



nature
energy

From grey to green – the story of Nature Energy

16 September 2019

From Naturgas Fyn to Nature Energy

Pursuing a vision to transform a fossil based gas distributor and retailer, to a leading biogas company.



Naturgas Fyn i krise

Time has run out for Naturgas Fyn. Customers choose alternatives to natural gas. As a consequence the company now has a deficit of 80 million DKK a year.

Ingeniøren

Dong Energy: Vi løber tør for gas om seks år

Efter nytår falder produktionen af gas drastisk, og om tre år er der stor risiko for, at vi ikke længere er selvforsynende, forudser Dong Energy.

Af [Claus Djørup](#) 16. jun 2009 kl. 09:07

*Dong Energy
(Ørsted): We will
run out of gas in 6
years*

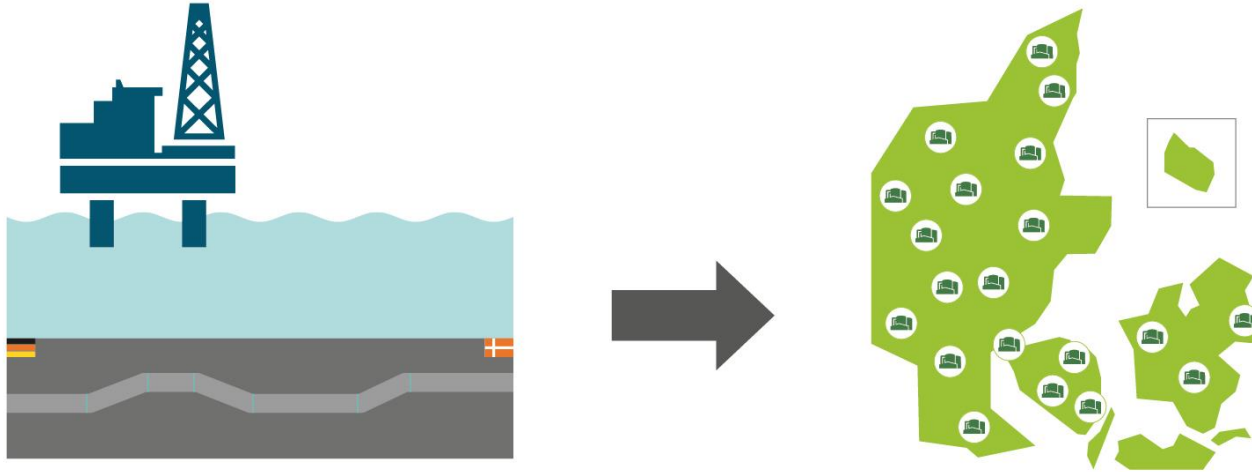
Information

Danmark skal være fossilfrit i 2050

For første gang siger Lars Løkke Rasmussen, at Danmark skal være uafhængigt af fossile brændstoffer i 2050. Hos ngo'erne er begejstringen dog begrænset: Uambitiøst og ukonkret, lyder kritikken

*Denmark to be fossil
free in 2050*

A green future for the Danish gas grid



New ownership

British equity fund has not bought the Funen Nature Energy to let it go. Up to ten new biogas plants will be built in the coming years, and the new owners are ready to invest up to 2.5 billion DKK.



