



ECONOMIZER^{SE}

Change Biogas Generation

Sustainable Biomethane from Organic Residues

Economizer GmbH, 11/2019

Change Biogas Generation



The Mission: Change from Energy Crops to more sustainable organic **Residues**
straw (wheat, rice, maize), green waste, bagasse (sugar cane), EFB (palmoil-waste)...

Millions of Tons of such residues are burned, compost or rot without any use

Problem: Residues are rich in energy, but **indigestible** due to strong structures



ECONOMIZER SE-Technology



Pre-Treatment
of Lignocellulosis:
combination of
Thermo-Pressure-Hydrolysis
and
Steam Explosion
(big *Steam Cooker*)

ECONOMIZER SE-Technology



ECONOMIZER SE

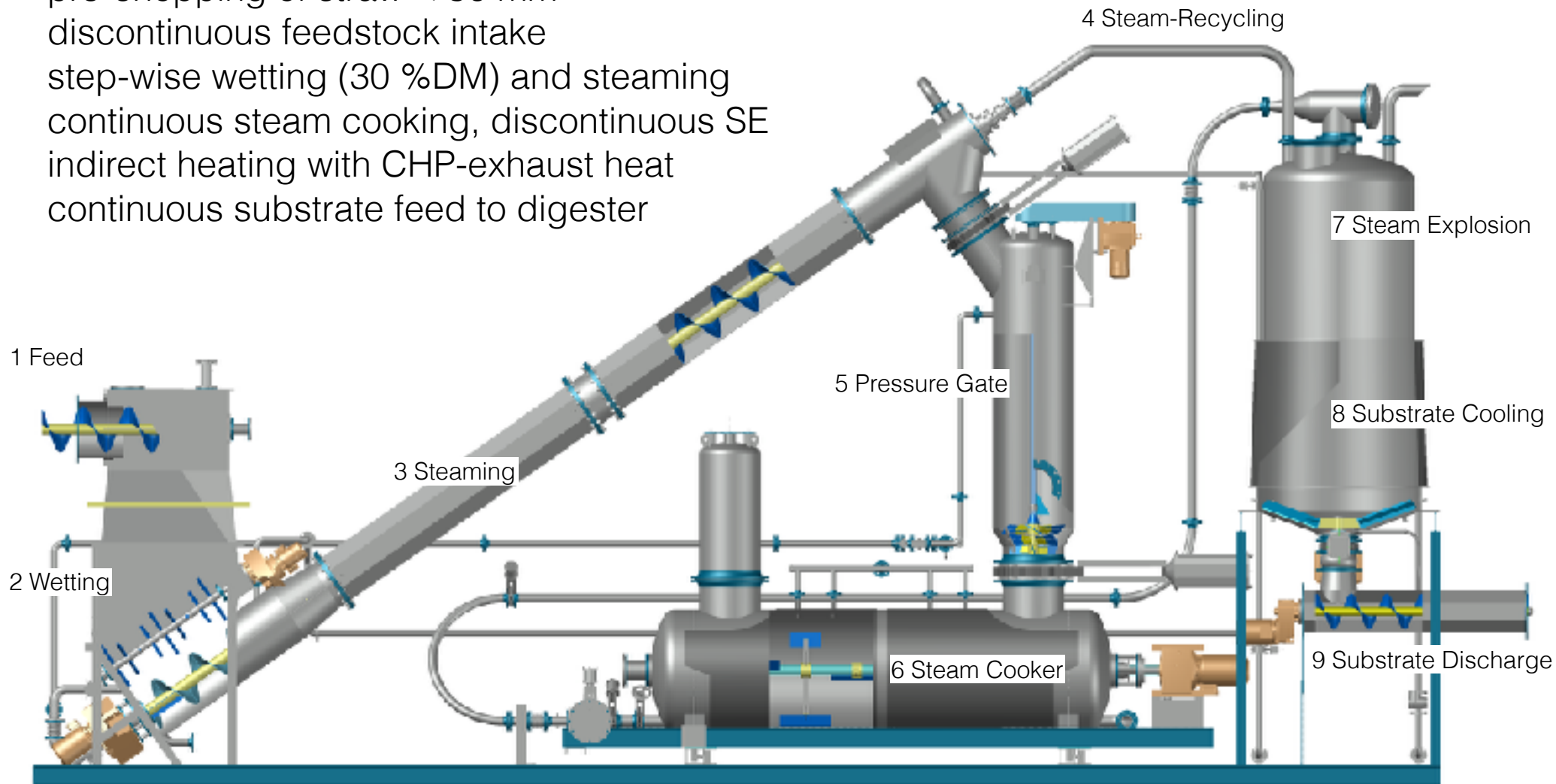
changes hard-fibered,
indigestible straw

