



Cleantech Forum **Europe** | Stockholm

# Innovation Company Showcase 1



# Investor Reviewers



**HANS  
DELLENBACH**  
Partner, Chief  
Financial Officer,  
Emerald  
Technology  
Ventures



**MARKUS  
HÖKFELT**  
Fund Manager,  
Almi Invest



# Innovation Company Showcase 1



**ANDRES ANIJALG**

Chief Business Development Officer, Roofit Solar

# Andres Anijalg

Co-founder &  
Chief Business Development Officer  
Roofit Solar Energy OÜ  
[www.roofit.solar](http://www.roofit.solar)



**Roofit.solar**  
Photovoltaic metal roofs

# Problems with traditional solar panels



Extra cost for **material**



Extra cost for **labor**



*90% drop in solar element prices has not reached the end customer*

# New regulations



*Solar is the easiest way to meet the **Nearly Zero Energy requirement** starting from 2021*



*Traditional solar panels create visual pollution*



*Roofing material = solar panel*

**Solution**  
2-in-1





# Roofit.solar advantages



**Pays back its own cost + rest of the roof**



**Looks as the standard non-solar roof**



**Easy and fast installation**

# Meet our Client



Henri Kaasik-Aaslav

*7,7kW Solar Roof owner since 2017*

*Tallinn, Estonia*



“

This roof gives my house a completely different purpose and reduces the carbon footprint of the construction. It is nice to think that I can share the green energy from my roof by selling it back to the grid.

In April my roof produced as much electricity as my air-to-water heat pump uses throughout the year.

**2016**

*Company established*

**2017**

*First solar roofs sold & installed*

**2018**

*Pre-round A fundraising*

*First export revenue*

*National Environmental Award*

**2019**

*New factory under construction*

*Export market expansion*



# Traction & Action

★ Top 3 Finalist at:  **Start Up Energy Transition**

Powered by  
 **dena**  
German Energy Agency

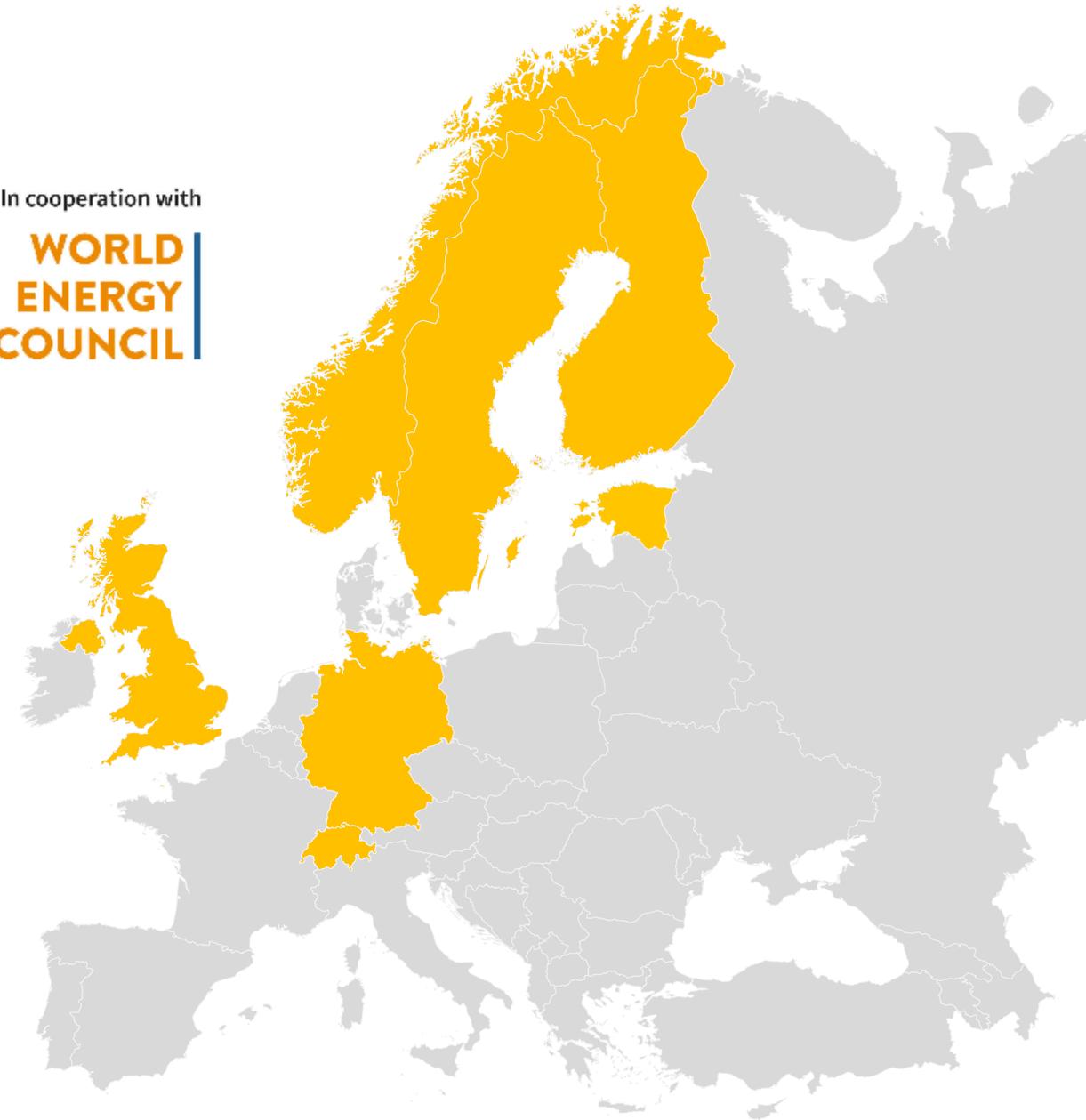
In cooperation with  
 **WORLD ENERGY COUNCIL**

★ National environmental award



★ Cooperation started with:  **RUUKKI**  
 **SSAB**

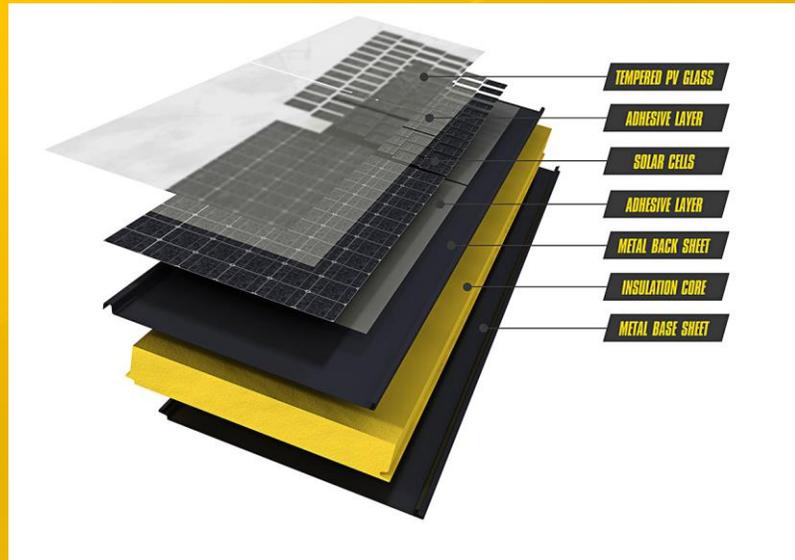
★ Winner of ENGIE retrofit solution 2018





# 3-in-1 retrofit solution

For fast energy efficiency improvement of the inefficient residential housing stock



