

# Outotec

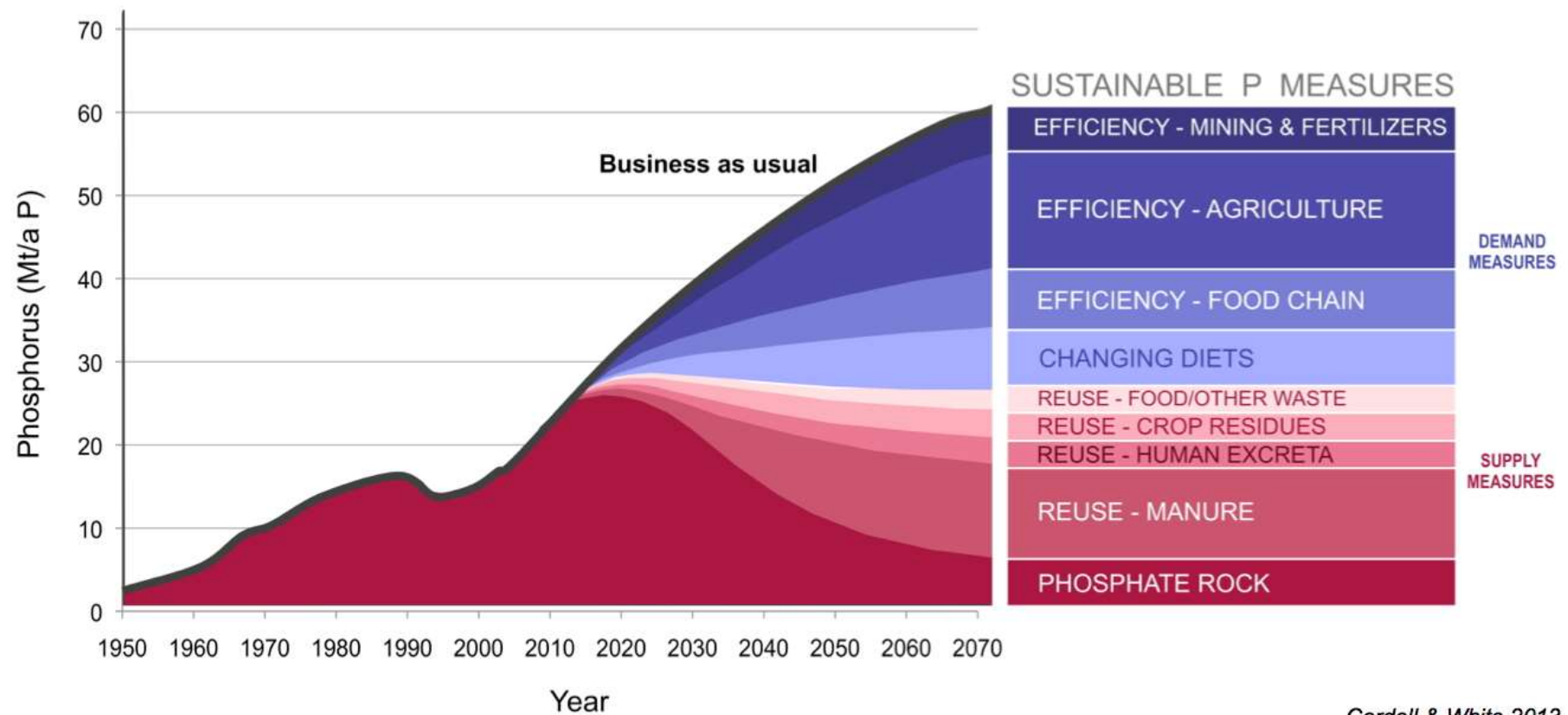
Recycling of nutrients from phosphate rich waste with a sustainable solution at the cost of landfill or spreading on farmland.