into sweet and easy
digestible slurry

ECONOMIZER SE-Technology



pre-chopping of straw < 50 mm
discontinuous feedstock intake
step-wise wetting (30 %DM) and steaming
continuous steam cooking, discontinuous SE
indirect heating with CHP-exhaust heat
continuous substrate feed to digester



System Integration



type **ECONOMIZER SE 2.5** fits for biogas plants sized **250 m³ biomethane / h**:
modular, standardised construction
easy integration into any biogas plant concept
no change of fermenter operation





ECONOMIZER SE

today worldwide only technology for biogas plants
for a complete feedstock **change** to residues

own experience since 2010

International Patent Family, 37 granted patents

3 - 5 years ahead of the field

key features

unbeatable energy balance
only 15 % own energy demand

multi-feedstock capable

semi-dry process saving 85 % water demand



projects realised so far

7 **ECONOMIZER SE 2.5** for biogas/biomethane plants in Europe

actual projects under execution

6 **ECONOMIZER SE 2.5** for **straw** at Europe's largest agricultural AD plant (16 MW)

2 **ECONOMIZER SE 2.5** for **straw** at new 2 MW plant in Poland Anlagen

2 **ECONOMIZER SE 2.5** for sustainable cellulose **fibre production** (Germany)

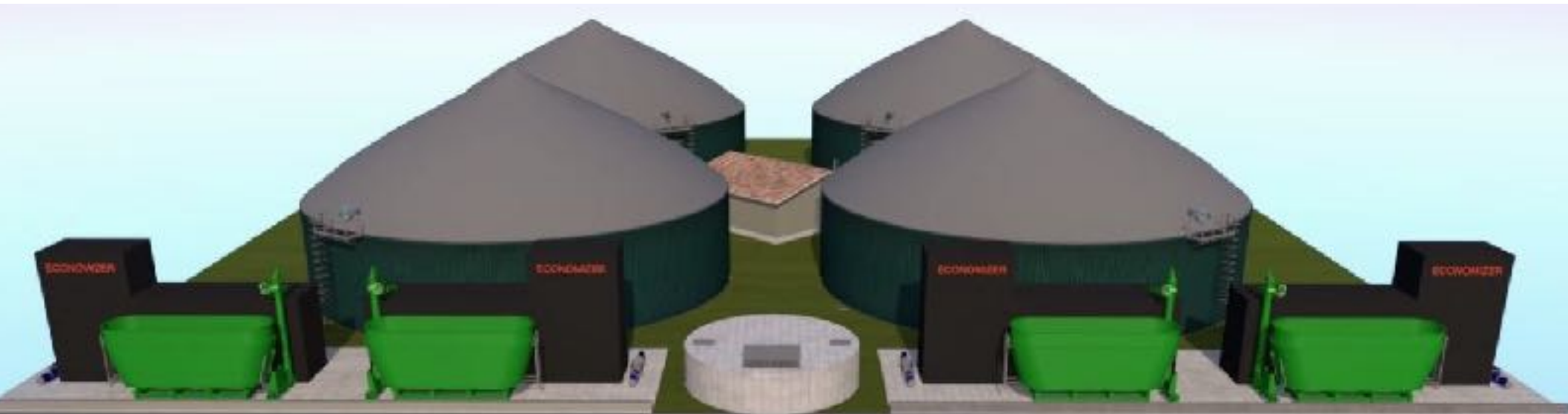
1 **ECONOMIZER SE** prototype for biomethane from **green waste** (EU-LIFE-Programm)





new challenge

strategic partnership with **iES BIOGAS** for **China**: 4 MW pilot project from corn straw



Biogas Plant „Reepham Road“



ECONOMIZER SE 2.5 for straw and digestate





Biogas Plant „Heath Farm“

Biogas Plant „Redstowe“



ECONOMIZER SE 2.5 for straw and digestate



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