

Accelerating sustainable energy innovations

Innovative energy solutions for your business

Edition 2024



The power of the network

Building global connections



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A word from our CEO



In 2010 InnoEnergy was founded with the DNA to commercialise sustainable energy innovations, enabling the transition to a low carbon economy. Thirteen years of successful investment in sustainable energy has enabled us to spot high-potential ideas, provide specialised support, find valuable investors and essential customers, and uncover key opportunities to create value for your business. Now, we are better equipped than ever to provide industry with energy innovation that will help tackle the climate crisis, while fostering business growth.

Working with our ecosystem of 1,200 partners, we have assessed the most promising innovations across the entire value chain. We now have a portfolio of 200 commercially viable solutions to transform your business at the lowest risk possible. What is more, these innovations have the potential to save 2.1G tonnes of CO₂e accumulatively and generate €110 billion in revenue by 2030. In this catalogue you will find all of them broken down into market segment, mapped against their relevant Sustainable Development Goals.

Supporting you to develop a workforce that is fit for the transition, you will also find information in this catalogue about the InnoEnergy Skills Institute. Launched in response to the skills shortage in Europe and worldwide, our team are focused on equipping your workforce with the knowledge and expertise needed to decarbonise the economy.

Operating at the centre of Europe's energy transition, InnoEnergy is also accelerating the successful launch of new industrial champions and capturing opportunities created by new regulatory frameworks. For example, through our leadership of Europe's industrial value chains in battery storage, green hydrogen and solar photovoltaics, we are in a prime position to identify and transform market gaps into viable business opportunities. This has resulted in the successful launch of four new companies: Verkor, GravitiHy, FertigHy, and Holosolis, all of which support Europe in establishing a sustainable and indigenous supply chain, reducing reliance on imports. You can read about their achievements on the following pages.

The accelerated energy transition in Europe and in the world, and an increased reindustrialisation ambition in the western world are unique opportunities for InnoEnergy, its portfolio companies, and our trusted ecosystem of partners. We are geared up for the journey ahead. In the following pages, you will discover the solutions you need to ensure your company is too.

Diego Pavía, CEO, EIT InnoEnergy

Accelerating carbon neutrality to reach 2050 targets

EIT InnoEnergy is the leading innovation engine in sustainable energy and operates at the centre of the energy transition. It brings the technology, business model innovation and skills required to accelerate the green deal, progress towards Europe's decarbonisation and re-industrialisation goals, whilst also improving energy security. Since its inception in 2010, InnoEnergy provides support to global innovators through their full life cycle from early stage to industrial scale, accelerating, de-risking and boosting their business cases through our ecosystem of more than 1,200 partners.

A trusted partner ecosystem

Our innovation ecosystem incorporates industrial players of all sizes, investors (public and private, equity and debt), academia, research centres and public administration. InnoEnergy is the only investor that creates new strategic industrial value chains that derive new markets, which benefit the

wider ecosystem. Through our network we inspire connections, facilitate essential introductions and energise partnerships. Together we act as a key vehicle for the energy transition and make up the ingredients needed to bring a constant pipeline of sustainable energy innovation to market.

InnoEnergy Shareholders

43%

Industrial

Capgemini

Renault Group

EDF

Schneider Electric

ENGIE

SIEMENS

IDEC GROUPE

Siplex

KOOLEN INDUSTRIES

STENA RECYCLING

Naturgy

TotalEnergies

PULSE CMA CGM ENERGY FUND

VOLKSWAGEN GROUP

ARFARO GRUPA PBG

46%

Higher Education and RTO

AGH

NIIT

cea

Svein University of Technology

esade

University of Stuttgart Germany

GRENOBLE INP UGA

TU/e

TECNICO LISBOA

UPC

KIT

UNIVERSITY OF SLOVENIA

KTH

vito

KU LEUVEN

Wrocław University of Technology

11%

Financial

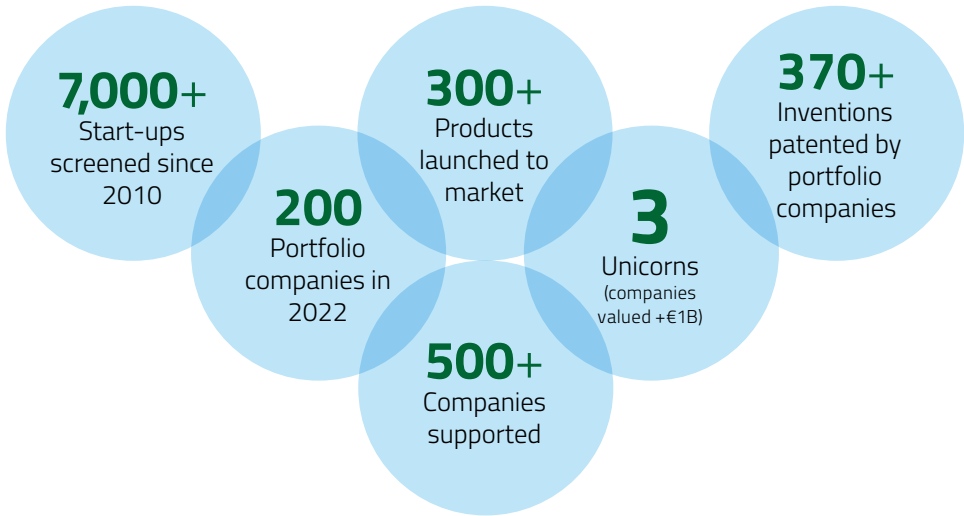
AUGUR CAPITAL GROUP

ING

Santander Corporate & Investment Banking

SOCIETE GENERALE

Our portfolio numbers



*As of December 2022

Impact KPI's from portfolio companies



Our track record at a glance

For the past 13 years, InnoEnergy's work has remained the same: helping entrepreneurs and companies increase their value to impact society, economy, and environment, and contribute to net-zero targets to create a more sustainable world. We achieve this impact not only through our investments, but by coupling these with value-added services to mobilise innovation and providing an ecosystem of support.

This is what sets us apart as an impact investor and we are very proud to receive recognition of this from respected sources year on year.



Startup Genome

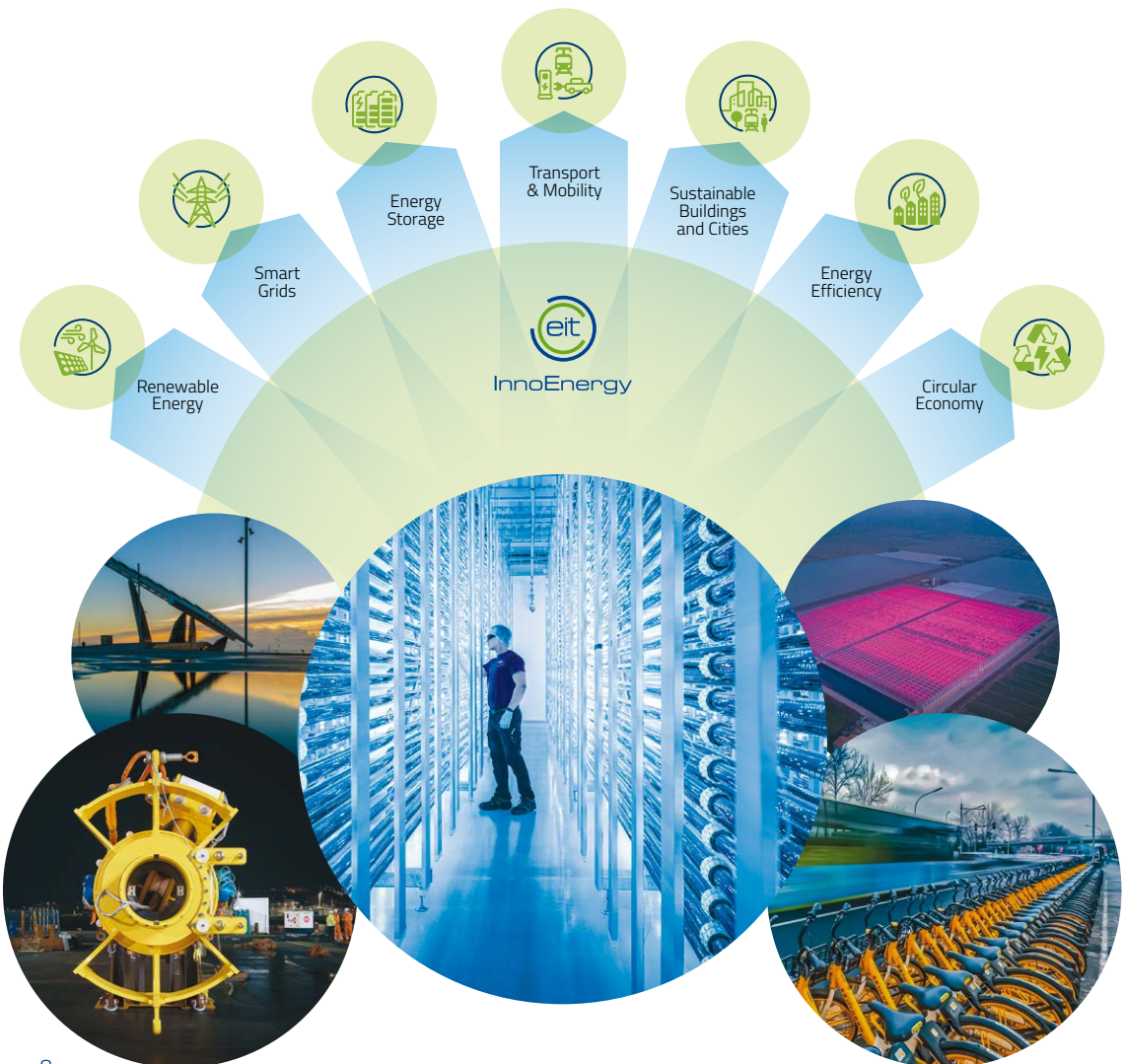
PitchBook

sifted/FT

Our areas of expertise

Developing a sustainable energy sector is one of the biggest challenges facing the world today. We must ensure supply to all our citizens – without compromising safety. We need alternatives to depleting fossil fuels that can still satisfy the changing demands of a growing population – and ensure that no one falls into fuel poverty.

We need to reduce carbon emissions – while remaining competitive with the rest of the world. There is no single solution that can overcome all these issues. So the energy sector will become more diverse. A range of products and solutions will be needed, each one addressing a different aspect of the energy challenge. That is why we backing innovations across a range of areas.



United Nations SDGs at the core of our investment process

At EIT InnoEnergy we follow the Environmental Social and Governance (ESG) principles for responsible investments. In this context, one important related element is the contribution we make to the Sustainable Development Goals (SDGs) established by the United Nations. They are at the core of our investment process and provide a means to measure impact.



No poverty. Economic growth must be inclusive to provide sustainable jobs and promote equality.



Zero hunger. The food and agriculture sector offers key solutions for development, and is central for hunger and poverty eradication.



Good health and well-being. Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development.



Quality education. Obtaining a quality education is the foundation to improving people's lives and sustainable development.



Gender equality. Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.



Clean water and sanitation. Clean, accessible water for all is an essential part of the world we want to live in.



Affordable and clean energy. Energy is central to nearly every major challenge and opportunity.



Decent work and economic growth. Sustainable economic growth will require societies to create the conditions that allow people to have quality jobs.



Industry, innovation, and infrastructure. Investments in infrastructure are crucial to achieving sustainable development.



Reduced inequalities. To reduce inequalities, policies should be universal in principle, paying attention to the needs of disadvantaged and marginalized populations.



Sustainable cities and communities. There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.



Responsible consumption and production. Responsible Production and Consumption.



Climate action. Climate change is a global challenge that affects everyone, everywhere.



Life below water. Careful management of this essential global resource is a key feature of a sustainable future.



Life on land. Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.



