

INVITATION

# INTERESTED COMPANIES

**BALTIC PLANT SOLUTION - NEW TEST-BIOREFINERY  
FOR GREEN AND BLUE BIOMASS**



*Crispy Food is ready to work with a company-based test facility. We have 3-4 processes in our pipeline, which we would like to validate in the large scale test plant.*

- Cecilie J. Tobiasen, Head of Extrusion Competence Center, Crispy Food

## WHERE?

In Guldborgsund Municipality.

## WHO?

An initiative of: Nordzucker, Crispy Food, Dansk Biokemi, Business Lolland-Falster and Guldborgsund Municipality.

## WHY?

By establishing a large scale food-production-certified biorefinery test plant, investment risks will be reduced and a faster route to consumers of new plant-based products created.

The large scale of the test plant means that the amount of biomass that can be processed can be large enough to be relevant for the next stage of the value chain; in other words, sales or further processing, validation, market tests and launching, until the establishment of i.e. a commercial plant can be achieved.

## HOW?

A consortium of technology and food processing companies will be established and will, in collaboration with Guldborgsund Municipality and Business Lolland-Falster, apply for funding for the establishment and start up of the plant.

The test-plant will be established in a business form which will ensure open access to companies wishing to rent the plant on non profit terms.

A laboratory facility will be established on site, but it is expected that companies will also bring expertise from their own development collaborations with RTOs and universities with them, where relevant.

The test-plant can be rented by companies wishing to upscale and validate their process, mass-balances, energy efficiency and business models from lab-level to 500 ton demo-production to 1.000 tons/yr.



## DETAILED DESCRIPTION

# LARGE SCALE TEST-BIOREFINERY

As opposed to existing pilot plants, a large scale food-approved biorefinery test-plant (from 500 tons demo-production, to 1.000 tons production per year) can produce large enough amounts of biomass so that the test product can be relevant for the next stage of the value chain; in other words, sales or further processing, validation, market tests and launching, until the establishment of i.e. a commercial plant. Moreover, it will be possible to develop and validate reliable business models based on close to 1:1 experiences regarding energy, resource efficiency, use of sidestreams, etc.

A large scale test plant in Region Zealand will be the first in Northern Europe and Scandinavia, and is estimated to be an important driver for development and a magnet for competences and companies within bio-refinery and bio-economy.

The large scale test-refinery will be constructed so that it can process both dry and wet biomass:

### **1st generation biomass i.e.:**

- Sugarbeets for biopolymers – the first important move to ensure that we develop the know-how in order to be able to produce high-value biopolymers with 2nd generation biomass, such as grass fibres or hay at a later stage
- Peas and other protein-rich crops for protein production. Protein production from peas has increased in France in recent years. In the 1980's, Danisco had a unique process and factory in Haderslev. This knowledge can be revived
- Climate change will bring new crops into focus and fractioning will be paramount to determining their potential

### **2nd generation biomass, i.e.:**

- Sugarbeet tops can be fractioned for protein and other high-value ingredients for food.
- Sugarbeet pulp, which Nordic Sugar already uses in the MycoProtein project, where the end product is a meat replacement product. In this case, a large scale demo production in the near vicinity to the raw materials would be of great advantage
- Hay from seed-grass production can, via a bio-fabrication process using enzymes, be spun to textiles

### **Blue biomass, i.e.:**

- Seaweed, which also requires fractioning technology, can be combined with sugarbeet top equipment and processing of sugarbeet pulp, etc
- Instruments for nutrient capture from the sea, i.e.: mussels, can become high-value feed or plant-protein enrichers of essential fatty acids for new super foods

It should be possible, depending on the biomass and desired output, to choose, combine and adjust the individual steps with a view to careful processing, so that the nutrients and other high-value ingredients are preserved.

The creation of a test-platform servicing a bio-business ecosystem is mainly a question of combining already existing components and establishing partnerships and infrastructures for national and international expertise, investments, academia, markets and industries.

*As the test-hub for Nordzucker, we are very interested in validating new business models which will ensure more sustainable and valuable products based on sugar beets and sidestreams.*

- John Jensen, Head of New Opportunities, Nordzucker

Are you interested in Baltic Plant Solution, please contact

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The multi-disciplinary engineering consultancy NIRAS will carry out a stakeholder analysis and a feasibility study in the period May 2022-May 2023 as preparatory work for the establishment of the Baltic Plant Solution refinery.

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