

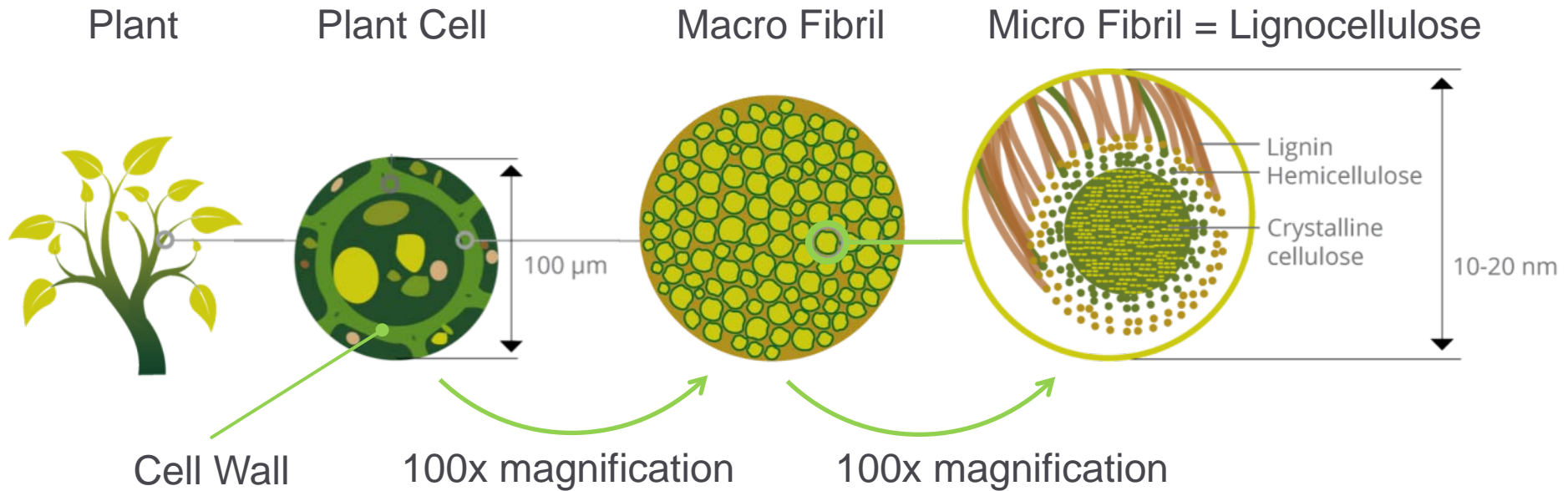


Lignin Extraction Process – Plant Residues for Green Chemistry and Biogas

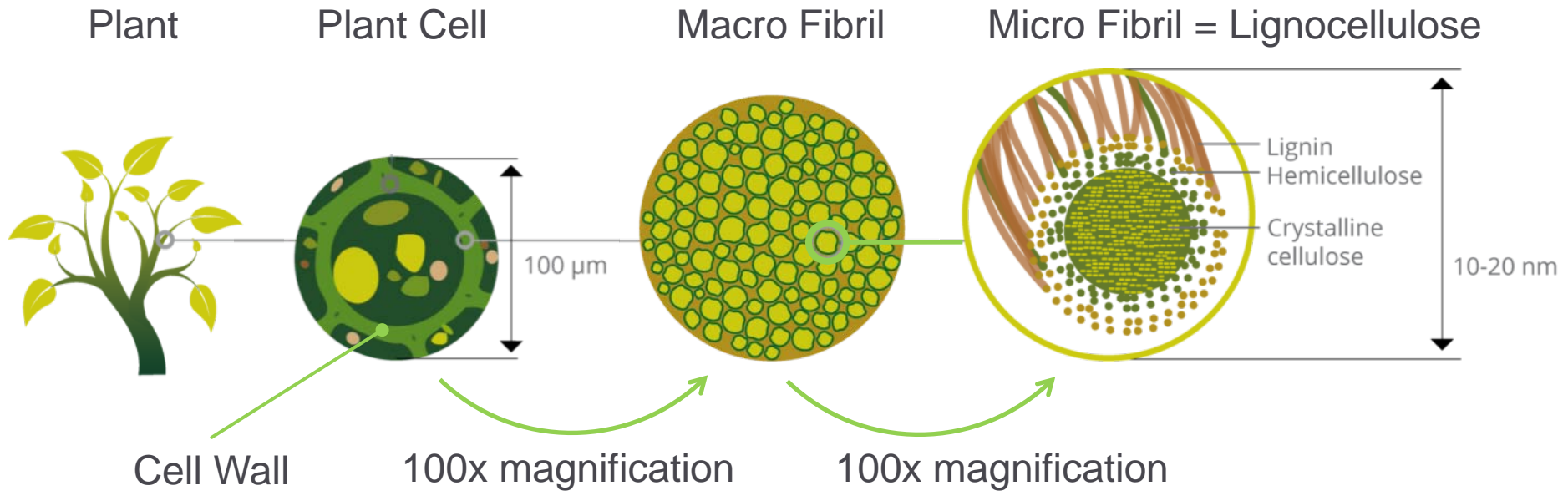
London, 7th October 2015



LX-Process „cracks“ Plant Residues

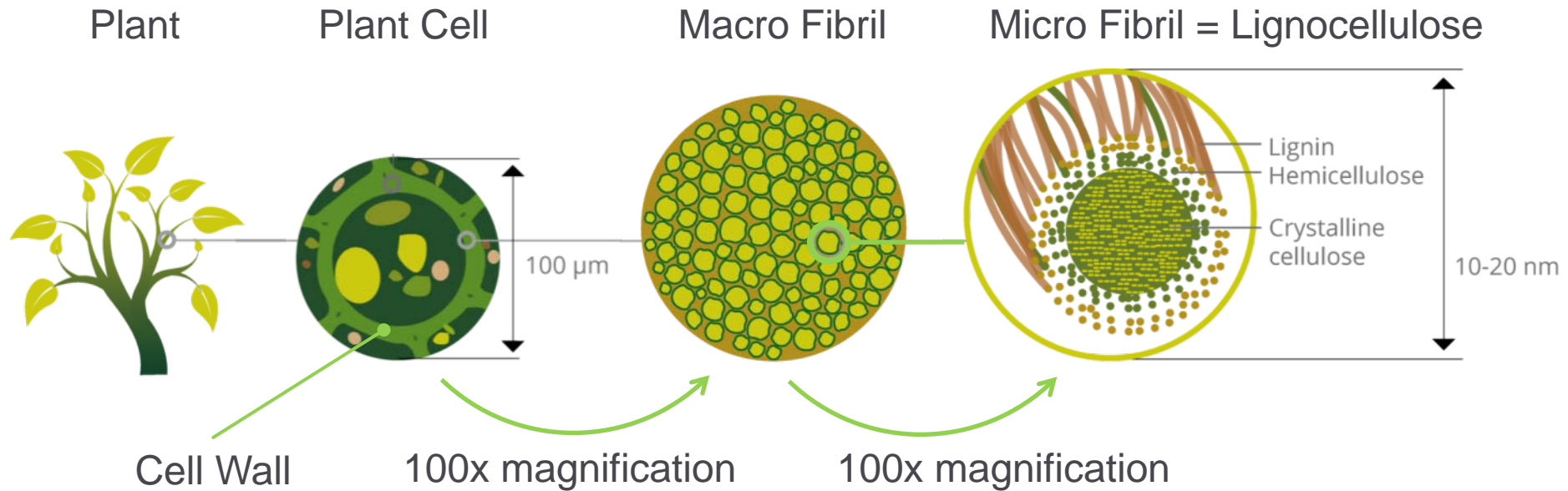


LX-Process „cracks“ Plant Residues



The problem: Micro Fibrils, respectively Lignocellulose are tightly packed and have a too small surface for an attack by microorganisms as well as a protective lignin shell.

