



Welcome to the Session: Sustainability achieved with innovative, disruptive start-ups

SustainableSolutionsMatch – 11/02/2025



SustainableSolutionsMatch



Innovative & Disruptive Start-ups

Pitching Session: Organised by EEN & Euroquity Belgium

Laurent Lognay

Nivedita Mahida-Königsdörfer

Laura Gaspard

An Meers



Some Hints

Let's play by the rules: smooth sailing for our session!

- **Mute Policy:** Please remain muted unless speaking to avoid background noise.
- **Q&A Time:** After each 6-minute pitch, there will be 2 minutes for questions. Please use the chat to ask questions.
- **Time management:** Pitchers, please keep track of your time. We will inform you if 6 minutes have passed.
- **Technical Issues:** If you encounter issues, use the chat to notify the host.



Agenda

- **Welcome & Introduction**
- **Pitch Presentations: 6 min.+ 2min Q&A:**
 - Pitch 1: Samuel, Ark Capture Solutions, (Belgium)
 - Pitch 2: Romy, Reverion, (Germany)
 - Pitch 3: Michel, Mitis , (Belgium)
 - Pitch 4: Anna, JustAirtech, (Germany)
 - Pitch 5: George, HydroVolta, (Belgium)
 - Pitch 6: Richard, Energyminer, (Germany)
- **Closing**



Intro to EEN Bavaria EEN Wallonie & EuroQuity Belgium

- EEN Bavaria supports innovative start-ups in EIC & other EU-Funding Applications.
- EuroQuity is an international matchmaking platform for innovative start-and scale-ups looking for funding to connect with venture capital investors and advisors to secure their growth
- Wallonie Entreprendre, member of EEN Wallonia, is the economic and financial tool that provides support for businesses in Wallonia



Pitch Presentations

Two spotlights at the top of the slide cast beams of light onto a globe at the bottom. The beams converge on a blue oval containing text. The globe is partially covered by puzzle pieces.

**Time to meet
the INNOVATORS!**



UNLOCKING POINT SOURCE CARBON CAPTURE
TO DECARBONIZE YOUR FUTURE



We identified a huge non addressed market and a unique technology



Co-founder & CEO
Samuel Thiry



Vice-President | Hydrogen
COO



- Strategy
- Operation Manager
- Process Engineer



Engineer | Energy

Agility

Impact



Co-founder & CTO
Aurélien Vantomme



- Global CO₂ Emissions Man.
- Head of Computation
- R&D Manager
40 patents, 50 publications, 2000 citations



Business Skills

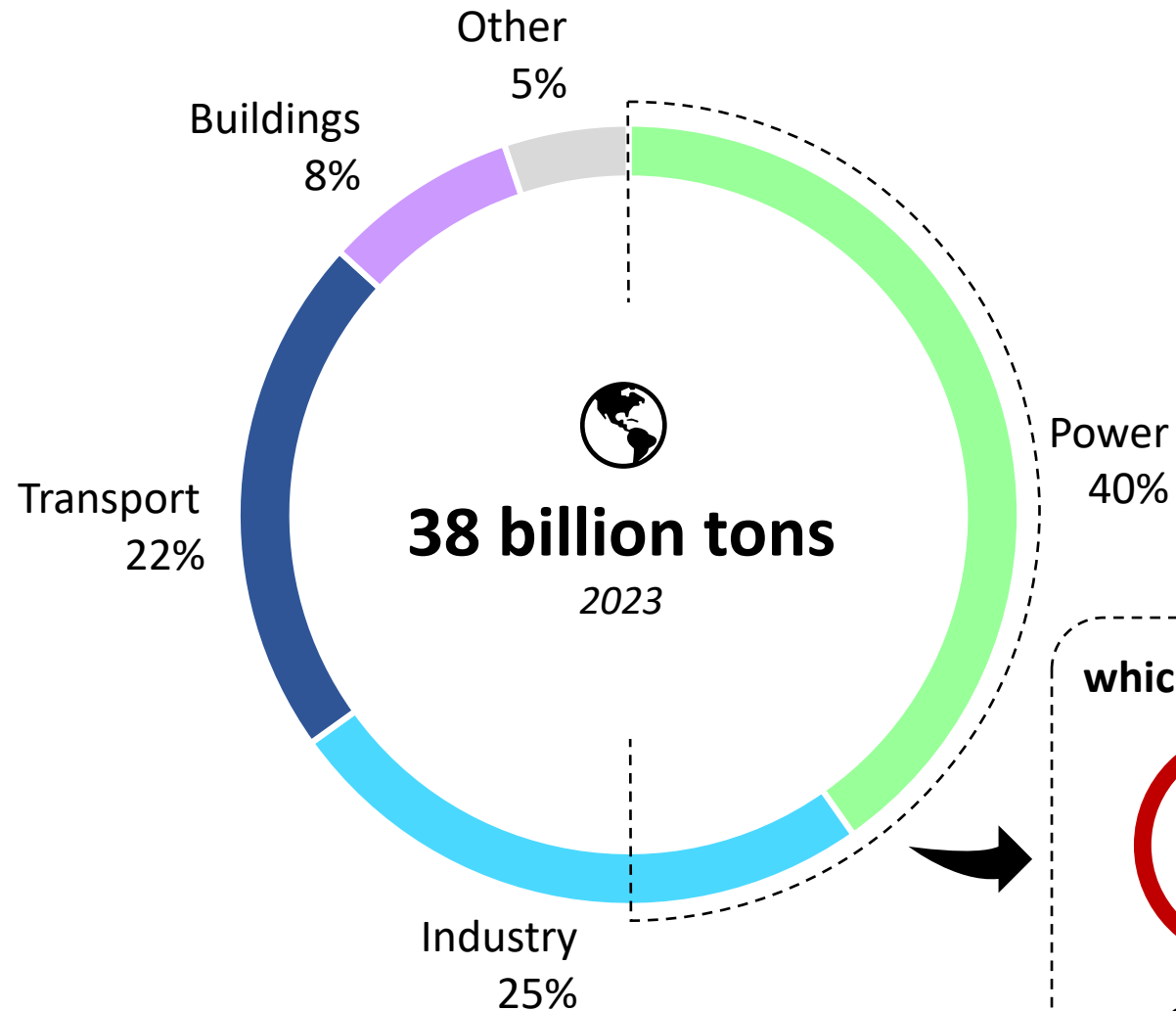


PhD | Chemistry

Scale-up

Team builder

World CO₂ emissions



SOURCE : INTERNATIONAL ENERGY AGENCY

The Problem :

No viable Carbon Capture solution for low CO₂ concentration at point source emissions

NON ADDRESSED MARKET :

Low CO₂ concentration emissions : 4-15%

- (bio) Gas-fired plants
- Petrochemicals
- Glass production
- Steel production (part)

which represents

50%

of world emissions

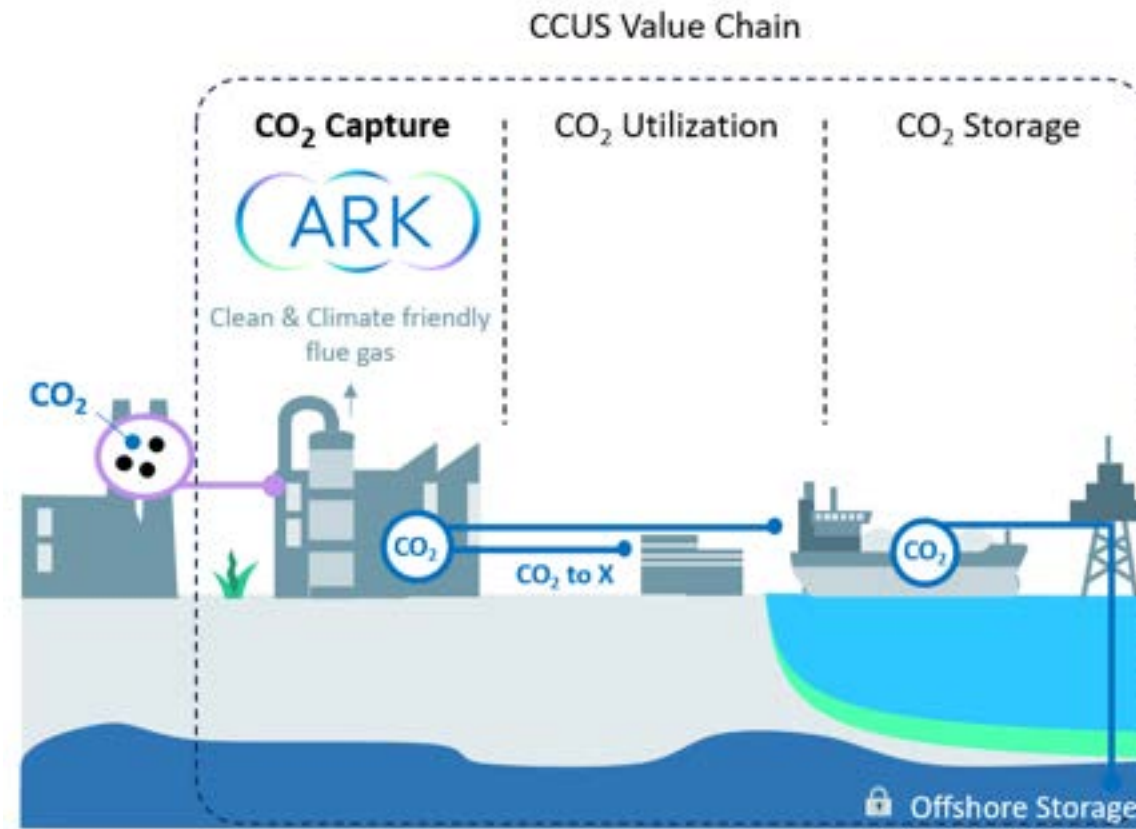


The Solution :