Peace, justice and strong institutions. Access to justice for all, and building effective, accountable institutions at all levels.



Partnerships. Revitalize the global partnership for sustainable development.

Creating new markets through industrial value chains



400 GWh

domestic EU cell production
per year across the
entire value chain by 2025

EUROPEAN
BATTERY
ALLIANCE

EBA250

€250bn/year

new market potential
by 2025

EIT InnoEnergy is spearheading the decarbonisation of Europe by leading industrial alliances in three strategic sectors: battery storage, green hydrogen and solar photovoltaics. These alliances bring together the knowledge and experience required to develop strategic value chains. By supporting large industrial projects, we are directly impacting the energy trilemma: reducing the cost of energy, limiting greenhouse emissions and increasing availability and security – all of which ultimately play a fundamental role in realising our goal of a carbon neutral Europe by 2050.

This is:

Creating an ad hoc ecosystem with stakeholders from across the value chain

Increasing the capacity to support large industrial projects

Filling the gaps of the existing value chain by fostering the required funding, skills and talent.



1,200 TWh

of EU final energy
based on green H₂
by 2025

EGHAC

European Green Hydrogen
Acceleration Center

€100bn/year

new market potential
by 2025



30GW

annual solar PV
manufacturing capacity
by 2025

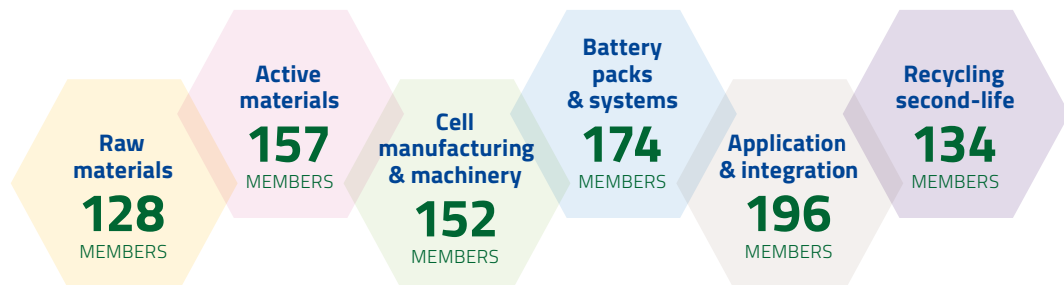
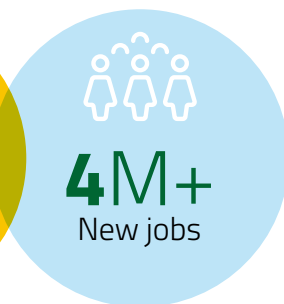


ESIA

European Solar PV
Industry Alliance

€40bn/year

front-loaded investment
in PV production capacity required



Some of EBA250 Members



Building a European battery industry

The European Commission launched the European Battery Alliance in October 2017 to address this industrial challenge. The annual market value is estimated at €250 billion from 2025 onwards and 4+M jobs created.

For Europe, the establishment of a complete domestic battery value chain is imperative for a clean energy transition and a competitive industry. The industrial development programme of the European Battery Alliance, the EBA250, is managed by EIT InnoEnergy. Today, EBA250 is a project-driven community which brings together more than 800 industrial and innovation actors, from mining to recycling, with the common objective to build a strong and competitive European battery industry.

Challenges

The European Battery value chain has developed remarkably during the past six years, especially in the area of cell manufacturing, packaging and applications from an almost non-existent level. However there are three areas that need to be improved in order to secure a resilient European battery value chain:

Raw materials, including refining and transformation into active materials

Skilled workforce, including reskilling people from other sectors

Production machinery

400 GWh

domestic EU cell production per year
across the entire value chain by 2025

€250bn/year

new market potential by 2025



A European value chain

Our goal

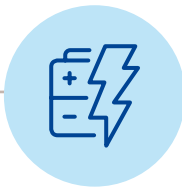
Build a strong pan-European battery industry to capture a new market worth €250b/year by 2025.



A unique open ecosystem

An independent meeting place

More than 800 members throughout the value chain have joined EBA250. The members come from the industrial, academic and financial worlds, from mining to recycling.



Project-driven

Our actions' DNA

Competitiveness, sustainability, significant impact, objective focus, urgency, concrete, project-driven, sharing, investment.

EGHAC

European Green Hydrogen
Acceleration Center



€100B
Annual Market
Value



500k
New jobs

**Renewable
energy**

24
MEMBERS

**Hydrogen
storage
and production**

15
MEMBERS

**Application
+
End-product**

86
MEMBERS

Fertiliser · 15 Members

Steel · 17 Members

Cement · 6 Members

Chemicals · 7 Members

Shipping fuel · 9 Members

**Organisations, knowledge institutions
and consultancies · 24 Members**

Financial institutions and funds · 8 Members

Some of our Members

SIEMENS Gamesa

Enapter

ABB

BASF

La Région
Occitanie
Hydrogen Accelerator

ING

ENGIE

McPhy

faurecia



Capgemini

INVESTAL

Naturgy

GREEN
HYDROGEN
SYSTEMS®

HYUNDAI

FREUDENBERG

Deloitte

Breakthrough
Energy

Ørsted

sunfire®

RENAULT

L'ORÉAL®

France
Hydrogène

KFW

VATTENFALL

Port of
Amsterdam

VOLKSWAGEN GROUP

SAINT-GOBAIN

Hydrogen
Europe

SOCIETE
GENERALE

edf

Carlsberg

nexity

amazon

W H
Women in Green
Hydrogen

thyssenkrupp

galp

colruyt

HOLCIM

MAERSK

McKinsey
& Company

VICAT

enel

Heineken

SÉCIL

MSC

Swedish
Energy Agency

METHANOL
INSTITUTE

RWE

Mondelēz
International

GREEN
HYDROGEN
SYSTEMS®

DFDS

RENERGY

KGAL

VEOLIA

Unilever

webuild

DAMEN

SNAM

ADOC
Agence de Développement Economique

Decarbonise hard to abate industries

Our ambition is to decarbonise hard to abate industrial value chains.

We create industrial players which we help to de-risk and accelerate their green hydrogen, ammonia, methanol and aviation fuel projects. We do this through early-stage investment and acceleration services which we deliver in collaboration with our ecosystem.

In addition, we support green hydrogen projects and start-ups by assessing their business case, perform a team assessment and finally introduce them to a tailor-made advisory committee with the objective to become an active investor and to accelerate and de-risk these projects as well.

By bringing all relevant stakeholders of a value chain together, including the off-takers, risk and benefits can be shared so that the premium for a greener produced product can be kept to minimum. Our industry led initiative focusses on the use of green hydrogen (and derivatives) to decarbonise the value chains for steel, fertilizers, chemicals, and mobility (maritime, aviation, HGV).

In 2022 EGHAC founded GravitiHy, a future market leader in green iron. The fully sustainable iron company will build its first plant in the area of Fos sur Mer, Southern France. In June 2023 the incorporation of FertigiHy has been announced, a new player in low-carbon fertiliser.



The European Green Hydrogen Acceleration Center (EGHAC) is founded and run by EIT InnoEnergy

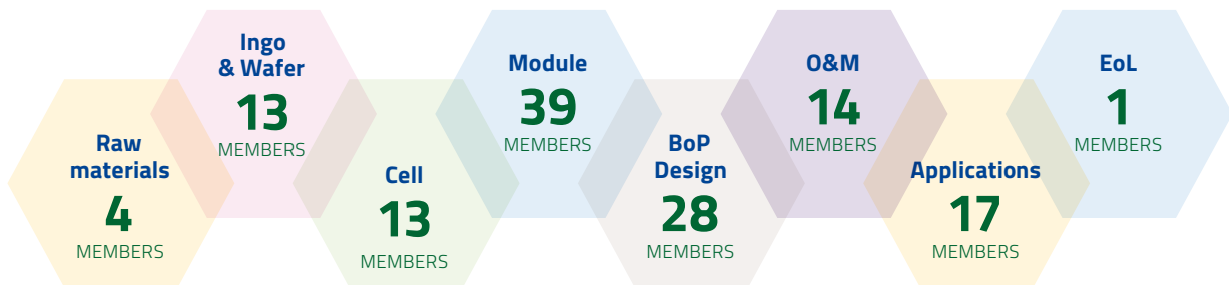


EGHAC's ambitions are fully in line with the EU's Fit-for-55 Package, REPowerEU and the more recent Green Deal Industrial Plan and demonstrates our ability to enable Europe's net-zero industry competitiveness.

Our investments in new green hydrogen-based companies and start-ups is also a further signal of EIT InnoEnergy's commitment to hard-to-abate industries and a marker of our continued success with EGHAC."

Carina Krastel

Managing Director, EGHAC



Some of our Members



Fostering an innovative solar PV value chain in Europe

Created by the European Commission and led by EIT InnoEnergy, the European Solar PV Industry Alliance facilitates an innovation-led expansion of a resilient industrial solar value chain in the EU, particularly in the PV manufacturing sector. The Steering Committee is made up of the European Commission itself, EIT InnoEnergy, Solar Power Europe and the European Solar Manufacturing Council.

The Alliance supports the growth of a European industry that is developing and commercialising breakthrough technologies along the whole value chain, leading to more innovative, efficient, circular and sustainable products, and making the EU’s climate and energy objectives more attainable.

The goal of the alliance

The targets set by the alliance, together with the European Commission, are to develop an industry to supply an annual capacity of 30 GW by 2025, adding 60 billion Euros of new GDP every year in Europe and creating more than 400,000 new jobs (direct and indirect).

Working across the entire value chain

The alliance will foster an innovative and value-creating industry in Europe, by scaling up manufacturing of innovative PV products and components. Bringing key industry stakeholders together, the alliance works across all value chain segments including polysilicon, ingots, wafers, cells, modules and recycling.

Priority actions



“To meet Europe’s renewable energy objectives we are launching an industrial alliance for solar energy. With the alliance’s support, the EU could reach 30 Gigawatt of annual solar energy manufacturing capacity by 2025 across the full PV value chain. The alliance will foster an innovative and value-creating industry in Europe, which leads to job creation here. Europe’s solar industry already created more than 357,000 jobs. We have the potential to double these figures by the end of the decade.”