Light structure



Small thickness

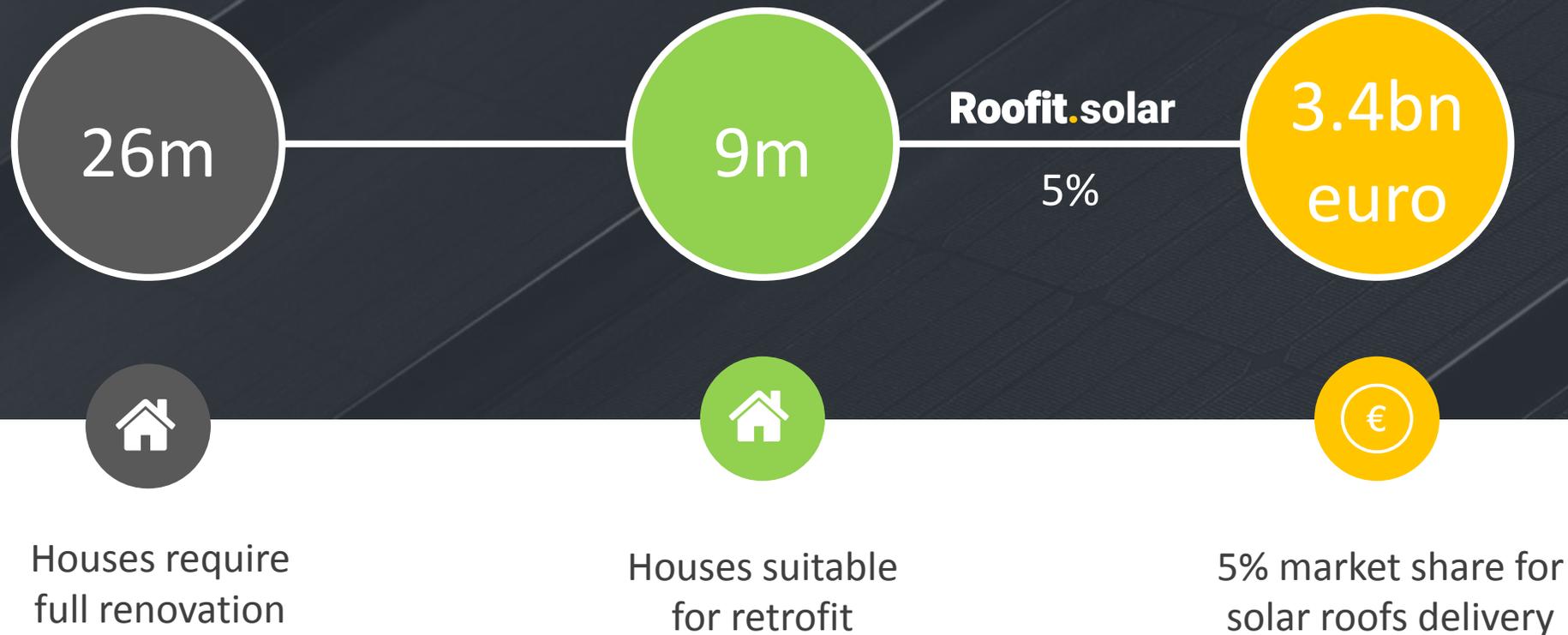


Maximized solar output per m<sup>2</sup>

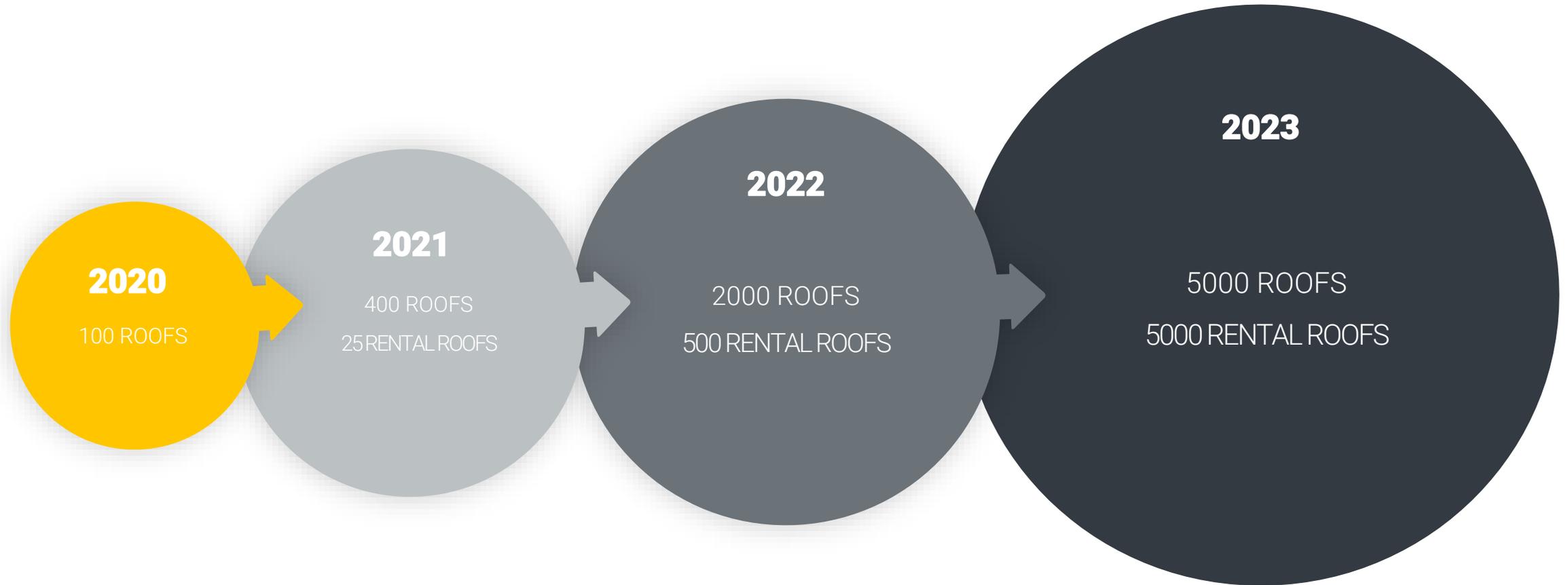


Fast & flexible onsite installation

# Potential market for retrofit industry (UK market only)



# Target: 10,000 sustainable roofs per year in 2023



## 2020 – 2021

- Sales network development
- Piloting the rental roof concept

## 2022 – 2023

- Increase production capacity
- Boost sales through implementation of rental roof concept

# Creating a new type of roofing market



## Solar Roof Sales

*Boosted by Nearly Zero  
Energy requirements starting  
from 2021*



## Roof as a Service

*Rental Roof is the new  
approach for installing  
roofs in the future*

### Sales through existing channels

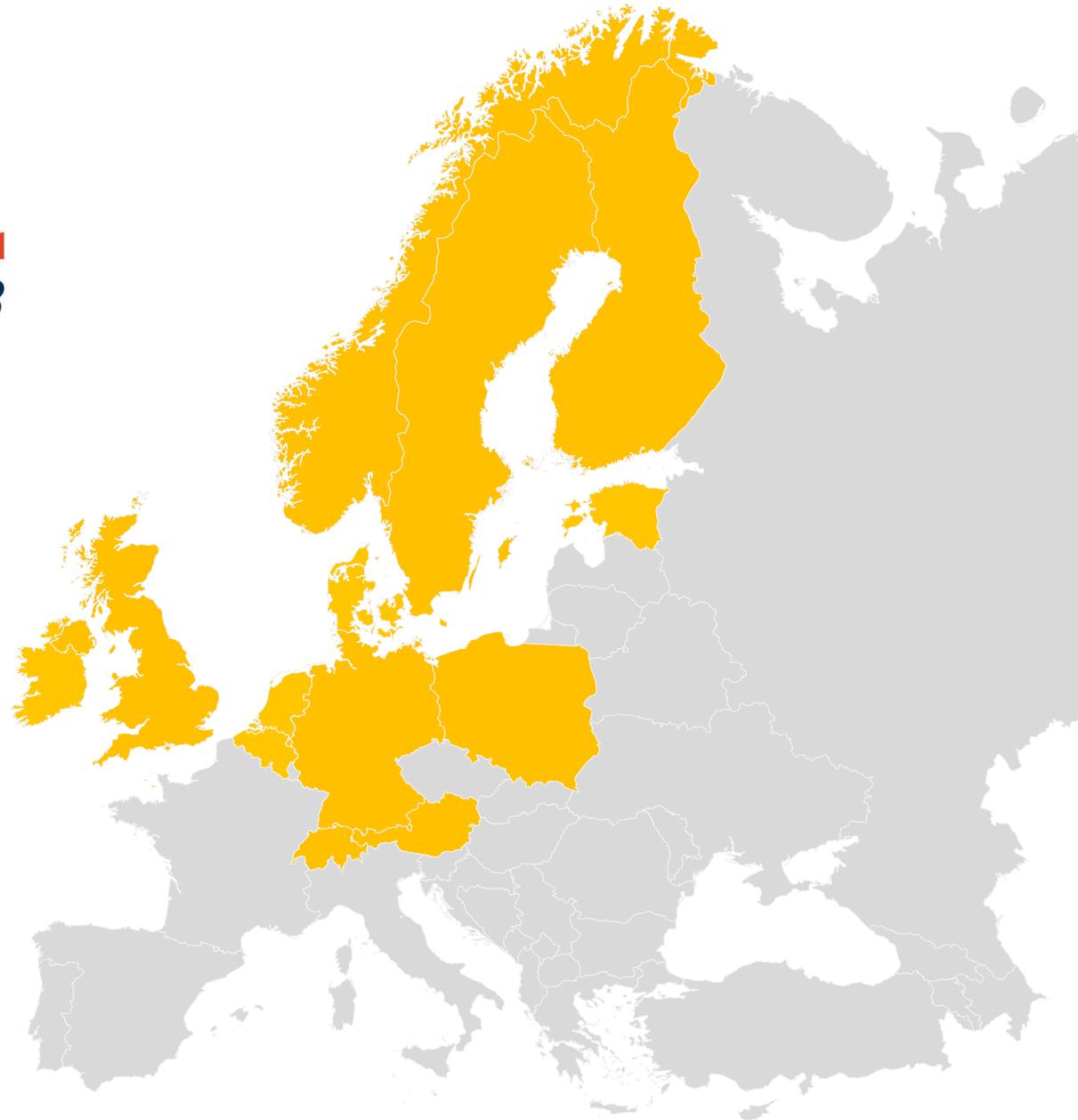
- *Roofing Companies*
- *Prefabricated House Manufacturers*
- *Distributors*

### New approach for selling roofs

- *New roof and lower energy prices for the customer*
- *Solar roof and traditional roofing materials for free*
- *Roofit.solar owns the electricity from the roof*

# Focus Countries & Route to Market

We utilize already existing sales and servicing channels



# Development Path

## Phase I 2017 – 2019 Proof of Technology



- Expand production capacity
  - Certification & IP
- Product development
- Installation of more roofs

€ 1,000,000

## Phase II 2020 – 2021 Sales & Rental Roof



- 6 MW solar roofs installed
- Expand distribution networks to 6 new countries
- Develop the cost effective rental roof panel and 3-in-1 retrofit solar roof
- Pilot 25 Rental Roofs in Germany

€ 6,200,000

## Phase III 2022 – 2023 Expand



- Expand roof production to support 100MW annual sales
- Sell 70MW of solar roofs
- Install 55MW of rental roofs + supporting battery systems
- Develop services for grid (i.e. demand response)

€ 25m

# Roofit.solar core team



**Andri Jagomägi**  
Founder  
CEO



**Helen Anijalg**  
Co-founder  
Export and Marketing



**Raimond Russak**  
Co-founder  
CFO



**Andres Anijalg**  
Co-founder  
Business Development



**Elli**  
Team Motivation  
& Security



**Iryna Yakobiuk**  
Co-founder, COO



**Kari Maripuu**  
Co-founder



**Dan Huvonen**  
CTO



**BÜsra Yilmaz**  
Product Development



# Let's Roofit!

[www.roofit.solar](http://www.roofit.solar)

[www.facebook.com/Roofit.solar](https://www.facebook.com/Roofit.solar)

[info@roofit.solar](mailto:info@roofit.solar)

[andres@roofit.solar](mailto:andres@roofit.solar)