Our unique
Hybrid Technology



The ONLY technology allowing low capture cost at low concentrations



Solution

4

Low
capture
cost

De-risked
technology

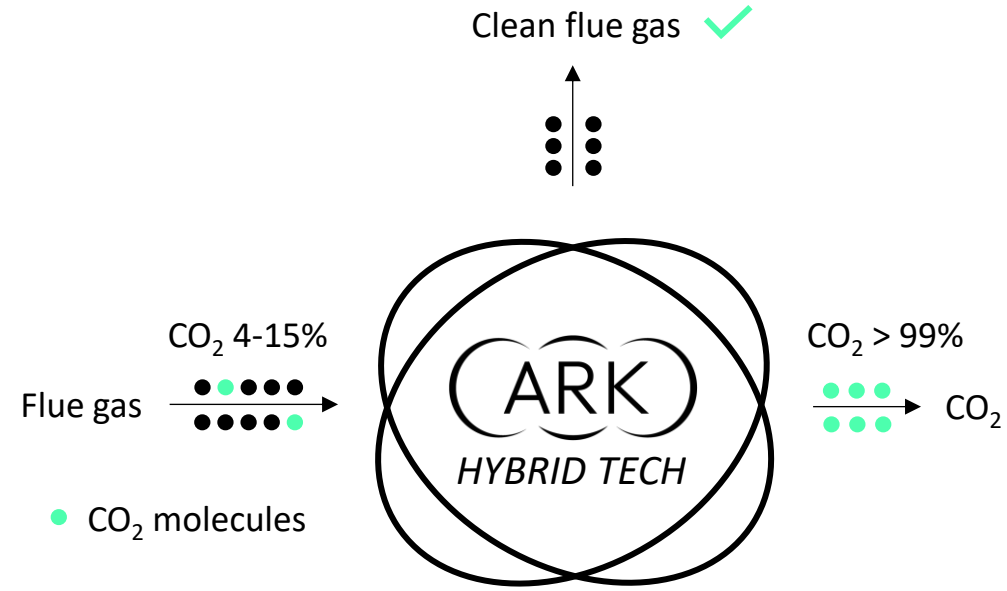
Versatile
solution



A Unique Hybrid Technology



Technology
5



Record Low Energy
Consumption



Modular design



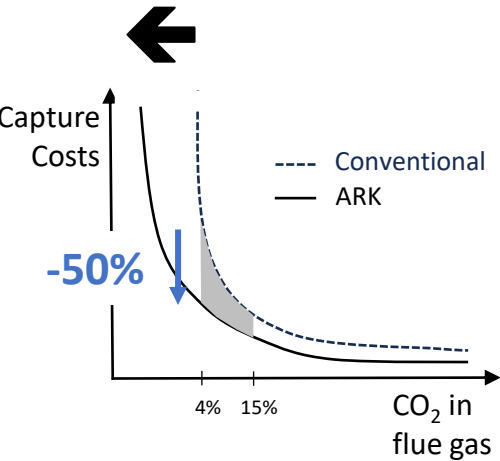
Small footprint



Autonomous | No chemistry



We shifted the curve left !



meeting viability at low CO₂ concentrations



CONVENTIONAL



ARK CAPTURE SOLUTIONS

CO ₂ concentration [%]	3.5 - 27	4 - 15	
CAPEX [m€]	550	340	-40%
Energy cons. [kWh/ton]	> 1000 _{heat/elec}	400 _{elec}	-60%
Capture cost [€/ton]	180	80	-50%
HSE-related	Toxicity, Seveso	-	++
Operation [ETP]	16 chemical plant	4 auxiliary unit	+++

for a 1 Mt/y capacity, 5-10% CO₂ inlet



REPLACE
&
UNLOCK



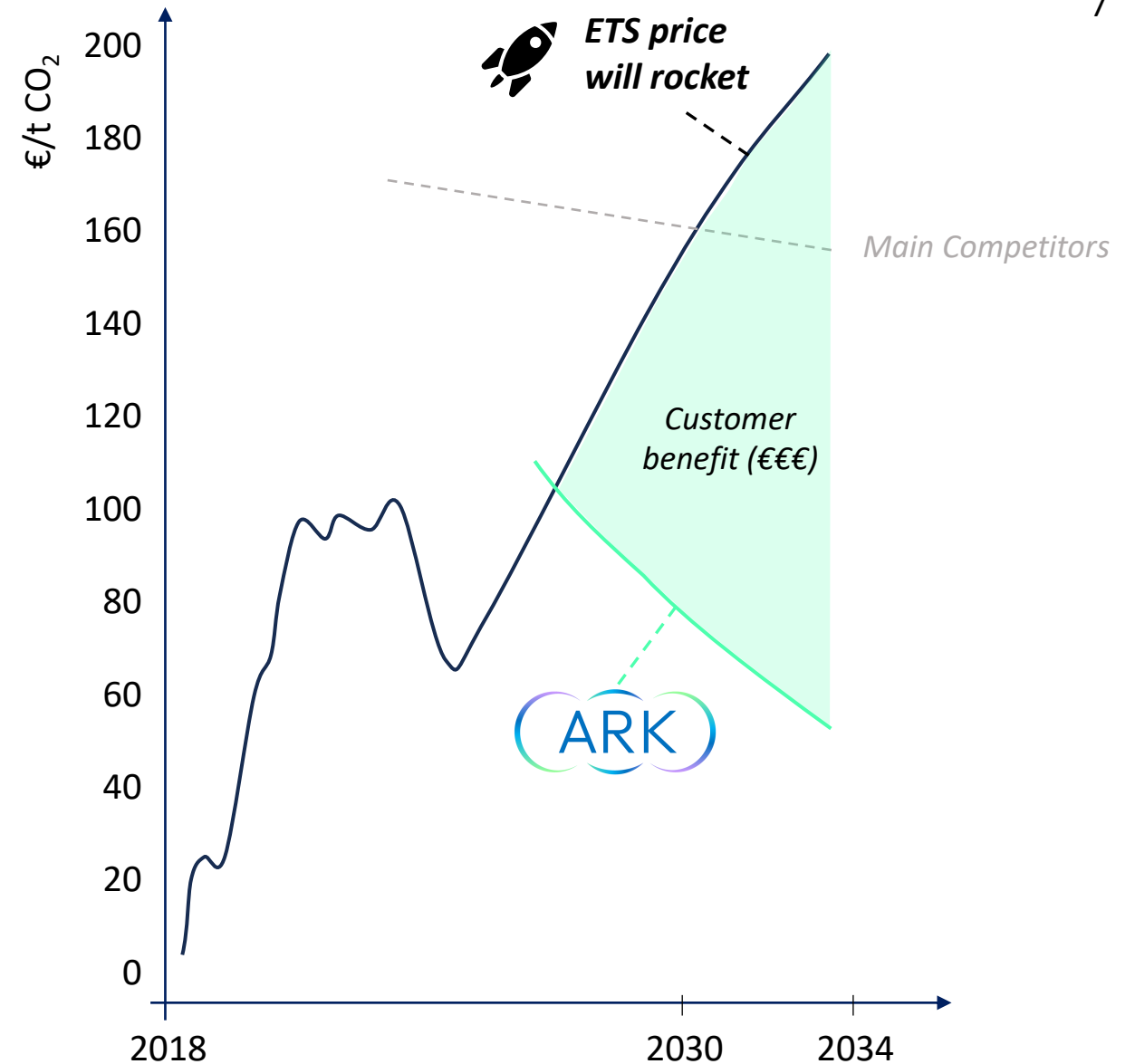
New ETS system (EU) and carbon tax (US) are GAME CHANGERS !

2024

EU new ETS system and carbon tax

- Free allocations reduced to ZERO by 2034
- Carbon Border Adjustment Mechanism (CBAM)

➡ *the ETS price will rocket*

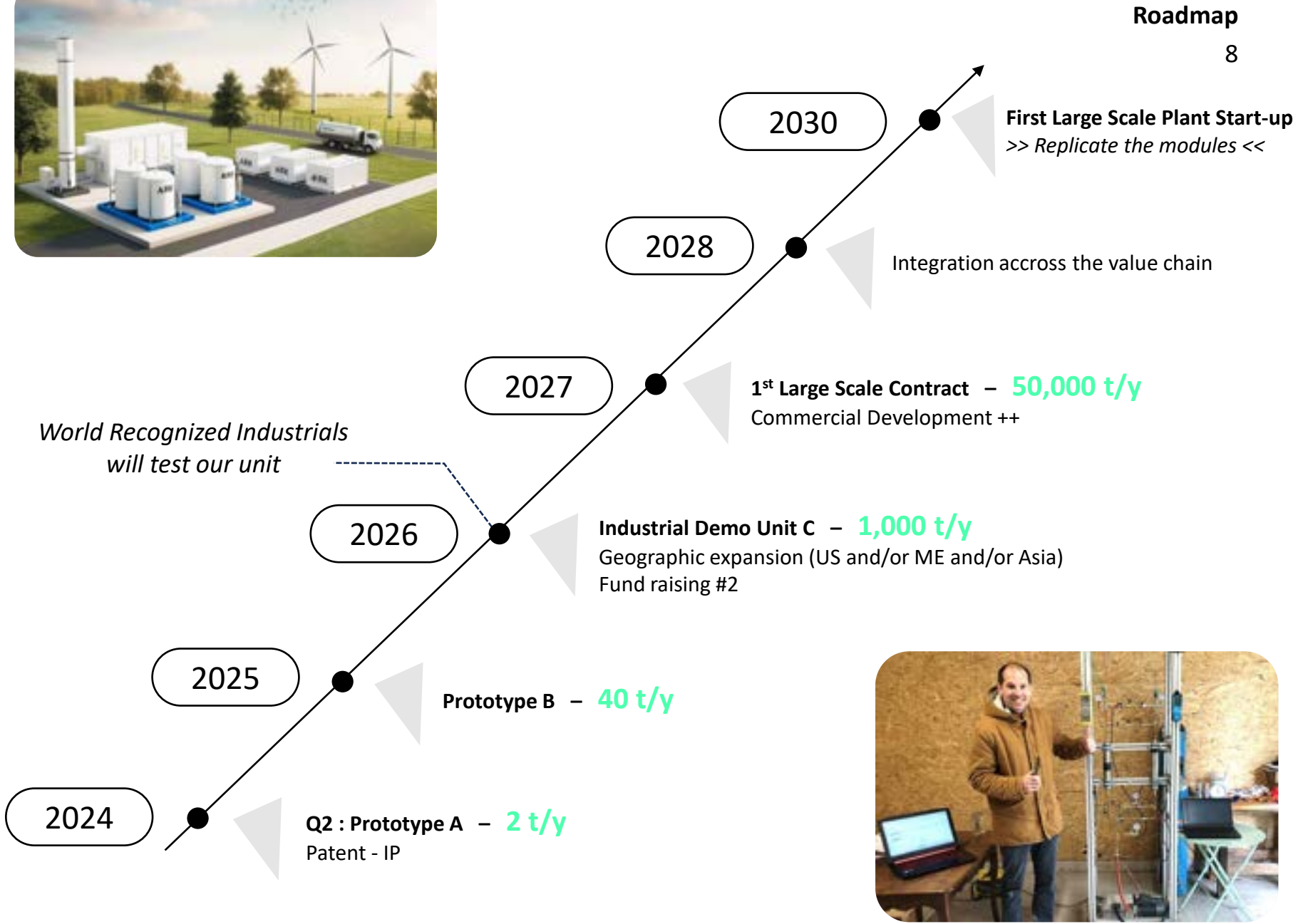




A fast development
focused on

Costs & Autonomy

Letters Of intent :





Leveraging the best professionals

Team
9

Co-founder & CEO



Samuel
Thiry



Co-founder & R&D Director



Aurélien
Vantomme, PhD



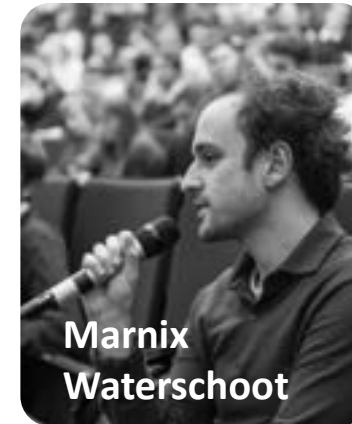
CTO



François
Harvengt



Development Eng.



Marnix
Waterschoot



Founders' Associate

Sr Development Eng.



You ?

- Partners
- UMONS
 - KU Leuven
- Mentors
- CEO - Global leader in Chemicals
 - Former Executive VP - Global leading Energy company

QUESTIONS ?