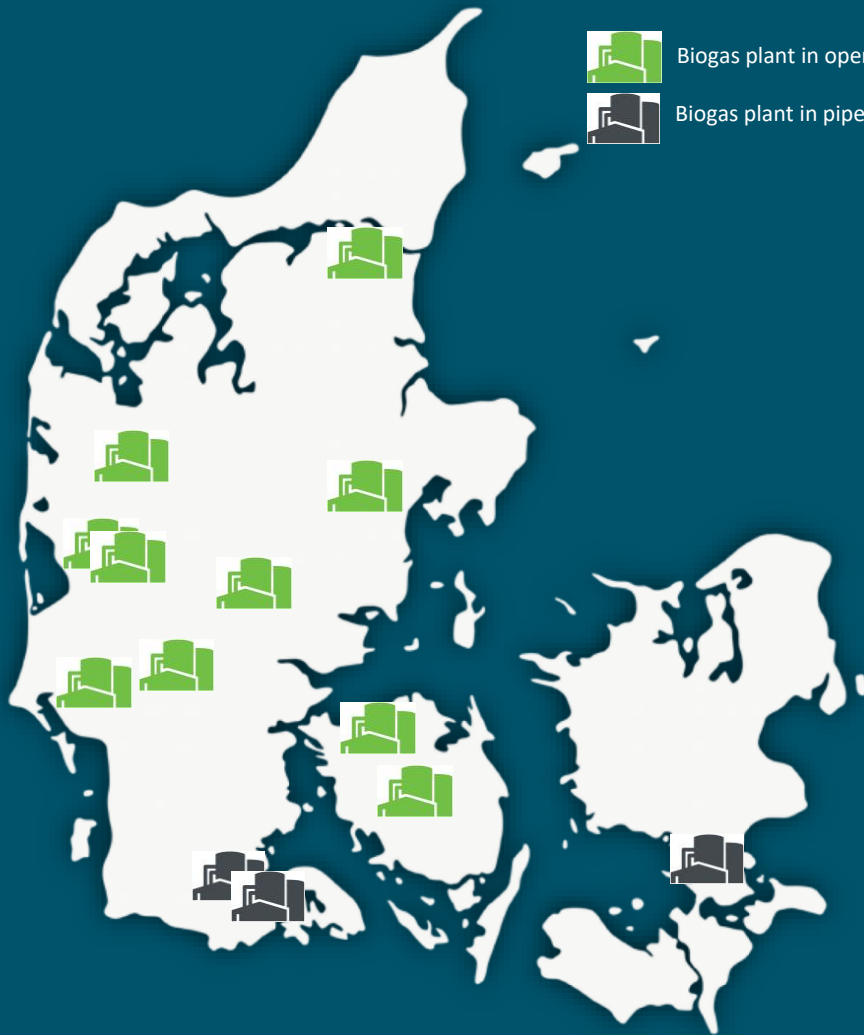
TV2

Energy company sold for 1.1 billion. kr. New owner want to create more than 1300 new jobs

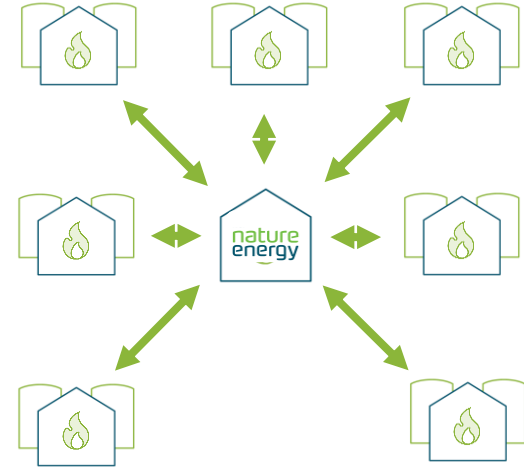


Biogas plant in operation

Biogas plant in pipeline



National competence center



Building an international market leader in Biomethane / RNG

Fully integrated renewable natural gas (RNG) company

Biomass sourcing



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graph TD; A[Biomass sourcing] --> B[Plant Design & Construction]; B --> C[Biogas production]; C --> D[Gas certification and sales];
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Plant Design & Construction