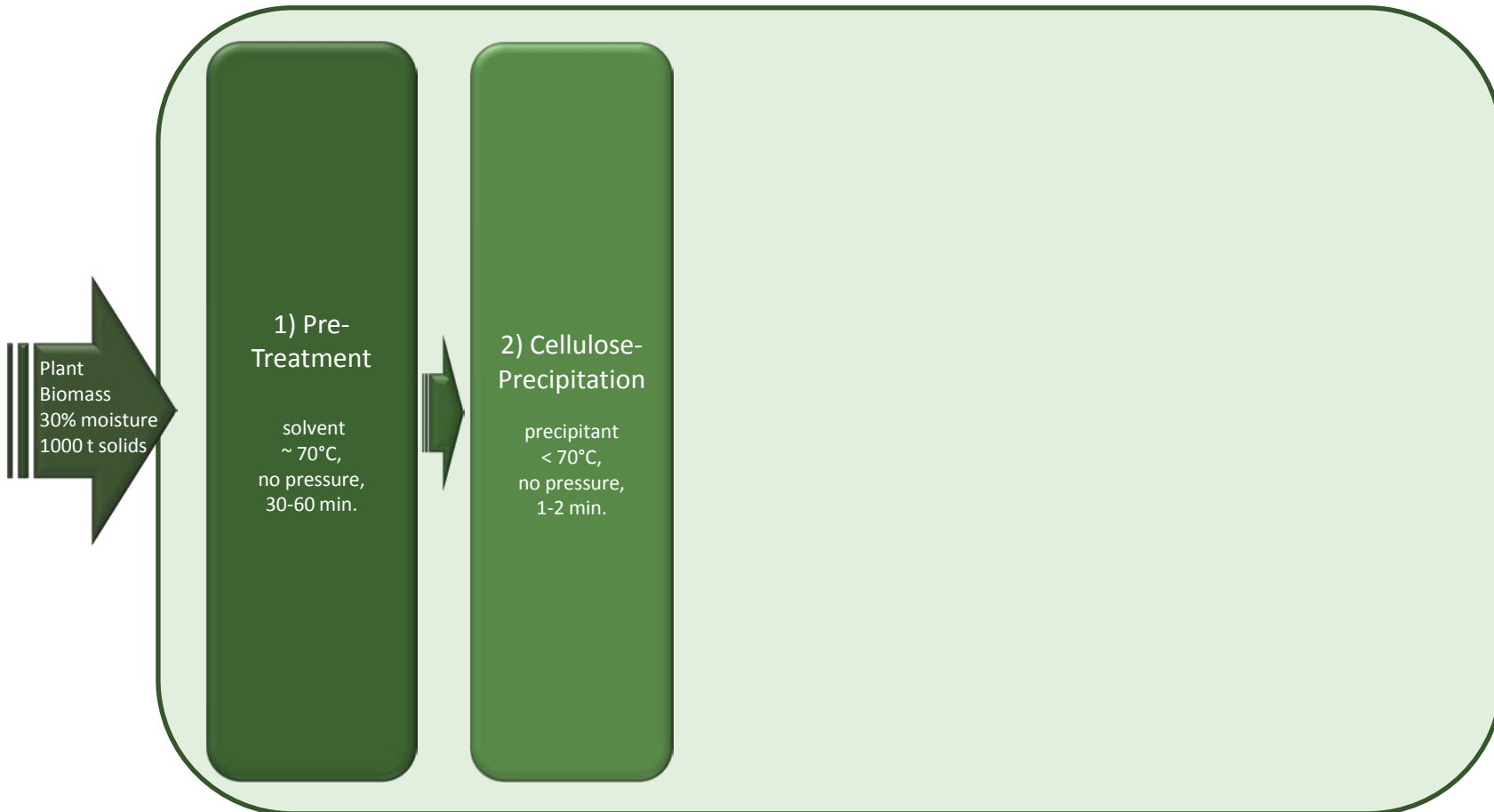
LX-Process „cracks“ Plant Residues



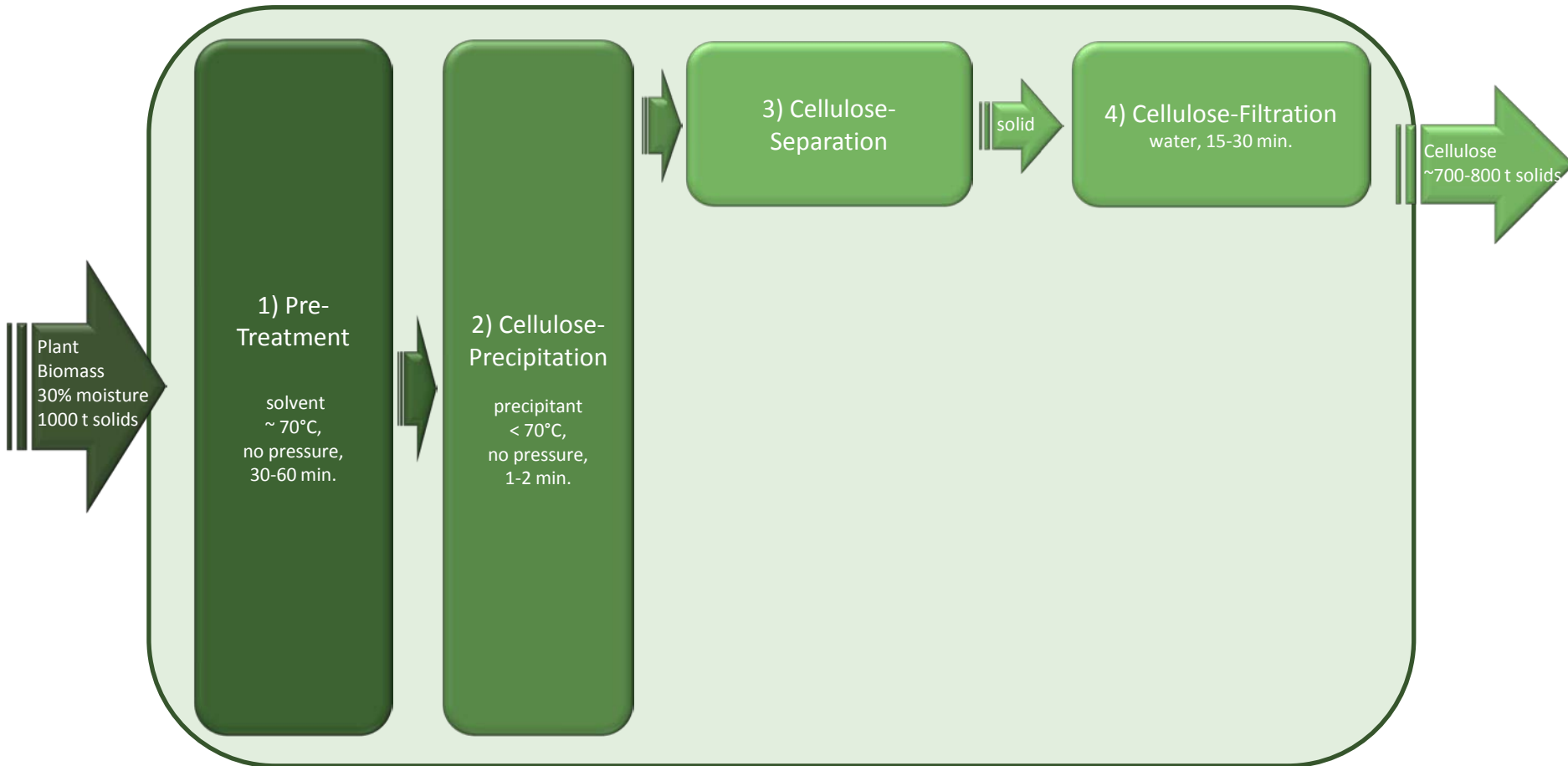
The problem: Micro Fibrils, respectively Lignocellulose are tightly packed and have a too small surface for an attack by microorganisms as well as a protective lignin shell.