Erik Pott, 2019

# Agenda

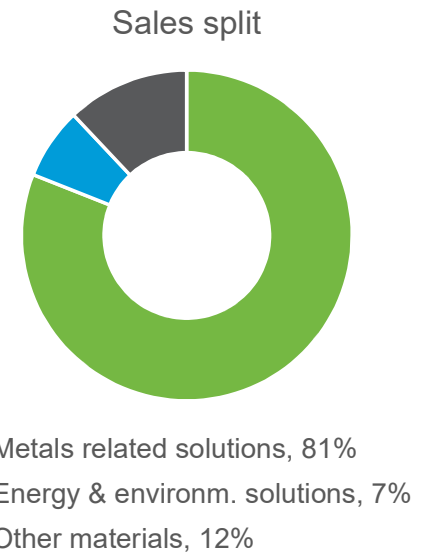
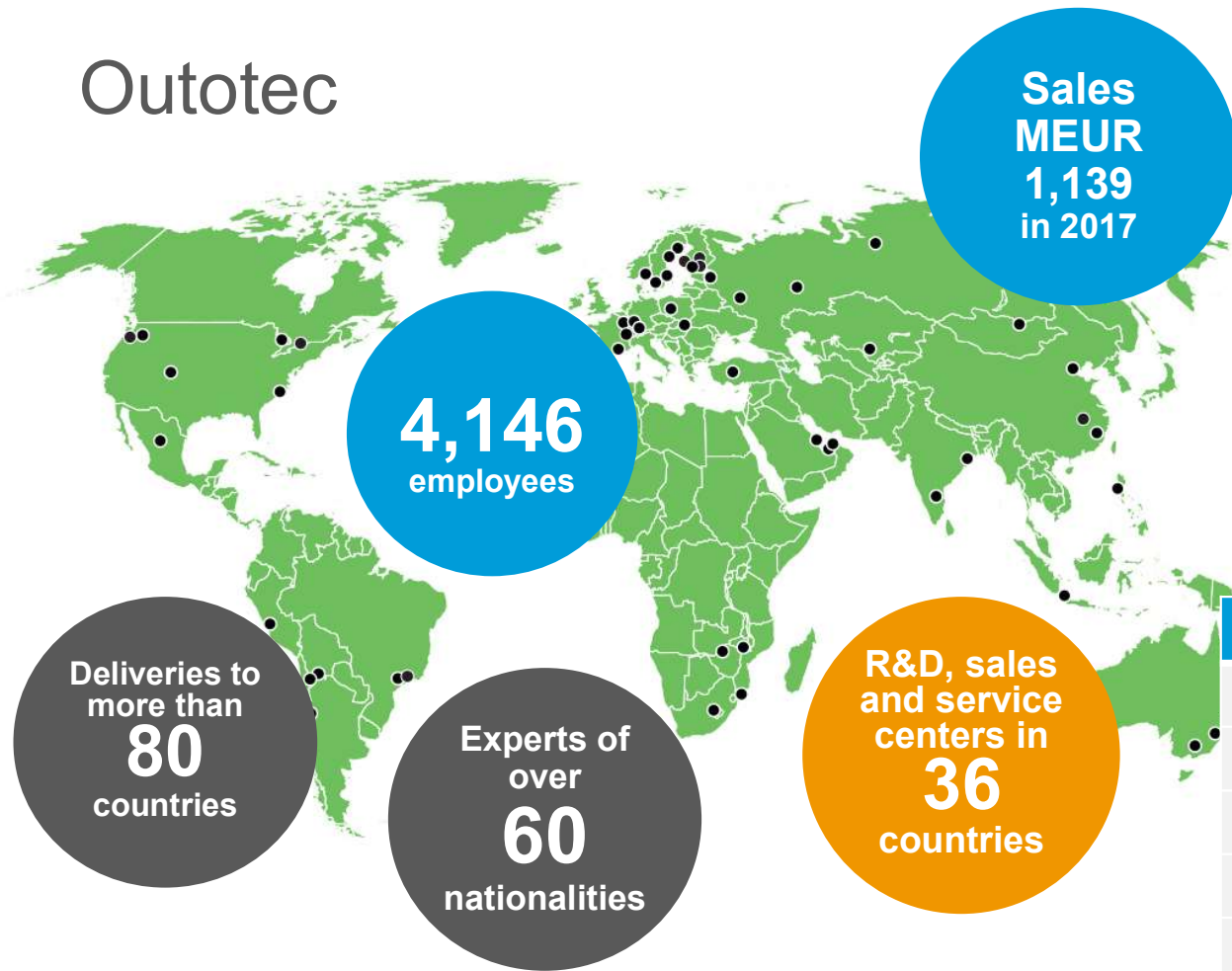
1. Why recycle
2. Outotec
3. Technology
4. TRL (Technology Readiness Level)
5. Next step