Thierry Breton
European Commissioner for Internal Market

Supporting innovations across the entire energy value chain

A

Electricity,
gas & heat
generation

Ocean power

Hydropower

Offshore wind

Onshore wind

Solar PV

Solar thermal electricity

Nuclear



Bioenergy & waste to energy

Hydrogen & e-fuels

Renewable gas & biofuels

B

Grid and
infrastructure

Power TSO

Power DSO

Gas TSO

Gas DSO

District heating grid

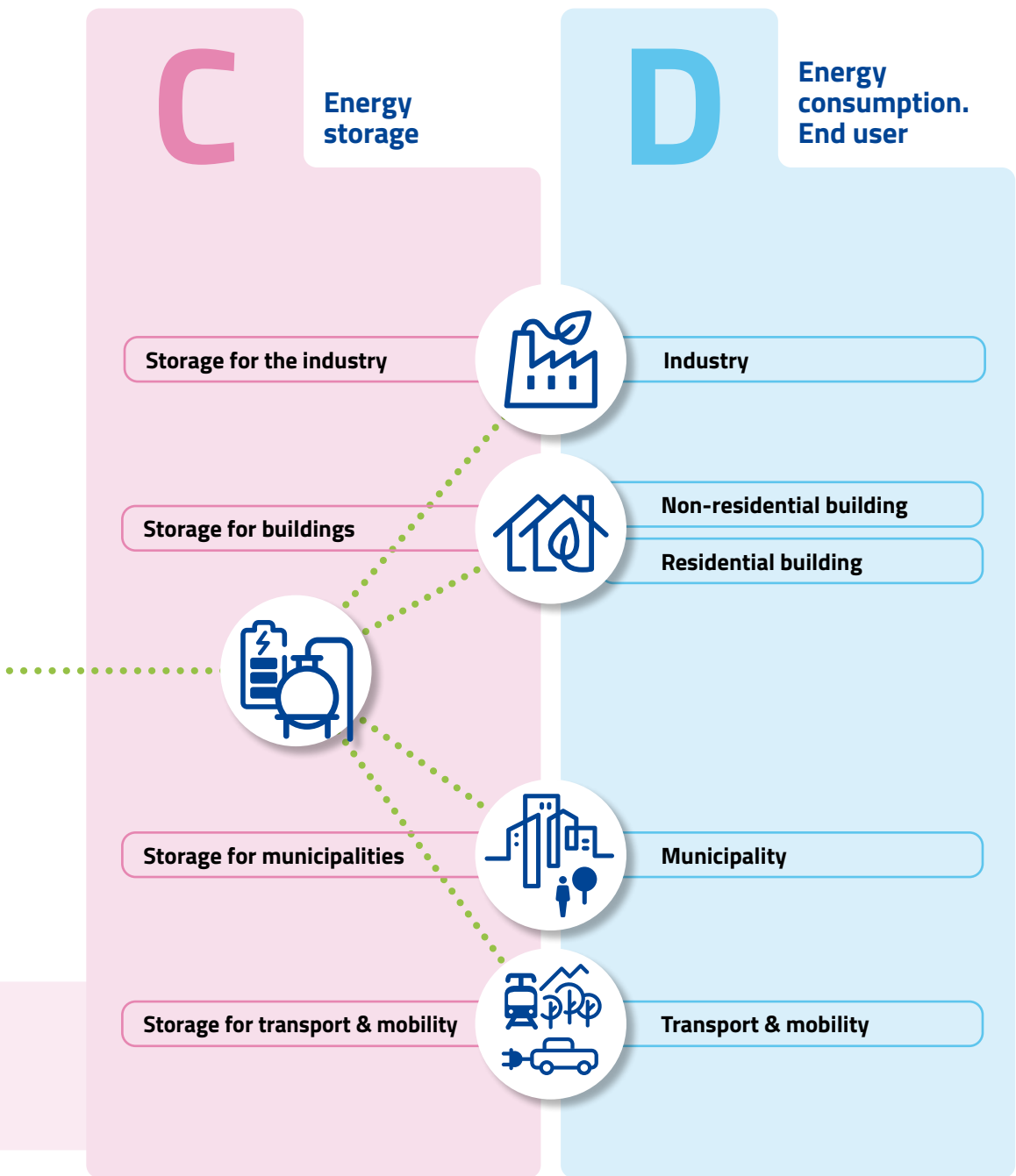


Off-grid

Storage for the grid

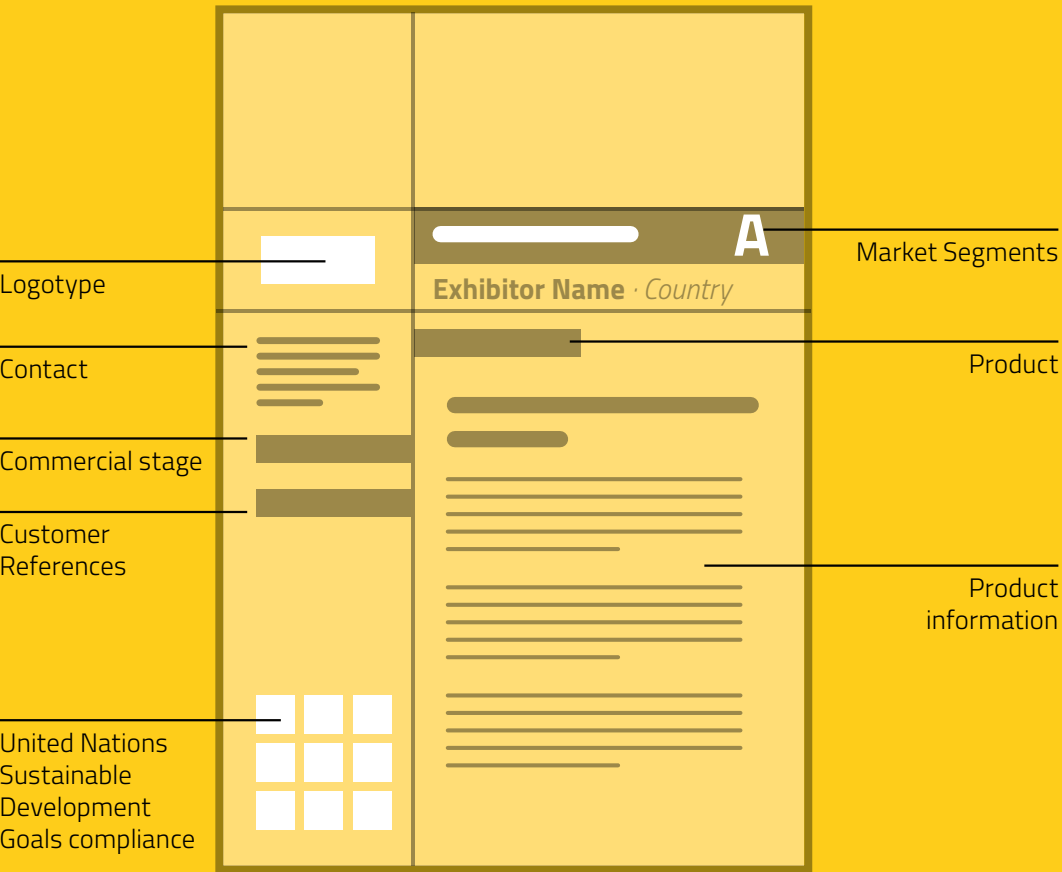
Storage for off-grid

The solutions in our portfolio span across the entire energy value chain, addressing the production and transportation of energy, as well as the energy needs of industry, buildings and cities and mobility. From energy generation to energy consumption see below a portfolio at the service of the energy transition.



How to use this catalogue

- Looking for a specific company? Check the alphabetical index on page 258
- Looking for all the companies in your country? Check the index by country on page 260



Each page corresponds to an innovative energy solution. You will find general information about the product (description, value proposition) plus contact details. You will be able to see which products are already commercialised and in most of these cases commercial references are also available.

Market segments

A

Electricity, gas & heat generation

- Ocean power
- Offshore wind
- Onshore wind
- Solar PV
- Nuclear
- Solar thermal electricity
- Hydropower
- Bioenergy & waste to energy
- Hydrogen & e-fuels
- Renewable gas & biofuels

B

Grid and infrastructure

- Power DSO
- Power TSO
- Gas DSO
- Gas TSO
- Off-grid
- District heating grid

C

Energy storage

- Storage for buildings
- Storage for municipalities
- Storage for off-grid
- Storage for the grid
- Storage for the industry
- Storage for transport & mobility

D

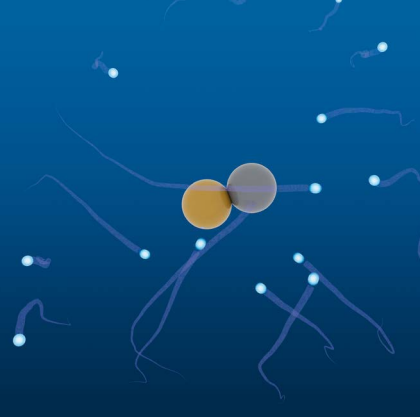
Energy consumption. End user

- Industry
- Municipality
- Non-residential building
- Residential building
- Transport & mobility

A large, bold, orange letter 'A' is positioned in the upper right quadrant of the image. The background is a dark, blurred night scene of a city, featuring various light trails in red, yellow, and blue, suggesting motion and energy. The overall composition is dynamic and modern.

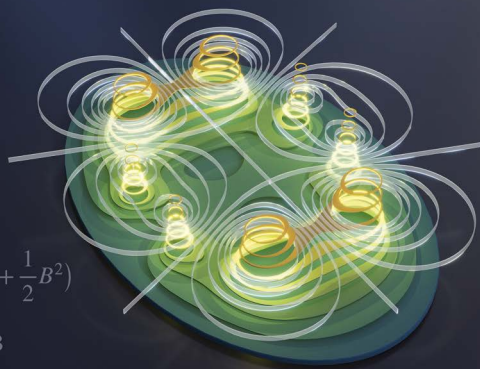
A

Electricity,
gas & heat
generation



$$D = \frac{\partial \ln J}{\partial \psi} - \frac{p'}{B^2} = -\frac{2}{B^2} \frac{\partial}{\partial \psi} \left(p + \frac{1}{2} B^2 \right)$$

$$= -\frac{2}{r B^3} \mathbf{e}_\psi \cdot [\mathbf{B} \cdot \nabla] \mathbf{B}$$



NOVATRON

MARKET SEGMENTS

Nuclear fusion

Power DSO, Power TSO

A

Novatron · Sweden

Missionsvägen 12
16733 Bromma
Sweden

peter.roos@novatronfusion.com
www.novatronfusion.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Strategic partnership with KTH Royal
Institute of Technology in Stockholm,
Sweden

PRODUCT

Reactors for Stable Fusion Plasma

Infinite clean energy through fusion power

THE NEED.

The global demand for energy is rapidly rising, making the shift from dependence on fossil fuels or waste-generating nuclear fission power an enormous challenge. Renewable energy sources, such as wind and solar, are important but cannot yet provide the reliable energy source we need.

THE SOLUTION.

Fusion power has the capacity to provide a limitless supply of clean, reliable and affordable energy for generations to come. The NOVATRON concept – an innovative reactor solution for stable magnetic plasma confinement – has been theoretically and numerically demonstrated to minimise problems with plasma instabilities that have obstructed the commercial advancement of fusion power. The first reactor is being developed by leading physicists, engineers and academics in Stockholm, Sweden.

VALUE PROPOSITION.

- Safe - no long-term radioactive waste and accompanying disposal problems; no risk of catastrophic failure.
- Streamlining of nuclear engineering and reduction of the current capital and operational cost of future fusion reactors in process.
- No carbon emissions.
- High energy efficiency.
- Low cost.
- Reliable base power.
- Abundant fuel supply.





MARKET SEGMENTS

Ocean power

A

CorPower Ocean · *Sweden*

Västberga Allé 60
126 30 Hägersten
Sweden

patrik.moller@corpowerocean.com
www.corpowerocean.com

✓ PILOT

CUSTOMER REFERENCES

Simply Blue Group: Project Saoirse. This project in Ireland will deliver 30MW by 2028 combining floating offshore wind and wave energy. It will be located 4km from shore, feeding electricity back to land via an export cable.

HiWave-5: this project, with Portuguese company EDP, will deploy commercial-scale C4 Wave Energy Converter off the coast of northern Portugal. This will later form part of a larger four-system WEC array, and one of the world's first active wave farms generating energy to the grid. HiWave-5 aims to deliver certified and warranted WEC products to the market by 2024.



PRODUCT CorPower C4 WEC

Wave power. To power the planet.

THE NEED.

Commercially available wave energy constitutes ~500GW, which covers about 10 percent of global electricity consumption. Wave energy can be a balancing source that enables a high penetration of wind and solar at the lowest electricity system cost possible.

THE SOLUTION.

CorPower Wave Energy Converter (WEC) can produce five times more electricity per tonne of the device (>10MWh / tonne) than any other known wave technology. It combines storm survivability with strongly amplified power capture in regular sea conditions. Obtaining large amounts of electricity from a small device significantly reduces capital expenses (CAPEX). The compact lightweight devices are also less costly to transport, install and service, bringing down operating expenses (OPEX).

VALUE PROPOSITION.