.solar



# Innovation Company Showcase 1



**FLORIAN BACHHEIBL**

Co-Founder & Co-Managing Director, Volabo



## 48 V

### High Power Drives



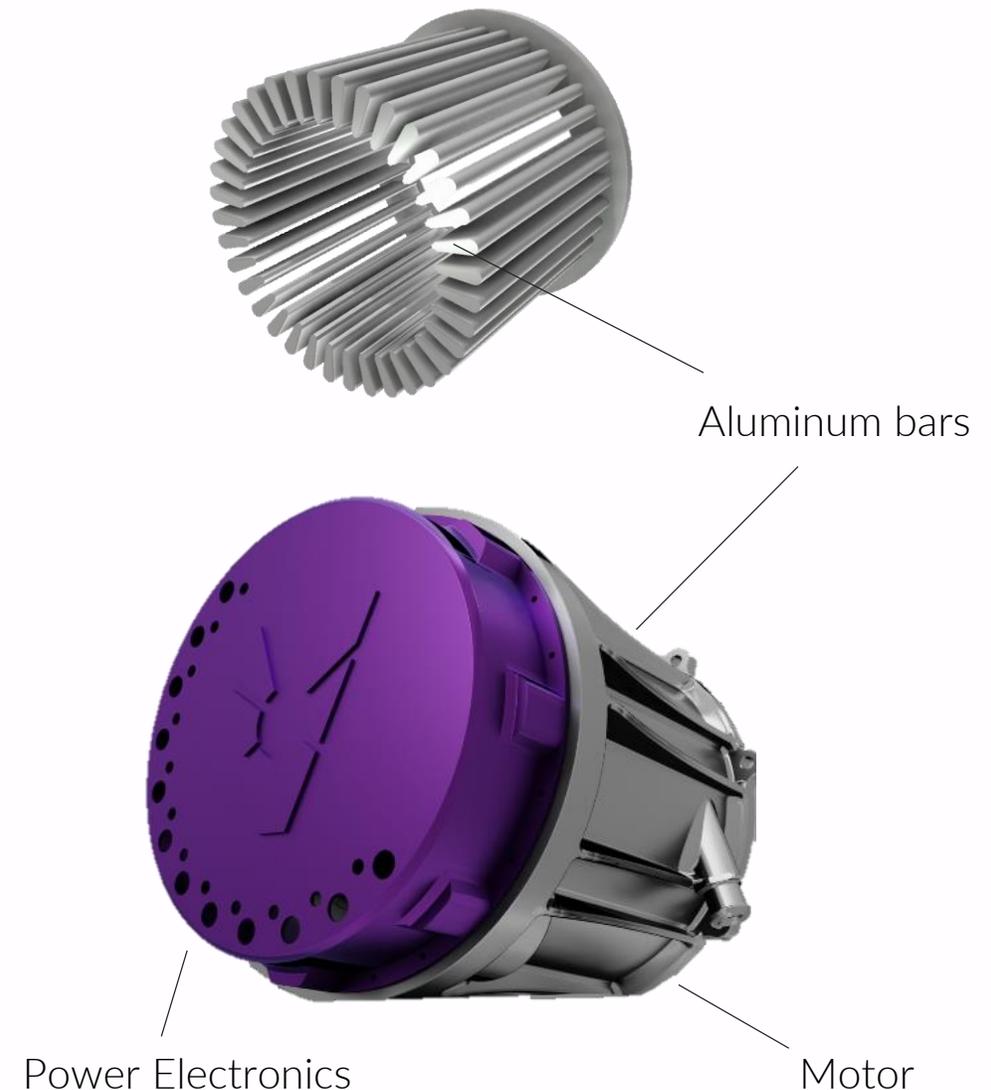
**Reduced Cost** for Drive Components and System.

**No Rare Earth Metals.**

Absolute **Safety.**

# ISCAD – INTELLIGENT STATOR CAGE DRIVE

- Safe-to-touch **48 Volt** electric drive
  - ➔ No high-voltage safety, no high-voltage qualification
  - ➔ Significant cost reductions
- **Aluminum bars** instead of copper coils, **no rare earth metals**
  - ➔ Easier and cheaper to produce
- Integrated **power electronics**
- Every bar is supplied by a **dedicated power electronics unit**
  - ➔ Number of **pole pairs** is **variable**
  - ➔ First **virtual gearbox** in the e-mobility
- Current status: **4<sup>th</sup> generation** prototype, **2 demo cars** running
- **38 patent applications** in relevant markets (US, CN, IN, DE)
  - ➔ **7 Patents granted**, all applications **owned by VOLABO**
  - ➔ Patent applications on **both principles and implementation**  
(50/50)



# MARKET OPPORTUNITIES

- VOLABO is currently financed from **cashflow**
  - ➔ 8 projects, mainly **automotive**, CN and EU
  - ➔ More than **4 m. €** accumulated revenue since 2015
  - ➔ ZF and Knorr-Bremse and further **relevant players** which may not be disclosed
- **Strategic partnership** in agriculture / construction / mining with start of **production in 2020** signed
- Negotiations about **manufacturing JV** in China
- Two **low capex** business models in future:
  - ➔ **Small volumes** will be served using **fabless manufacturing**. VOLABO acts as TIER-1
  - ➔ **Large volumes** will be **licensed out**. VOLABO delivers the **Control Platform** including software as TIER-2

Time to market



## Yachts & Boats

60.000 drives p.a. | 600 m. € p.a.  
Low formal entrance barriers – B2C  
Great opportunities through 48 V safety



## Agriculture / Construction / Mining

1.5 m. drives p.a. | 2 bn. € p.a.  
Medium formal entrance barriers – B2B  
Strategic Partnership signed



## Delivery Trucks / People-Movers

2.5 m. drives p.a. | 2.5 bn. € p.a.  
High formal entrance barriers – B2B  
Great opportunities due to safety, robustness and cost



## Automotive

40 m. drives p.a. | 32 bn. € p.a.  
High formal entrance barriers – B2B  
JV negotiations in China | Two top ten OEMs interested

# A TEAM WITH EXPERTISE



M.Sc.  
**Adrian Patzak**  
Managing Director

- Expert in **electronics design** and drives
- Experience with German car **OEM**



Prof. Dr.-Ing.  
**Dieter Gerling**  
Strategic Advisor

- **Founder** of FEAM GmbH
- Senior Scientist at **Philips**
- Director at Robert **Bosch**
- **Professor** at Bundeswehr University Munich



M.Sc.  
**Florian Bachheibl**  
Managing Director

- Expert in **physical modelling**
- Experience with German industry **drive manufacturer**



Marketing/ Sales



Control/ PE



Drive design



Working students

# JOIN THE E-MOBILITY REVOLUTION

2 demo cars  
running

**Come on board!**

18 months to  
market

6 m. € required for  
product development



# Innovation Company Showcase 1



**ELÉONORE BLONDEAU**  
CEO & Founder, CleanCup



Pitch deck  
Cleantech Forum  
Stockholm - May 2019

**Eléonore BLONDEAU**

CEO & Founder

Mail | [eleonore@clean-cup.com](mailto:eleonore@clean-cup.com)

Tel | +33 (0) 7 89 94 00 59

[www.clean-cup.com](http://www.clean-cup.com)

**Privileged & confidential**

Any form of reproduction, dissemination, copying, disclosure, modification, distribution and or publication of this material is strictly prohibited

A large, dense pile of discarded white plastic cups and food waste. The cups are mostly white with some red and blue markings, and many are crumpled or broken. The waste is scattered across the entire frame, creating a chaotic and overwhelming visual of pollution.

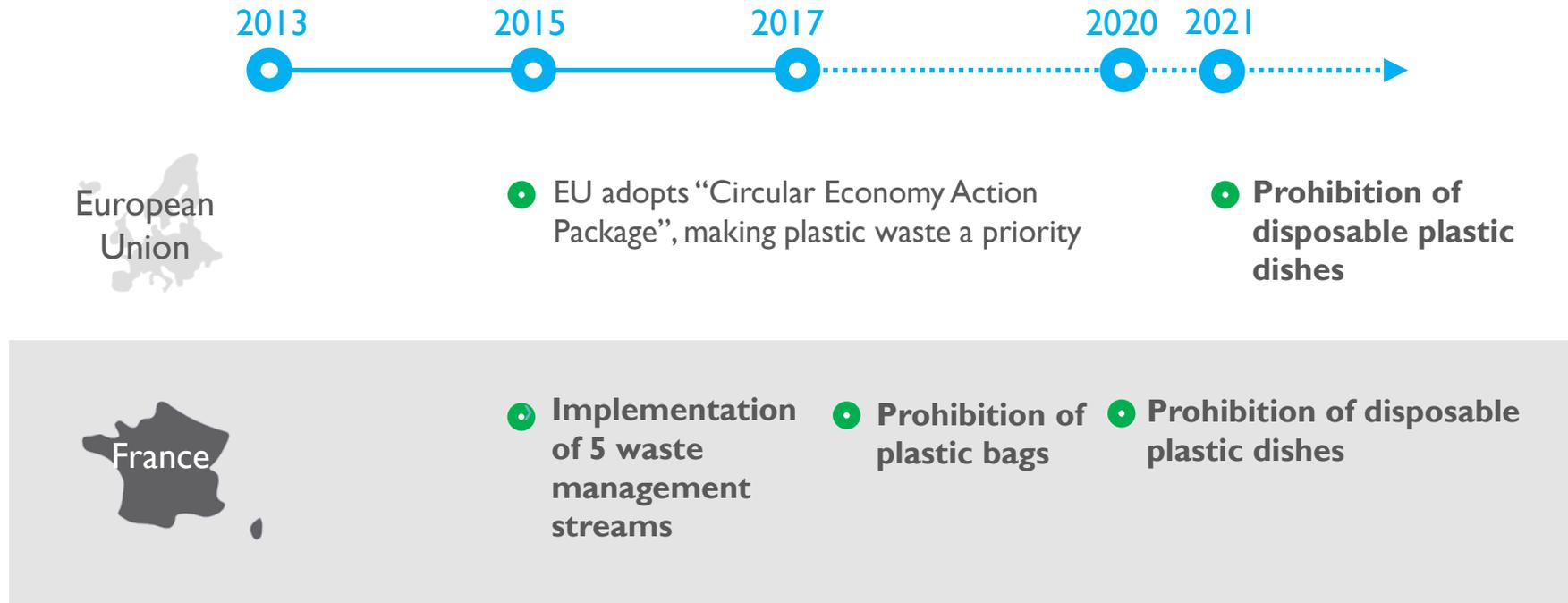
50 billion

# ANALYSIS OF ALTERNATIVE SOLUTION

## USERS & CUSTOMERS ARE FACING MANY PROBLEMS

	 Disposable plastic cup	 Biodegradable disposable cup	 Reusable cup	 Mug
User experience				
Environmental impact				
Cost				
Quality	<b>Low</b>	<b>Low</b>	<b>Medium</b>	<b>Good</b>
	<b>Prohibited in 2020</b>	<b>Authorized but low user experience</b>	<b>Re-usable solutions but painful washing with high water consumption and hygienic issues</b>	