# Why recycle nutrients?



Cordell & White 2013

# Outotec



## Comprehensive service portfolio

Advisory Services

Maintenance Services

Operations Services

Remote Services

Spare and Wear Parts

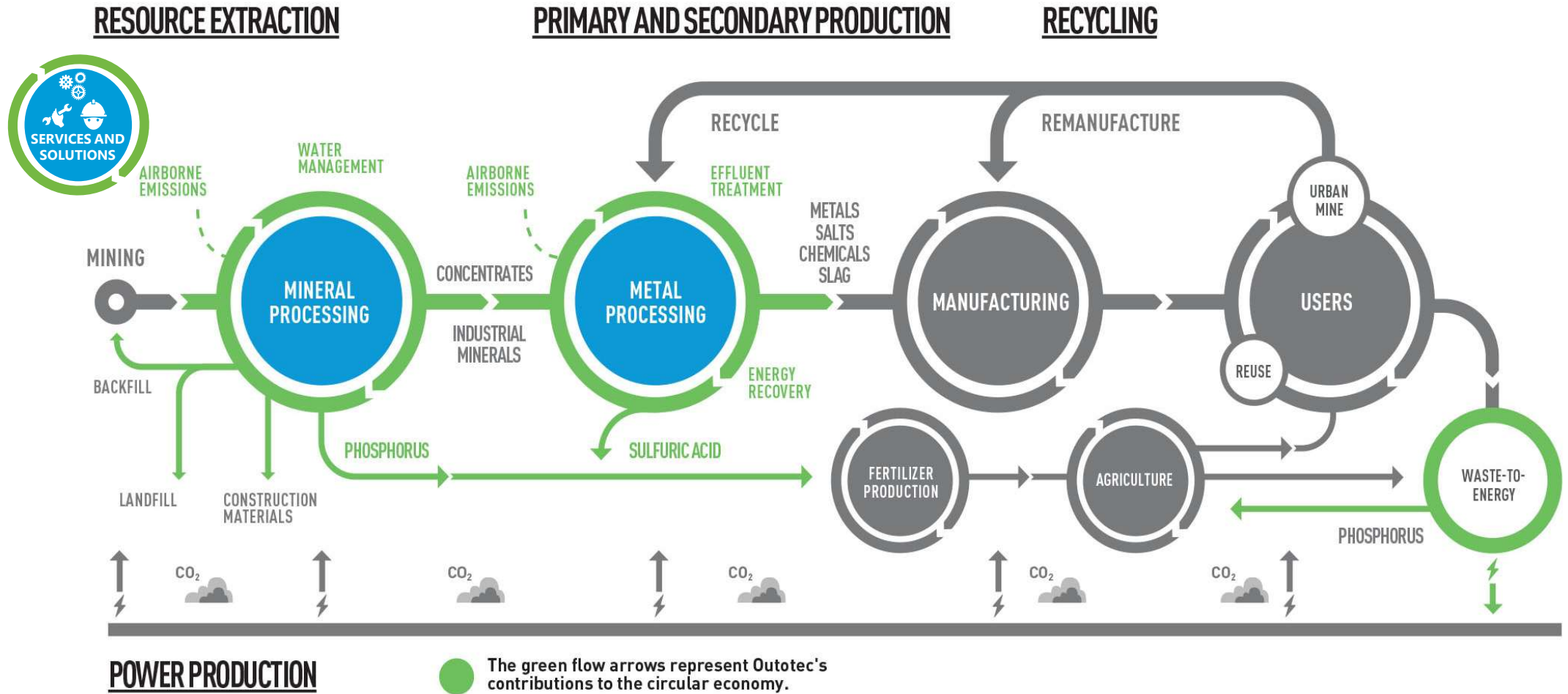
Training Services

Upgrades

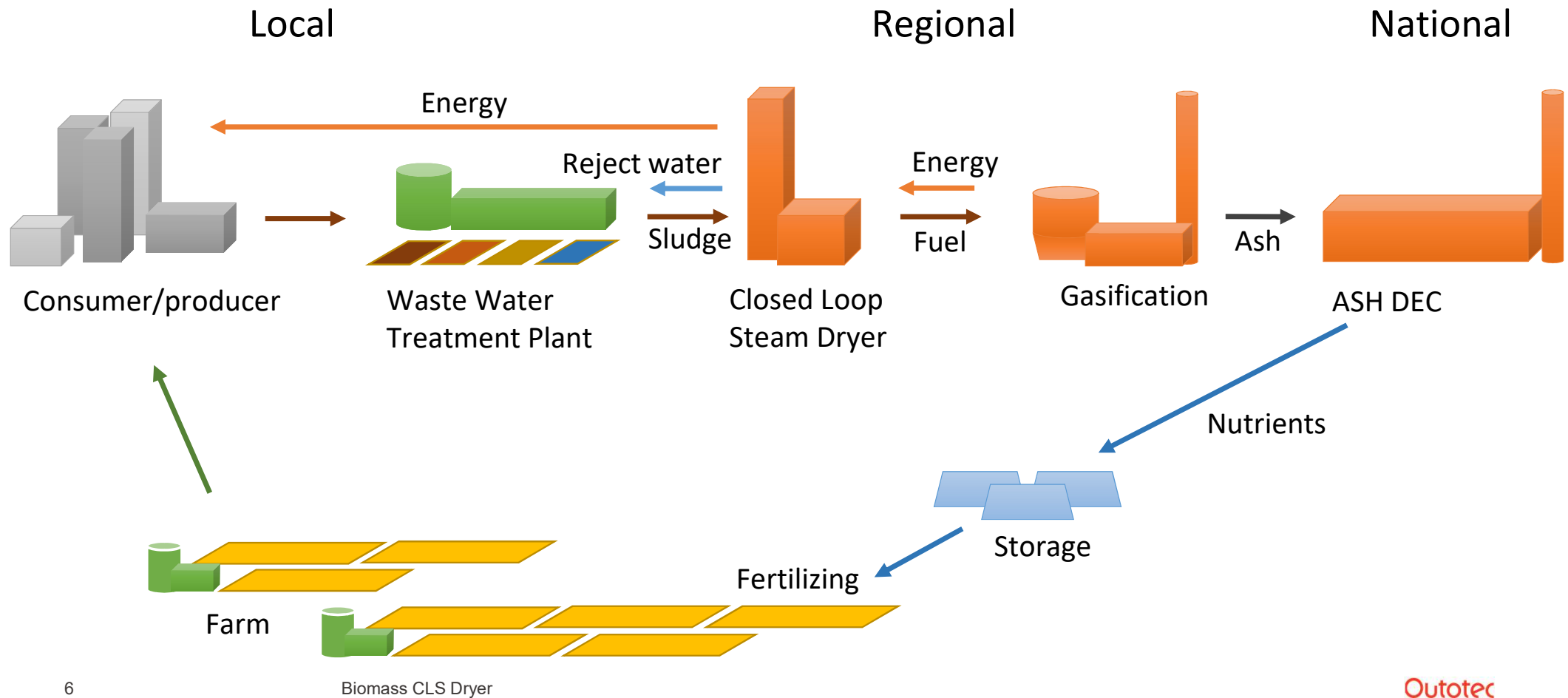


Sustainable use of Earth's natural resources

# Not only mines and smelters

