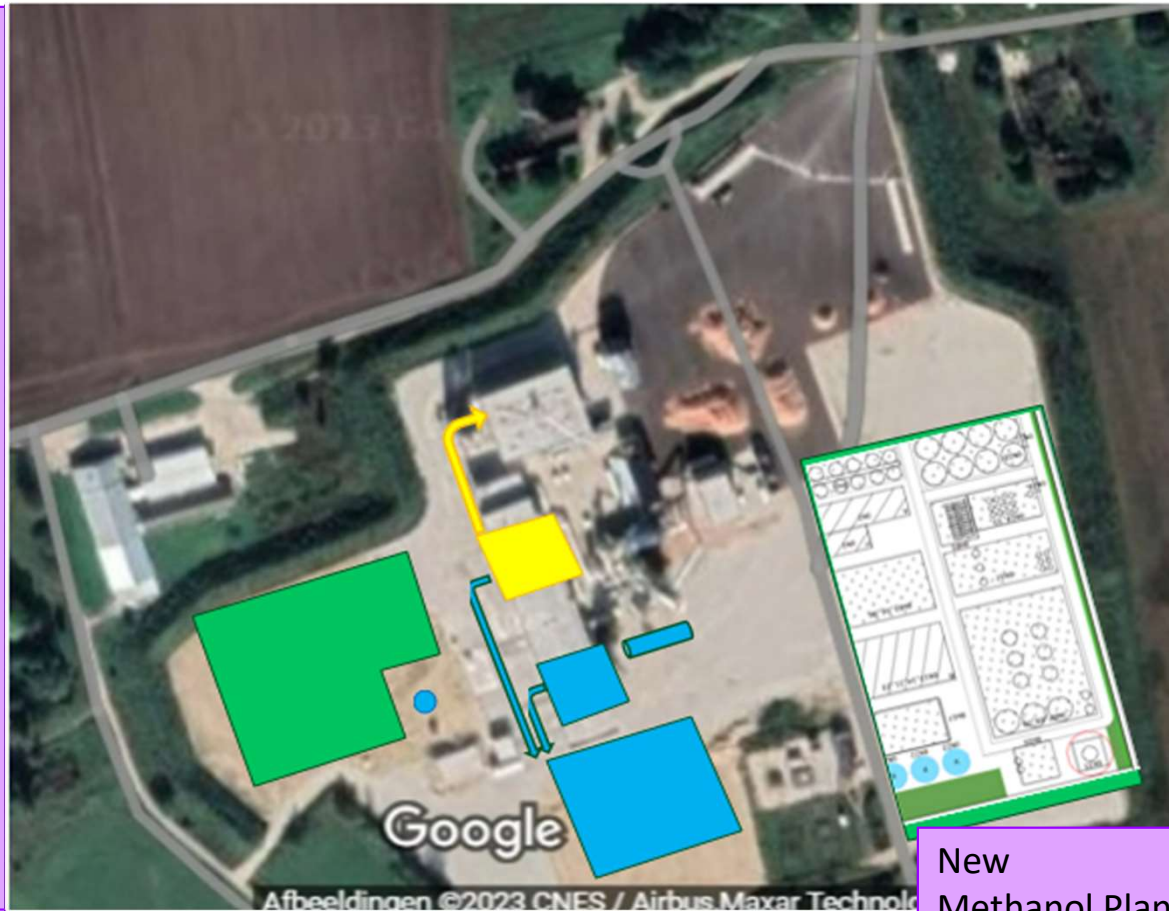
for Torrefaction reactors 1 and 2 (existing)

**Blue:**

for dryer 2 and Torrefaction reactors 3 & 4 (extension) and biocarbon storage

**Green:**

for non-hazardous utilities (new) to the west of the existing building.



New  
Methanol Plant



# Typical Schedule (depending on IEA plan)

	2024				2025				2026				2027				2028				2029			
	23Q1	23Q2	23Q3	23Q4	24Q1	24Q2	24Q3	24Q4	25Q1	25Q2	25Q3	25Q4	26Q1	26Q2	26Q3	26Q4	27Q1	27Q2	27Q3	27Q4	28Q1	28Q2	28Q3	28Q4
Conceptual design																								
Quick Scan (permitting)																								
Shortlist of Key Technology Suppliers																								
Environmental Impact Assessment Study																								
Permit application																								
Subsidy (HOLD)																								
Final selection of Key Technology Suppliers																								
Contracting + Selection of FEED contractor																								
Basic engineering (PDP1)																								
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FID																								
Detailed engineering (exellerated)																								
Procurement																								
Construction																								
Commissioning																								
Start commercial operation																								

	2024				2025				2026				2027				2028				2029			
	23Q1	23Q2	23Q3	23Q4	24Q1	24Q2	24Q3	24Q4	25Q1	25Q2	25Q3	25Q4	26Q1	26Q2	26Q3	26Q4	27Q1	27Q2	27Q3	27Q4	28Q1	28Q2	28Q3	28Q4
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# Benefits of the development

1. **Green initiatives to process local produced feedstock to methanol. High end product**
2. **Breeding ground for initiatives to new enterprises.**
3. **Local and regional direct benefits:**
  - Investment of 530 million Euros
  - More staff (120+) to operate and maintain the plant (24/7)
  - More staff requires local housing, shops and leisure provisions
  - Possibility to supply heat to heating distribution system
  - Increase of gross regional product
  - Training and education of staff
4. **Local and regional indirect benefits:**
  - Maintenance firms (5-10 million maintenance budget per year)
  - Housing and hotels provisions for contractors and maintenance firms
  - Catering industries



WANT TO BE NEXT?

**MEET OUR TEAM @  
KRAANSPOOR AMSTERDAM**

Erik Huis	Chairman of the Board
Rene Buwalda	Chief Executive Office
Ellis Huijsmans	Chief Project Officer
Peter Jansen	Project development Manager
Jochen Görtzen	Technical Development Manager
Simon Hamelink	Project Execution Manager
Alexandra De Bruijn	Head of Treasury





**MERÇİ**  
**Dank u**  
**Thank you**  
ありがとう  
**VIEI DANK**  
**GRAS**  
谢谢  
شكراً لك  
Дякую