

BIOEAST Foresight Conference
27 September 2021
Sami Vinkki

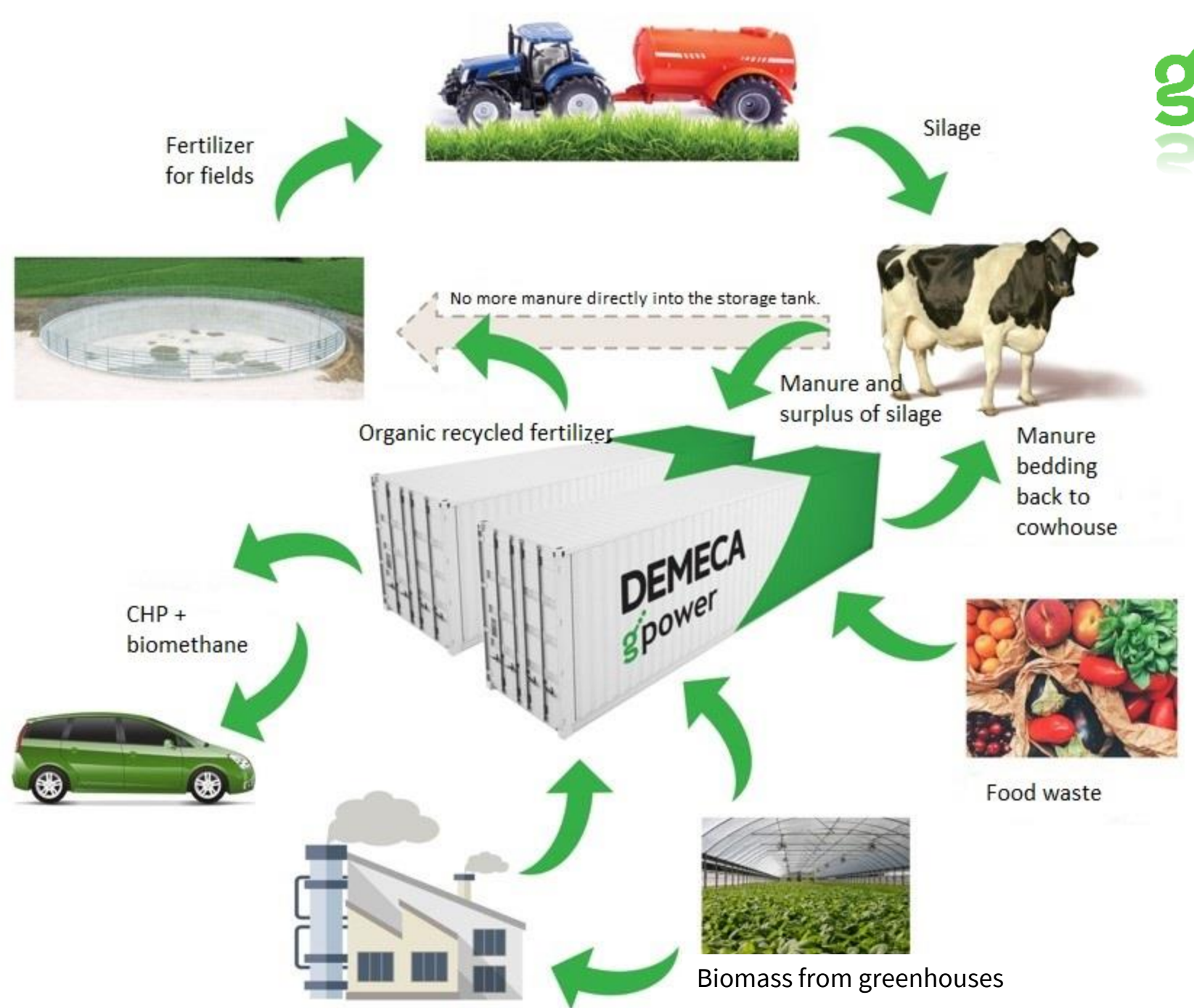


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FARM-SCALE BIOGASPLANTS

- Megatrends:
 - Biomass recycling
 - Reducing methane- and CO₂ emissions
 - Reduction of nutrient run-off
 - Local, self-sufficient and decentralized energy production and zero-emission fuel