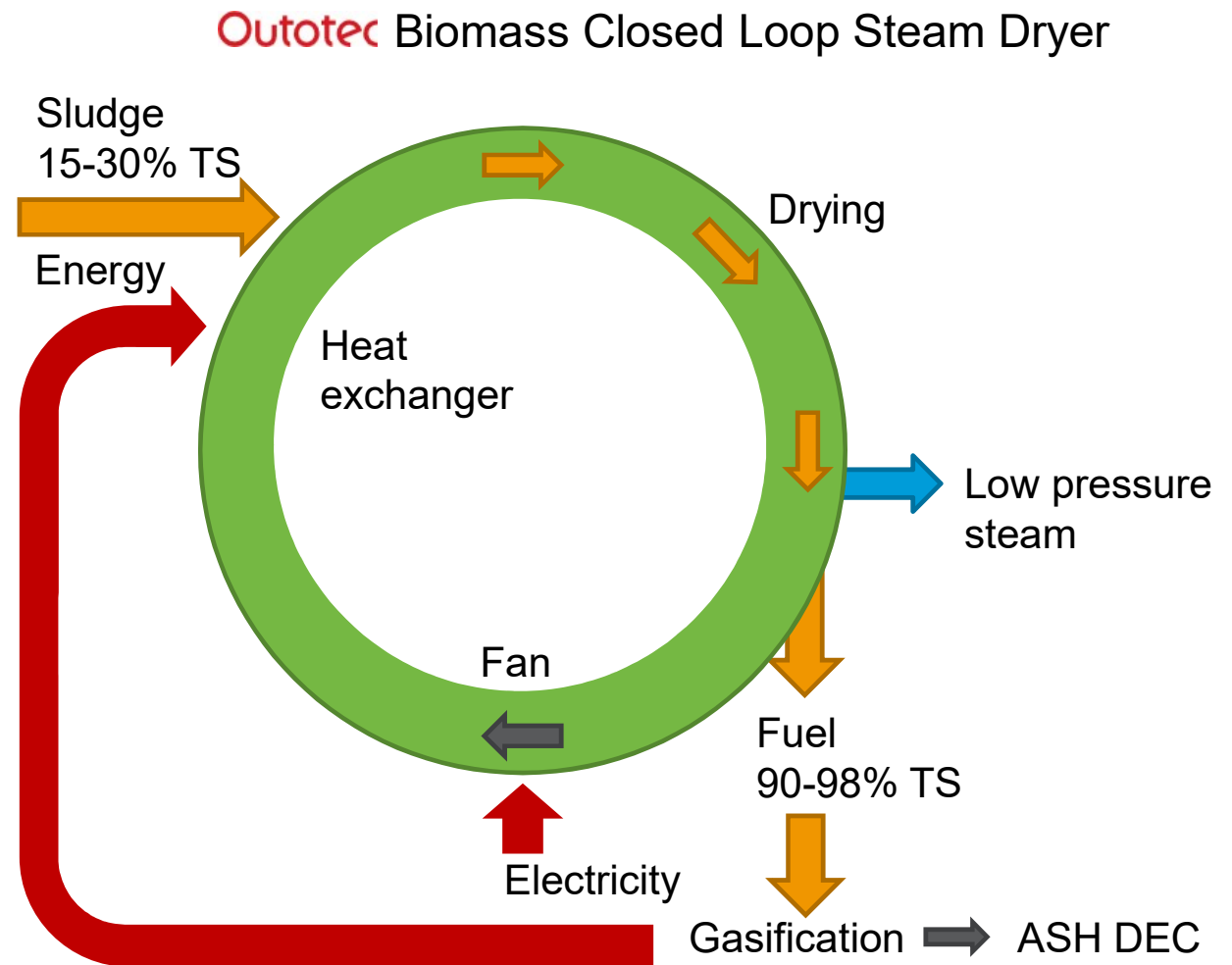


# Shared capacity on a regional and national scale



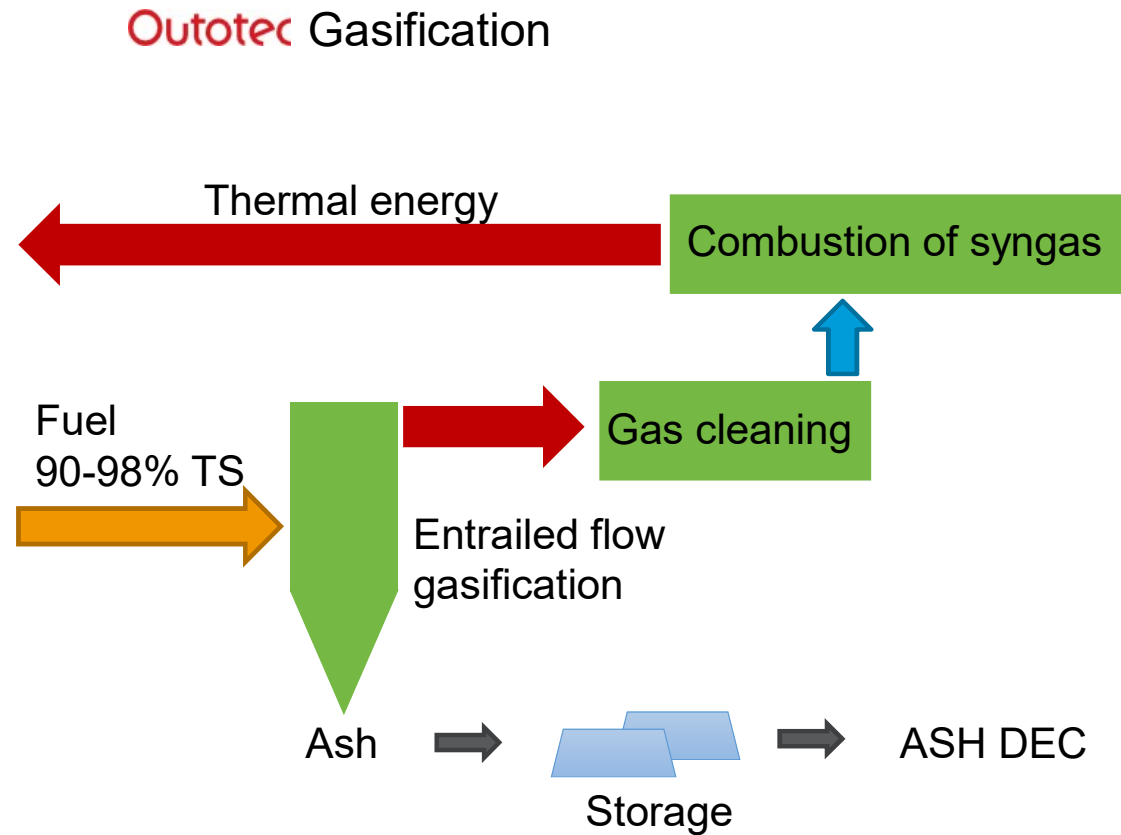
## How does it work

- ✓ Superheated steam
- ✓ Closed loop