- The world's most efficient wave energy converter proven at sea.
- Physics supporting highly-competitive levelized cost of electricity (LCOE), verified through step-by-step approach.
- Key enabler for the transition to 100% renewables, by natural grid balancing.
- A dedicated and experienced team.
- Market pull - sector leading customers engaging with the aim of developing utility and off-grid projects.
- Offering attractive funding mix with high leverage on private equity invested.





MARKET SEGMENTS

Ocean power

A

Minesto · *Sweden*

Vita gavelns väg 6
426 71 Västra Frölunda Göteborg
Sweden

info@minesto.com
www.minesto.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

EDF (Project H2020 Tiger) - 2019
1 off DG100 (100 kW unit),
SEV (Faroe Islands) - 2019
2 off DG100 (100 kW unit)

PRODUCT Deep Green

A revolutionary concept for producing electricity from the ocean

THE NEED.

The global demand for low-cost renewable energy is increasing. An expanding human population, the need for energy supply security and a way to combat climate change are driving forces behind the development of efficient new technology.

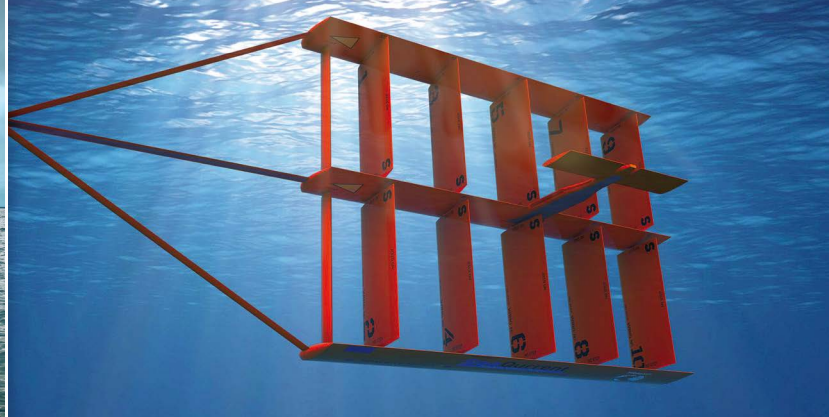
THE SOLUTION.

Deep Green sites are far more accessible than competing technologies and offer a highly efficient technique of increasing relative water flow speed into the turbine that provides a lower long-term levelised cost of energy (LCOE) at approx. €60/MWh. They offer low-cost offshore operations by using smaller boats and equipment and site characteristics monopoly with technology operating cost-efficiency in slow currents.

VALUE PROPOSITION.

- Global resource.
- Low-cost renewable energy.
- Small in size and weight, weighing 10-25 times less per MW than competing technologies.
- No land is required and there is no visual impact.
- Provides reliable, predictable and sustainable renewable energy (baseload power).
- Unlocks an untapped renewable energy source.





SeaCurrent.

MARKET SEGMENTS

Ocean power
Renewable energies

A

SeaCurrent · *The Netherlands*

De Skeakels 13
9001 NM Grou
The Netherlands
info@seacurrent.com
seacurrent.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT TidalKite

Next generation tidal energy plants

THE NEED.

Ocean energy can make an important contribution to the fight against climate change, aiding in the transition to a low-carbon economy. However, to accelerate the energy transition requires new technologies that can be employed in diverse locations.

THE SOLUTION.

The TidalKite is an innovative underwater kite that enables 3D energy-harnessing from tidal currents. Thanks to its patented, multi-wing system, a single TidalKite device can harvest much more energy than existing tidal technologies, making it cost effective for deployment in a large number of locations worldwide. The resulting energy harvest marks a breakthrough in the price of electricity produced from tidal energy.

VALUE PROPOSITION.

- Project development and O&M services facilitate TidalKite unit sales to customers.
- Financial risks associated with the development of TidalKite technology set to decrease with the successful completion of each development phase.
- The worldwide unique performance capabilities of the system, coupled with the patented intellectual property rights, ensure a first mover advantage and leading position in the shallow-water low-velocity market segment.





MARKET SEGMENTS
Offshore wind
 Onshore wind

A

Fibersail · The Netherlands

Stationsplein 45
 3013 AK Rotterdam,
 Benelux, The Netherlands

carlos.oliveira@fibersail.com
www.fibersail.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Shell, Siemens Gamesa

PRODUCT Fibersail shape sensing

Shaping the structures of tomorrow

THE NEED.

Unidentified loads on blades leads to underperformance (2% to 10%) and an increased risk of failure, elevating maintenance costs (10%) during operations. The high safety levels required mean structures must be built to survive excessive, unwanted loads.

THE SOLUTION.

Fibersail is a shape-sensing system based on fibre optic technology able to measure the deformation of blades during operations. It has a simple process of installation that enables the turbine to prevent excessive loads through the control system.

VALUE PROPOSITION.

- Maximised performance and reduced loads by detecting pitch and yaw misalignments.
- Prevents failures by reducing extreme loads.
- Prevents extreme failures by detecting structural behaviour differences.





MARKET SEGMENTS

Offshore wind

Industry

A

Principle Power · *United States*

5901 Christie Ave.
Suite 303
94608 Emeryville
United States

info@principlepowerinc.com
www.principlepowerinc.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

WindFloat technology has been fully proven through our full-scale prototype (2 MW Vestas V80 turbine) located 5 km offshore in Portugal.

In 5 years of operation, the prototype delivered over 17 GWh of electricity to the grid and survived waves of 17 m without sustaining any structural damage. Upon completion of test objectives, the prototype was decommissioned and towed to the port of Sines, PT using a standard tug, proving the feasibility and cost savings offered by the simple procedures for maintenance and decommissioning.

PRODUCT WindFloat

WindFloat is a floating foundation for offshore wind turbines with a simple, economic and patented design

THE NEED.

The offshore wind market is restricted to locations with low water depths. Offshore wind players aspire to develop deeper water sites that offer advantages such as high quality wind resource, and reduced visual and environmental impact.

THE SOLUTION.

A patented floating platform for wind turbines that offers: shallow draft, enabling commissioning of the system at port; a simple, easily disconnected mooring system; simplified logistics with low cost, widely available vessels; standard tubular components for simple fabrication and a structural design to minimise weight.

VALUE PROPOSITION.

- Flexible access to deepwater offshore wind sites.
- No crane vessels for installation or maintenance.
- Reduced risk throughout project lifecycle.
- Stable platform for high performance.
- Turbine agnostic and suitable for any commercial offshore wind turbine.





MARKET SEGMENTS

Offshore wind

Hydropower

A

Technology from Ideas · Ireland

6 Charlemont Terrace
Crofton Road
Dun Laoghaire (Dublin)
Ireland

noel@technologyfromideas.com
www.technologyfromideas.com
www.tfimarine.com

✓ PILOT

CUSTOMER REFERENCES

Naval Energies, Principle Power

PRODUCT Big Wind

Innovating the design of mooring systems

THE NEED.

Mooring systems become troublesome and expensive because of the induced loads by the sea and wind turbine positioned on the platform. The dynamic response of the mooring system has an impact on the total levelised cost of electricity (LCOE).

THE SOLUTION.

A Technology from Ideas (TFI) solution that introduces springs in the mooring line that provide a different dynamic response on the platform. This eliminates shock loading, reduces peak loading (30% to 70%), and improves fatigue (50% - 90% lower) of the mooring system.

VALUE PROPOSITION.

Risk Reduction

- Risk of failures reduced.
- Assets protected from rough sea states.
- Associated savings from repairs, insurance premiums etc.

Significant capital expenditures (capex) saving.

- Smaller chains, anchors, & mooring connections.
- Less structural steel across entire platforms.
- Smaller components can be used meaning cheaper deployment.

Significant operating expense (opex) saving.

- Lower maintenance requirements, labour, vessel, components etc.
- Longer life expectancy of infrastructure.





windcrete

MARKET SEGMENTS
Offshore wind

A

Windcrete · *Spain*

Jordi Girona 1-3
08034 Barcelona
Spain

climent.molins@windcrete.com
www.windcrete.com

✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT Windcrete

Innovative concrete spar substructure for floating offshore wind turbines

THE NEED.

There is a requirement to decrease the costs of production and implementation of floating offshore wind farms in deep waters.

THE SOLUTION.

Floating platforms that can be positioned in deep water. Installing wind farms further from the shore results in increased exploitation of the wind power present over the ocean, leading to a larger power production from renewables in the country in which they are installed. Turbines up to 10 MW can be sustained that have longer lifespans of over 50 years, a levelised cost of energy (LCOE) of € 0.12/kWh, and a monolithic design made of prestressed reinforced concrete.

VALUE PROPOSITION.

- Decreases the capital expenses and operating expenses of offshore wind farms.
- Decreases the maintenance operations.
- Exploits location not yet reachable from bottom-fixed offshore wind turbines.





MARKET SEGMENTS

Offshore wind

A

X1 Wind · *Spain*

Llacuna, 162
08018 Barcelona
Spain
alex.raventos@x1wind.com
www.x1wind.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

NextFloat Project
- Technip Energies,
- Naturgy
PivotBuoy Project
- EDP New

PRODUCT X1 Wind

Scalable and cost-effective offshore wind

THE NEED.

The European Commission has highlighted offshore renewable energy as a key area of interest to meet its goal of climate neutrality by 2050. Utilities and power producers require floating wind solutions to exploit sites located in deep waters. However, current technology is uncompetitive in price.

THE SOLUTION.

X1 Wind has developed an innovative floating wind platform for the offshore wind market with the aim of significantly reducing capital expenditures and levelised cost of energy (LCOE). The main objective is to make floating offshore wind cost-effective and untap the huge wind potential of deep-water locations. X1 Wind's approach is based on a downwind-configured weathervane platform that makes an efficient structural design possible while minimising the environmental impact on the ocean.

VALUE PROPOSITION.

- Lighter floater: reducing the weight of current substructure solutions.
- Easier installation: with an innovative single point mooring (SPM) system called PivotBuoy®.
- Scalable: with the integration of larger downwind turbines and TLP moorings that scale better in deeper waters compared to catenaries.
- Reliable: using passive orientation and removing unnecessary active systems (yaw and ballast).
- Lower environmental impact: reducing environmental footprint through the TLP mooring system and use of local infrastructure.





MARKET SEGMENTS

Onshore wind

Offshore Wind

A

ACT Blade · United Kingdom

Hill St 14-18
EH2 3JZ Edinburgh
United Kingdom

s.malpede@actblade.com
www.actblade.com

✓ PILOT

CUSTOMER REFERENCES

Vestas

PRODUCT ACT Blade

The lightest and most controllable wind turbine blade

THE NEED.

Larger turbines with longer blades are a popular means to reduce levelised cost of electricity (LCOE) values. However, composite blades suffer from significantly increased weight and cost, increasing fatigue on other turbine components and raising the cost of installation.

THE SOLUTION.

The ACT Blade is a tensioned textile-covered wind turbine blade with a shape that can be actively changed to control loads. It is 24% lighter than conventional blades, enabling longer blades and directly contributing to the production of 9% more energy with a 7% reduction in the cost of energy. As they are component based, ACT Blades could result in additional manufacturing savings with 63% tooling costs and 40% factory footprint reductions.

VALUE PROPOSITION.

Lighter, cheaper to produce and easier to transport, the ACT Blade is a leap forward in blade technology with real potential to increase the use of wind energy and displace the carbon emission of conventional power generation. Component based, they offer an opportunity to expand into remote zones contributing to local jobs and skills. ACT Blades modular manufacturing techniques are designed for a sustainable end-of-life approach.





AERONES

MARKET SEGMENTS

Onshore wind

A

Aerones · Latvia

Vestienas 32
LV-1035 Riga
Latvia

info@aerones.com
www.aerones.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Robot-enabled wind turbine maintenance and inspection

Efficient and safe wind turbine maintenance

THE NEED.