The solution: The LX-Technology cracks the shell of the Lignocellulose with ecological and economical efficiency.

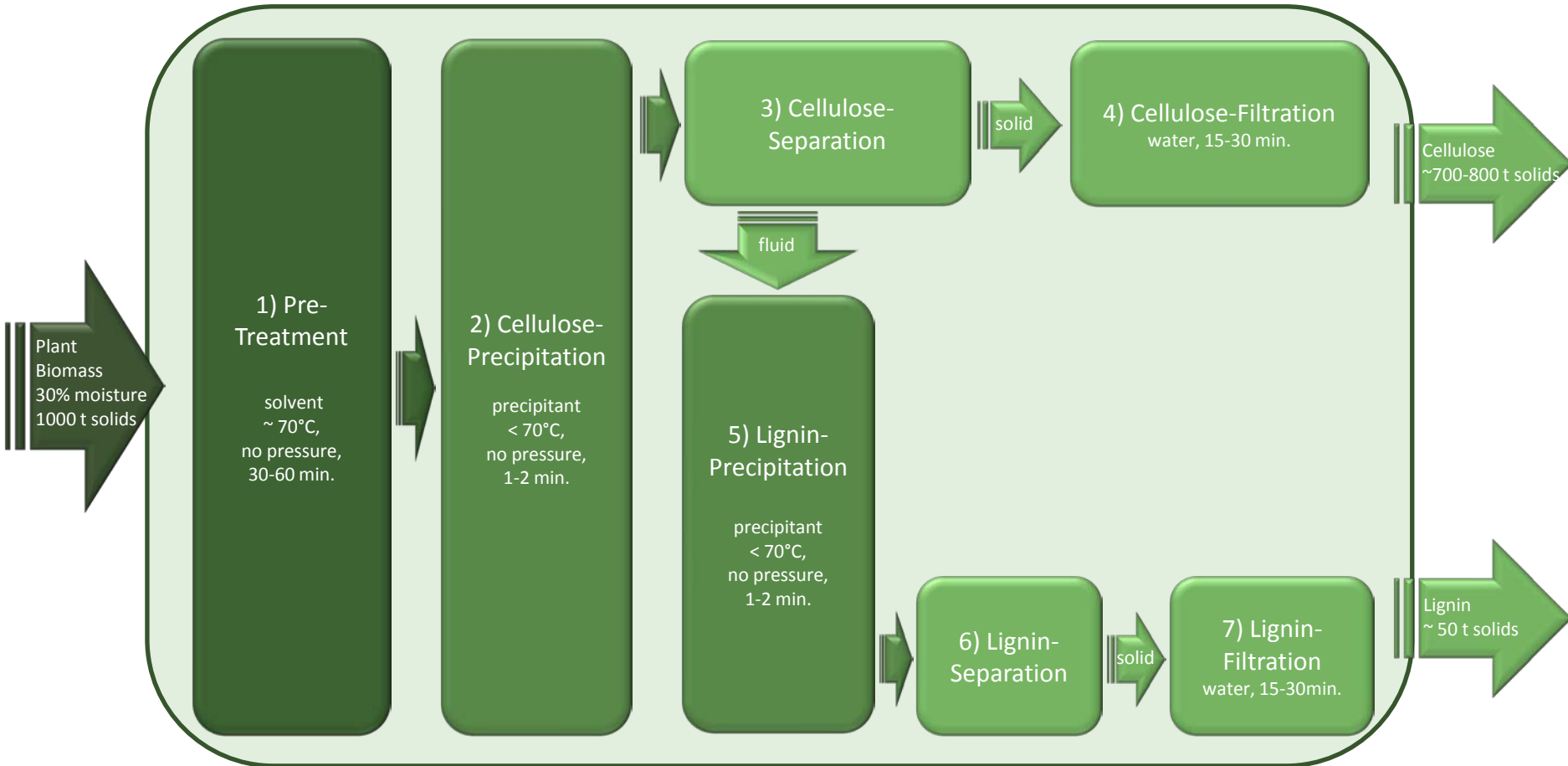




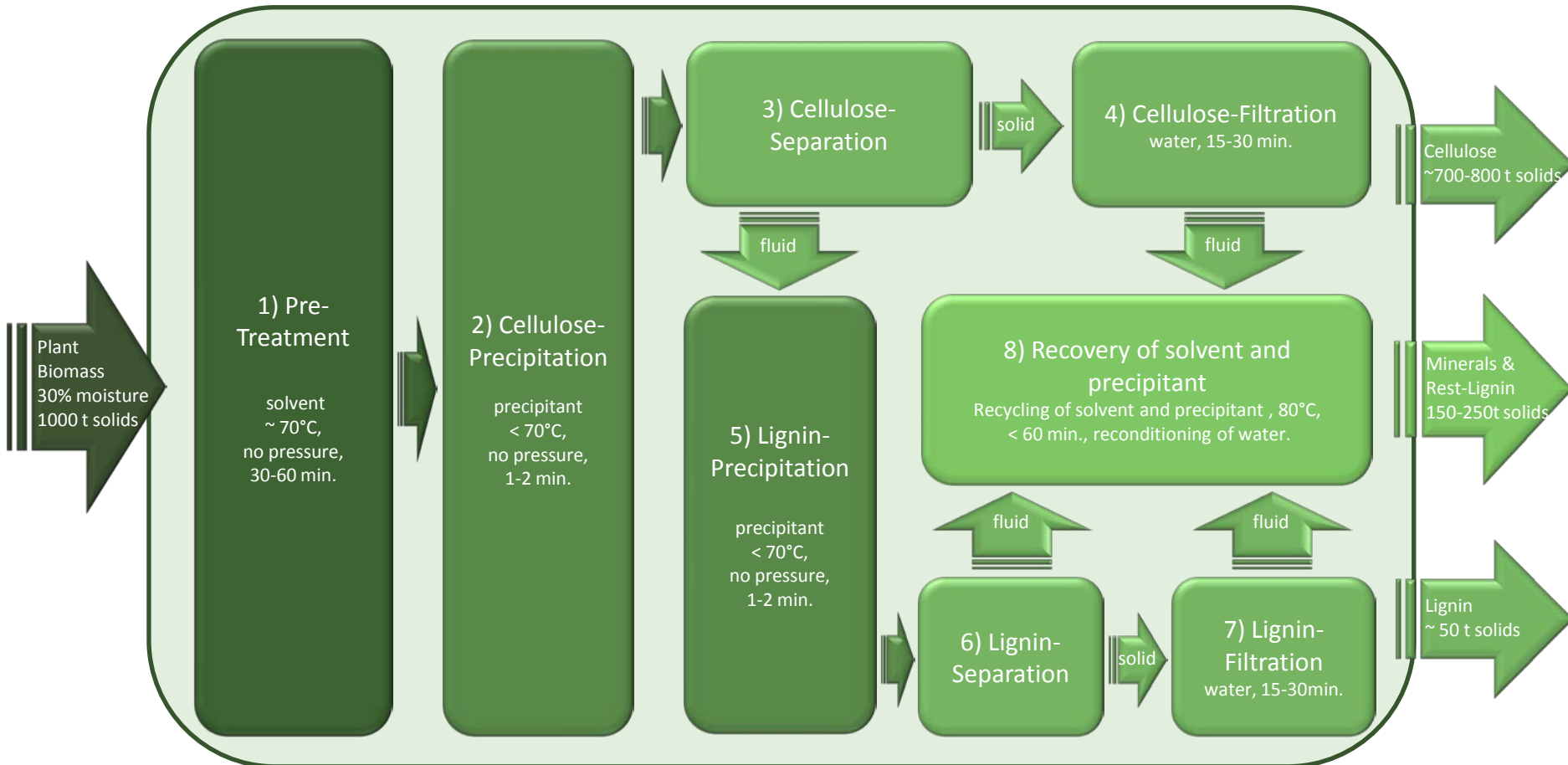
LX-Process Scheme



LX-Process Scheme



LX-Process Scheme



Ecological Advantages

No toxic substances

Usage of plant residues

Low temperature (below 100°C)