- ✓ Energy recovery and energy efficiency



## How does it work

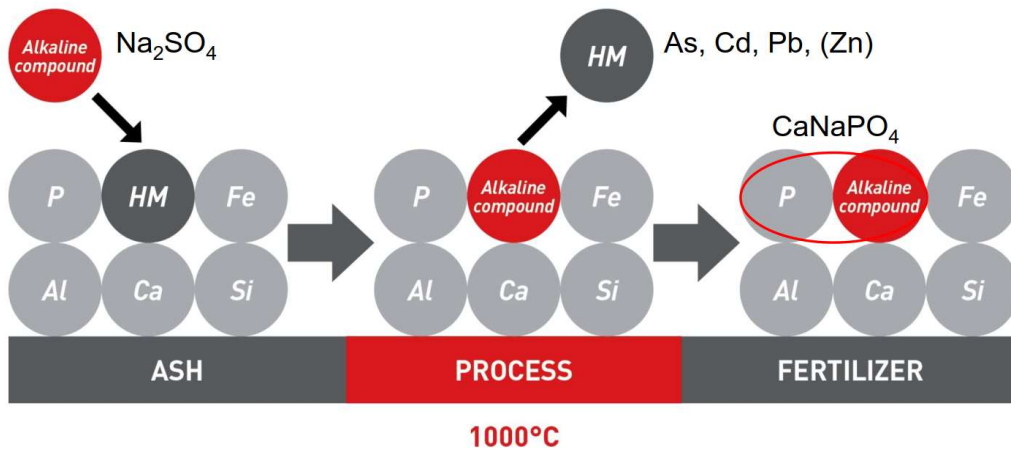
- ✓ Produce thermal energy and/or electricity
- ✓ Low emissions
- ✓ Energy recovery to dryer