There is a requirement to develop technology that provides human-safe, environmentally-friendly and resource-efficient solutions to increase wind turbine energy production without raising maintenance costs.

THE SOLUTION.

Aerones has developed a unique set of technology (a 3D-Robotic WTG blade care system) with a wide range of maintenance services: inspections, coatings application, cleaning, de-icing and leading-edge repair. Its versatility equips it with different high-pressure liquid spraying attachments, inspection equipment and a robotic manipulator arm to perform complex WTG maintenance services.

VALUE PROPOSITION.

- Reduced downtime.
- Human safe.
- Enhanced efficiency.
- Cost effective.
- Durability of the blade.
- Increases wind turbine energy production by up to 20% without increasing costs.
- Increased turbine lifetime.
- Scalability.





MARKET SEGMENTS

Onshore wind

A

Nabrawind · Spain

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31002 Pamplona, Navarre
Spain

mturullois@nabrawind.com
www.nabrawind.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Innovent, Acciona Energía, Nordex.

PRODUCT Nabralift

Self Erecting Tower, a new technology that breaks the barriers to the growth of the wind turbines hub height

THE NEED.

New wind farm emplacements are for areas of low force wind. However, the best wind is located at 200 metres, so taller towers must be constructed. They present a challenge from a logistic and economical point of view.

THE SOLUTION.

Nabralift combines a light but rigid steel structure with a self-erecting system. This way, Nabralift solves significant logistical constraints as they can be transported in standard trucks. It also offers a cost-effective option since it avoids the requirement for tall cranes and reduces the foundation required. All in all, Nabralift saves up to 20% in costs when compared with alternative solutions, such as concrete hybrid towers.

VALUE PROPOSITION.

- Tower full-cost (also including foundation, logistics and installation) is reduced by a 15/30%.
- Fast installation: installation in three days, even in windy conditions.
- 15m/s average speed. Reduces inefficiency by up to 50%.
- Maintenance free.
- Total cost reduction of up to 20%.





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mturullols@nabrawind.com
www.nabrawind.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request.

MARKET SEGMENTS

Onshore wind

A

Nabrawind · Spain

PRODUCT BladeRunner

A craneless blade installation system

THE NEED.

Blade maintenance and replacement may represent a relevant cost for a wind project, as standard cranes used for these kinds of manoeuvres are quite expensive. A system is required for blade maintenance and replacement that drastically reduces costs.

THE SOLUTION.

BladeRunner is a blade maintenance and installation system that does not require a crane. It is based on the installation of small pieces of equipment on the hub of the wind turbine that enables the vertical ascent and descent of the blade. The system is connected directly to the blade root inserts or T bolts which avoids applying force to their aerodynamic surface, eliminating the risk of cracks appearing in the handling area.

VALUE PROPOSITION.

- Patented system: offers a drastic cost reduction compared to standard cranes in blade replacement operations.
- Fast system: the repair of a blade or the installation of a complete rotor takes just three days.
- Simple logistics: the reduced weight of the BladeRunner (the whole system is under 1.000 kg) enables its transportation by van.
- Low labour costs: a team of just four people are needed to operate it.





MARKET SEGMENTS

Onshore wind

A

Nabrawind · Spain

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31002 Pamplona, Navarre
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mturullois@nabrawind.com
www.nabrawind.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT Nabrabase

An elevated foundation for wind towers

THE NEED.

The soil characteristics or even the availability of concrete in some emplacements may pose a challenge for the development of wind farms. Nabrabase solves this problem and, furthermore, significantly improves the environmental impact of the wind energy project.

THE SOLUTION.

Nabrabase is a highly cost competitive alternative for wind farms where concrete supply may pose a challenge. It comprises of an innovative wind tower elevation foundation where a tripod is installed under the tubular tower resulting in a hybrid support structure. The tubular tower segment is connected to the frame tower segment through a metallic transition segment.

VALUE PROPOSITION.

- Footprint reduction: Nabrabase Pile or Anchor rock foundation reduces up to 80% CO₂ emissions during the installation of the wind turbines.
- Speedy installation: setting the foundation is reduced to one week and the complete installation of a wind turbine to two weeks.
- Foundation simplification: the concrete requirements for the foundation are reduced by 60%.





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mturullois@nabrawind.com
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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request.

MARKET SEGMENTS

Onshore wind

A

Nabrawind · Spain

PRODUCT Nabrajoint

Game-changing technology suitable for a new generation of XXL blades

THE NEED.

A new generation of blades incurs high logistical costs and difficulties in transportation to onshore wind farms. Blades can exceed 70 metres in length and in some cases can make the project unfeasible.

THE SOLUTION.

Nabrawind Modular Blade System (Nabrajoint) is a technology applicable to any wind turbine blade (existing or new). A game-changing technology suitable for a new generation of XXL blades, it allows blades to be manufactured in two or more parts that can be transported separately and assembled on site. Nabrajoint technology is based on a bolted connection between blade modules with conventional, controlled and robust assembly methods.

VALUE PROPOSITION.

- Removes logistic barriers for blade lengths of over 70m.
- Relevant logistic savings.
- Sites previously difficult to access may now become feasible with this modular solution, enabling the development of promising new sites.
- Important competitive advantages in the incipient business of repowering wind farms, offering significant savings in wind farm site adaptation and access modifications.





MARKET SEGMENTS

Onshore wind

A

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www.nabrawind.com

✓ PILOT

CUSTOMER REFERENCES

Available on request.

PRODUCT Skylift

A craneless wind turbine installation system

THE NEED.

Ironically, wind turbine installation systems are negatively affected by wind, and the inability to install turbines in windy weather is costly. A system is required that is able to operate in the windiest of conditions.

THE SOLUTION.

Skylift is a completely craneless wind turbine installation system. It is compatible with any kind of standard wind turbine. The system is integrated by two components. Firstly, a self-erecting system, capable of installing both nacelle and tower even in extremely high winds (wind speeds of up to 15 m/s). Following that, the BladeRunner installs the rotor, again without the need of any kind of crane.

VALUE PROPOSITION.

- Craneless: wind turbine, rotor and tower are fully installed with the self-erecting system, avoiding any kind of crane.
- Wind insensitive: Skylift has an operative installation window in wind speeds of 15 m/s and a survival system that can withstand gusts of up to 23 m/s.
- Speedy installation: an installation rate of 1 turbine per week, even in extremely windy conditions.





MARKET SEGMENTS

Onshore wind

A

Renercycle · Spain



Calle Media Luna 19, 3B
31002 Pamplona, Navarra
Spain

info@renercycle.com
renercycle.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Strategic partnerships with
ACCIONA Energy, RWE, Enhol
Group and Enerfin (Elecnor Group),
Nordex and Ingeteam

PRODUCT

RenerCycle

Developing industrial and technological solutions to boost the circular economy in renewables

THE NEED.

By 2030 more than 50,000 wind turbines in Europe will have reached or exceeded their 20 years of useful life. This means that some 500,000 tons of turbine blades will have similarly reached the end of their useful lives. From 2025, this component cannot be landfilled and must be recycled.

THE SOLUTION.

RenerCycle proposes a new circular model of non-linear production and consumption for onshore projects. In addition to the dismantling of wind farms, and the repairing and reconditioning of wind turbine components as spare parts, the plan includes recycling metallic materials such as steel and castings, the composite materials of wind turbines (blades and nacelles) as well as organic materials such as gearbox oils, among other industrial initiatives.

VALUE PROPOSITION.

- Circular economy services that help transform the industry into one completely sustainable.
- Wind farms dismantling and site restoration.
- Refurbishing of wind turbine components for spare parts market.
- Recovery of materials.
- Recycling of composites and other materials.





MARKET SEGMENTS

Onshore wind

Municipality · Non-residential building · Offshore wind

A

Vertequip · Portugal

Rua do Tejo Lote E
2140-011 Chamusca
Portugal

info@vertequip.com
vertequip.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

EDP renewables. Martifer, Teixeira
Duarte, Norafica, Libertas, NOS

PRODUCT S.T.E.P.

System of translation and elevation of people

THE NEED.

There is a need to address the serious risk of working at heights and its low productivity rate.

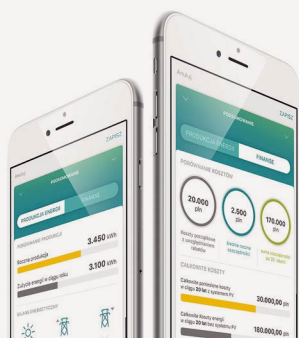
THE SOLUTION.

A unique system allows workers, including handicapped and amputees to work at heights more safely and efficiently. The system uses only one harness, moving workers both horizontally and vertically, while controlling everything through a remote control. Adequate for any type of structure: building, bridge, silo, wind tower or oil rig. Cheaper and lighter than equivalent technologies and safer than abseiling or rope access.

VALUE PROPOSITION.

- 40% cost reduction in cleaning and maintenance works.
- Lighter system to the structures.
- Social inclusivity.





easysolar

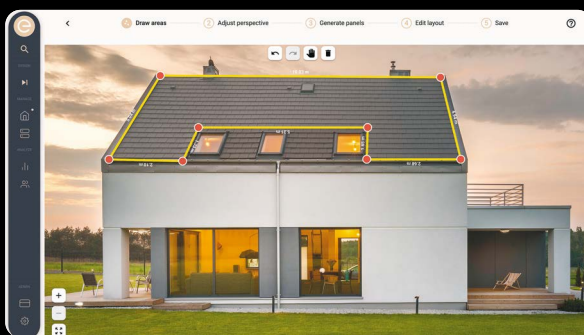
Głogowska 216
60-104 Poznań
Poland

marcin.dolata@easysolar-app.com
easysolar-app.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Over 800 clients (companies)
from Poland, Spain, Germany
and many others.



MARKET SEGMENTS

Solar PV

A

EasySolar · Poland

PRODUCT EasySolar

Software that employs AI to support and streamline the sales process of residential solar power systems

THE NEED.

The global solar PV market is estimated to reach \$262.3 billion by 2032. However, the sale of solar PV systems is mostly made by small local companies with limited resources. There may be no easy way to design installations or make calculations, and wholesalers may have outdated ordering processes.

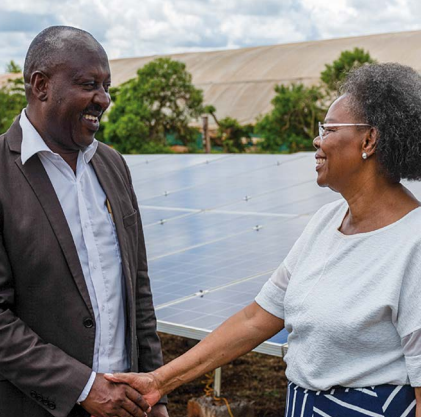
THE SOLUTION.

Easysolar offers software as a service aimed at small companies selling photovoltaic installations. The service provides companies with a quick and easy way to design the installation, perform calculations and order components from the wholesaler under the best conditions and at the best price. The process of selling installations is simplified, and the work of thousands of specialists and traders around the world is made available.

VALUE PROPOSITION.

- Simplifies PV sales process.
- Saves a significant amount of time.
- Increases sales closing rate.
- Reduces operational costs.
- Increases sales and revenue.
- Easy access to ordering with one click.
- Best components order conditions and prices.





MARKET SEGMENTS

Solar PV

A

Ecoligo · Germany

Invalidenstrasse 112
10115 Berlin
Germany

hello@ecoligo.com
www.ecoligo.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Ecoligo.investments has 1500 crowd investors invested in sustainable projects on the platform.

For customer references here:
www.ecoligo.investments

PRODUCT

Sustainable investment opportunities

Ecoligo offers investors sustainable investment opportunities in solar projects that help save the planet

THE NEED.

Private investors lack investment options that are sustainable as well as financially attractive. The impact of ethical investments is often unclear and it is difficult to choose where to invest. Access to green bonds is only available through fund managers or with a high minimum investment.