Contacts :
samuel.thiry@arkcapturesolutions.com

Website :
www.arkcapturesolutions.com

Linkedin :





Romy Heller

Climate Positive Power

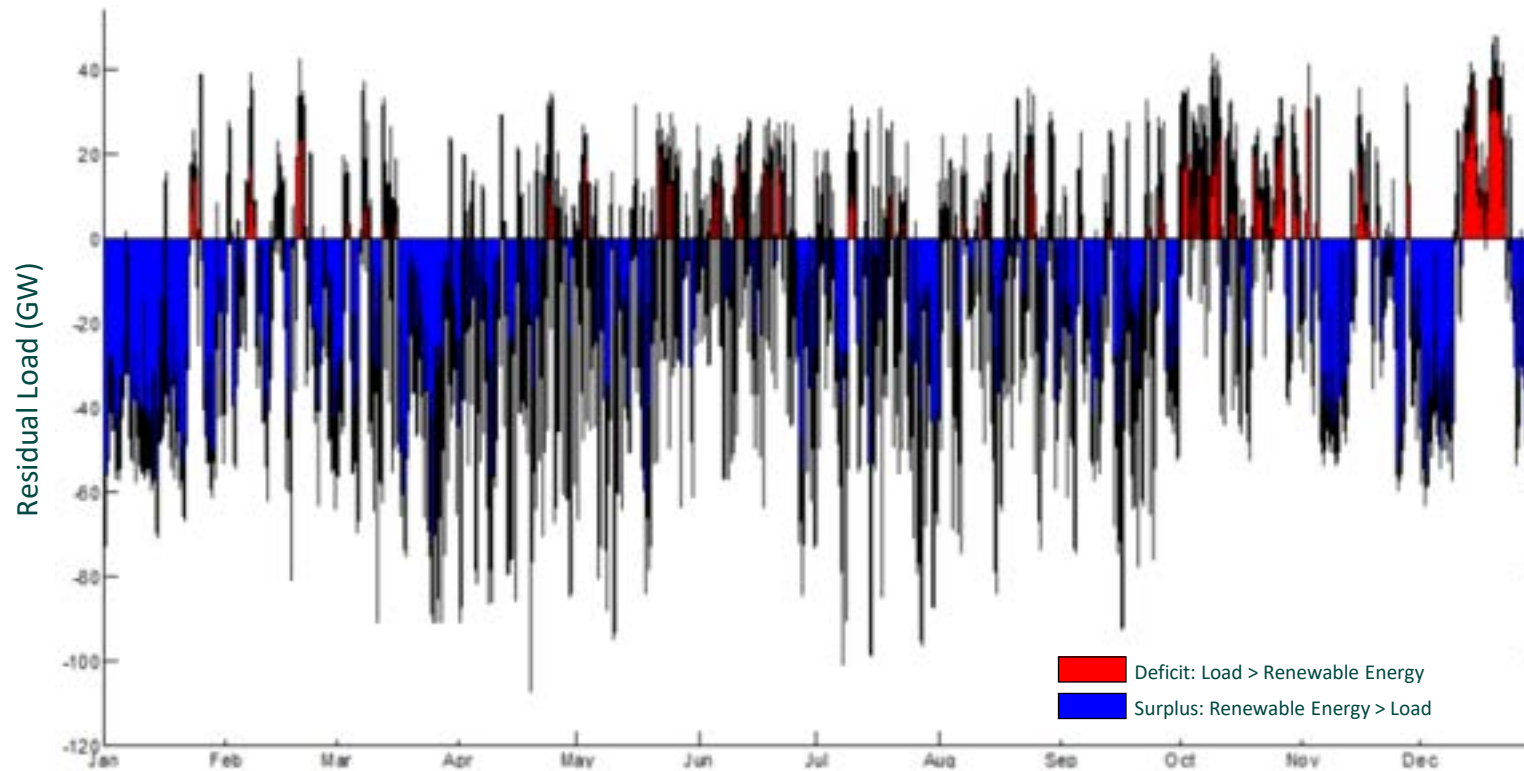
SustainableSolutionsMatch
11 February, 2025



SCENARIO

100 % renewable power by 2050

THE CHALLENGE



43.5 TWh
deficits p.a.

187.7 TWh
surpluses p.a.



Source: Fraunhofer IEE, StEnSea – Storing Energy at Sea
IEE-calculation for UBA Energy goal 100% electricity from RE

THE GAMECHANGER

 Reverion



REVERION

THE GAMECHANGER



80% EFFICIENCY

Doubling the state-of-the-art efficiency from 40% to 80%



REVERSIBLE

Gas-to-Power & Power-to-Gas
Switching times < 1 minute



PLUG & PLAY

Containerized standard units
Simple installation and easily scalable



CO₂ NEGATIVE

Captures pure biogenic CO₂
Large-scale negative emissions

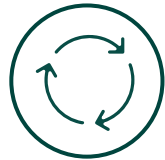


REVERION TECHNOLOGIES

BIOGAS



CO₂-NEGATIVE
POWER GENERATION

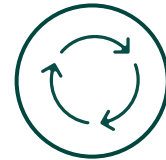


80% EFFICIENCY

HYDROGEN



LONG DURATION
ENERGY STORAGE



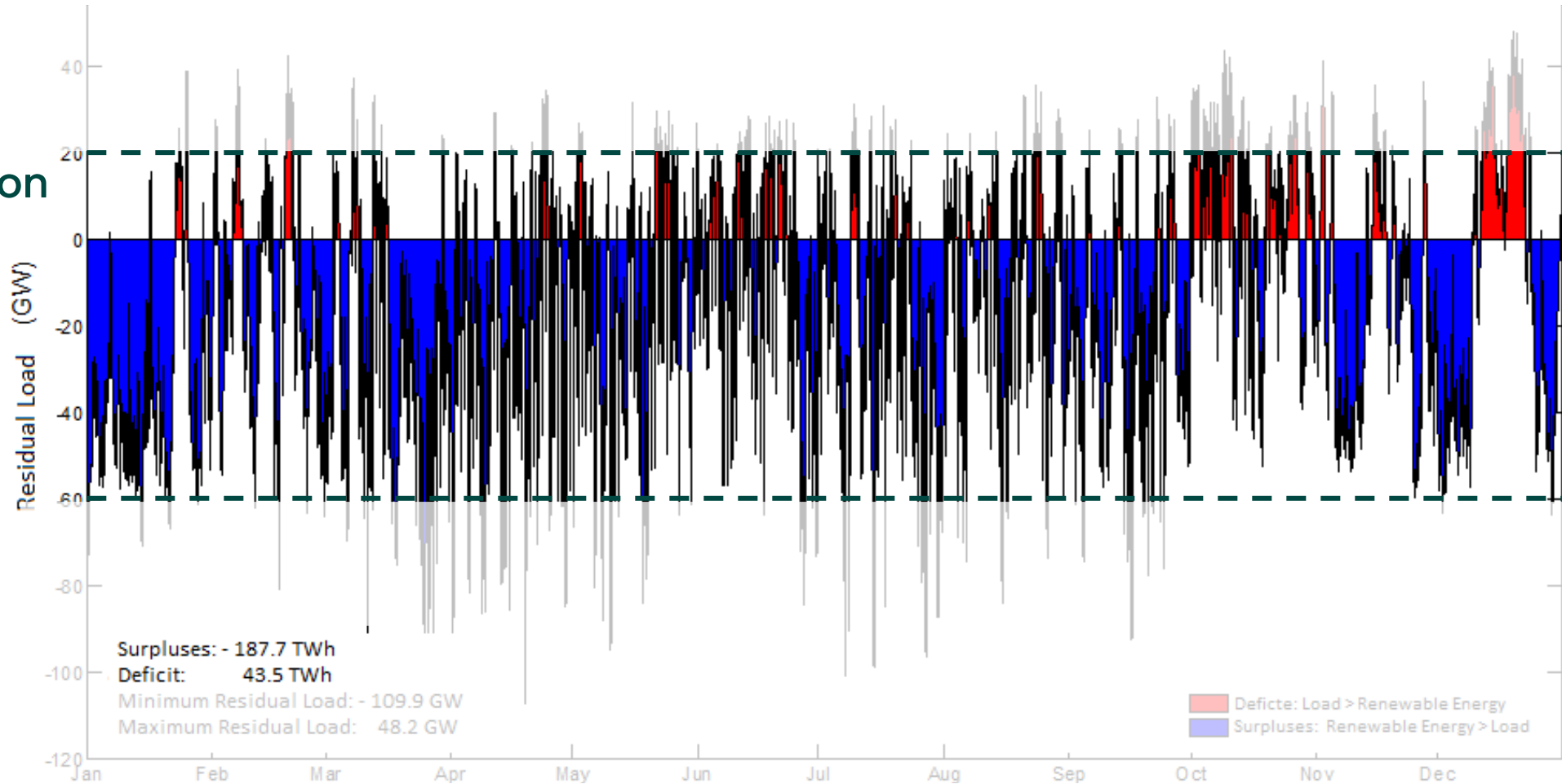
75% ROUND-TRIP
EFFICIENCY



SCENARIO

100 % renewable power by 2050

⚡ Reversion



Source: Fraunhofer IEE, StEnSea – Storing Energy at Sea
IEE-calculation for UBA Energy goal 100% electricity from RE

THE GAMECHANGER



OUR MISSION

100%

climate positive power

flexible • decentralized • efficient



Romy Heller

Project Manager, Grants

rh@reverion.com

www.reverion.com





Micro gas turbines for decentralized power generation

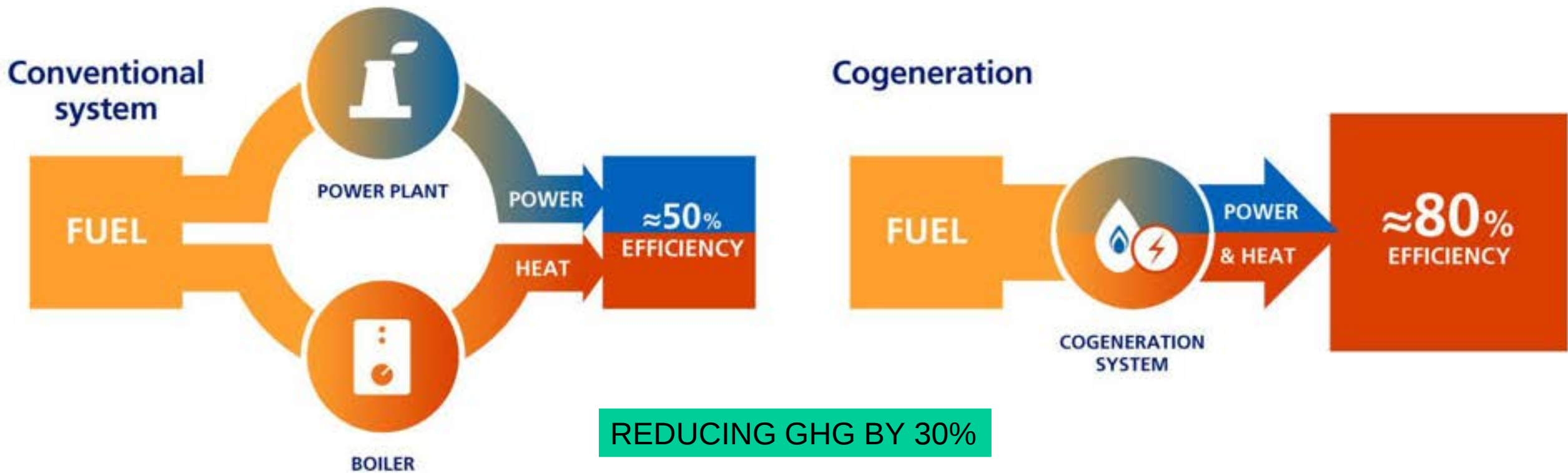
MITIS SA

Michel Delanaye
CEO



SustainableSolutionsMatch

COGENERATION = IMMEDIATE REDUCTION OF GHG



OUR TECHNOLOGY = MINIATURE POWER PLANT

Multi-fuel Flameless Combustion Micro « {gas} » Turbines

Input [fuel] → output [electricity, heat]