# ACTIVE, GOVERNMENT REGULATES THE DISPOSABLE PLASTIC MARKET



**FUTURE BAN ON DISPOSABLES FORCES ORGANIZATIONS TO FIND ALTERNATIVE SOLUTIONS QUICKLY**

Source: European Commission Environment, French Government

# A MARKET TO SCALE

## Strong potential

Sales of water fountains in organizations increase by **3% per year in Europe.**

- In Europe in 2017 : 1,5 billion turnover
- In Europe in 2017 : 1,5 million of network watercooler sold

European Automatic Distribution market:

- 80 % of the machines are operated in six main markets: Italy, France, Germany, the Netherlands, Spain and the United Kingdom.
- Of the 3,77 million Automatic Distributor :  
60% hot/cold drinks = **2,26 million of machines**
- The sector's turnover in 2012 was **€ 11.3 billion**

**CLEANCUP MARKET ESTIMATED AT 2,26 MILLIONS OF MACHINES IN EUROPE**

OUR AMBITION IS TO IMPROVE THE WAY TO DRINK AND TOTALLY  
ELIMINATE THE USE OF DISPOSABLE CUPS

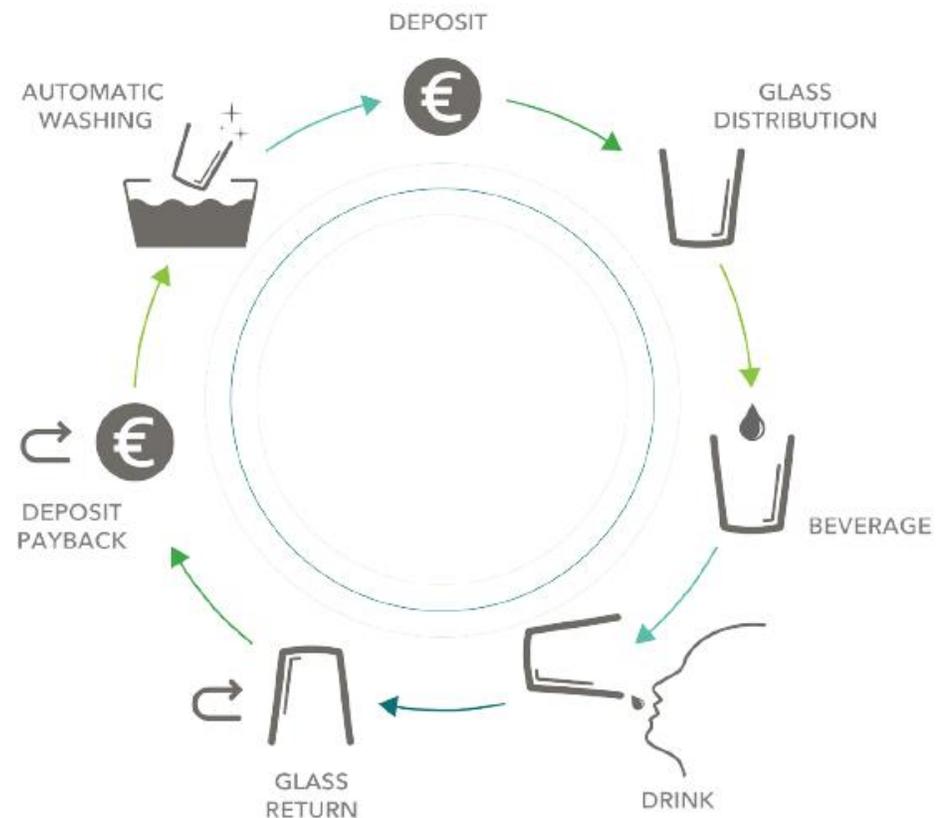


 **CLEAN CUP**  
LA MEILLEURE  
FAÇON DE BOIRE



## REMOVE THE USE OF DISPOSABLE CUPS & IMPROVE USER EXPERIENCE

CLEANCUP® is a **turnkey solution** that **automatically** distributes, collects and cleans, **on-site**, reusable glasses to eliminate the use of disposable cups and improve drinking on campuses, businesses and communities.



## A TURNKEY SOLUTION TO ACCOMPANY THE TRANSFORMATION



### DIAGNOSTIC

We analyze the ecological impact of drinking in your premises to give you a summary document with our recommendations to improve it



### CLEANCUP®

Set-up of CleanCup®, manufactured in France and eco-designed to distribute, collect and automatically washed, on site, your customized reusable cups



### MAINTENANCE

CleanCup® is monitored remotely to provide you with personalized follow-up according to your consumption and to maintain the optimum sanitary conditions of your equipment



### SENSITIZATION

We set-up actions to raise awareness on circular economy and we provide you with communication tools to facilitate the adoption of CleanCup®



### REPORTING

Evaluation, monitoring and ecological assessment of the CleanCup® solution put in place to enable you to value your commitment

WE ENABLE YOU TO OFFER YOUR EMPLOYEES A NEW CONSUMER EXPERIENCE WHILE REDUCING COSTS AND IMPROVING ENVIRONMENTAL IMPACTS



**ECOLOGIC**

- Sustainable**
- Zero Waste**
- Eco-designed**
- Made in France**



**ERGONOMIC**

- Customizable**
- Design**
- Accessible to people with reduced mobility**



**CONVENIENT**

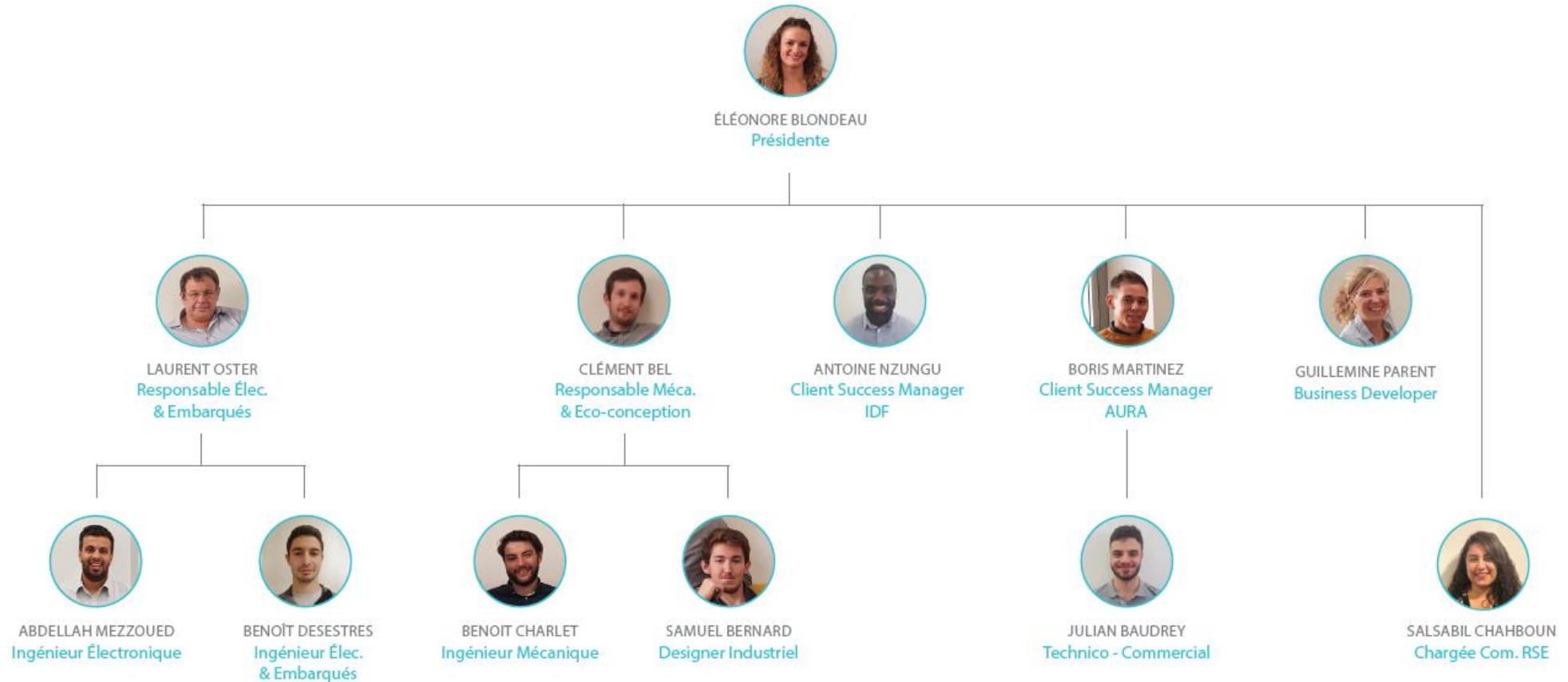
- Connected**
- Customized maintenances and repairs**
- Several deposit technologies**