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BIOGAS PLANTS

- **Unique patented Variable State Digestion (Kiintomädätys®) technology 2014**
- **All types of feeds ok, moisture in dry matter content can be from 0-100%**
- **Modular factory-built plant complex**
- **Easy to Export**
- **We provide access to various types of financing**

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BIOMETHANE GAS UPGRADING

- Farm scale solution.
- Modular factory-built plant complex
- Easy to Export
- We provide access to various types of financing



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TOWARDS CARBON- NEUTRAL milk 2035

VALIO INTENDS TO CUT MILK'S CARBON FOOTPRINT TO ZERO BY 2035

Carbon-neutral milk means that

the same amount of emissions is reduced and removed from the atmosphere as is generated on the farms, in transportation, at the plants and in package manufacturing.

Three most important solutions

We bind more
carbon dioxide
into grass fields

We use manure
to produce
renewable
biogas

We reduce
emissions from
organic soil

CASE VUORENMAA

- The first pilot project in Finland where biogas from manure is locally processed to biomethane and used in Valio milk logistics.
- Biomethane for Valio's milk truck and local residents' cars
- The project has been completed since the beginning of 2021 and the gas truck has performed excellently.
- Benefits of logistics



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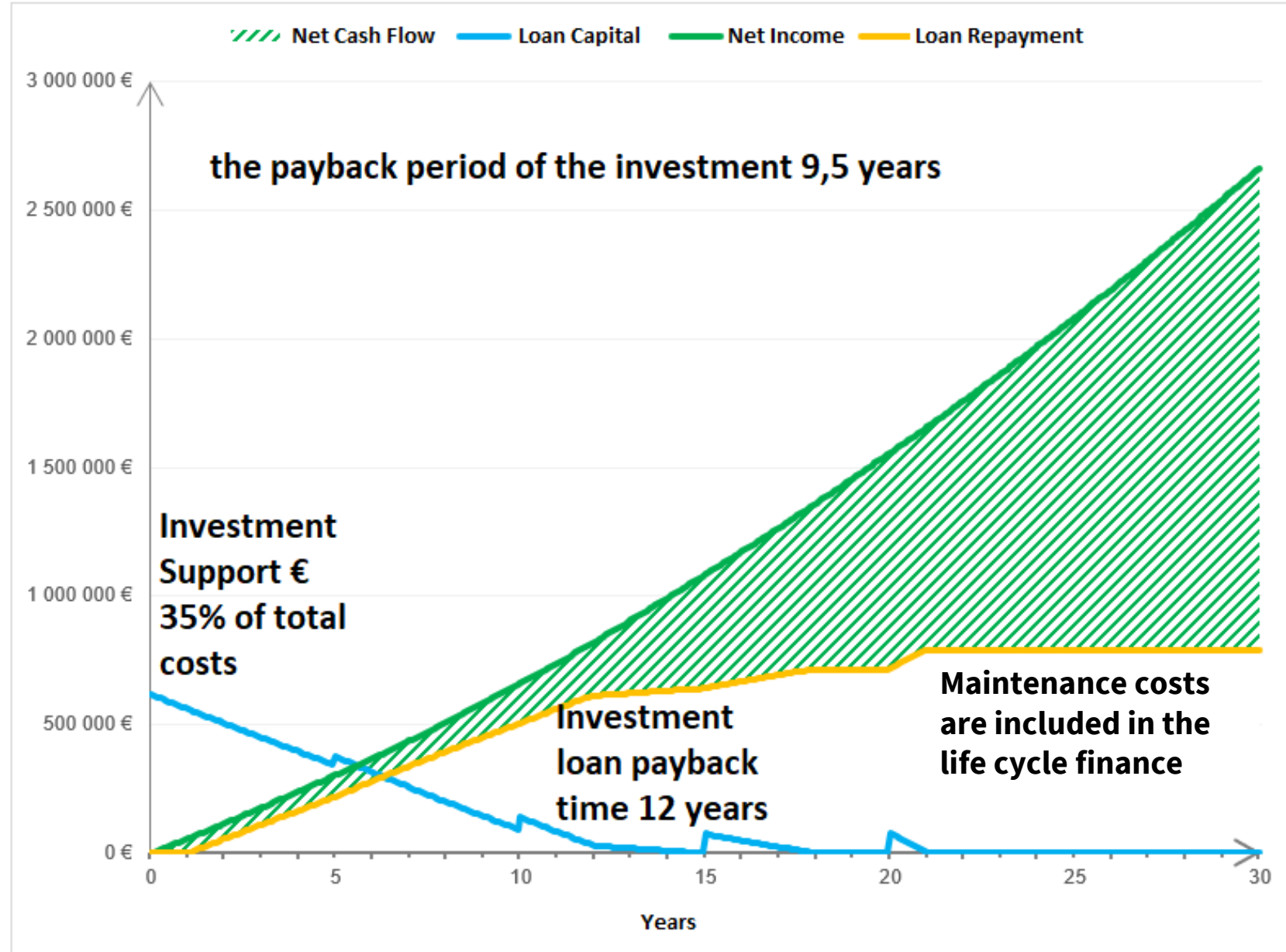


