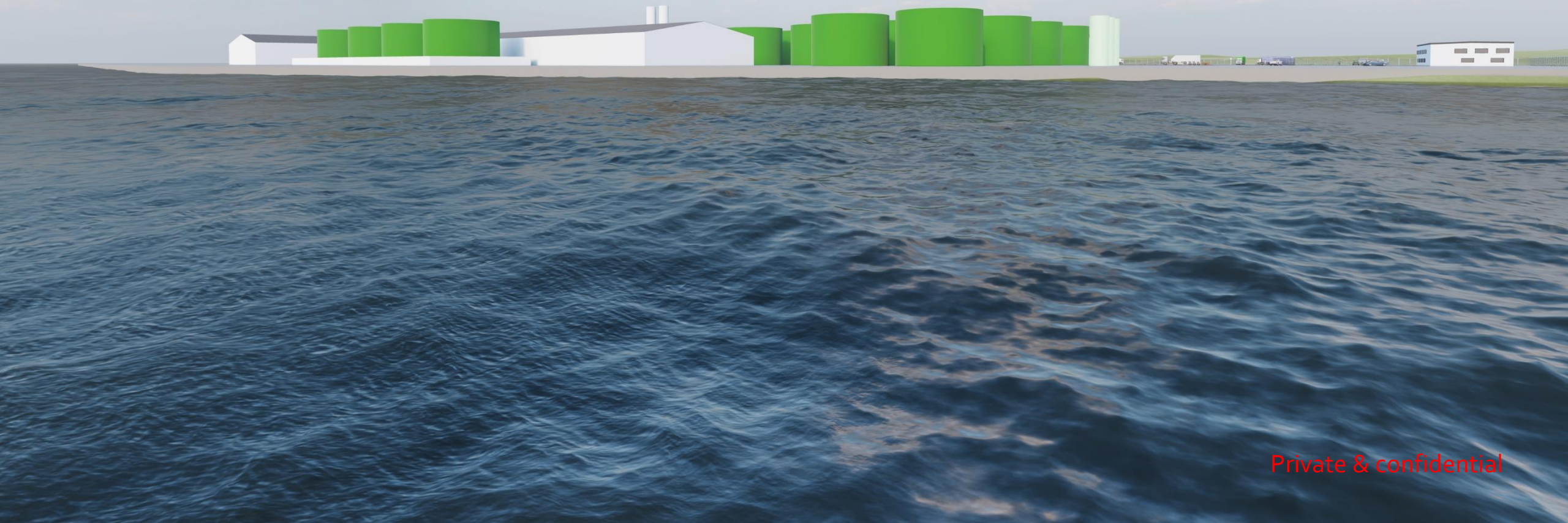


# Green2X

## INDUSTRIAL PRODUCTION OF **BIOGAS** BASED ON BIOMASS



Private & confidential

# Green2X will produce energy from straw

Green2X will produce biogas, advanced biofuels, bio-methanol and e-methanol, from excess straw

EU is transitioning to 2nd generation advanced biofuels based on cellulosic residues – Green2X will be at the forefront of this journey

1

## Straw



Straw is acquired from farmers in Denmark, primarily within 50 km radius of the plant in Vordingborg

In the past 6 years, **47% of straw produced on Zealand has not been recovered** as production vastly exceeds demand

2

## Straw briquettes



A patented process converts the straw into briquettes.

The first plant is expected to have a **capacity of 300.000-500.000 tons of straw per year**

Production of bio-methanol will leave residue which is usable anywhere as natural fertilizer.

3

## Biofermentation plant



In the biogas plant the briquettes are fermented into methane and CO<sub>2</sub> via an anaerobic digestion process.

The first biogas plant is estimated to produce ~200-300 million Nm<sup>3</sup> Biogas a year

**The biofermentation plant result in a 100% conversion** of organic matter – compared to 50-60% conversion in conventional biogas plants

4

## Methanol plant



The biogas is converted into bio-methanol via SMR (Steam Methane Reformation)

This process is expected to produce up to **200.000 tons of bio-methanol on a yearly basis**

Excess CO<sub>2</sub> from the biogas process can be converted to e-methanol through a process of adding hydrogen. The **e-methanol production is expected to be up to 70.000 tons per year**

5

## Advanced biofuel



Examples of customers include shipping companies, airlines, farmers and fuel distributors

