

LowLands

MeOH 

- (Bio)Methanol from waste & biomass
- Financially rewarding @ relatively small scale
- Excellent location at Rotterdam (Netherlands) and Antwerp (Belgium)
- High roll-out potential

Executive Summary & Value Proposition

- Expansion of your manufacturing base with non-fossil based plant(s) which creates opportunities on EC biofuel markets
- Contributes to a sustainable strategy
- Project offers technical-commercial integration of waste-to-methanol and brings reputable partners and know-how

Value Proposition

Proposal to

Main Advantages

- Competitive edge by early presence on high potential sustainable methanol market
- Access to reputable partners and attractive locations in Rotterdam and Antwerp
- Allows to enter market on good timing with up-coming new EC Policies in 2020 (RED II)
- High repeat potential throughout Europe

Integrated approach

- Project provides integration of waste/biomass characteristics and plant design
- Launching new customers and attractive countries identified (UK, Benelux, Italy, Nordics)
- Attractive co-siting options to reduce CAPEX and to de-complex project

Hebeskes Energy B.V.

- Brings relevant industry network (feedstock, technology, engineering & construction) and attractive locations
- Saves 3-4 years and major effort and expenses instead of 'own' development
- Willingness to enter into long term relation with Proman & Helm

Phased decision

- Phase I : Step in and bring the project to a Final Investment Decision
- Phase II : Implementation, financing and ownership relation(s) (only CEL ?)

Offer

- Phase I : 25% shares @ M€ 1,5 (limited risk)
- Funds used to prepare for a final investment decision
- Phase II : Majority shares for Proman & Helm

Investment Rationale

Strategic Considerations

Advanced biofuel market

- ... can acquire a position as a sustainable methanol supplier
- Most attractive application: Advanced Biofuels with mandatory use after 2020
- Actual capacity in Europe is estimated at only 25% of the 2020 required amount
- Potential market growth of Advanced biofuels from 0,7 million tons (2020) to 2 million tons (2030) for use in petrol

Other growth markets

- (Non-blended) applications for inland shipping
- Emerging market with higher volumes possible, driven by new air quality legislation (as for North Sea shipping)
- Expected policy: Only accessible for sustainable fuels

Understand new resource markets

- Integration to new markets and companies (waste/biomass) brings know-how

Comply to the request of a sustainable strategy

- Markets and society call for sustainable strategies throughout the oil & chemical industries
- Absence of a sustainable strategy would risk to be regarded as non-compliant

Investment Rationale

Operational considerations

Sustainable Production in Europe

- Natural Gas prices in Europe have decreased since 2013
- Locations presented allow to reduce CAPEX (co-siting) and logistical costs (close to clients)
- Productions in Europe avoid risks on import duties resulting from trade conflicts with the US ('Climate clash')
- Multiple site approach for further growth of business

Technology Robustness

- Syngas generation units for waste and biomass operational since 15 years and access to know-how exists
- Methanol technology supplied by world market leaders (Lurgi / Air Liquide)

Scale

- Scale allows easy sourcing of feedstocks without market disrupting effect

Pricing

- Actual legislation brings price premium on the biofuel market due to double counting
- Mandatory use after 2020 for advanced biofuels and double counting accepted as price floor

Financially rewarding

- Attractive returns with sales on the biofuels markets
- A further upside in case the waste based methanol can be positioned as a 'Waste Fuel'

Manufacturing concept

Use locations which reduce CAPEX and De-complex project

Technology

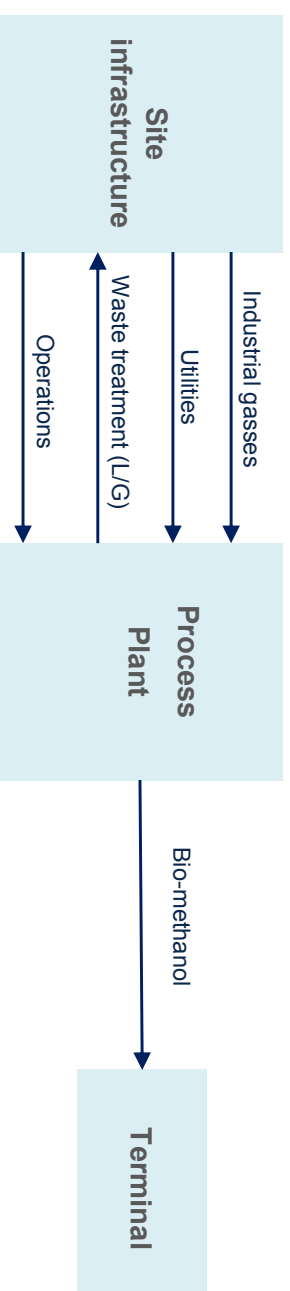
- Proven technology for syngas generation, cleaning and methanol synthesis
- No upscaling risks, capacity gasifiers already realized in Japan, Italy, Austria.
- Plant design with 2 gasifiers to ensure waste treatment capacity

Attractive locations in Europe

- Rotterdam & Antwerp and full support of Port Authorities
- Locations offer integration options (industrial gasses, utilities, etc.) reducing CAPEX to 35%
- Operations by 3rd parties (Monsanto/Veolia at Antwerp, SGS at Rotterdam)

CAPEX = Process Plant

- CAPEX limited to process plant consist of feedstock storage, syngas generation reactors, cleaning section, distillation and plant storage
- Area = 1 Hectare



Sites in Europe

Available locations with excellent co-siting options

Site
Rotterdam



- Next to ETT Terminal
- Supply of H₂ and O₂ per pipeline
- Steam supply via OTE
- SGS seeks operational cooperation

Site
Antwerp



- Next to Oiltanking
- Supply of H₂ and O₂ per pipeline
- Utility supply via Monsanto
- Monsanto & Veolia seek operational cooperation

EC Policies & Trends in society

EC policies now more effective for CO₂ emission reduction

ETS
After 2005

- Emission Trading System
- Unsuccessful due to oversupply of emission rights - No investments was triggered
- Call from the industry to change systems, but not to abandon the systems !