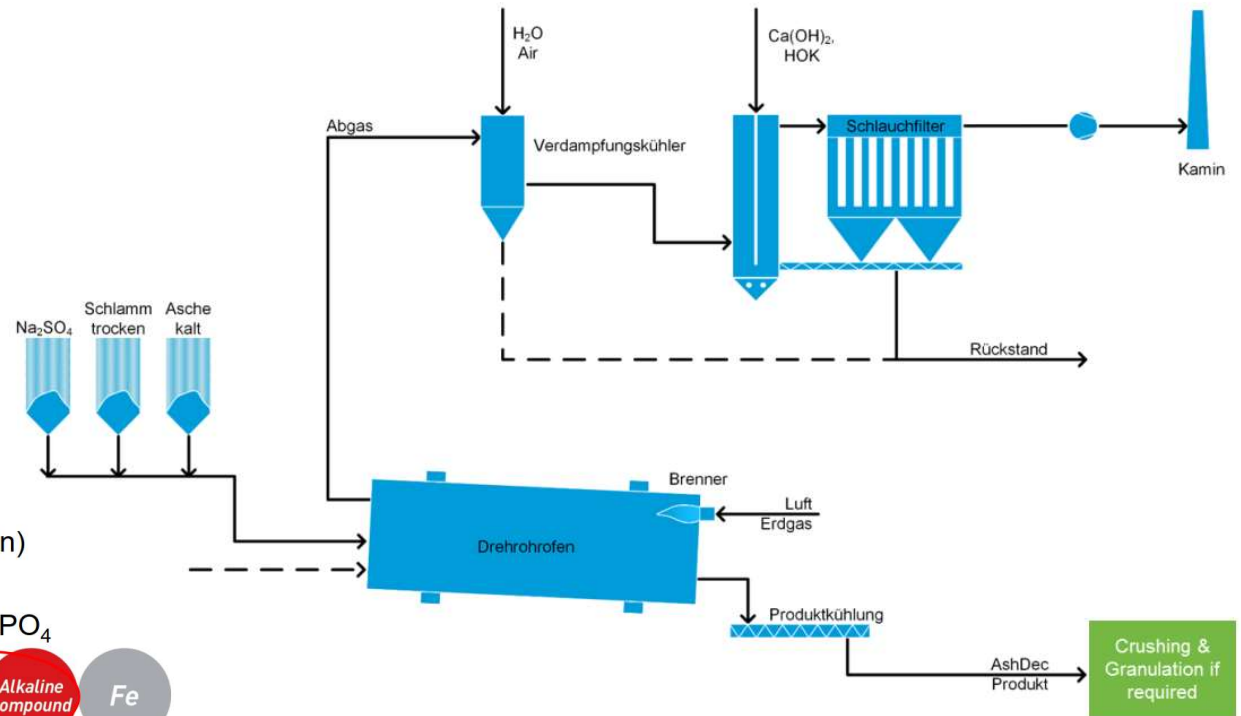


# How does it work

- ✓ Alkaline compound remove heavy metals
- ✓ Plant available P-fertilizer



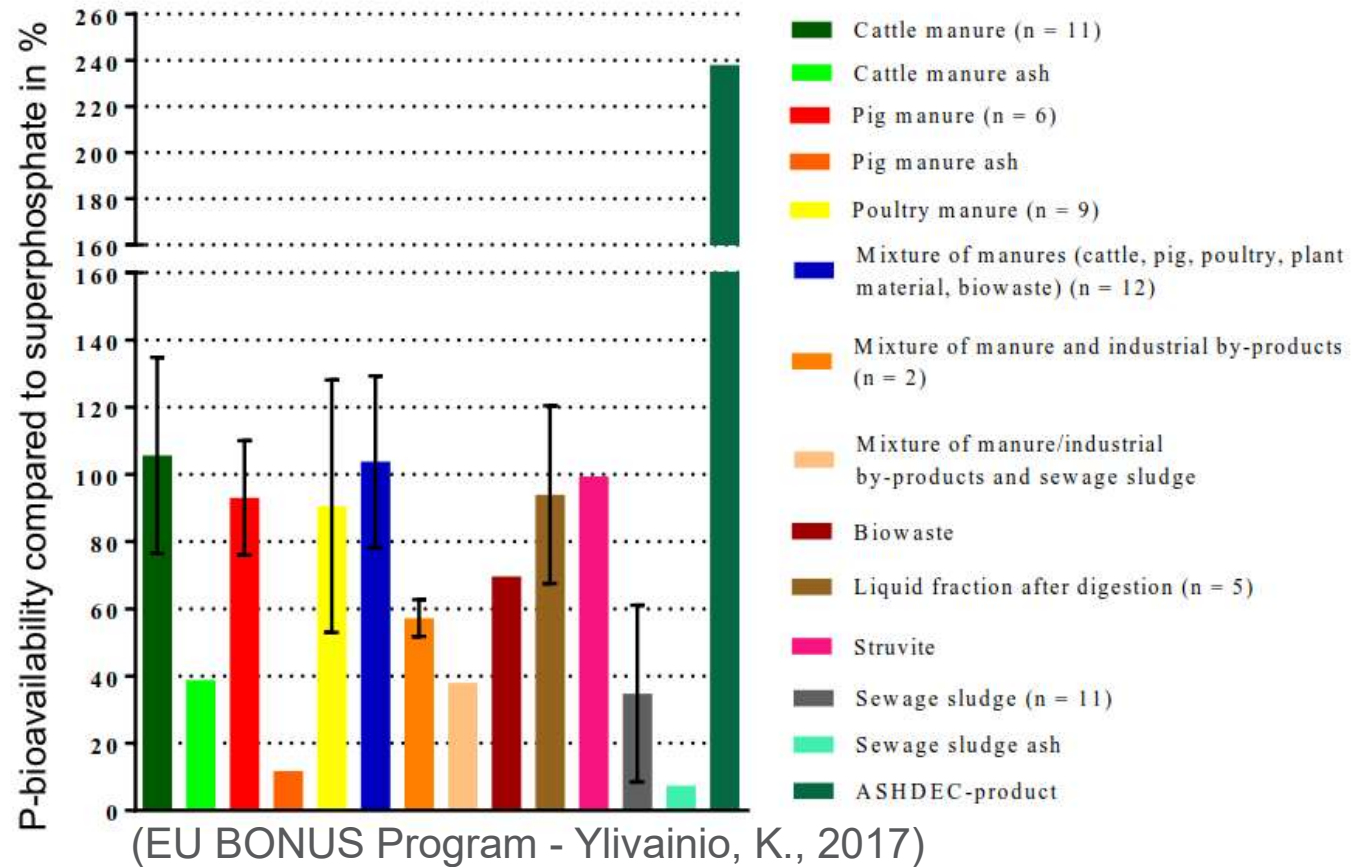
## Outotec ASH DEC



## Plant available

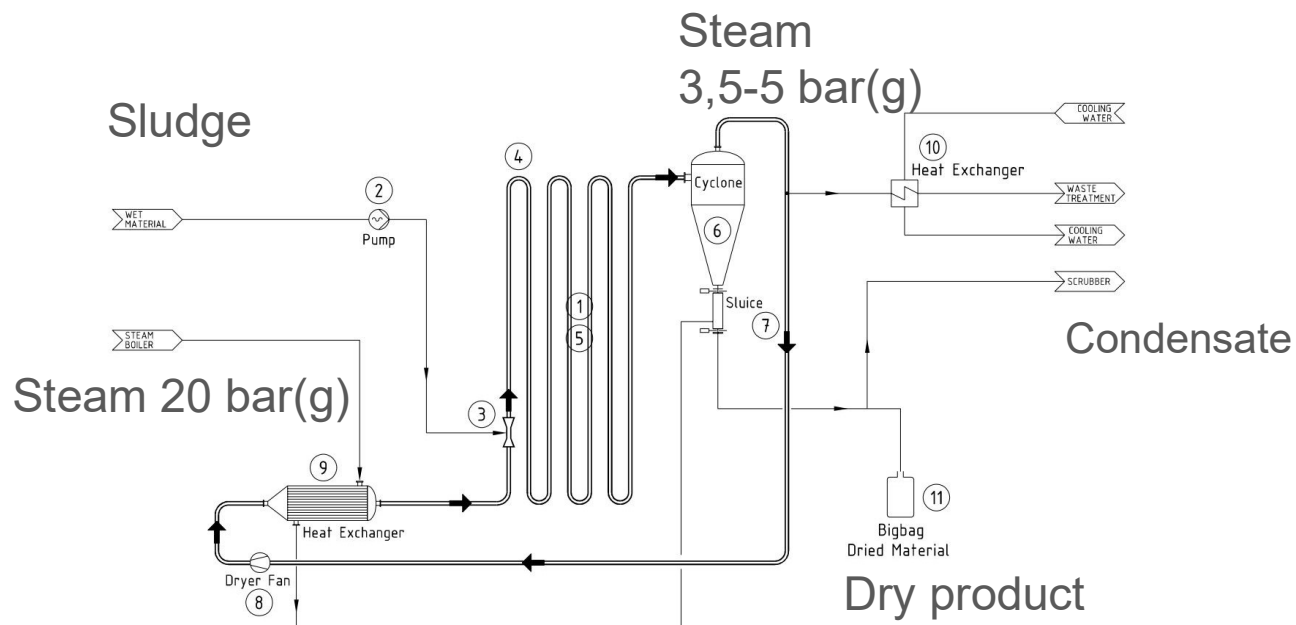
- ✓ Put phosphorous back into circulation
- ✓ Very high plant availability

### Outotec ASH DEC



# Pilotplant in Skellefteå

- Capacity 500 kg/h (Sludge TS 25%)
- Developing process solution and technology since 2015



Archive photo, not showing actual amount of snow.

Outotec

# Looking for regional cooperation, investors and entrepreneurs



Outotec



Sustainable use of  
Earth's natural resources