**ECONOMIC**

- Save costs**
- Waste Management**
- Maintenance**
- Water supply**

## OUR TEAM COMBINES COMMERCIAL & TECHNICAL EXPERTISE ACCOMPANIED BY QUALITY PARTNERS





# PARTNERS

## Product

## Early Adopters

## CSR

## Financial





# BUSINESS DEVELOPMENT



Today we have

**A VALIDATED MARKET**

+20 orders

+80 press coverage

+17 winning competitions

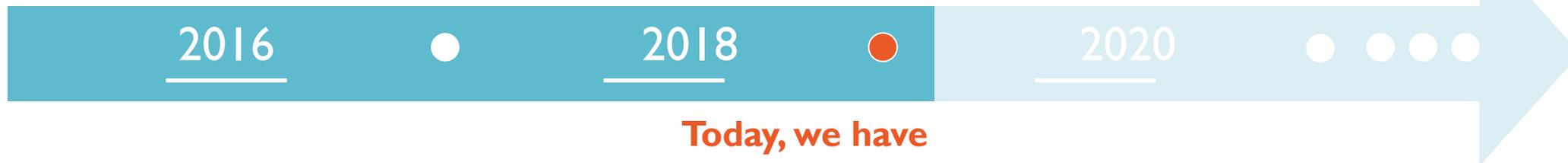
= € +400k turnover



**WITHOUT ANY PROSPECTION, WE ALREADY HAVE +20 FIRMS ORDERS, THAT IS +25 MACHINES AND + THAN 750 QUALIFIED LEADS IN FRANCE AND ABROAD**



# PRODUCTION



Today, we have

## A STRUCTURED PRODUCT DEVELOPMENT STRATEGY





# DEVELOPMENT ORIENTATION

DETAILED FINANCIAL PROJECTION ON REQUEST



**Today, we need**

**€ 2 M TO ACCELERATE INDUSTRIALIZATION AND MEET STRONG DEMAND IN FRANCE & INTERNATIONAL**

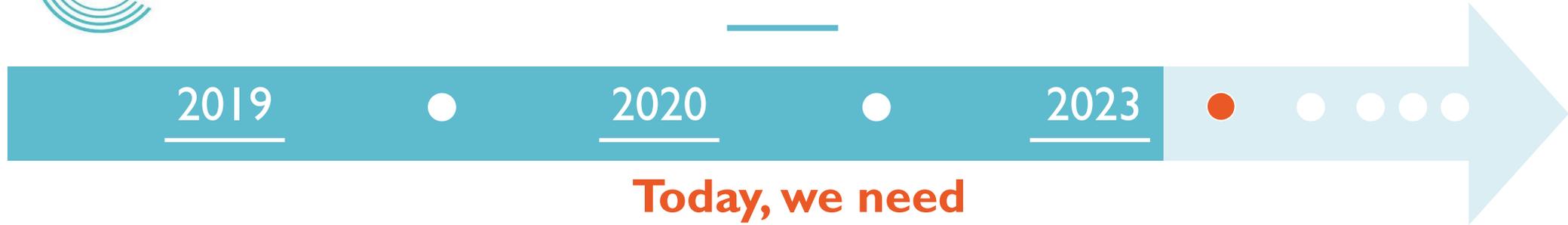


IN PARALLEL, A LEVERAGE EFFECT WITH THE BPI & BANKS WILL BE CONDUCTED





# DEVELOPMENT ORIENTATION



**Today, we need**

**€ 2 M TO ACCELERATE INDUSTRIALIZATION AND MEET STRONG DEMAND IN FRANCE & INTERNATIONAL**

**Reduce production cost by 64%**

**Go from 10 to +10 000 machines**

**Implement IA to optimize water & energy consumption**

**Go from France to all over Europe**

**Go on other markets**





# Innovation Company Showcase 1



**ROLF LUCHSINGER**  
CEO, TwingTec

# Wind Energy 2.0

Unlock the full power of wind

Dr. Rolf Luchsinger CEO



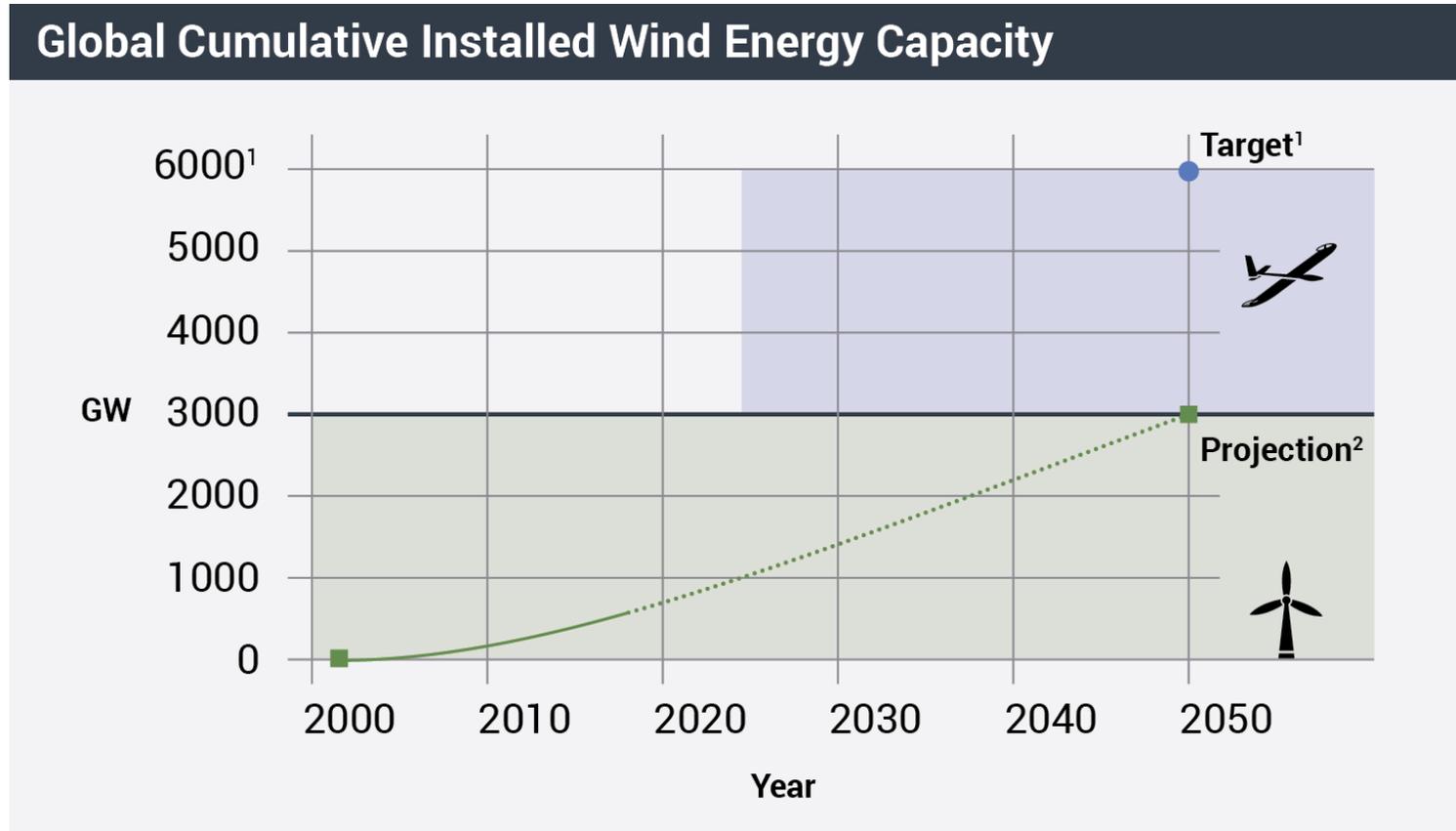
Cleantech Forum, 22.05.2019, Stockholm



The intelligent way to unlock the full power of wind:  
TWINGTEC ENERGY DRONES – WIND ENERGY 2.0