- ✓ Low emissions (NOx)
- ✓ Low maintenance
- ✓ Low noise
- ✓ High flexibility
- ✓ H2, biogas, biofuel
- ✓ RE compatible
- ✓ Low TCO

MICRO GAS TURBINE TECHNOLOGY

Recuperated Brayton Cycle

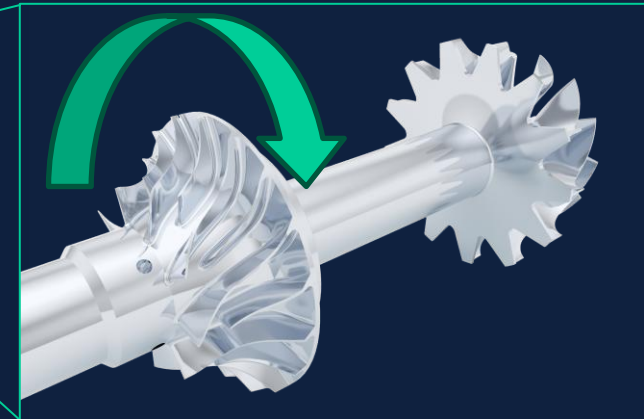
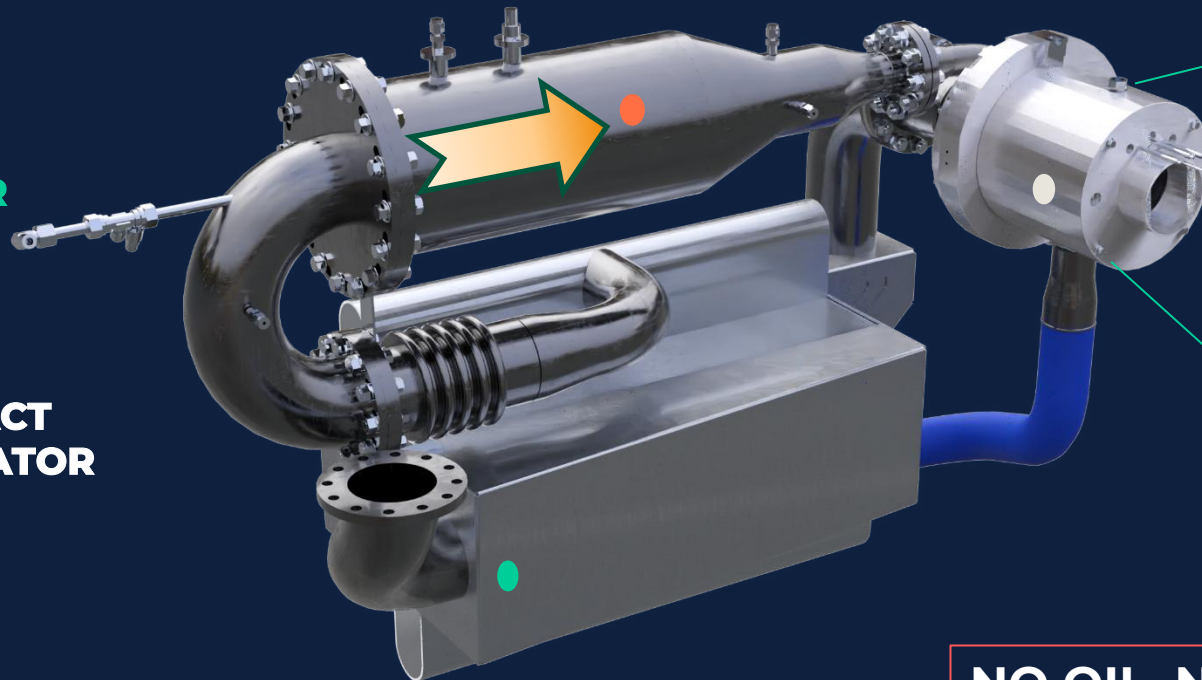


**FLAMELESS
COMBUSTION
(1ppm NOx)**

**HIGH-TEMP
RECUPERATOR**

**SIC AC/DC
CONVERTERS**

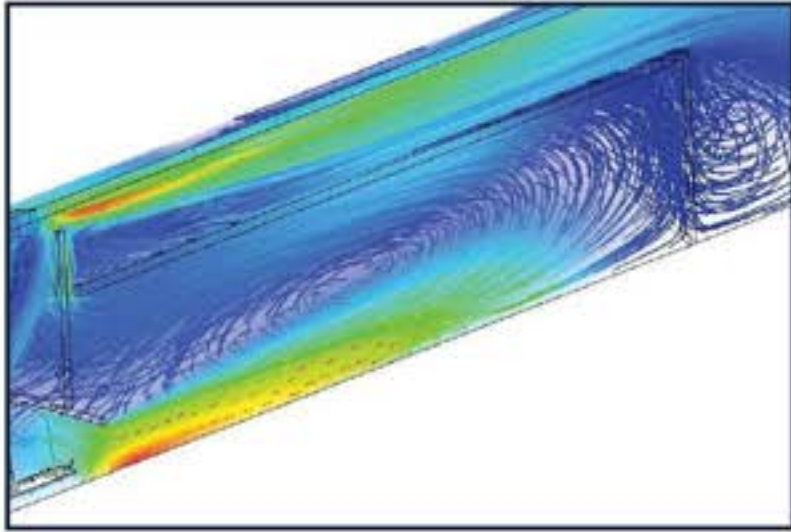
**ULTRA COMPACT
TURBOGENERATOR
WITH AIR FOIL
BEARINGS**



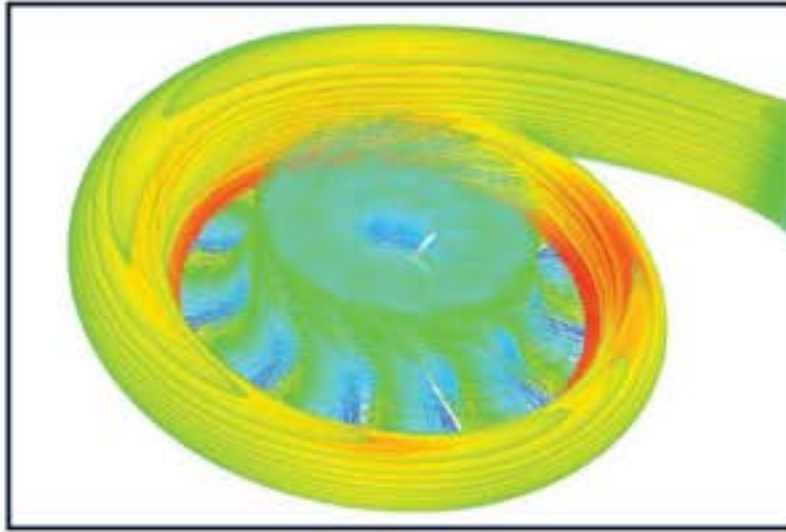
NO OIL, NO FLAME, Direct DC-AC

MULTIPLE PATENTS

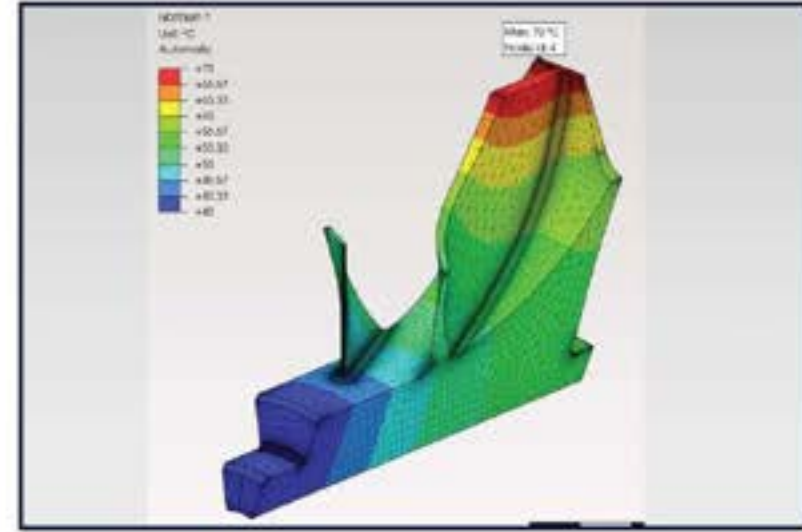
Engineered with Advanced Simulation



Combustion Modelling



Aerodynamics



Structural Integrity

micro-10 CHP



Power: 10 kW_e

Thermal: 35 kW_h

NO_x emissions: < 5 ppm (NG)

Maintenance: 12 000 h

Multi-fuels: gas, liquid

Electric efficiency: 22%

Global efficiency: Up to 95%

High grade heat: 280°C

Voltage: 380V 3P+N

Weight: 300 kg

FULLY AUTOMATED OPERATION
ON-GRID / OFF-GRID

INDOOR/OUTDOOR



Planned to release in Q4 25

MARKETS

- **CHP for commercial buildings**
 - Rest homes, hotels, pools, small industry requiring heat, ...
- **Small biomethanization**
 - Farms, waster water treatment plants, agrifood small industry, food waste, ...
- **Power microgrids**
 - Back-up power for solar powered microgrids
- **Off-gas to power**
 - Leaking combustible gas from processes

TAM (BEUR)
1302

SAM (BEUR)
131

SOM (BEUR)
2,7



CHP for Buildings



Biofuels



Flare Gas



Microgrids

BUSINESS STRATEGY

- Technology transfer for commercialization worldwide
 - 1st signed LOI with ETAGE (Brazil), Nov '24
- With validated supply chain and MITIS support



Investment

- **Just closed 1 MEUR equity round**
- **Planning next round 3MEUR (Q3 26)**
 - **Business development**
 - **Support to OEM partners**
 - **New R&D product dev.**



Thank you

Dr Michel DELANAYE, CEO
michel.delanaye@mitis.be





Decouple cooling
from climate change.