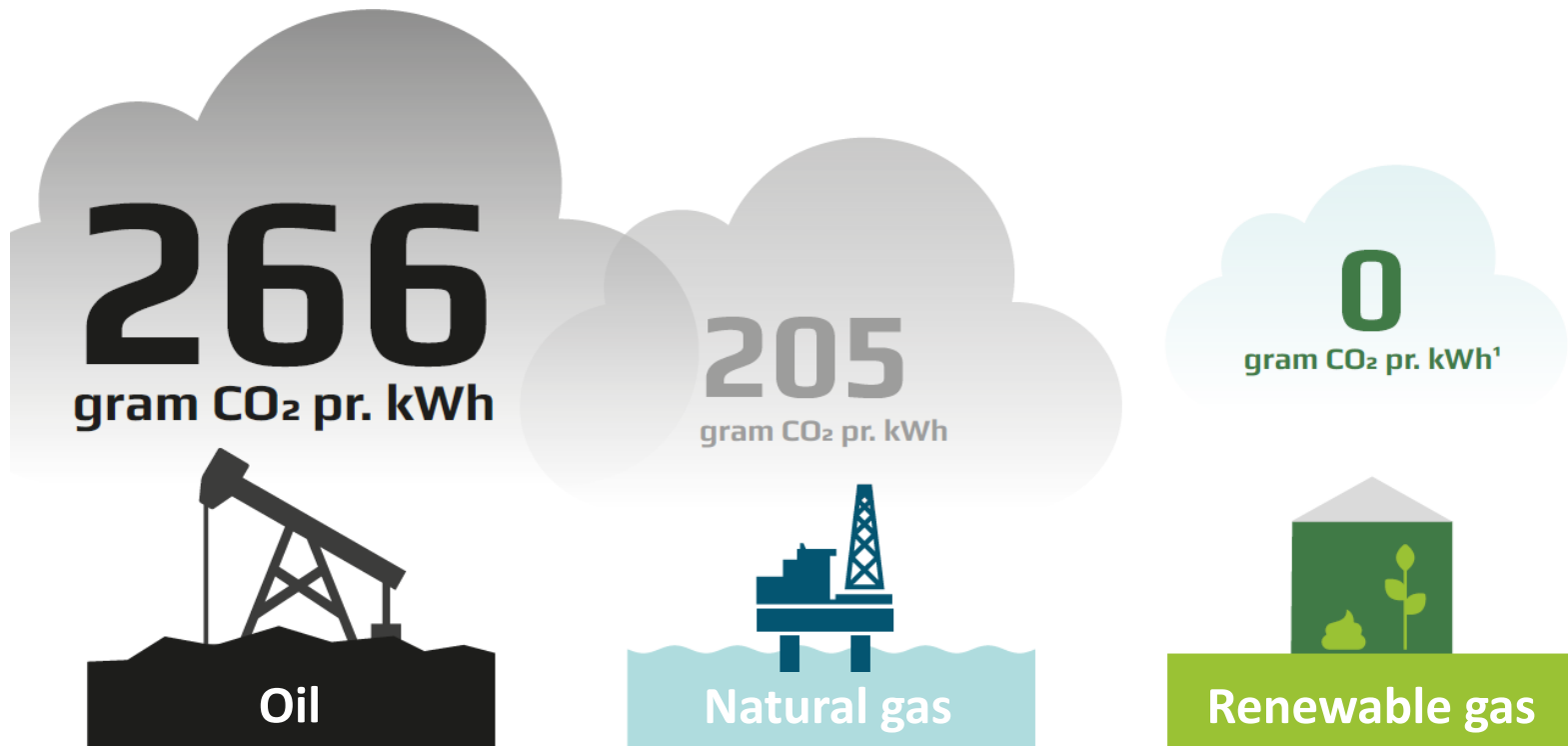
Biogas production

Gas certification and sales

Committed to a green future for the gas grid



Reduction of CO₂ emissions



Three questions we should ask ourselves...

- Are there biomasses enough?
- Are we able to reduce cost?
- Is electricity the answer to everything?



Are there biomasses enough?

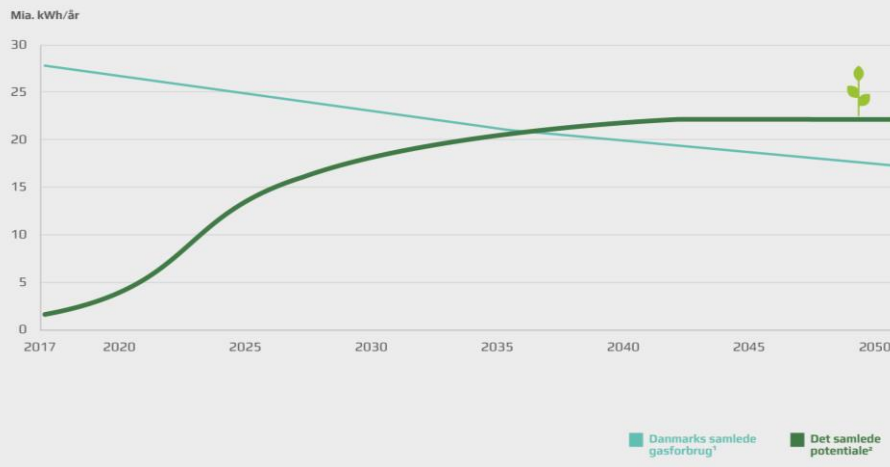
THE DANISH GAS GRID COULD BE FILLED WITH GREEN GAS IN 2035

According to a memorandum published by Green Gas Denmark on the 14th of November, Denmark's gas grid could be running entirely on green gas in 2035. Thus, Denmark could become independent of natural gas and cover their consumption entirely with green gas produced from industrial waste and agricultural by-products.