RED I
2009-2020

- Renewable Energy Directive: Biofuels instrumental for CO₂ reduction
- Sustainability criteria defined for biofuels (*bio-methanol from Lowlands Methanol qualifies*)
- Triggered large investments in biofuels and technology development

ILUC
After 2015

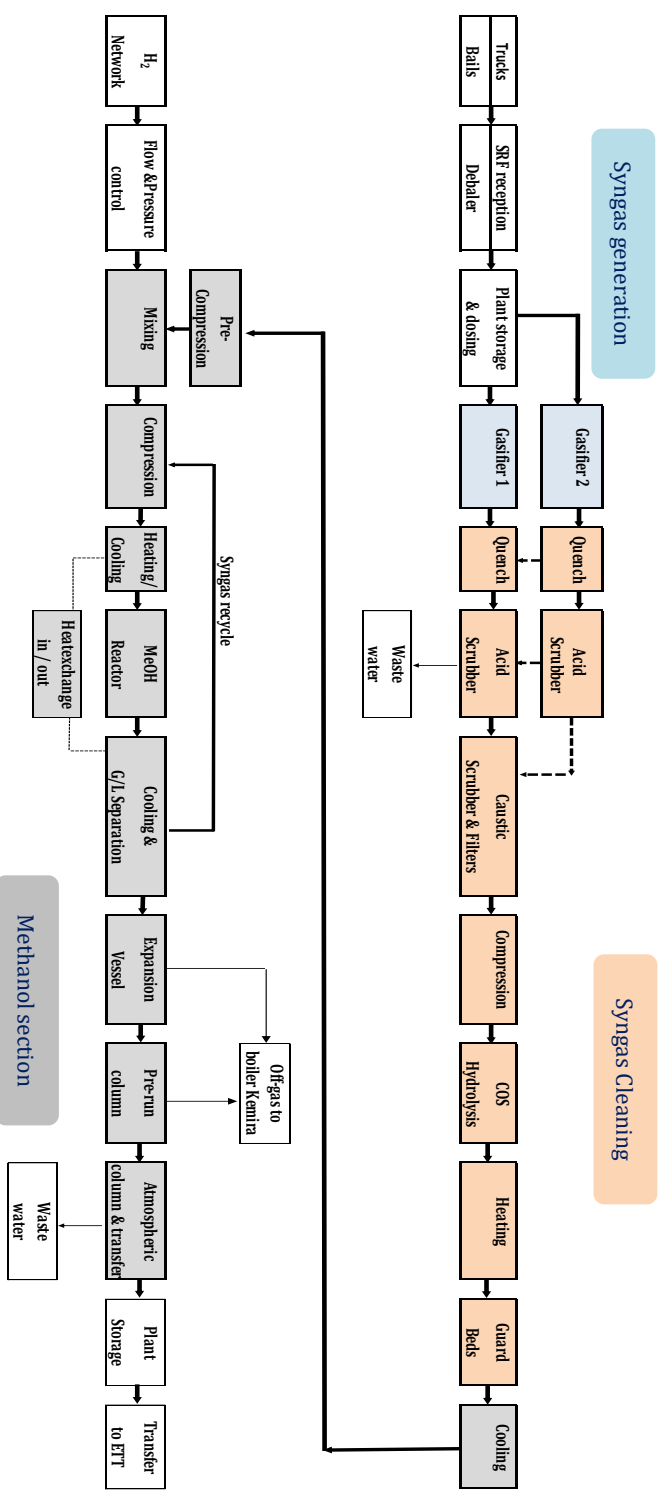
- Indirect Land Use Change ('No food or tropical forest for fuel')
- Decided in 2015 and must be implemented in 2017 throughout the EC on country level
- Stimulates 'better' biofuels (*like bio-methanol*) and discourages food based biofuels

RED II
2009-2020

- Renewable Energy Directive II, integrates RED I and ILUC
- De-carbonizing the Transport sector becoming sustainable (2020-2030)
- Increasing share of renewable and low-carbon fuels (*like bio-methanol*)
- Further Cap on food - based biofuels (*increases market for bio-methanol*)

Flowsheet plant

Use of proven technologies



Flowsheet

- European Technology consortium of OESA s.r.l., Clariant and Air Liquide – Lurgi
- CAPEX M€ 70 - M€ 80
- Standardized approach (120 KT/Yr capacity)
- Sourcing flexibility since plant can also process feedstocks with contaminants
- Flowsheet comparable for coal to methanol

Business Case

Business Case with significant upside

Cash Cost assumptions
@ 120 KT/Yr

Fixed cost	ME 6 per year	Cash Cost ~ € 230 per Ton
Variable cost -/- Gate Fee	ME 17 per year	
Financing cost	ME 5 per year	

Base Case

Complete failure EC Climate policies, sales on commodity market			
Market	Volume	Price / Ton	IRR
Commodity	120 KT/Yr	€ 300	8%
	120 KT/Yr	€ 350	17%

Actual Policy Case

Till 2020 (RED I and ILUC)			
Market	Volume	Price / Ton	IRR
Commodity	70 KT/Yr	€ 300	25%
Advanced Biofuel	50 KT/Yr	€ 500	

Announced Policy Case

After 2020 (RED II)			
Market	Volume	Price / Ton	IRR
'Waste Fuel'	70 KT/Yr	€ 400	33%
Advanced Biofuel	50 KT/Yr	€ 500	

IRR from Free Cash Flow vs CAPEX