FINANCE

- Profitable for the farm
- Long-Term investment - Long-Term Life cycle
- Financial support is needed if bioenergy price is compared to fossil fuels. At least next years.

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Life cycle finance



Greetings to EU policy on the case of Vuorenmaa, (Valio, Demeca, Farmers):

- 1) Agricultural side streams (manure and other biomass) form a significant potential for bioenergy (e.g. in Finland 15 M t/a). To exploit this potential both centralized industrial and decentralized farm-scale processing of biomass is needed.
- 2) Biomethane processed from manure and replacing fossil fuels mitigates efficiently GHG emissions in two sectors; agriculture and traffic
- 3) Manure processing to biogas allows more efficient nutrient use in cropping and grass production as well as nutrient recycling
- 4) A rapid GHG mitigation in logistics is possible with biogas, especially in countries like Finland where infrastructure for electric cars is still limited. In addition, zero-emission heavy logistics is not possible in large scale without biofuels like biomethane
- 5) Policy measures needed to support biomethane in logistics:
 - a. Support to manure biogas plant investments (both centralized and decentralized)
 - b. Conversion of cars which allows biomethane usage
 - c. Investments to infrastructure of biomethane distribution network
 - d. A fair emission calculation method for biogas-driven vehicles (as compared to natural gas)

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Greetings from MTK (Central Union of Agricultural Producers and Forest Owners):

- In Finland the amount of potential raw-material is not a limiting factor for agri-biogas: mainly manure and different grass-types. Agriculture could be way over self-sufficient on renewable energy.
- Limiting factors are economical & market barrier factors due to regulatory framework which does not note farms as a fundamental part of energy-transition and biogas as a real alternative in transport and heavy duty machinery.
- State-aid guidelines should promote local biogas solutions. There should be no limits for agricultural producers to execute or be a part of projects which aim to energy production and market access. Farms must have possibility to sell energy out from farm without losing investment subsidies.
- EU should not over-shoot with sustainability requirements for the benefit of fossils (RED2/taxonomy/etc). Raw-materials for biogas production are mainly at the farms. If they don't play a role, there is no game.
- Energy production must be a real alternative for farms in economical, environmental and socially acceptable terms. Potential of farms should be noted also in EU Strategy on Energy Sector Integration.
- Finnish agricultural producers (MTK) have just released (15.7.2020) a roadmap to climate friendly agriculture 2035-2050. Without biogas it is impossible to achieve significant progress.

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Thank you!



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