By State of Green, 2017.11.16

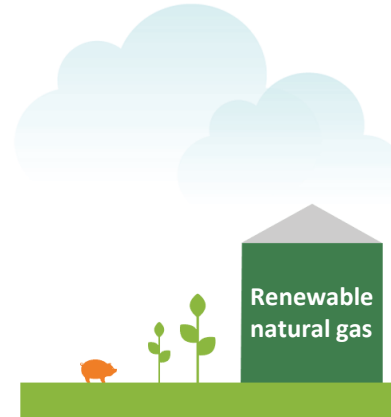
Share

State of Green
Join the Future. Think Denmark



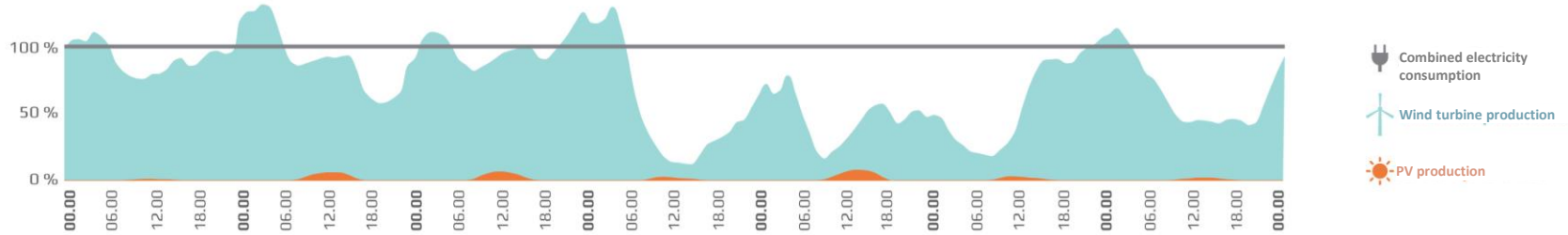
Maturing the industry and reducing cost

- Economy of scale with large plants
- Standardisation
- Operational excellence
- R&D
- Increased revenue from other channels than biogas

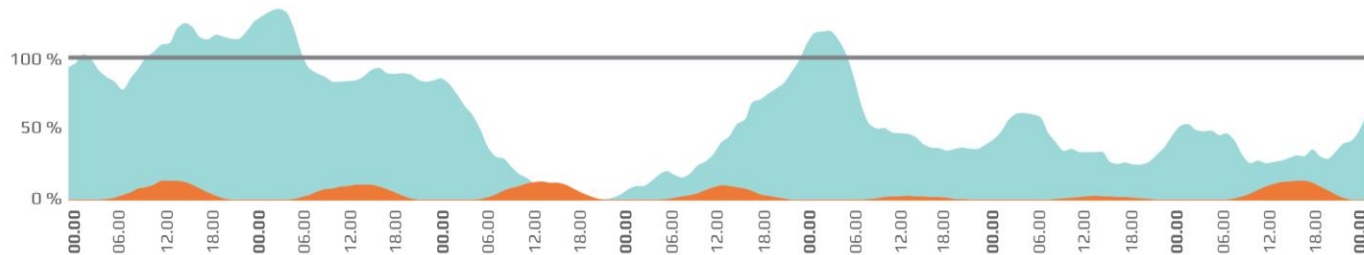


Is electricity the answer to everything?

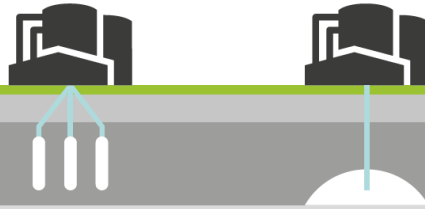
A week in February 2017



A week in June 2017



Denmark has two gas storages that are 85.000 times larger than the Tesla battery in South Australia