Today's wind power technology is not enough to reach our climate targets



# Wind Energy 2.0: More energy with less material



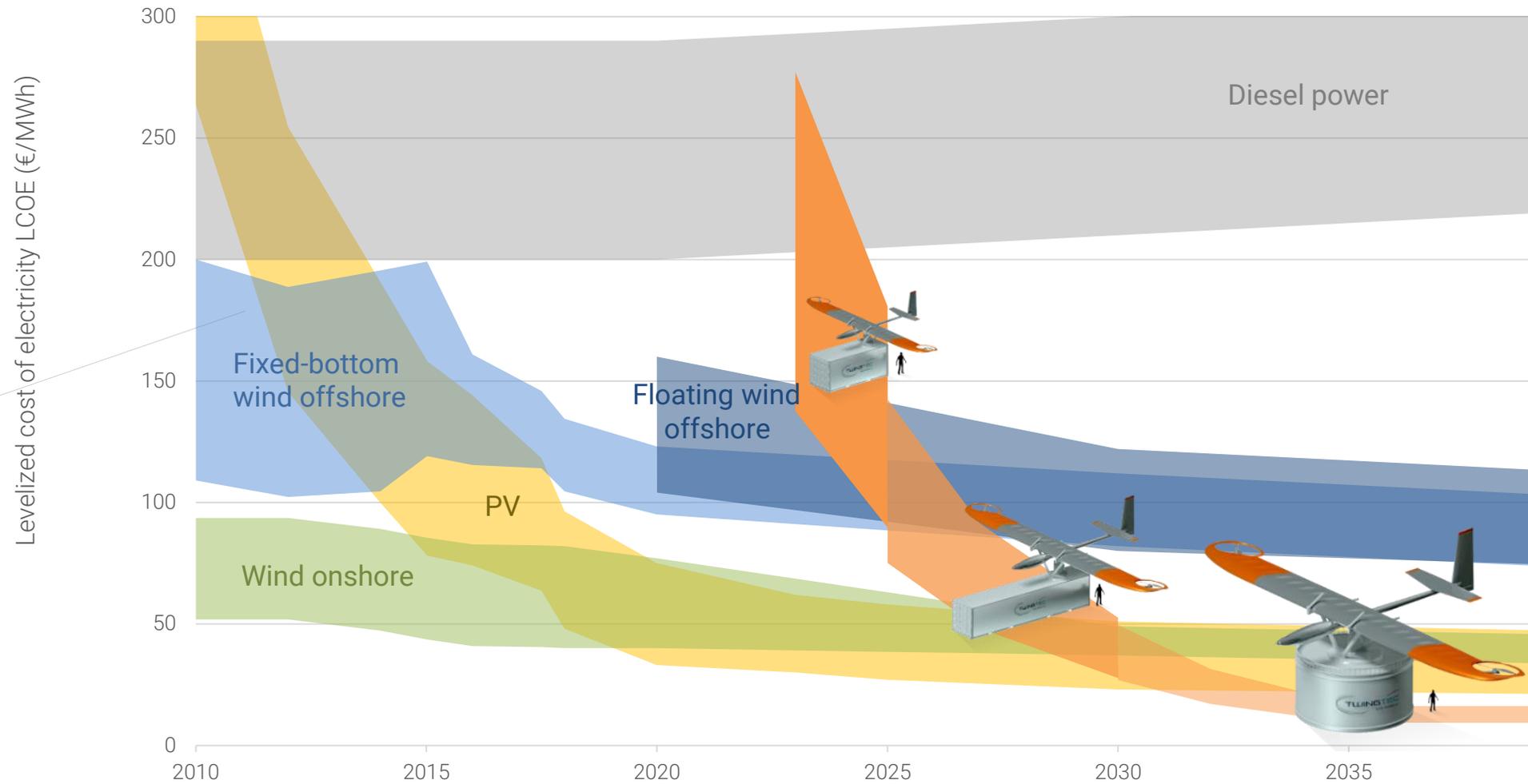
from bending to tension

High altitudes, stronger winds  
→ **more energy + more often**

No tower & foundation, in total 90% less material usage  
→ **lower invest + floating wind power**

Mobile, compact, easy to transport & (re-) deploy  
→ **remote areas + off grid market**

# Disruptive energy cost reduction potential



# Our Global Markets

TODAY

FUTURE

## Off-grid

Mines, remote communities,  
resorts, islands

4 billion USD

900 MW in Canada and Australia

30 Cents/kWh

## On-grid

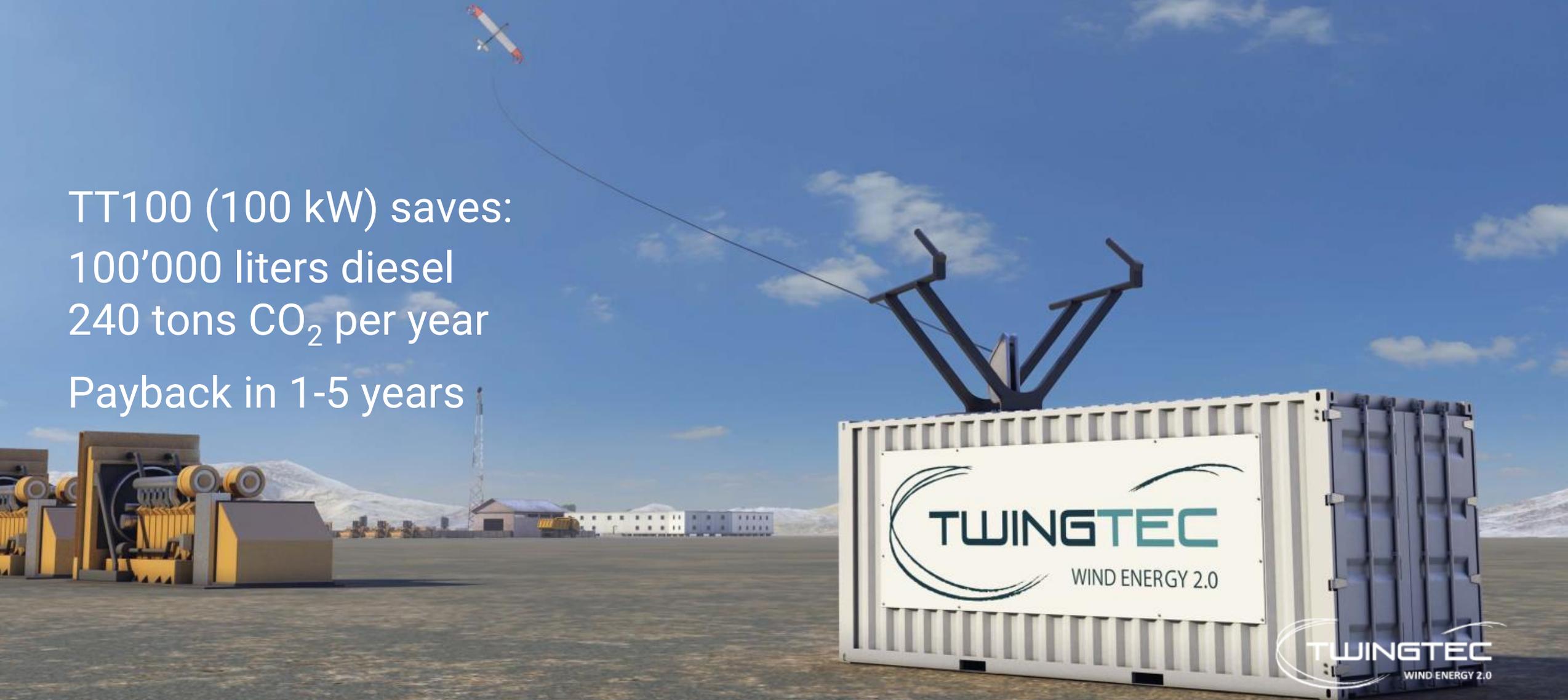
Wind farms  
on-shore and off-shore

100 billion USD

< 5 Cents/kWh

# Off-grid Containerized Wind Power

TT100 (100 kW) saves:  
100'000 liters diesel  
240 tons CO<sub>2</sub> per year  
Payback in 1-5 years



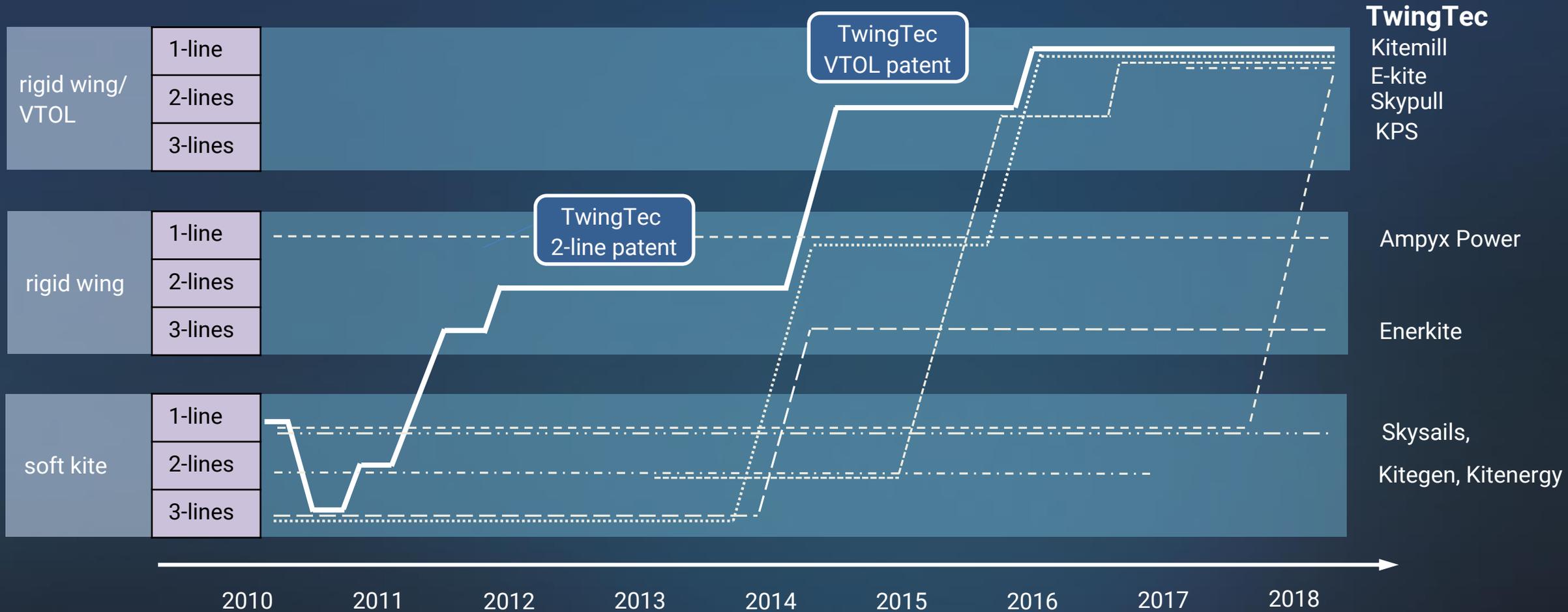
# Deep Off-shore Floating Wind Farms



Unlocking 4TW for wind energy in Europe alone



# TwingTec's patented design is setting the standard in the AWE sector



TwingTec is the first full proof of concept system



Pilot with Swiss utility BKW 2019



# World class airborne wind energy experts ready to commercialize TwingTec energy drones



We look for partners and investors for the development of a full scale (100kW) commercial demonstrator.