just a|r tech



**We invented a
game-changing HVAC technology.**



CO₂ savings per year

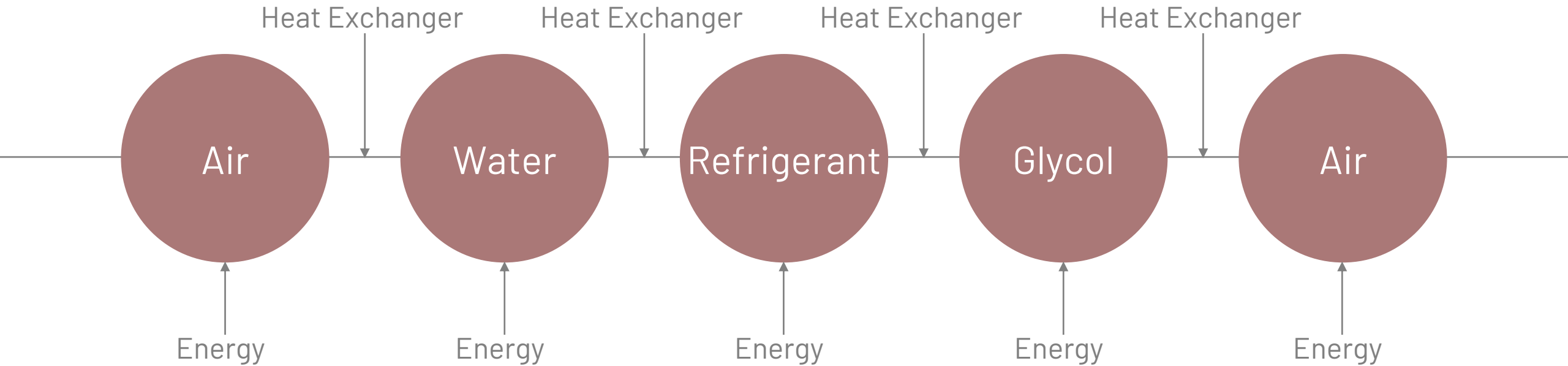
360,000,000 tons¹

≈ Poland's CO₂ emissions or
> 10% of EU's CO₂ emissions²

Assumptions:

- 1) We offer various solutions for cooling and heating around the globe
- 2) Our cooling solutions reach an efficiency of about 10
- 3) Our heating solutions reach an efficiency (or COP) of about 6
- 4) Our market share is 10% for cooling and 10% for heating

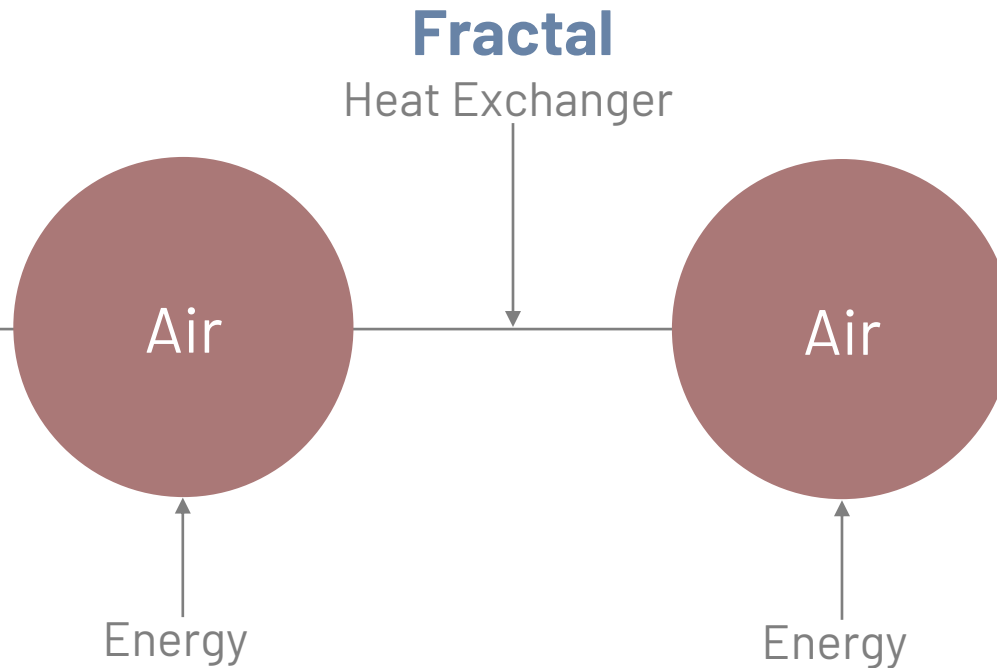
Conventional heating and cooling *proven, **but highly inefficient***



Efficiency less than 2*

Conclusion:

- Main components have only been improved incrementally in the last 100 years
- Due to many process steps and phase changes, the process is highly inefficient

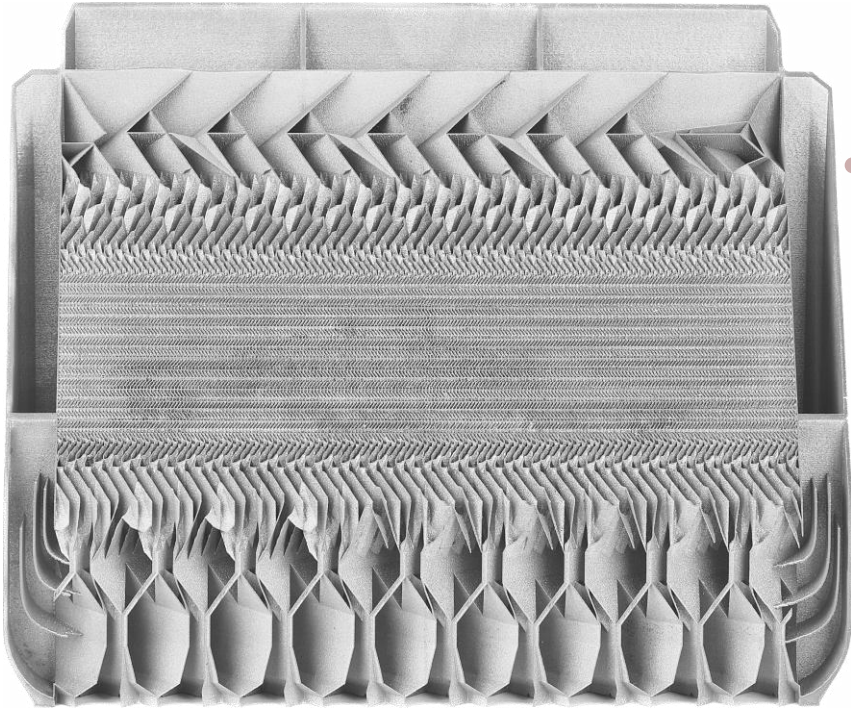


Efficiency of 10 is achievable

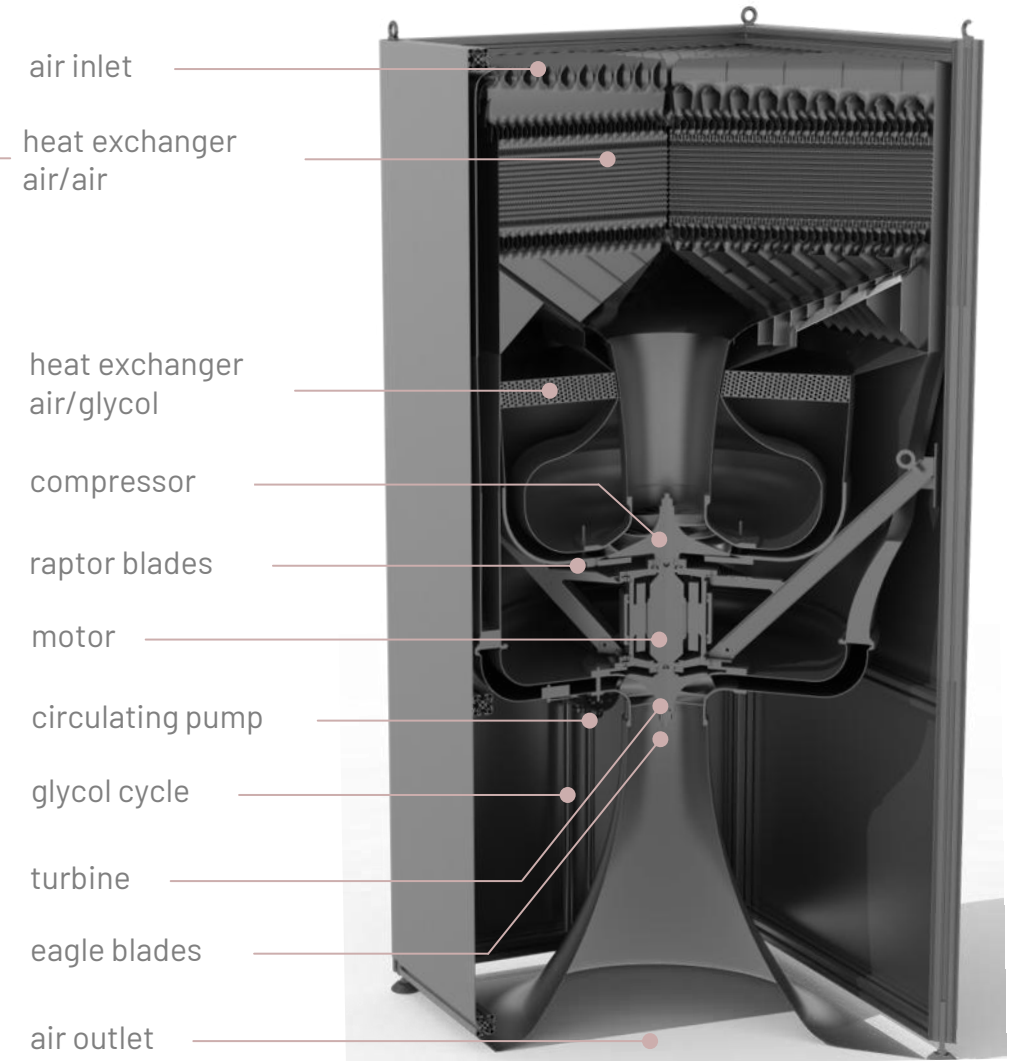
Conclusion:

- Includes a new system setup and heat exchangers with multiplied surface
- Due to less process steps and no phase changes, the process is highly efficient

Optimized for data centre cooling
our **first chiller**



Prototype available:
25kW chillAir



Dimension 0.8m x 0.8m x 1.60m

Financials & Impact

from market entry to steep growth

	2027	2028	2029	2030	2031	2032
no. of chillAirs in the market	5	35	535	1,535	3,235	6,125
revenues in million €	0.1	0.8	4.2	33.4	65.7	123.1
EBITDA in million €	-3.6	-4.3	0.5	5.6	14.5	32.2
CO ₂ reduction in tons	105	735	11,235	32,235	67,935	128,625



**Awarded with the “Seal of Excellence”
by the European Commission in 2024**



2020-06/2025

Seed & Start-Up

€ 5 m

- founders (m €): 0.6
- 2 business angels (m €): 4.4
- first contract manufacturer and full service provider

current investment round

07/2025-2026

Start-Up

€ 5 m

- intensify market research & customer development
- develop contract manufacturer & full service provider

2027-2029

Market & Growth

€ 11 m

- finalise ecosystem
- growth of business & expand customer base
- explore further applications for existing & new markets

Hot opportunity —
cool planet.



just a|r tech

HYDROVOLTA

Sustainable Nitrate removal and Desalination Solutions

Sustainable Water
Treatment for a
better Future.