Low energy and water consumption

Additional agriculture is necessarily not needed

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Economical Advantages

Lower substrate costs

High substrate flexibility

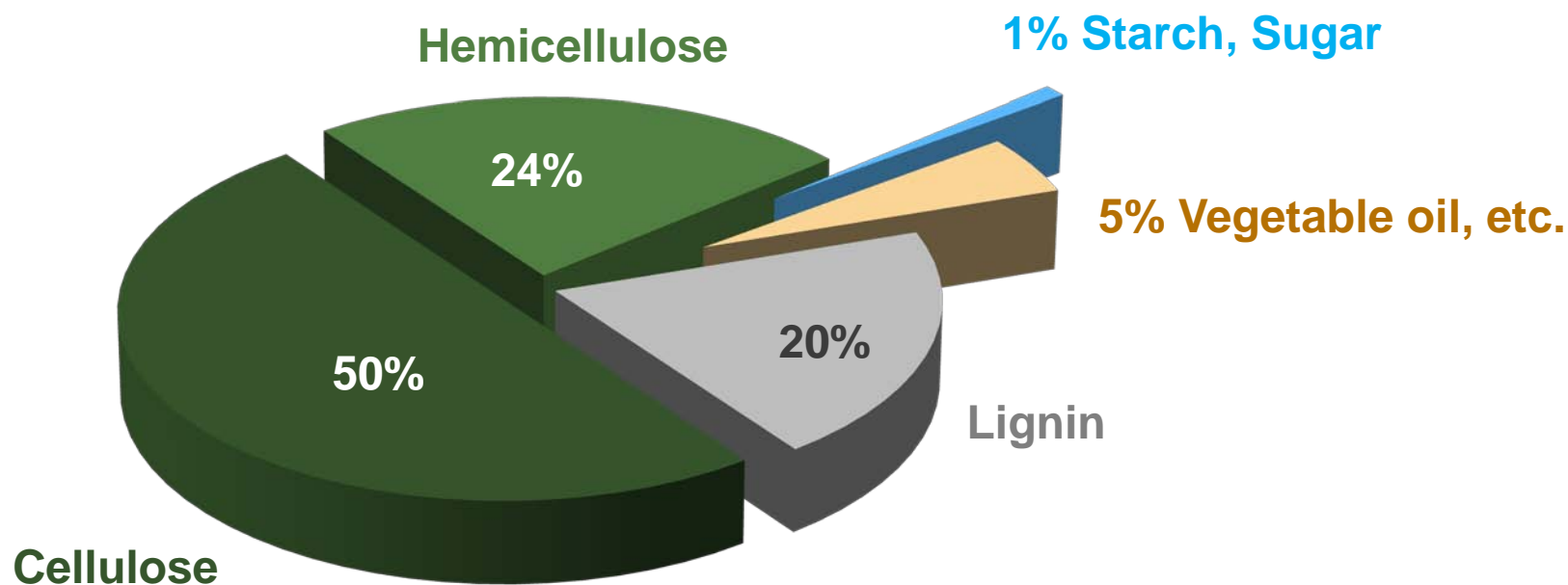
Low energy and water costs

Supports Combined Bio Processing (CBP)

Image benefits (no "Food or Fuel" discussions)