### Contact

Dr. Rolf Luchsinger, CEO  
rolf.luchsinger@twingtec.ch  
+41 (0) 58 765 40 90  
[www.twingtec.com](http://www.twingtec.com)

[www.twingtec.ch](http://www.twingtec.ch)



# Innovation Company Showcase 1



**JAMES MURRAY**  
Product Owner, Verv

# Driving decarbonisation with enabling technology

James Murray



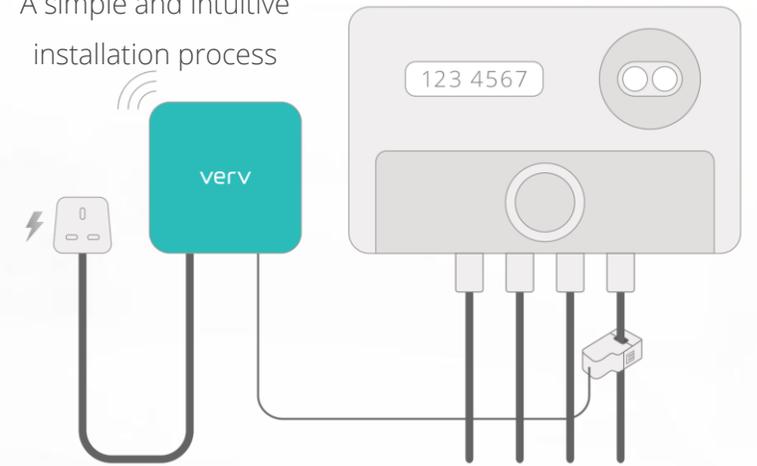
@verv\_energy

verv

# What is Verv?

Verv is a smart home device that connects to your meter and tells you when key appliances have been turned on or off, for how long and how much energy they have used.

A simple and intuitive installation process



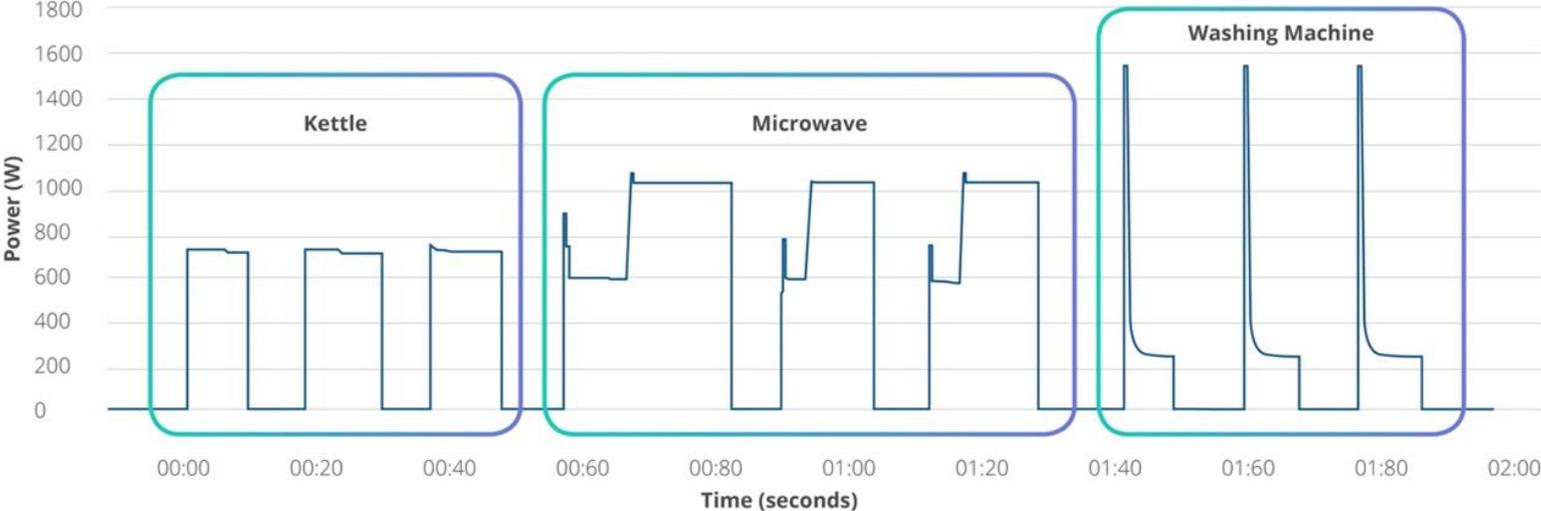
Verv listens out for key appliances from a single point in the home.



7  
patents

# Verv Technology

### Appliance Signatures



£3.12 (Used 27 times)



£3.67 (Used 42 times)

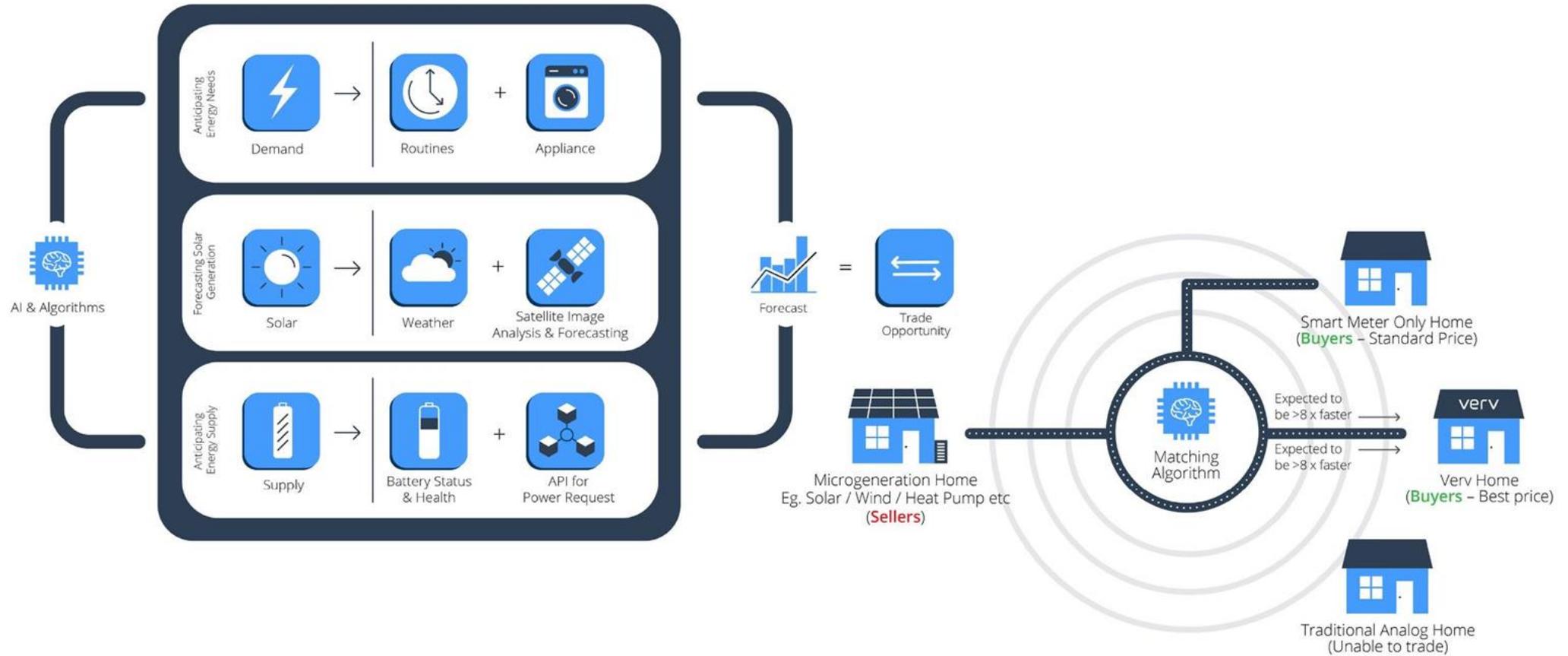


£5.82 (Used 11 times)