Support of EIC –
Europe
SonixED 969116



The Global Challenge of Nitrate Pollution

By 2050 Over 3 billion people globally could face water scarcity due to nitrates pollution in groundwater



The Global Challenge of Nitrate Pollution

Top Sources of Nutrient Pollution

Municipal Sewage

Human sewage is the most common source of nutrient pollution, particularly in South America, Asia, and Africa.



Agricultural Fertilizers

Often applied to crops in excess, chemical fertilizers containing nitrogen and phosphorus seep into groundwater or are washed away as runoff.



Livestock Waste

Manure from animal production, which is often used as fertilizer, contributes additional nitrogen and phosphorous.



Stormwater Drainage

Stormwater runoff washes nutrients from residential lawns and impervious surfaces into nearby rivers and streams.



Aquaculture

Direct discharge of excrement, uneaten food, and other organic waste generates concentrated amounts of nitrogen and phosphorous in the waters surrounding fish farms.



The Global Challenge of Nitrate Pollution



Health risks:

cancer, blue syndrome



Environmental impact:

harmful algal blooms, aquatic disruption



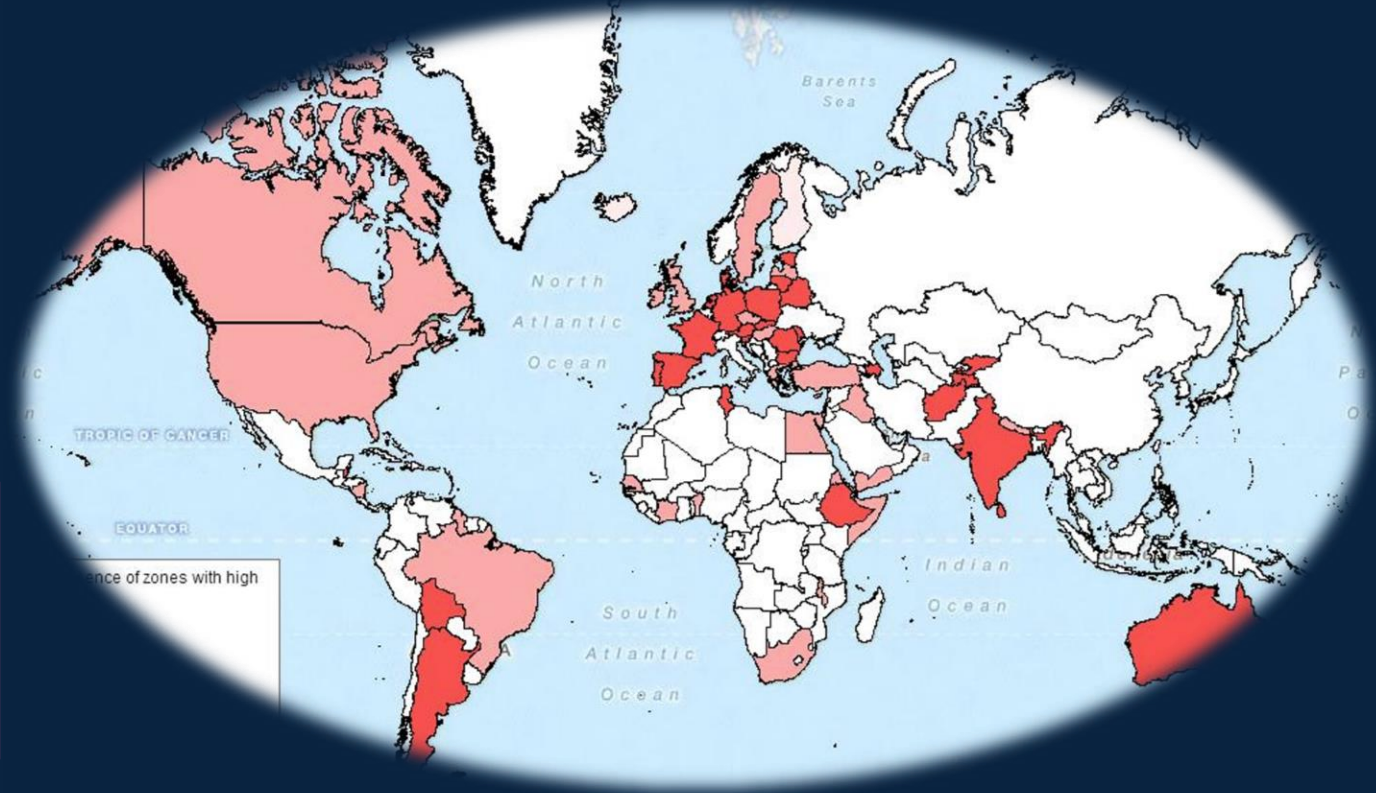
Water Shortage:

3 billion people at risk of water shortage by 2050

The Global Challenge of Nitrate Pollution

Globally, drinking water nitrate levels **MUST** be below 10-50 mg/L for safety.

Europe is spending almost **22 billion euros** per year, to treatment and management nitrate pollution



Our technology SONIXED

One the biggest modules in the world 7500l/h/module

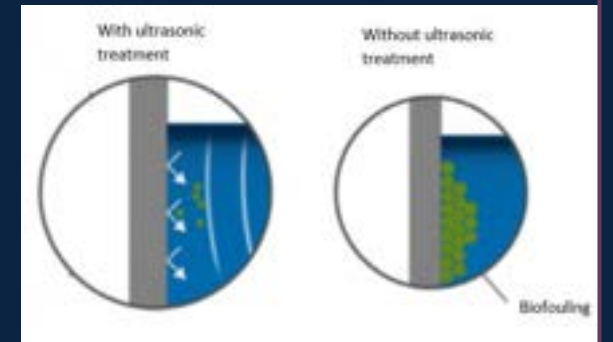
Combination of :

- Electrodialysis Reversal (EDR)
- Special membrane
- Ultrasound:

1, **Controls fouling on the membrane**, which is currently the biggest drawback of membrane technology

2, **Enhanced ion transfer** by micro mixing.

Patented



Our Decentralized Solution

Standalone containerized system

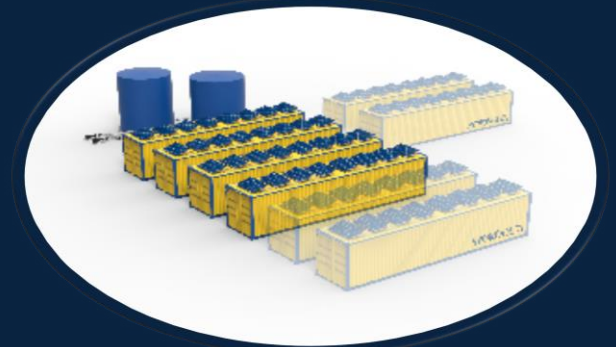


Small footprint 20ft – 40ft

Plug & play

Easy to operate

Telemetry and control



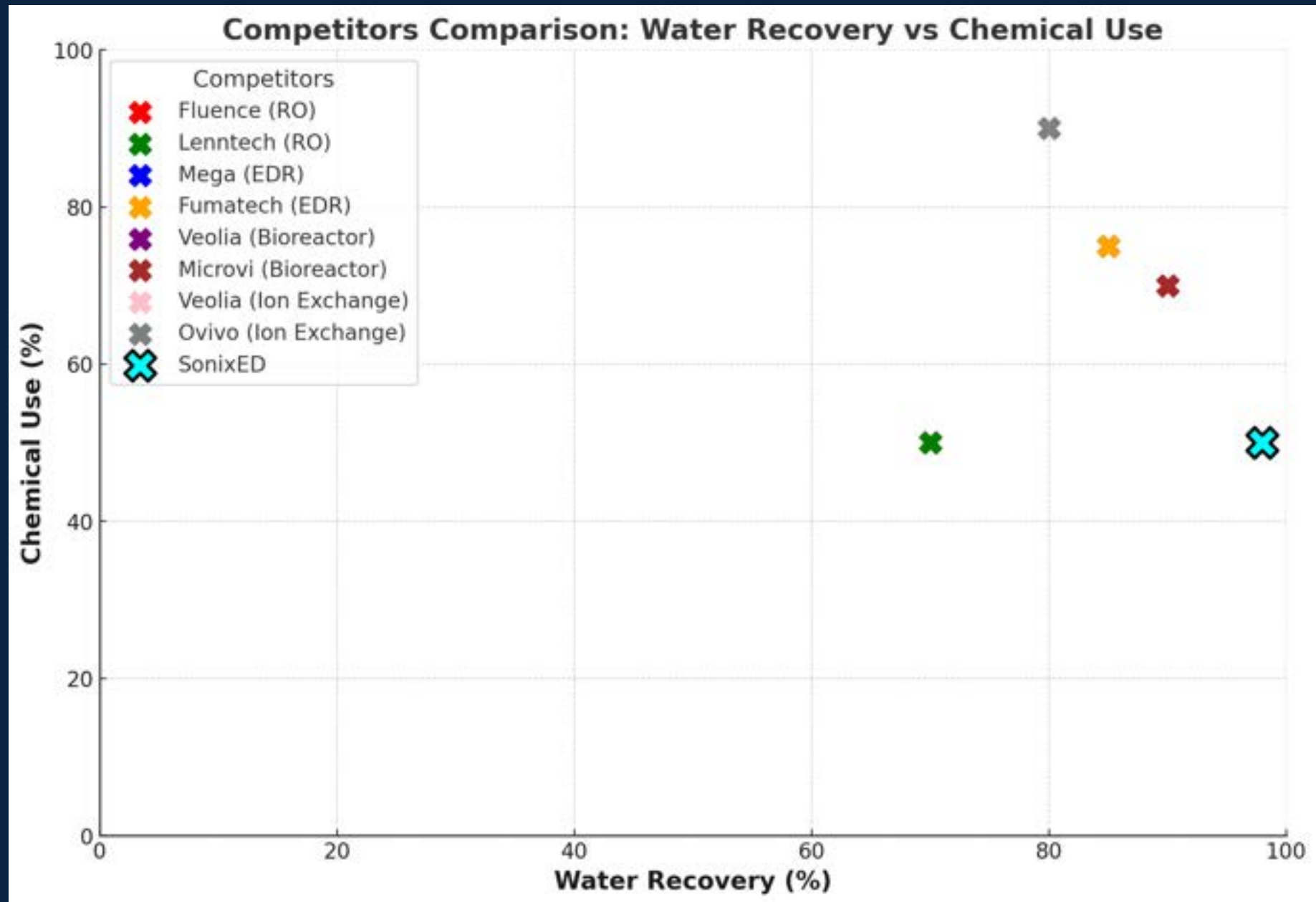
Easily scalable

Our solution benefits and advantages

Parameter	Conventional R.O	Biological Denitrification	Hydrovolta SonixED
Water recovery	70 - 80%	85 - 90 %	Up to 98%
Energy (kWh/m3)	1.0 - 2.0	0.2 - 0.6	0.2 - 0.6
Chemical usage (mg/l)	1 - 5.0 (Pre-treatment)	0 - 4	0 - 2
Sludge , brine waste production	15 - 30%	10 -15% + Sludge biomass	2 - 5%

**Our TCO is the lowest in the market
with 24 months return on investment**

- Only 2% Waste Water
(Nitrate can be recovered)
- 50% less Chemical Dependency and storage
- 30% less power consumption



Commercial Pilots in Real Environment TRL 8



Drinking water with public utilities companies
(BELGIUM)

Nitrate removal more than 90%



Industrial water reuse MLD
(Germany)

Water recovery up to 98%



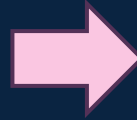
Applications Markets size

Main Focus 2024

Nitrate removal



market size is expected to reach **\$31,3 billion by 2030**, growing rate (CAGR) of 10%.