THE SOLUTION.

With ecoligo, individuals can support clean, renewable energy by investing online in minutes, starting with as little as €100. They receive fixed and attractive returns from short investment periods. The projects support local businesses and enable sustainable economic growth, demonstrating a tangible impact with measurable CO₂ savings. Projects are owned and managed by ecoligo GmbH, providing remote monitoring and risk management.

VALUE PROPOSITION.

- Attractive investment opportunities (up to 8.00 % interest p.a.).
- Investments from just €100.
- Economic impact in emerging markets.
- Measurable environmental impact and CO₂ savings.
- Own project operation and risk management.
- Easy investment process.





MARKET SEGMENTS

Solar PV

A

Ecoligo · Germany

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www.ecoligo.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Selected projects:

- 720 kWp - Fresha Dairies, Kenya
- 1,134 kWp - Nam Dinh Forest, Nam Dinh, Vietnam
- 994 kWp - Dong Nam Viet Packaging, Ben Cat Town, Vietnam
- 393 kWp - Thien Nam Elevator, Duc Hoa, Vietnam
- 266 kWp - fairafric, Ghana
- 276 kWp - Central University, Ghana
- 150 kWp - Vision Plaza, Kenya
- 204 kWp - Arenal Kioro

For other ecoligo projects see here:
<https://ecoligo.com/projects>

PRODUCT Solar-as-a-service

Offering affordable solar-as-a-service solutions for commercial and industrial clients in developing countries

THE NEED.

Commercial and industrial (C&I) businesses in emerging markets are growing fast and need access to cheaper, more sustainable clean energy. While they'd benefit most from solar energy, they often have no access to financing.

THE SOLUTION.

Ecoligo offers commercial and industrial businesses in emerging markets access to clean and affordable solar-as-a-service solutions financed by crowdinvestors. This allows businesses to lower their energy costs and gives them more time to focus on growth. ecoligo manages projects from start to finish, while tailoring each system to meet the specific needs of the business.

VALUE PROPOSITION.

- Combining global reach and local expertise, ecoligo saves businesses money on electricity bills while also benefitting the planet.
- A one-stop-shop for clean, affordable solar energy, the company handles everything from financing to installation and maintenance.
- Guaranteed performance on tailor-made projects and significant lowering of energy costs.





Rue des cuirassiers 15
69003 Lyon
France
remi.berthon@ener-pacte.fr
www.ener-pacte.fr

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Eglantine energie, EARL de la métairie,
GAEC Ferme de l'ouest, ELO PV,
Gestion Energie, SC Les Puechs,
Layelec, Lagon bleu, Watt SMB, Solib1



MARKET SEGMENTS

Solar PV

A

Ener-Pacte · *France*

PRODUCT Serenity

Management and 360° optimisation of medium-sized PV plants

THE NEED.

PV owners of the early days of the solar boom in Europe are mostly non-professionals that lack the knowledge, time and money to manage their assets properly and so run into a number of risks that may significantly reduce their solar revenue.

THE SOLUTION.

Ener-pacte offers a solution that improves existing PV plants in multiple ways. A smart way to sell technical actions to non-professionals, it enables the auditing, improvement and managing of PV assets in an automated, simple and efficient way. It includes costs optimisation, financial optimisation, predictable future cashflows and technical optimisation.

VALUE PROPOSITION.

- Delegated management of the PV plant.
- Legal and technical compliance of the PV plant.
- Reduction of personal guarantees for banks.
- Total security of the existing profitability of PV owner.





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Spain

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www.ezzing.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Iberdrola
Solar 360
Engie
Plenitude
Lipigas
Leroy Merlin
Capital Energy



MARKET SEGMENTS

Solar PV

A

Ezzing · Spain

PRODUCT Ezzing

Your partner in leading the energy transition to distributed generation

THE NEED.

Buying and installing photovoltaic installations can be a complicated and costly procedure and energy companies face the challenge of making sales. A platform is required that makes solar energy more accesible to everyone, streamlining the process of selling, buying and installing solar.

THE SOLUTION.

Ezzing is a fully-integrated online platform that covers all aspects of the solar business value chain. The platform optimises all the resources needed to buy, sell and install residential and commercial photovoltaic installations. By interconnecting everyone in the value chain, overhead costs can be reduced and customer acquisition costs kept to a minimum.

VALUE PROPOSITION.

- Allows anyone to sell or design photovoltaics anywhere.
- Allows for engagement with the end customer during and after sales, while offering a means to cross-sell other energy products.
- Interconnects everyone in the value chain to reduce overhead costs.
- Reduces customer acquisition costs to a minimum.
- Through the technological platform the whole process is simplified, with all four main areas supported.





MARKET SEGMENTS

Solar PV

A

Feedgy · France

Rue La Fayette 83
75009 Paris
France

ybaratte@quantom.solar
www.feedgy.solar

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Location: Arengosse (France), 249 kWpplant => +20% production / 550 k€projected additional revenue (2019);

Location: Uhlwiller (France), 1,3 MWpplant => +25% production / 3 M€projected additional revenue (2020);

Location: Cruas (France), 1,3 MWpplant => +17% production / 1,9 M€projected additional revenue (2020);

Location: Maulévrier (France), 149 kWp => +29% production / 350 k€.

PRODUCT Feedgy

Innovations to make solar plants more profitable for much longer

THE NEED.

Solar plants suffer production losses over time due to degradation, most of the time invisible and/or unknown in origin. Monitoring solutions, when implemented, do not allow for accurate identification of the various factors of underperformance or quantify the financial losses related to them.

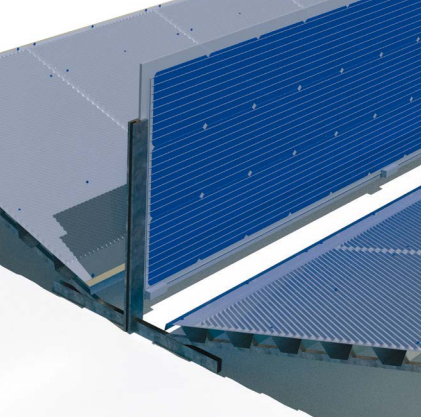
THE SOLUTION.

Feedgy detects underperforming plants and turns them into over-performing installations. Thanks to unique algorithms, a performance audit enables the recognition of the origin of various degradations and provides accurate diagnosis of the condition of the plant, while proposing various options to optimise production using high-performance materials. The software also offers the full benefits of real-time performance monitoring over time, paving the way for predictive maintenance.

VALUE PROPOSITION.

- Digital audit to identify 20 types of defaults and degradations in 5 areas.
- Up to 62% increase in energy production.
- Extension of the lifespan of solar plants by 20 years.
- Optimisation of profitability of solar assets with payback <5 years.
- Premium support in all aspects of the project (legal, financial, insurance, etc.).
- Innovative digital platform for performance monitoring.





FutureVoltaics

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Spain

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www.futurevoltaics.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

We have entered the market with a pre-commercial sale to a major solar tracker manufacturer. The details of this transaction are subject to an NDA.

MARKET SEGMENTS

Solar PV

A

FutureVoltaics · *Spain*

PRODUCT VECTHOR

More power when it matters

THE NEED.

PV systems overproduce power at noon in the warmer months, and underperform at sunset, sunrise and during winter. There is a need to flatten the solar energy production curve and align electricity demand with generation. This would minimise grid stress and reduce reliance on energy storage systems.

THE SOLUTION.

VECTHOR is an innovative photovoltaic system that utilises vertical bifacial solar panels, along with patented engineered reflectors. This enables it to increase power output irrelative of radiance conditions. The technology maximises the overall annual energy yield of the plant (kWh/kW) and reduces the cost of electricity (LCOE). It additionally optimises energy production when the price of electricity tends to be higher: at sunrise, sunset, in cloudy weather and in winter.

VALUE PROPOSITION.

- Increases power output in all conditions.
- Maximises annual energy yield of the plant.
- Reduces electricity cost.
- Optimises energy production at costly times of the day or year.





GREENSTONE ENERGY

Manteuffelstrasse 77
10999 Berlin
Germany
stephan.huwig@greenstone-energy.de
www.veganstrom.com

✓ STARTING SALES

CUSTOMER REFERENCES

Currently, three digit customer base,
B2C sale, online sales only with
emphasis on social media.

MARKET SEGMENTS

Solar PV

A

GreenStone Energy · Germany

PRODUCT Vegan Strom

Animal-friendly green energy

THE NEED.

A vegan lifestyle implies buying vegan food and preparing vegan meals, but what about vegan electricity to cook them? Green energy is not necessarily vegan: wind power and hydro have a negative impact on animals, bio-gas requires industrial farming. VeganStrom is an animal-friendly alternative.

THE SOLUTION.

Veganstrom provides a revolutionary new choice to vegan end-customers. In teaming up with the trusted animal rights group PETA, Greenstone Energy has determined that mainly solar PV & geothermal do not harm animals and so supplies end customers with 100% vegan green electricity, helping the 1.3 million vegans in Germany live a complete vegan life.

VALUE PROPOSITION.

- Green power that suits a vegan lifestyle.
- Harmless to animals.
- No legacy burden: without billions invested in conventional power generation nor large volume of wind and hydro assets.
- Authentic and trustworthy for customers.





MARKET SEGMENTS

Solar PV

A

Holosolis · France

3 allée du Nanometre
38000 Grenoble
France
holosolis.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Strategic partnership with Fraunhofer Institute for Solar Energy Systems ISE for the development of Holosolis 5GW solar cells and modules production site.

PRODUCT Holosolis

PV made in Europe, by Europeans for Europeans

THE NEED.

China is currently responsible for 80% of the world's installed photovoltaic modules – compared to just 3% in the European Union. At a time where energy security is high on the agenda, there is a need to significantly increase Europe's solar capacity.

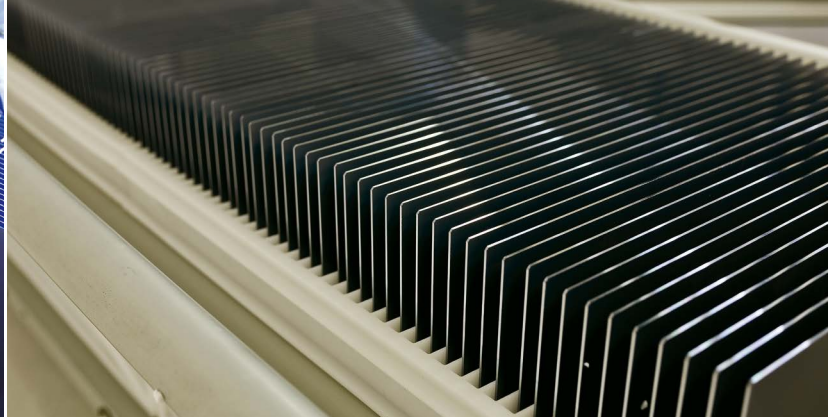
THE SOLUTION.

Holosolis plans to build Europe's largest PV module gigafactory which will be located in Sarreguemines, France. The factory will have a production capacity of 5GW per year, producing 10 million photovoltaic modules annually. It will employ 1,700 people. Holosolis will accelerate Europe's solar capabilities to ensure and prioritise energy security on the continent.

VALUE PROPOSITION.

- Production of the most reliable, high powered solar modules in Europe.
- Lowest carbon footprint and best social footprint possible.
- Dynamises Europe's industrial rebirth and Europe's energy self-reliance.





MARKET SEGMENTS

Solar PV

A

NexWafe · *Germany*

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79108 Freiburg im Breisgau
Germany

info@nexwafe.com
www.nexwafe.com

✓ **PILOT**

CUSTOMER REFERENCES

LOIs signed by Trina Solar and First Solar. Strong interest from leading solar cell producers to test NexWafe's wafers.