1/3

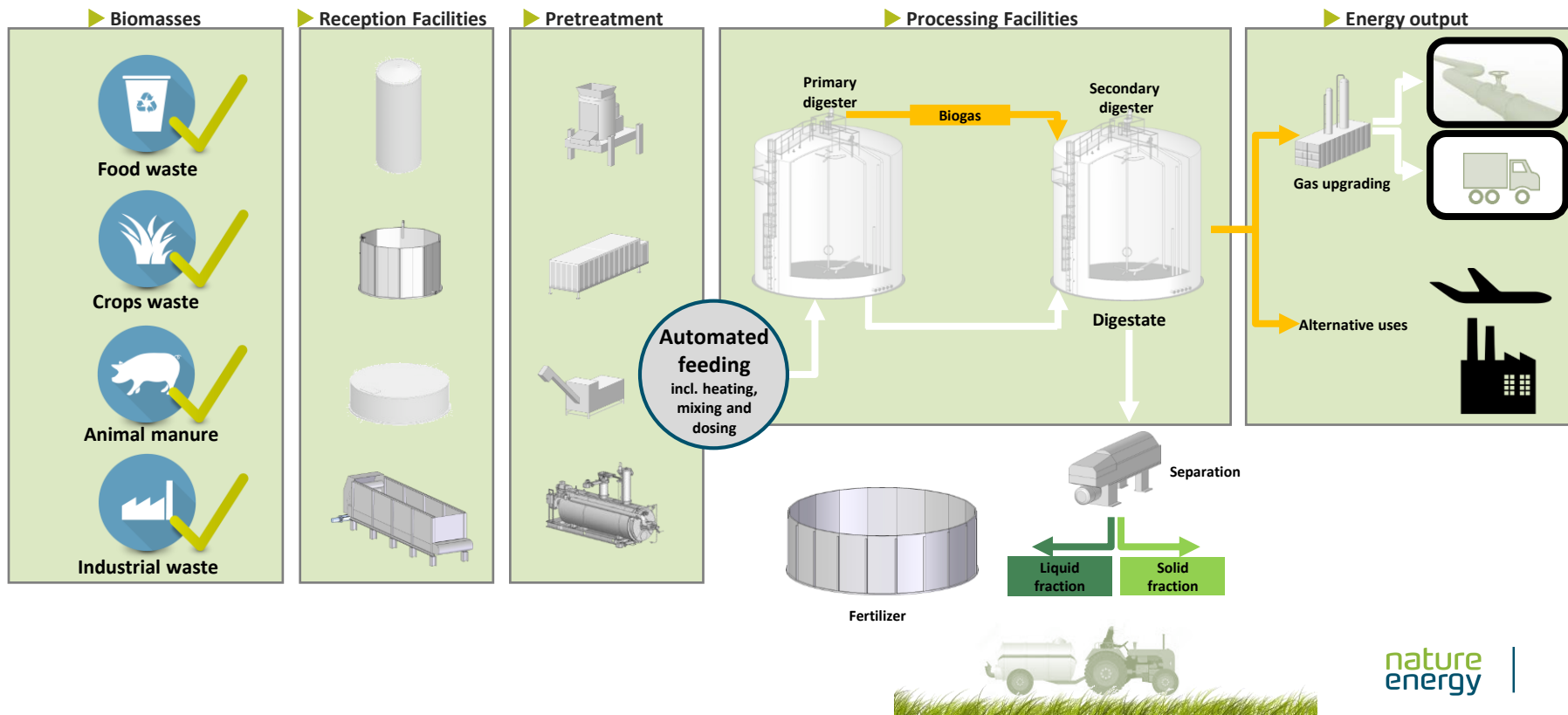
Of Denmark's yearly
electricity consumption