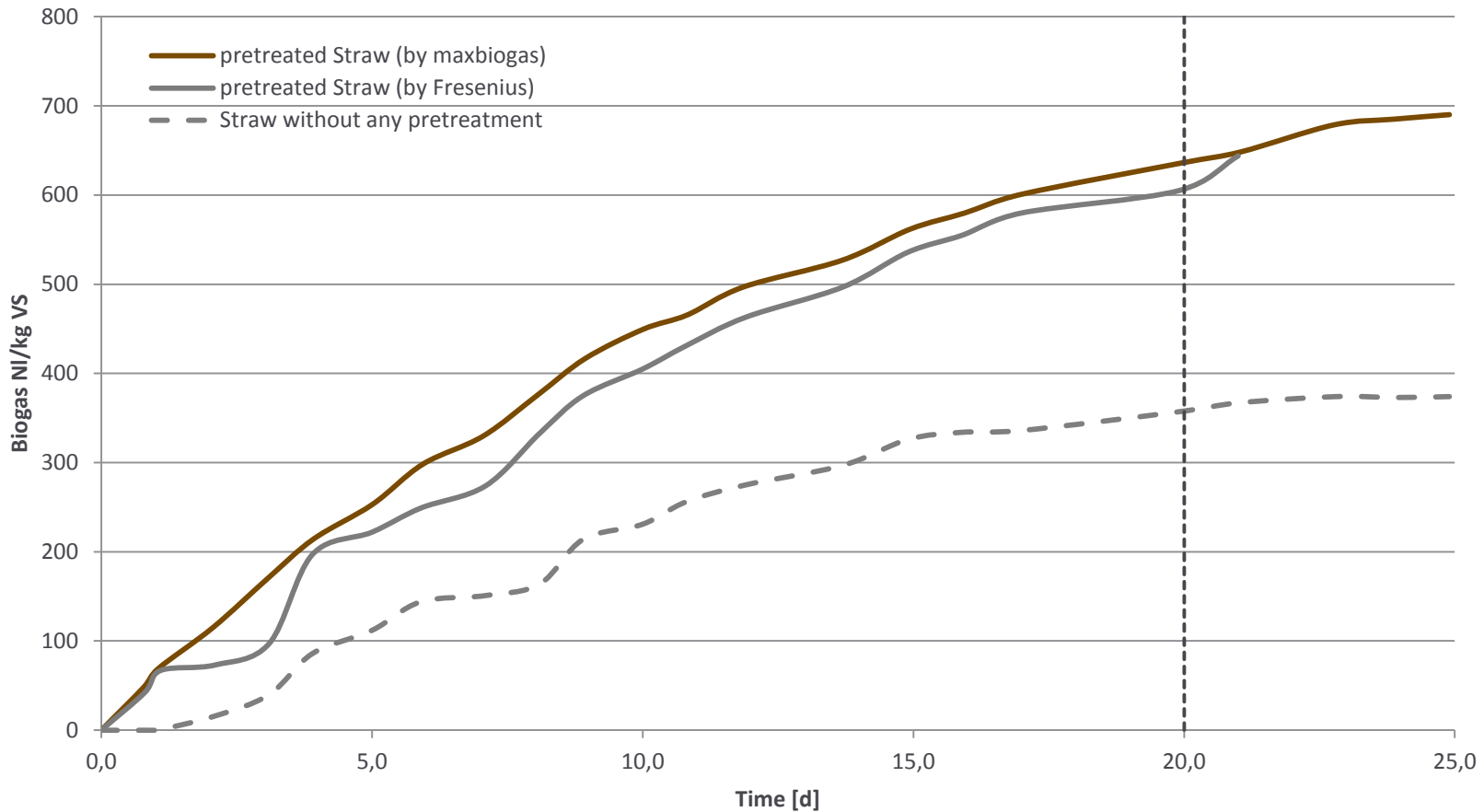
Competitive Pre-Treatments

Process-Output: LX-Cellulose & LX-Lignin



Efficiency of LX-Innovation with Straw

Comparison of Biogas Potential of Straw with and without an LX-Pretreatment

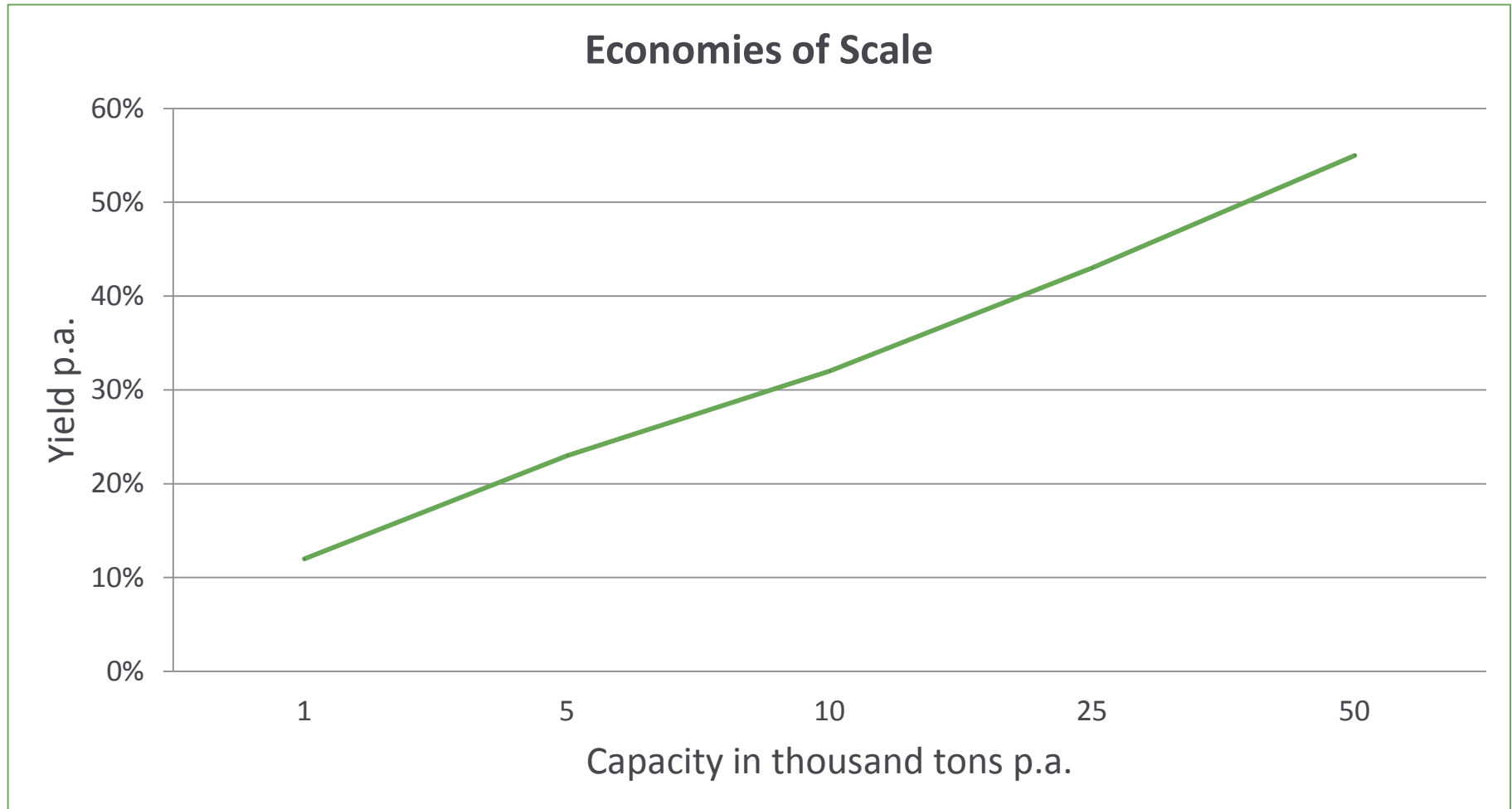


The total harvest of biomass world wide is 13 billion tons p.a. with a total revenue of US\$ 700 billion. Thereof approx. 10 billion tons p.a. in the field of agriculture, of which **6-7 billion tons p.a. are insufficient utilized plant residues.**

According to a McKinsey study, the biochemical industry will have a volume of more than **US\$ 1 trillion** by 2025.

The market potential in the biogas market in Europe with approx. 14,000 biogas plants and a market penetration of 20% could achieve approx. **€445 million** in revenues.