PRODUCT EpiWafers

Kerfless monocrystalline silicon wafers

THE NEED.

PV module costs have to be reduced. 40% of PV module costs are associated with the cost of the wafer. Current wafer manufacturing processes have a very limited cost reduction potential. Disruptive technologies are needed to bring wafer costs down.

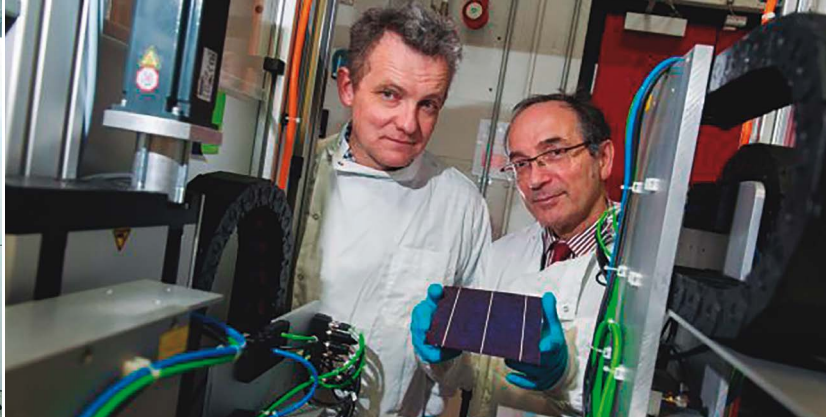
THE SOLUTION.

NexWafe uses Kerfless Wafer Technology for the production of high quality mono-crystalline n-type silicon wafers. EpiWafers are an economical drop-in replacement for Cz wafers in solar cell production. Full-square instead of semi-square, they have very low thickness variation and extremely narrow resistivity distribution.

VALUE PROPOSITION.

- Cost saving.
- High solar cell efficiencies.
- Higher power.





Nines
Photovoltaics

MARKET SEGMENTS

Solar PV

A

Nines Photovoltaics · Ireland

Synergy Centre ITT Tallaght
D24 A386 Dublin
Ireland

info@nines-pv.com
nines-pv.com

✓ PILOT

CUSTOMER REFERENCES

Franhoufer ISE

PRODUCT ADE 6000

Dry etching at the price of wet

THE NEED.

There is a requirement for unique, low cost, dry texturing volume production technology for the PV solar cell manufacturing industry that leverages the cost savings of diamond-wire cut multicrystalline wafers and novel wafer technologies.

THE SOLUTION.

ADE® technology is a unique, low cost, dry texturing volume production technology for the PV solar cell manufacturing industry. It enables manufacturers to differentiate their offerings in terms of both cost and performance, while fully leveraging the cost savings of diamond-wire cut multicrystalline wafers and novel wafer technologies. ADE is a novel, proprietary technology patented by NINES PV. Unlike RIE (Reactive Ion Etching), ADE does not require any vacuum or plasma.

VALUE PROPOSITION.

- High throughput capacity - 250 MW per tool.
- Scalable and sustainable PV manufacturing for future generations.
- Small tool footprint.
- Suitable for all PV cell wafer types.





MARKET SEGMENTS

Solar PV

Non-residential building

A

Peafowl Plasmonics · Sweden

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756 51 Uppsala
Sweden

cristina.paun@peafowlplasmonics.com
peafowlplasmonics.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT

Peafowl Plasmonics

Harvesting ubiquitous light to make electronic devices sustainable and self-powered

THE NEED.

Buildings use 40% of electricity and emit 30% of CO2 globally. Sensors and dynamic windows optimise indoor climate and cut energy consumption by 20%-40%. Self-powered devices, without batteries or cables, lower installation and maintenance costs, enable retrofitting, and reduce toxic/rare materials.

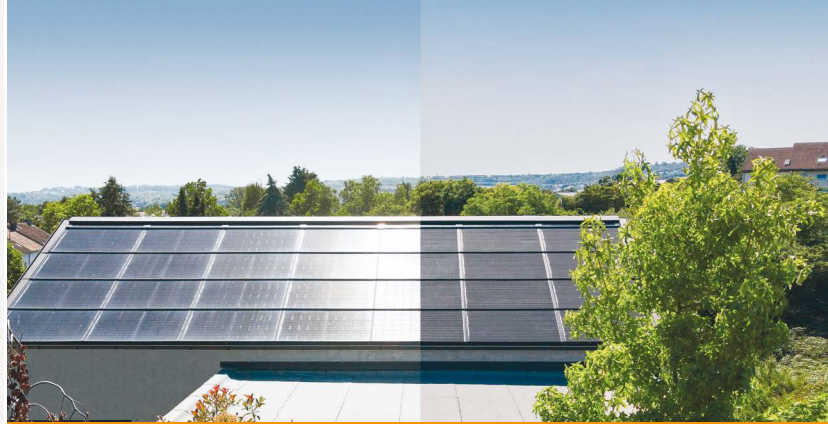
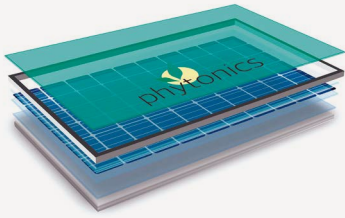
THE SOLUTION.

Peafowl Plasmonics' solution harvests ubiquitous light to add invisible power whenever and wherever it's needed, enabling smart buildings to improve energy efficiency. The patented photovoltaic technology used is the most transparent on the market (over 90% transparent) and can be placed indoors, outdoors, and on almost any surface, enhancing aesthetics and increasing design options. Peafowl's light harvesting cells provide enough energy to power sensors, e-paper displays and dynamic windows.

VALUE PROPOSITION.

- Self-powered devices through light harvesting.
- Optimises and reduces energy consumption.
- Allows for easy installation and retrofitting.
- Transparency enhances value in aesthetics and design.





MARKET SEGMENTS

Solar PV

A

Phytonics · *Germany*

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76344 Eggenstein-Leopoldshafen
Germany

info@phytonics.tech
www.phytonics.tech

✓ **PILOT**

CUSTOMER REFERENCES

Strategic Partnerships
- Qcells
- Luxor Solar
- 3S
- Evia Aero

PRODUCT

Anti-reflective coating for PV panels

Multifunctional bionic coating for glare-free and more efficient solar modules

THE NEED.

A significant amount of light is lost as it is reflected off the outer surface of solar modules. This not only reduces power output, but the glare and glint of reflected light limits the potential areas of PV installations.

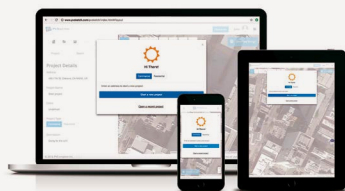
THE SOLUTION.

Thanks to the bio-inspired hierarchical micro- / nanotextures of the Phytonics coating, incoming light can be captured almost completely. This is achieved with a highly durable and outdoor stable polymeric outer layer on the solar modules. The coating is applied in a roll-to-plate process on the glass sheets prior to the module fabrication process.

VALUE PROPOSITION.

- Solar modules with the phytonics coating are absolutely glare-free.
- PV installations can cover large areas: around airports, along motorways and on many rooftops.
- Coated modules offer a higher power output of up to 10% over the year.





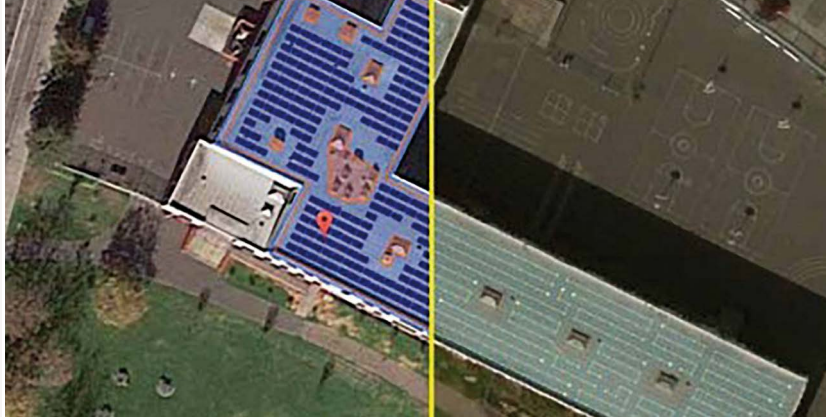
Alfredo Allen 455/461
4200 135 Porto
Portugal

info@pvcomplete.com
www.pvcomplete.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

EPD Renewables, Core Eng



MARKET SEGMENTS

Solar PV

Non-residential building · Residential building

A

PVComplete · *Portugal*

PRODUCT PVCAD and PVSsketch

Solar design software from concept to completion

THE NEED.

Solar developers and engineers currently create a custom design for every project site. Costly engineering is required for project design, construction plan sets and permits. This manual process makes project development lengthy and expensive.

THE SOLUTION.

The PVComplete platform is a suite of software that provides intuitive sales layout and proposal software paired with a precision CAD for solar engineering software. PVComplete offers the software to solar designing and engineering along with in-app purchases for any solar drawing or document requirements.

VALUE PROPOSITION.

- All solar project sizes.
- Intuitive.
- Portable data between sales and engineering.
- Precision engineering.





ROSI

MARKET SEGMENTS

Solar PV

A

ROSI · *France*

Rue Gustave Eiffel 30
38000 Grenoble
France

yun.luo@rosi-solar.com
www.rosi-solar.com

✓ PILOT

CUSTOMER REFERENCES

Partners

- Soren
- Evonik
- Veolia
- Envie

PRODUCT

Technology to recycle raw materials

Revalorising silicon from production and product waste to contribute to a circular economy in PV

THE NEED.

As an active material for PV, purified silicon (with a purity of 99.9999%) is currently obtained through a laborious process, which is energy-intensive and emits a significant amount of CO₂.

THE SOLUTION.

ROSI SAS offers a complete and innovative solution for recycling and revalorising silicon, either from "kerf", a waste product from the production of solar wafers, or from solar modules at the end of life, in order to reintegrate the waste back into its original PV production value chain. In doing so, ROSI activates a circular economy for the PV industry.

VALUE PROPOSITION.

- Revalorises raw materials (silicon and silver) from end-of-life modules for recycling companies.
- A lower production cost for PV and PV silicon producers.
- Our first industrial site ROSI Alpes, inaugurated in June, has a treatment capacity of 3,000 tonnes of photovoltaic panels from 2023, rising to 50,000 tonnes in 2027.





MARKET SEGMENTS

Solar PV

A

SolaQua · *Spain*

Instituto de Energía Solar UPM
Nikola Tesla, s/n
28031 Madrid
Spain

info@sol-aqua.eu
sol-aqua.eu

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT SolaQua

Solar powered irrigation system coupled in DC & without the need of storage

THE NEED.

Agriculture faces high costs for access to the grid to cover water pumping in warmer months. Adapting the pumps is expensive, and while PV installations provide an alternative, the problem remains of how to use pumps with a variable power generation source, without batteries, to lower energy costs.

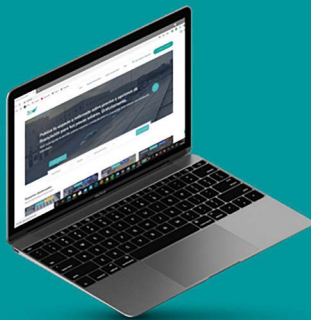
THE SOLUTION.

SolaQua's proprietary solution focuses on power electronics management, narrowing the gap between large PV installations and irrigation systems. An innovative business model facilitates the financing of PV powered irrigation projects by banks and investors. An advantage of the system is the creation of separate legal entities (SPVs) that connect all stakeholders and sources of finance through long-term purchasing agreements, without the need for initial investment by customers.

VALUE PROPOSITION.