**Bio-methanol will be ICSS certified bio-methanol** under Renewable Energy Directive and Fuel Quality Directive

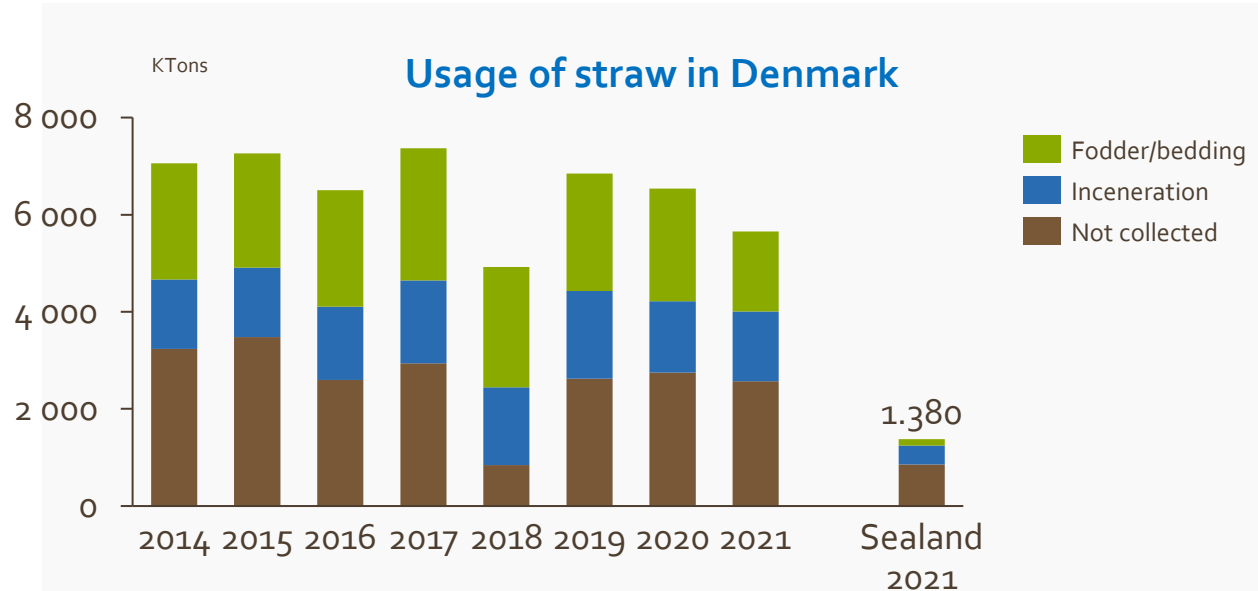


# Single feedstock for production: Straw

Vordingborg Biofuel will purchase briquettes locally on a long-term supply agreements

Significant volumes of straw is left unutilized in Denmark

The briquetting plant is planned to be located locally in Vordingborg vicinity



## Comments:

- Annual production of straw in Denmark is 6 - 7M tons per year.
- For the period 2014 – 2021, an average of 47% of straw produced has been not been recovered from the fields due to a lack of use and demand
- The energy in all straw produced in Denmark is equivalent to 16% of annual gross energy consumption in Denmark
- Vordingborg Biofuel will utilize the unused straw to make high density biofuel briquettes for use in the bio-methanol production



**300-500k tons**

Estimated annual  
briquette offtake



**Local sourcing**

Vordingborg Biofuel  
will source straw  
primarily in DK



## Comments:

- The briquetting plant is not a part of the Vordingborg Biofuel project.
- Straw in the form of briquettes will be primarily sourced locally on Sealand but also from rest of Denmark and abroad. Briquetting plants to be located in vicinity to farmers to reduce CO<sub>2</sub> emissions.
- Straw briquettes absorbs 7-10 times of its own weight in water and produces 400 cubic meters of methane per tons straw.
- Production of bio-methanol will leave residue which is usable anywhere as natural fertilizer. **The plant is estimated to generate 30-50.000 tons fertilizer per year as a bi-product**

# Shorter term: The Worlds most efficient

## 2. Generation Green Biogas Plant

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- Patented, proprietary Biogas technology, delivering world-class cost competitive green biogas
- Industrial scale green gas with significant rapid expansion potential
- Feedstock based readily available biomass and known technology
- Yearly of 110-150 Mio. M<sub>3</sub> methane (1,2-1,6 TWh) coming on stream Q1-25



# Location of plant #1 – Vordingborg Biofuel

Vordingborg Harbor is located close to required resources with strong distribution by sea and land

- ✓ **Preapproved by Vordingborg Municipality** for construction of a bioenergy refinery at Vordingborg Harbor
- ✓ Harbor depth of **10.4 meter** enables vessels up to **200 meter** to access the port
- ✓ Vordingborg Harbor is in an ideal location with **access to the Baltic Sea and the North Sea**
- ✓ Close proximity to **numerous farmers with a large supply of cereal straw**, enabling easy transport to and away from plant with straw and fertilizer
- ✓ **Trucks can reach North Europe and South Scandinavia within hours**, enabling the plant to easily deliver and import green methanol and raw materials in and way from the farm



Several farms and straw suppliers within 50 km



Close proximity to green energy suppliers



Easy access for large vessels with harbor depth of 10.4 meters



Strong logistical location with reach wide reach within few hours

# Approvals and construction

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- Approvals expected by April/May 2023
- FID in April/May 2023 in time for all regulatory approvals
- Production start in Q1-25