Its not about Feedstock, its about having an efficient Pretreatment Process



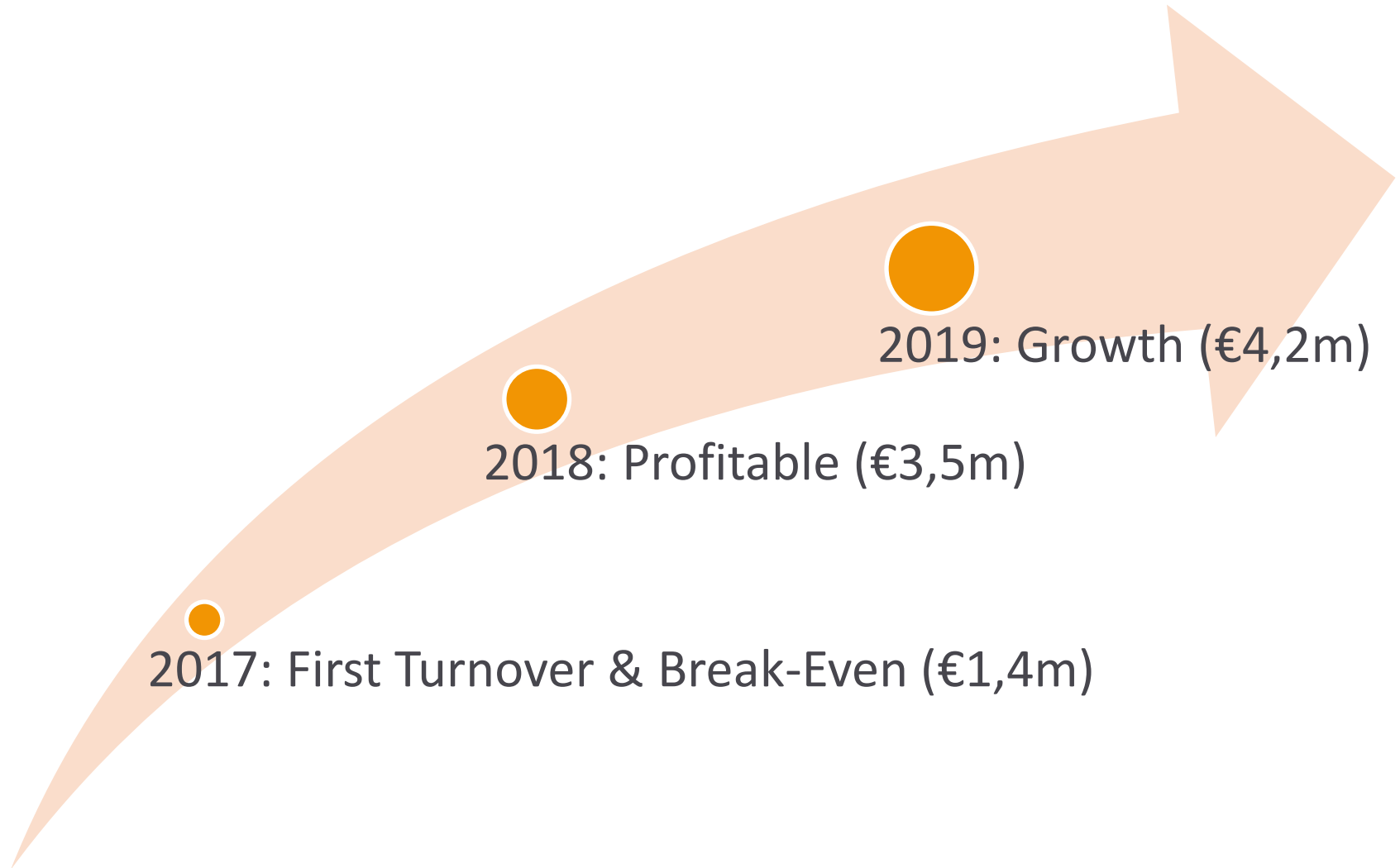
Selling, engineering, licensing of LX-plants for biorefinery and biogas plant operator in Germany and the rest of the EU.

Together with plant manufactures we offer complete solutions with our LX-Pre-Treatment-Process for the commercial usage of plant residues for biorefineries.

Market entry in Asia and the Americas through Masterlicences.

Revenue per 1.000 t ODM: € 150.000 plus a service fee of € 5.000 p.a.

Our Business Growth



Roughly €2.36 million raised and spend so far for R&D, a Lab Scale Plant, Business Development, Pre Sales & Marketing as well as:

- ✓ 26 patents and 4 applications in 4 patent families,
- ✓ LX-Pilot Plant which has been put successfully into operation in 2013,
- ✓ Proof of Concept, Basic Engineering and Scale-Up Engineering,

Next Steps:

- Fundraising by the end of 2015,
- Construction and operation of the 1st full size LX-Plant in 2016,
- Biogas Market Entry, Sales & Marketing Activities starting in Summer 2016, and Business and Project Development for Bio Refineries (Bio Chemical Market) in 2017.

What we are looking for

We are looking for an Industrial Partner with Smart Money to fund half of a **Series A Financing** in the total amount of **€4 million** by the end of 2015.

The current shareholders will take up to the other half of this round.

The funds will be used as follows:

- **€ 2 million** for the construction of the 1st commercial and full size LX-Plant as well as a Lignin-Module as a Demonstration Plant, whereas the scale-up risk is fractional due to low heat (below 100°C), no pressure, and simple equipment / process.
- **€2 million** for 24 months for payroll, R&D and general overhead.

All shareholders, incl. the founders, are looking for an **exit in 4 to 7 years.**

Jaska H. Harm, CFO

Business Development

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