Monthly Cost

\*numbers for illustrative purpose only

# Green Electricity Sharing Platform



# A distributed ledger



# Our Live Energy Trading Community



UK's first P2P trade of energy on the blockchain

verv





# Innovation Company Showcase 1



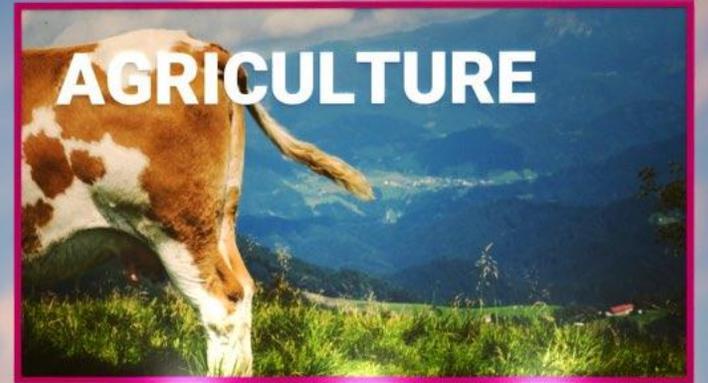
**ERIK ODEN**

CEO, C-Green Technology



Erik Odén, CEO

Cleantech Forum Europe, Stockholm  
2019



**5 billion tons of sludge.**  
**Every year.**



**Wet sludge**

**Bacteria**  
**Virus**  
**Parasites**  
**Heavy metals**  
**Pharmaceuticals**  
**Microplastics**





**Methane + NO<sub>x</sub>**  
**green-house gases.**

**More emissions than the  
whole aviation industry.**





**What do we do with it?**  
**More landfills?**

# Hydrochar

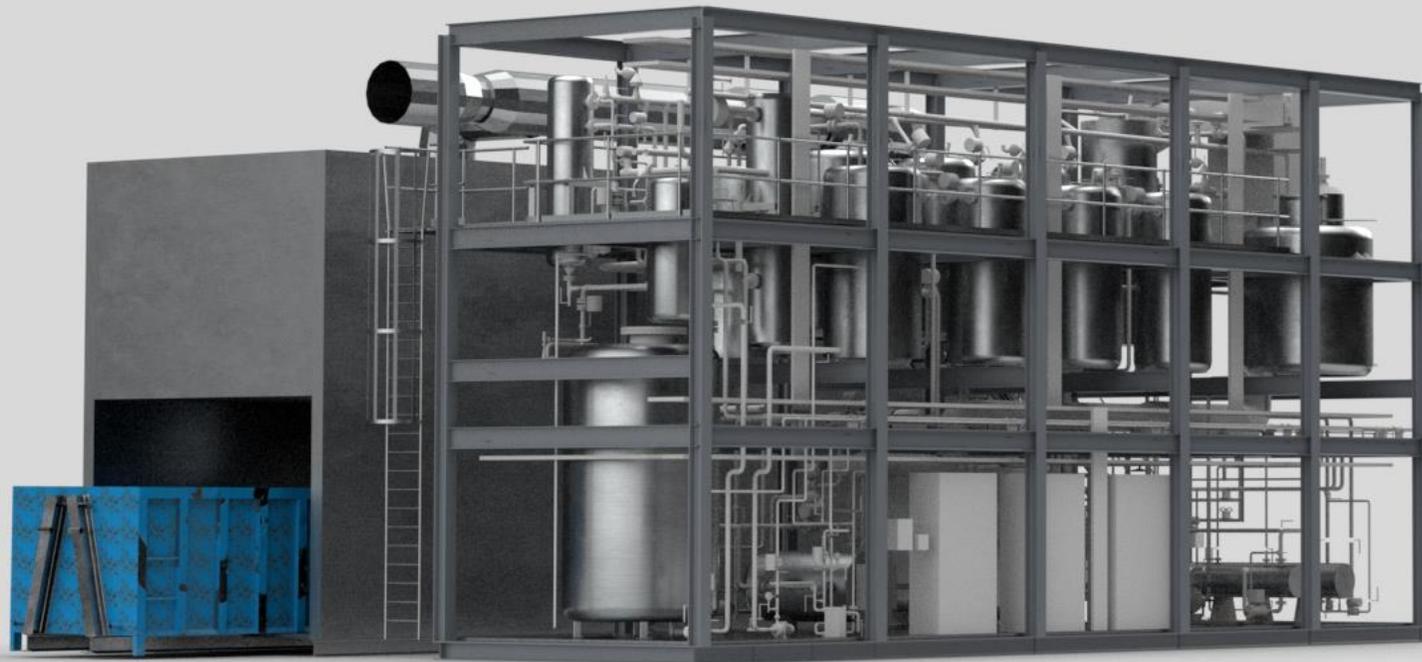
- » Biofuel
- » Soil improvement
- » Raw material



ZERO  
ENERGY

HYDROTHERMAL  
CARBONIZATION

# HTC REACTOR





GREEN



# It all comes together in Finland 2019



storaenso

Heinola paper mill

CO<sub>2</sub>-e  
savings/year  
**+4,000 ton**

Sludge  
capacity/year  
**+20,000 ton**



**Let's solve the world's  
sludge problem together**

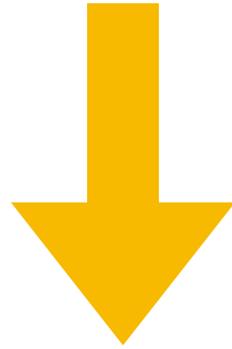
**C GREEN**  
HYDROTHERMAL CARBONIZATION

A large flock of birds, possibly terns, is seen flying over a landscape at sunset. The sky is a deep orange and yellow, with the sun low on the horizon. The birds are silhouetted against the bright sky. In the background, there are some structures that look like power lines or a bridge under construction. The overall scene is dramatic and emphasizes the scale of the challenge mentioned in the text.

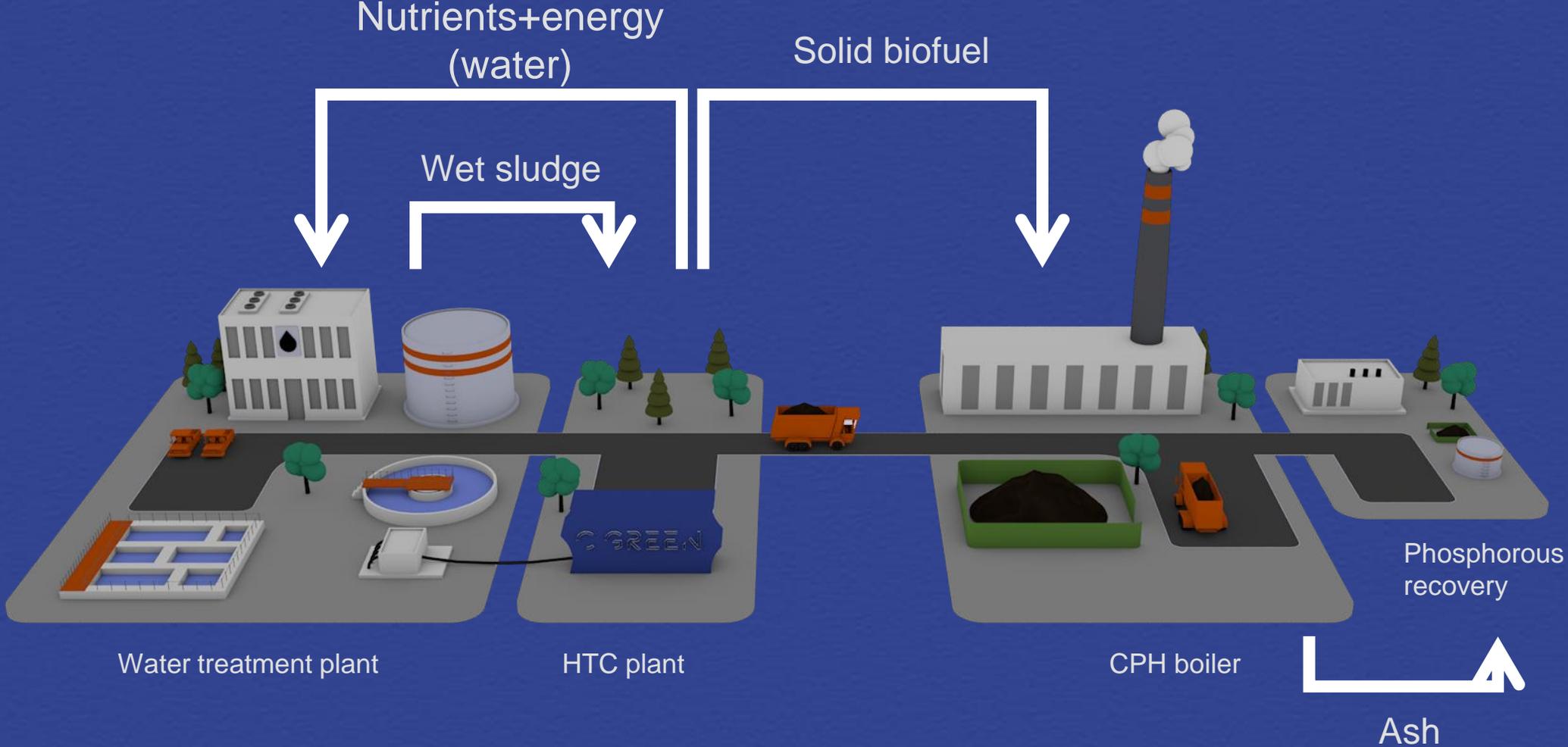
# **A huge, worldwide challenge**

**We are looking at a multi-billion ton,  
multi-segmented global problem, in need  
of a cost-effective and practical solution**

EXTRA



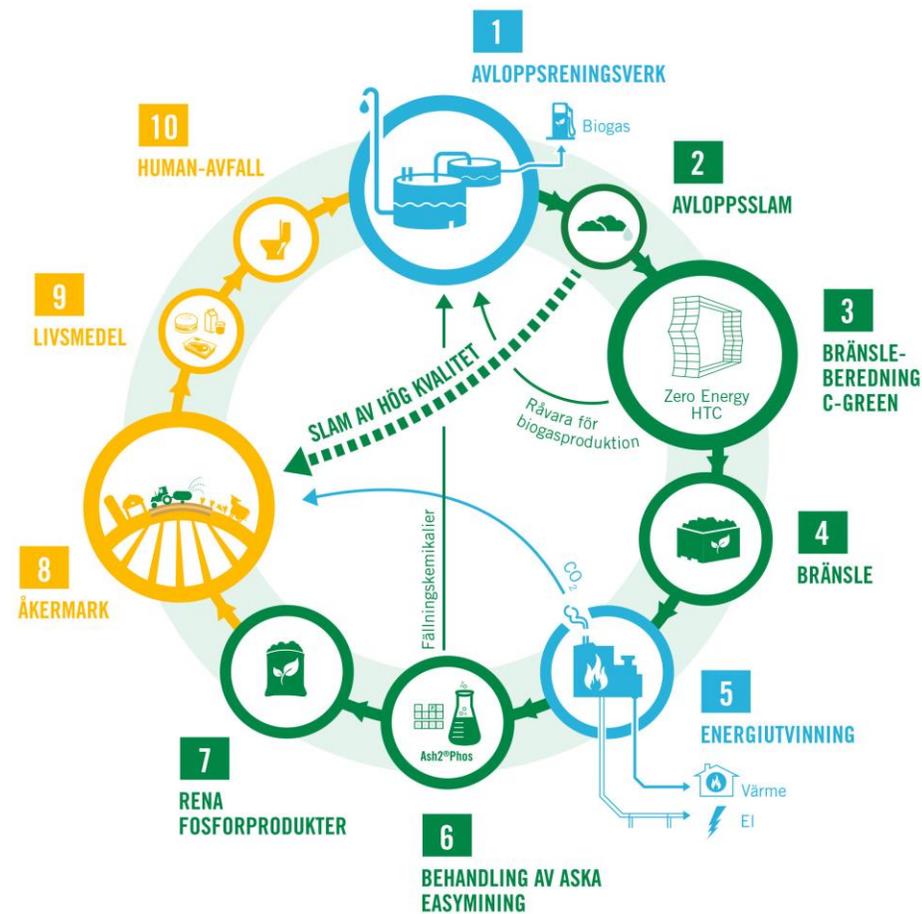
# A sludge recycling solution for every city and sludge producing industry



# RAGN SELLS

+

# C GREEN



ZERO  
ENERGY

HYDROTHERMAL  
CARBONIZATION

### Energy required

Drying

Zero Energy HTC

- » Continuous process
- » 70-90 % volume reduction
- » No bacteria, viruses and parasites
- » Negative GHG emissions
- » No odour problem
- » Easy storage and transportation
- » Inert product with carbon sink capability
- » Enables phosphorus recovery

# Wet organic waste is produced everywhere and it's a major environmental headache