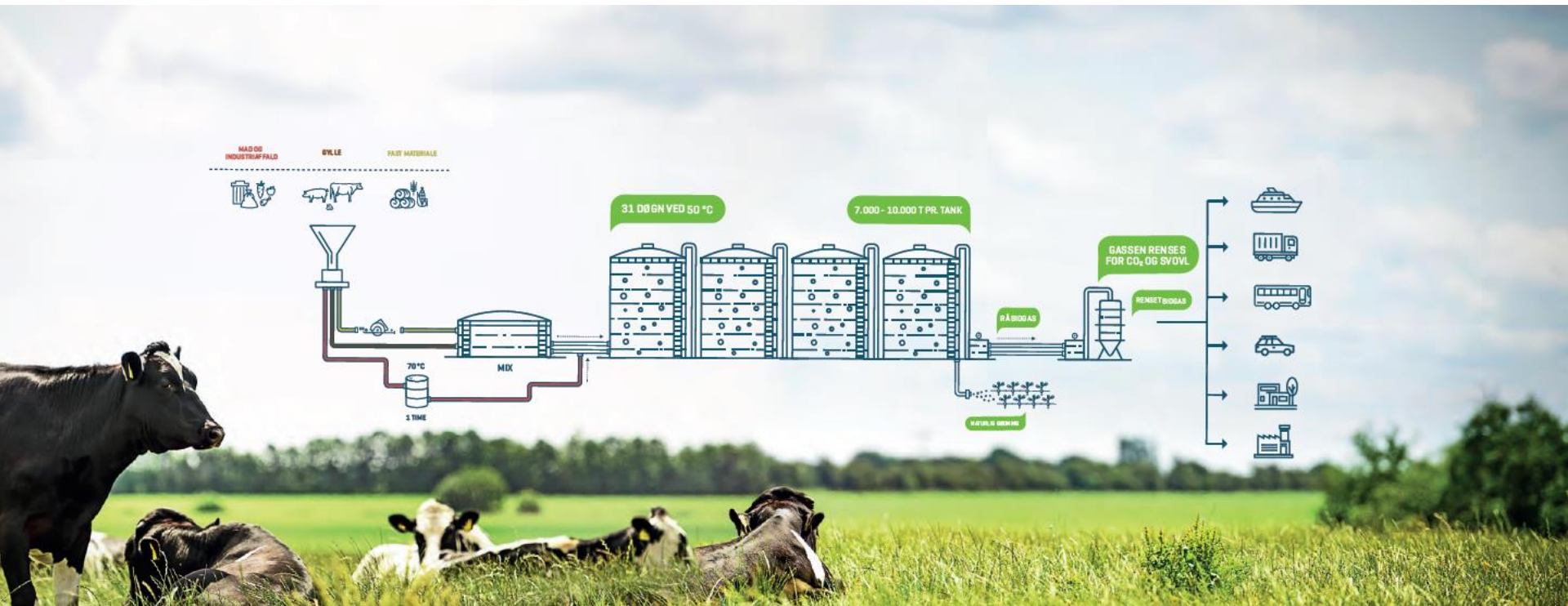
Contributing to a more circular future



In-house technology

Plant concept







Investing in Future Technology and Knowledge

- Similar to wind – scale and technology improvements are expected to substantially reduce the production cost
- The capacity of new plants can grow significantly as CAPEX is not proportionally higher
- Lower operating costs as plant size increases
- Scale advantages in logistics –Technology is still at an early stage. Nature Energy is investing in efficiency improvements by:
 - ✓ Optimising feedstock input
 - ✓ Better route planning and higher input flexibility
 - ✓ Optimising production through control of operating parameters
 - ✓ Turning digestate into high-value products (fertilisers)



PENGE

Gyllebobler i øl og sodavand

CO₂ fra verdens største biogasanlæg skal genbruges i fødevarerindustrien, hvor den udkældte drivhusgas er en mangelvare. Men bare rolig: du slipper for lugten.



Danish CO₂ from agriculture becomes bubbles in your soda

Nature Energy and Strandmøllen A/S have entered into a partnership under which excess CO₂ from one of the world's largest biogas plants in Esbjerg will be recycled as, for example, bubbles in your soda. Under the partnership, Strandmøllen will have easy access to necessary CO₂, which is otherwise in short supply throughout Europe, and, in addition, CO₂ emissions from the biogas plant will be reduced by 70% compared with an ordinary biogas plant.

KLIMA

Nu skal husdyrene fodres med dansk-dyrkede mikroalger

Et testforsøg skal vise, om bæredygtige mikroalger kan erstatte importeret sojaprotein, der i dag er landbrugets foretrukne foder.



In the future livestock could be fed with Danish-grown microalgae
A test attempt will show whether sustainable microalgae can replace imported soy protein, which is today the preferred feed of agriculture.

Tre algae grows in water and receives nutrition and CO2 from the biogas production. The water can be recycled again and again.

How did we gain a leading market share
so quickly?

The growth of Nature Energy





Vaarst



An aerial photograph of the Holsted industrial facility. The facility is situated in a green field, with a road and a railway line visible in the background. The main building is a large, dark-colored structure with a flat roof. To the left of the building are four large, black, cylindrical storage tanks arranged in a row. To the right of the building are several large, white, cylindrical storage tanks. A network of pipes and walkways connects the tanks and the building. In the foreground, there is a muddy area with some construction equipment and materials. The overall scene depicts a large-scale industrial operation in a rural setting.

Holsted

Production: 12,5 (20,7) million m³ pr. year

Biomass capacity: 400.000 (600.000) tonnes

Biomasses: Agricultural and industrial

Gas to grid

Nordfyn

Production capacity: 9 million m³ per year

Biomass capacity: 330.000 ton



Midtfyn



Månsson





Korskro

Production: 22 million m³ Biomethane pr. year

Biomass capacity: 700.000 tonnes

Biomasses: Agricultural and industrial

Gas to grid

Videbæk

Production: 20 million m³ Biomethane pr. year

Biomass capacity: 600.000 tonnes

Biomasses: Agricultural and industrial

Gas to grid



Glansager



Nature Energy – international market leader



Nature Energy – Slurry from agriculture can be used in the production of biogas

Link: <https://www.youtube.com/watch?v=BfQf6Eilq4s>