Decentralized Water desalination



Decentralized Water Treatment Market: This market is projected to reach **USD 42 billion by 2031**, growing at a **CAGR of 12%**

Other applications

Cooling towers



market size is expected to reach **\$1.76 billion by 2026**, growing rate (CAGR) of 12.1% during the forecast period (2019-2026),

Customers

Nitrate removal



market size is expected to reach **\$31,3 billion by 2030**, growing rate (CAGR) of 10%.

B2B

Water utilities

Food Processing Companies

Agriculture farms

Real Estate Developers

B2G

Municipal Water Treatment Facilities
(in some countries)

Market Traction

Our go to market strategy is mainly through local partners

Brazilian Market

- LOI for a €4m Demonstration Project from €45m project

UK

- Positive feedback for a potential €3-5m Demonstration Project

EU

France
The Netherlands
Denmark
Spain
Ireland

Currently we are in the pre-revenue stage

Business model

average daily water
usage 150 l/p/d

14

1. Selling Standardized Containerized Units:



20 feet:

Produced water capacity of 360-1000 m³/day
Serves 2400-7200 people / day

Selling price: € 595,000

40 feet:

Produced water capacity of 1080-2880 m³/d
Serves 7200-19200 people / day

Selling price: € 1,278,000

Cloud monitoring services :

12000 /year/unit/subscription

Cost : 6000 year/unit

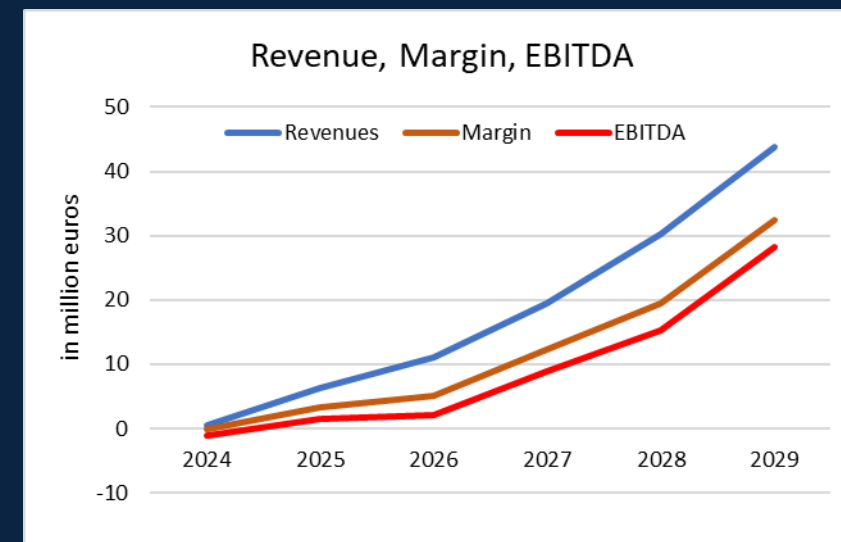
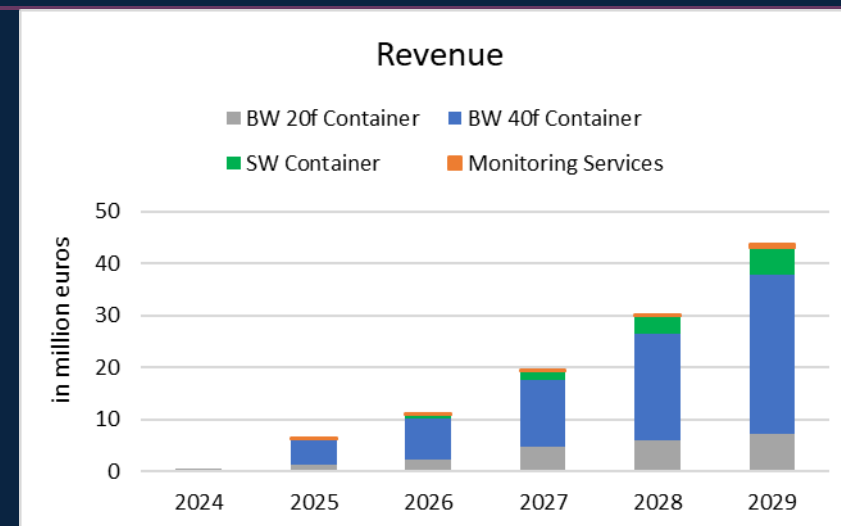
2. 2029 starting the SAAS contracting

HYDROVOLTA

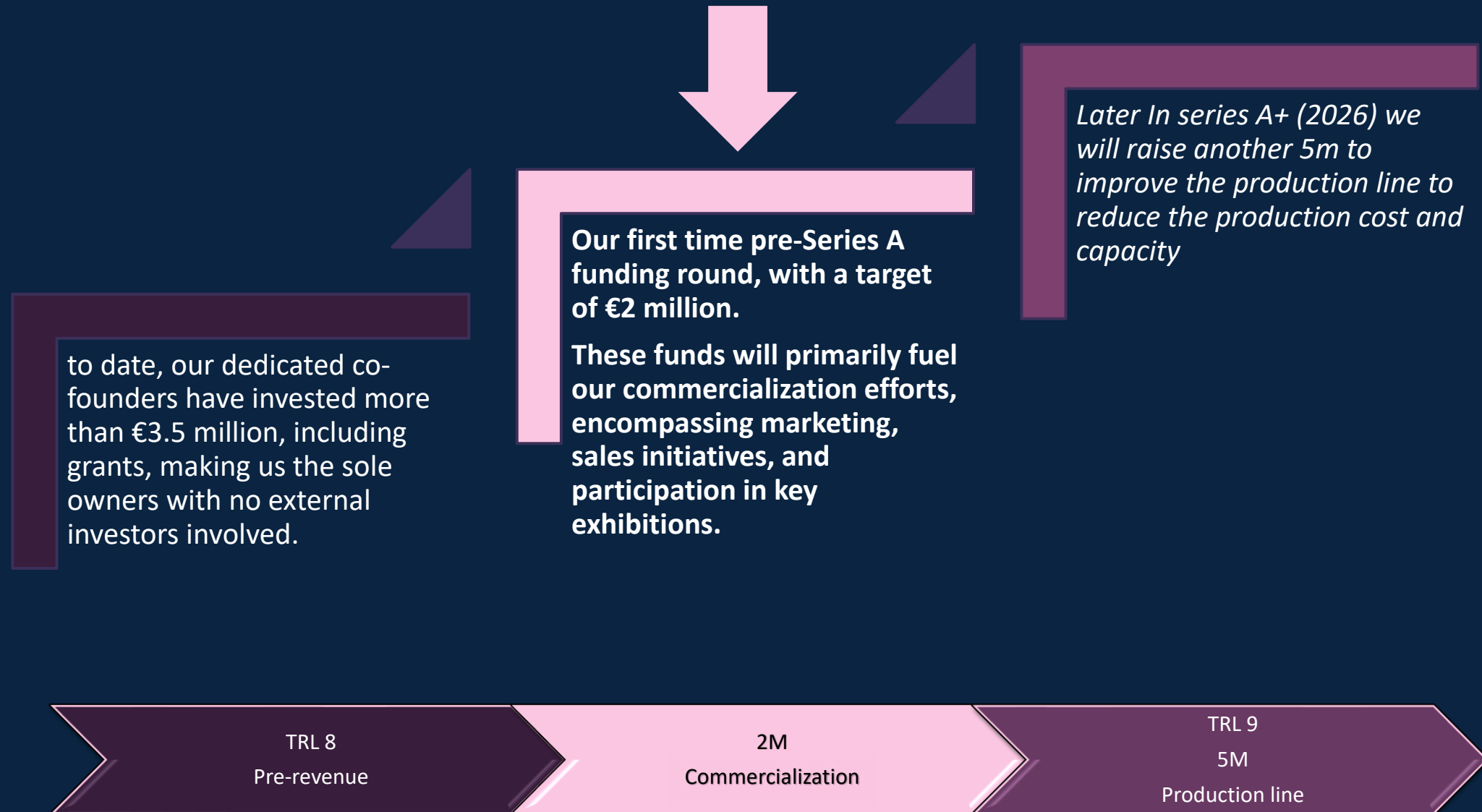
Financials

1. Revenue:
€43m In 2029

2. Positive EBITDA:
+20% in 2026



Investment



Team

Co-founders



George Brik,
CEO

25 years
experience in
water treatment
and membrane
technology



Yousef Yousef
Chairman

CEO of LG Sonic,
a successful
international
company in
algae and
biofilm control



Lisa Brand
Acting CCO

Co-founder of LG
Sonic, has years
of experience in
water treatment
industry



Tamara Merjaneh
Key account manager



Dieter Schrevens
Technical manager



Aboud Dauod
Production manager



Anthony Khayat,
Modules Production

EIC - Europe support





Sustainable Water Desalination Solutions

Nitrate removal and Water Desalination solutions

George Brik CEO

george@hydrovolta.com

www.hydrovolta.com

Support of EIC –
Europe
SonixED 969116



HYDROVOLTA

ENERGY MINER

The Breakthrough Innovation in
Hydrokinetic Renewable Energy

Dr.-Ing. Richard Eckl
CEO

Supported by:



Bundesministerium
für Wirtschaft
und Klimaschutz



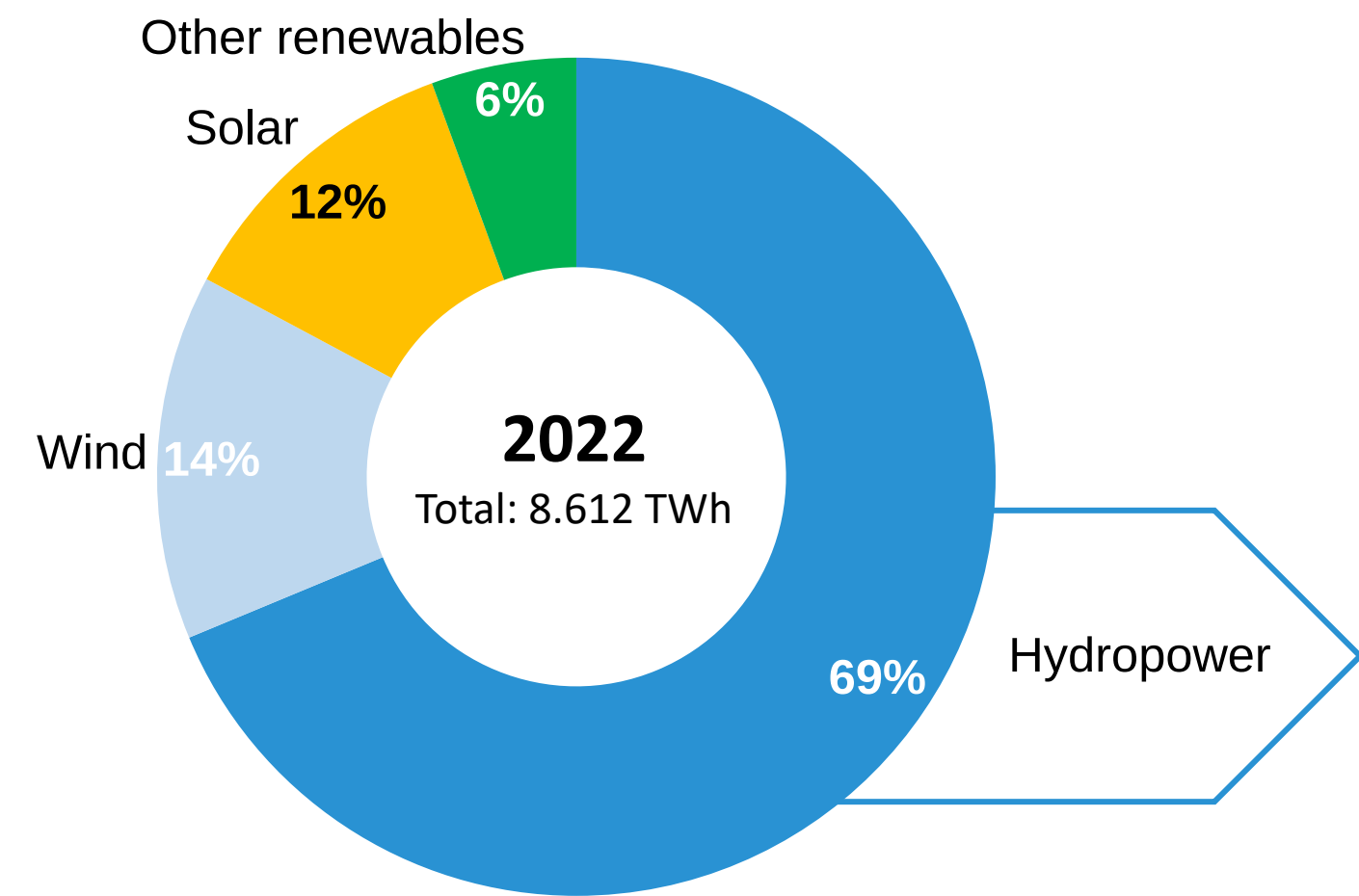
Bundesministerium
für Bildung
und Forschung

bayern  innovativ



We Urgently Need More Baseload Renewable Energy

Hydropower is still the mainstay of renewable energy worldwide



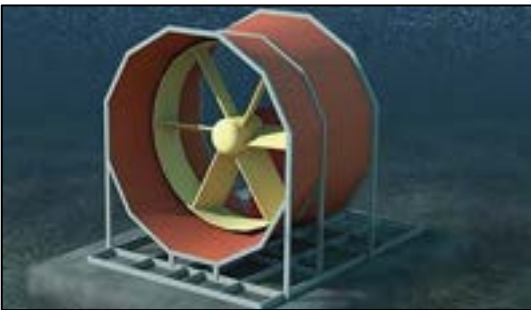
Wind and solar energy are not base load capable



Storage technologies and intelligent control of appliances alone will not solve the problem



Conventional hydroelectric power can hardly be expanded



Kinetic hydropower has not yet been economically viable

Our contribution to the solution:





Completely new system
concept with patent pending
technology!

The Energyfish

The Power Plant in Harmony with Nature

A School of 100 Energyfish can...



Generate
1.5 GWh
of electricity per year



Supply up to
470 households



Save
1.300 t CO₂ per year



has lower electricity
generation costs
than other renewables

Base load capable – electricity around the clock
Fast approval – in just 3 to 6 months
Protects fish – confirmed in study

Quick and Easy: No Dam or Concrete

1/ Set anchor

The anchor is set in just a few minutes

2/ Launch Energyfish

The Energyfish is hooked up and launched into the water

3/ Connect power

A power cable is laid on land and connected to the power grid via an inverter

The Energyfish can be installed in less than 60 minutes - no other power plant can be set up as quickly!



Hydropower Generation in Europe



+200 %
Growth of
renewables
by 2050³

TAM Hydropower in total

77 billion €/a ³ (electricity sales)
989 TWh/a ⁴
860 Mt CO₂/a ²

SAM Kinetic hydropower

37 billion €/a ³ (electricity sales)
473 TWh/a
411 Mt CO₂/a ²

Sale of power plants
214 billion €

SOM Energyminer in 3 years

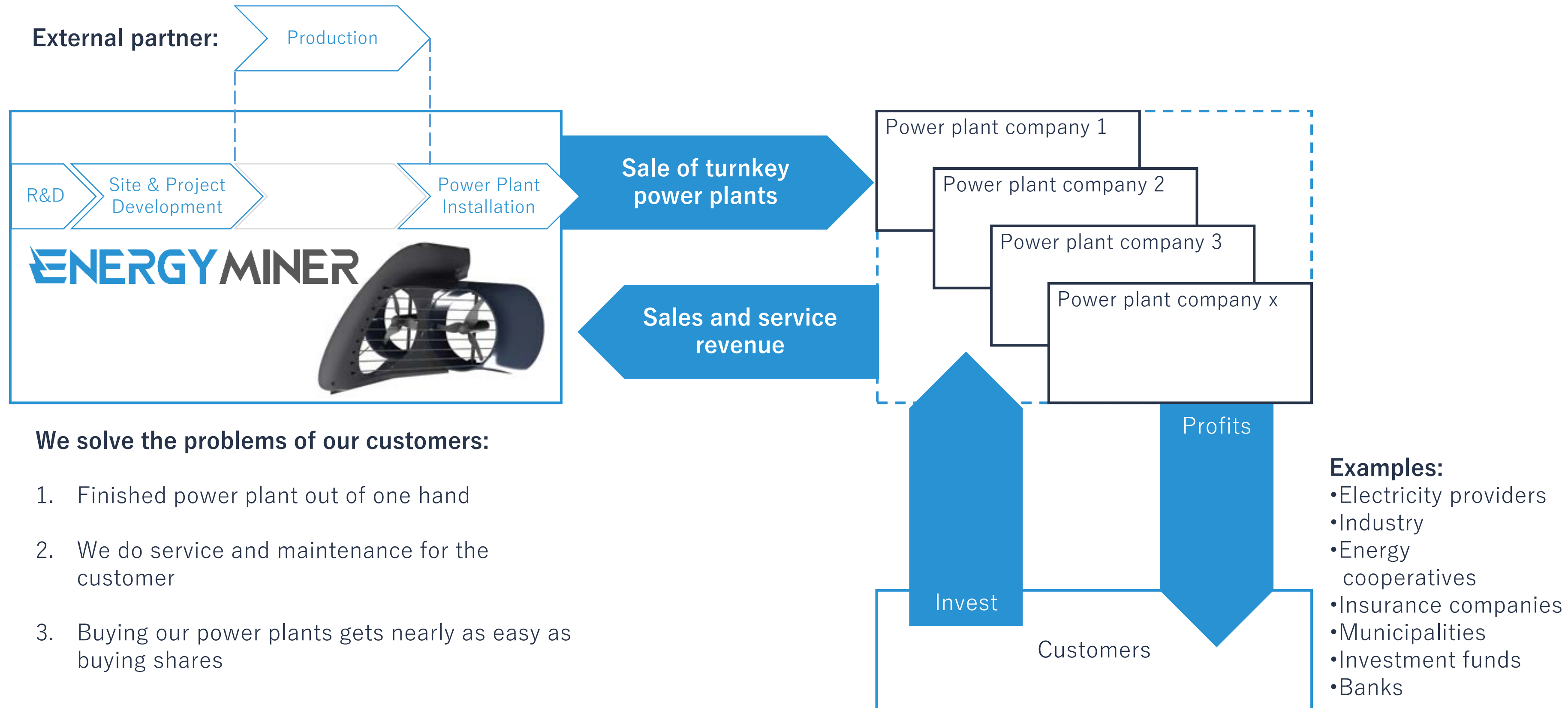
Sale of power plants:
200 billion €

SAM refers to 17,9 % of electricity production
A reduction of 411 Mt CO₂ per year is possible
This means 16 % fewer CO₂ emissions in Europe

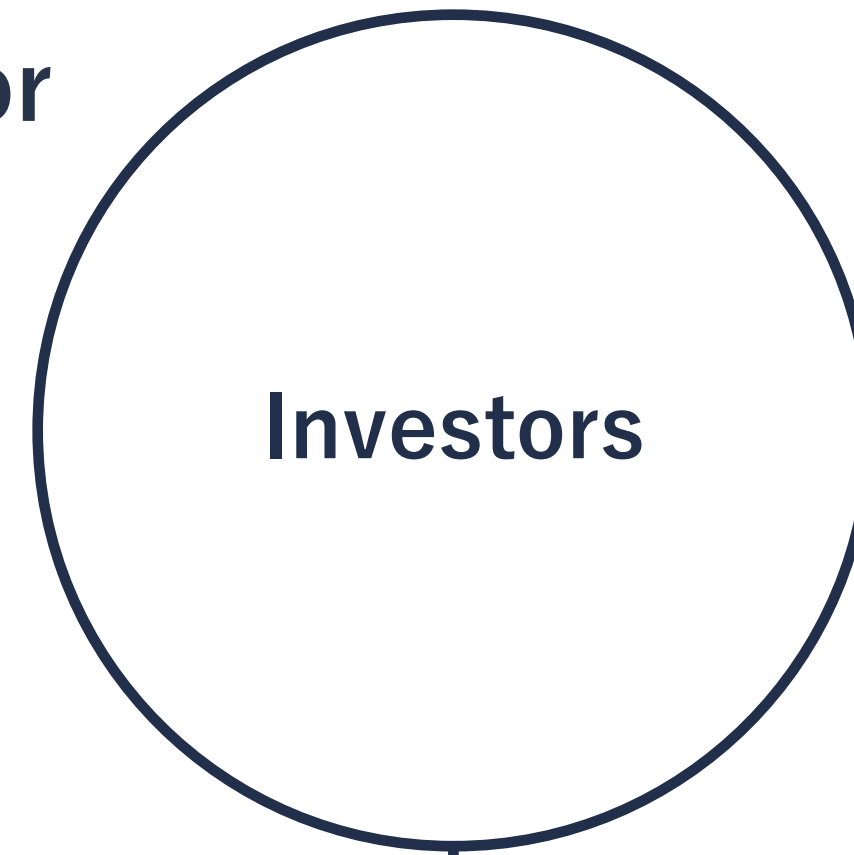


The Business Model

Energyminer sells turnkey powerplants



The cooperation partners we are looking for





Wrap-Up to the Session: Slido



slido.com
#4017661





Thank you & Get in Touch

Laurent: laurent.lognay@wallonie-entreprendre.be

Nivedita: mahida@bayfor.org

Laura: laura.gaspard@wallonie-entreprendre.be

An: an.meers@wallonie-entreprendre.be