- Facilitates a potential connection between large PV installations and irrigation systems.
- An innovative business model to finance PV powered irrigation projects with banks and investors.
- Creation of SPVs that connect all stakeholders.
- Financing through long-term PPAs, without initial investment from customers required.
- Local partners for PV installation and maintenance that build trust and secure long term deals.





MARKET SEGMENTS

Solar PV

Industry · Municipality

A

Soof · *Spain*

Gran Vía Carles III, 98
08028 Barcelona
Spain

rcanal@soof.es
www.soof.es

✓ **STARTING SALES**

CUSTOMER REFERENCES

Name of the customer: AZIMUT 360,
Date of the sale: 07/10/2021, City,
Country of the sale: Barcelona, Spain

The object of the sale:

PV Solar Installation Client.

Benefit for the customer: Got a client
without investing Payback time:
Immediately

PRODUCT Soof

Customer acquisition platform for solar panel installers and engineering companies

THE NEED.

Engineering and installation companies have rudimentary customer acquisition channels, with excessive costs and long waiting times. Property owners face obstacles when seeking pre-feasibility studies and there is little incentive to value the realisation of a solar photovoltaic installation.

THE SOLUTION.

A new customer acquisition channel for engineering and installation companies specialised in developing solar photovoltaic projects. A platform connects property owners interested in receiving various offers for a photovoltaic installation with companies willing to develop and finance projects. Property owners are offered a virtual space where they can request and receive various proposals from professionals in the sector.

VALUE PROPOSITION.

- For engineering, procurement and construction (EPC) companies: one centralised place brings together all those interested in receiving offers, enabling companies to reduce their customer acquisition costs and increase their conversion rates.
- For property owners: a convenient and efficient way to compare various quotes from professionals in the sector in order to evaluate the offer most suitable for their future photovoltaic solar installation.





MARKET SEGMENTS

Solar PV

Non-residential building · Off-grid · Power DSO

A

SteadySun · France

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73370 Le Bourget du Lac
France

contact@steady-sun.com
www.steady-sun.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT SteadyEye

Provides advanced solar irradiance and production forecasts up to 30 minutes ahead

THE NEED.

Solar production is intermittent, unable to be dispatched and unreliable. It is difficult to manage the electrical system and maintain a balance between generation and consumption.

THE SOLUTION.

This unique nowcasting product combines on-site sky imagery processing with weather forecast, physical models and artificial intelligence. The product is designed to anticipate solar power ramp events and to guarantee PV production. The SteadyEye solution is tailored for industrial applications such as hybrid energy systems and storage control (i.e. PV-diesel-battery), utility scale PV and CSP plants operations as well as grid management.

VALUE PROPOSITION.

- Optimises PV power ramp management thanks to 1 minute forecast update frequency.
- Reduces hybrid plant operation costs by increasing the use of solar energy.
- Facilitates balancing of power grids and manages spinning reserves.
- Improves off-grid energy system operation by fostering balancing of the system.





MARKET SEGMENTS

Solar PV

Non-residential building · Off-grid · Power DSO

A



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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT Frocast

Worldwide weather forecast API

THE NEED.

Weather is an important strategic element to consider in most activities. The more meteorological consequences are amplified by climate change, the more negatively the management and profitability of companies is impacted.

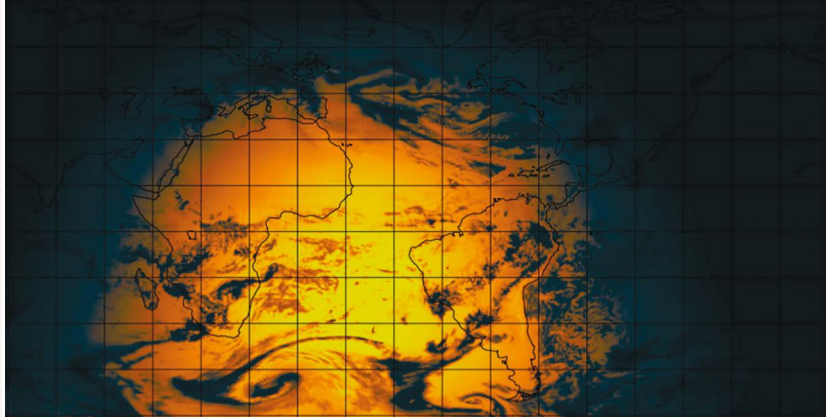
THE SOLUTION.

Frocast is a worldwide high-quality weather forecasting API. Its mission is to help companies evaluate the impact of weather conditions on their business, as well as facilitate their decision making at the operational or strategic level. Frocast's team of seasoned meteorologists has developed unique knowledge in forecasting models in different regions. This is the only weather API service providing probabilistic forecasts (quantiles) for every data point.

VALUE PROPOSITION.

- Improves the performance of businesses.
- Facilitates decision making on a strategic level.
- Easy to integrate weather data via API to improve performance and user experience.
- Enables companies to understand the challenges of global heating while actively participating in its fight.





MARKET SEGMENTS

Solar PV

Non-residential building · Off-grid · Power DSO

A



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www.steady-sun.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT SteadyMet

Solar and wind energy forecasting API

THE NEED.

An energy trader or aggregator is required to anticipate electricity price evolution on spot power markets in order to optimise bids accordingly. To minimise portfolio balancing costs, they must also minimise the difference between their bids and actual production.

THE SOLUTION.

SteadyMet provides weather and production forecasts up to 15 days ahead. This product combines several sources of numerical weather predictions (NWP) data with physical models and artificial intelligence. By guaranteeing high solar and wind power prediction accuracy, this forecasting product helps manage uncertainties and maximise revenues. It enables the accessing of day-ahead and intraday forecasts of renewable energy production at site, portfolio, TSO/DSO zone, market area and country level.

VALUE PROPOSITION.

- Weather and production forecasts up to 15 days ahead.
- Data gathered from multiple sources.
- Manages uncertainties to maximise revenues.
- Enables access of day-ahead and intraday forecasts of renewable energy production on many scales.





MARKET SEGMENTS

Solar PV

Non-residential building · Off-grid · Power DSO

A



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www.steady-sun.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request.

PRODUCT SteadySat

Solar forecasts and live data based on satellite imagery

THE NEED.

A wind or solar power plant manager must deal with the increasingly stringent requirements of transmission system operators (TSO). Failing to do so may result in high penalties and/or being subject to curtailment.

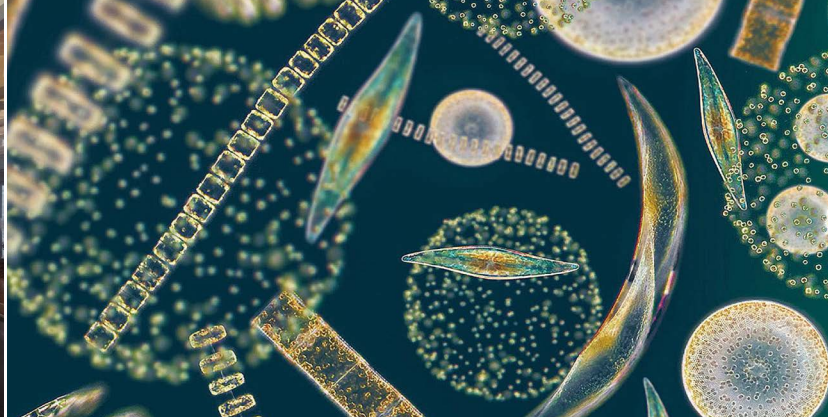
THE SOLUTION.

SteadySat provides advanced solar irradiance and production forecasts up to 6 hours ahead. This product combines real-time satellite imagery with in-situ observations processing, weather forecast, physical models and artificial intelligence. Cloud properties and evolution are monitored and predicted in real-time, improving the accuracy of solar forecasts for the next few hours and anticipating the risks of variability.

VALUE PROPOSITION.

- Accurate renewable energy forecasts and monitoring of power plant performance.
- Helps reduce operating costs of assets.
- Helps minimise constraints imposed by the TSO.
- Optimises management of the storage system and/or gensets (fuel savings).
- Support offered in the development phase of a plant by conducting a large portfolio of studies.





SWEDISH
ALGAE
FACTORY



MARKET SEGMENTS

Solar PV

A

Swedish Algae Factory · *Sweden*

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41292 Gotheburg
Sweden

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www.swedishalgaeactory.com

✓ PILOT

CUSTOMER REFERENCES

Only available for test purposes due to lack of volumes. 4 testing partnerships with actors in the solar industry ongoing with initial positive results.

PRODUCT Algae-based nanomaterial

Algae-inspired efficiency enhancement for solar cells

THE NEED.

Solar panels are known to be inefficient. They only transform 15%-20 % of the light that hits them into electricity.

THE SOLUTION.

The nanoporous silica shell from an algae species that thrive in cold Nordic seas is a material naturally designed to trap light so efficiently that algae can survive in this dark environment. When incorporated into solar cells, the light trapping ability of the solar cell is increased and its efficiency enhanced. The material is produced in a process where wastewater is treated and an organic biomass produced that is able to be utilised in a variety of applications beneficial for society.

VALUE PROPOSITION.

- Environmentally-friendly produced natural nanomaterial.
- Increased efficiency of solar cells.
- Lower cost of solar energy.





MARKET SEGMENTS

Bioenergy & waste to energy

Industry

A

C-Green · Sweden

Teknikringen 38
114 28 Stockholm
Sweden

erik.oden@c-green.se
www.c-green.se

✓ STARTING SALES

CUSTOMER REFERENCES

Industrial-scale demonstration
OxyPower HTC™ biorefinery at the
Stora Enso packaging mill in Heinola.

An OxyPower HTC™ biorefinery will
be commissioned in Q1 2023 at a
Ragn-Sells recycling center in Sweden
for municipal sludge.

C-Green also initiated a cooperation
with the leading Dutch industrial
waste management company, REYM
Rotterdam, part of Remondis, the
world's largest private waste recycling
service company, to explore the
feasibility of building an OxyPower
HTC™ biorefinery at their facility in
Rotterdam.

PRODUCT OxyPower HTC™

Makes wet waste valuable

THE NEED.

Waste-water treatment plants worldwide produce sewage waste with
residue sludge difficult to dewater containing bacteria, pharmaceuticals,
phosphorous, toxins and heavy metals. Disposal costs are high and
environmental targets not reached.

THE SOLUTION.

A compact, robust and efficient process solution based on
hydrothermal carbonisation allowing separation of phosphorous
(for further use in fertilising applications) and heavy metals from
sludge, degeneration of toxins, deactivation of pharmaceuticals and
transformation of the remaining sludge into bio-coal. It enables waste-
water treatment plants to reduce their operating and capital cost, while
meeting the environmental target for sludge management.

VALUE PROPOSITION.

- Cost-effective sludge management saving approx. 30%
vs traditional systems.
- Small, scalable one-size-fits-all solution, energy-efficient process.
- Turns harmful sludge into homogenous biofuel with a high energy density
for power production at combined heat and power (CHP) plants.





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empyrio.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Bioenergy & waste to energy

Municipality

A

Empyrio · Latvia

PRODUCT Compact system for wastewater sludge utilisation

Low-cost onsite sewage sludge utilization solution for small and medium wastewater treatment plants.

THE NEED.

Spreading sewage sludge on arable land pollutes the earth with heavy metals, microplastics and antibiotics. It also produces high methane emissions and odour or sanitation issues. Large scale incineration often requires long haul transportation and is subject to high gate fees.

THE SOLUTION.

Empyrio offers a low-cost solution for small and medium cities of 20,000 to 200,000 inhabitants: compact onsite sewage sludge utilisation systems for small and medium-size wastewater treatment plants. Ash from Empyrio sludge utilisation processes may be used for the recovery of phosphorus.

VALUE PROPOSITION.

- Significantly lower costs compared to traditional utilisation methods (€150-220/t of dry solids).
- Small volume utilisation (500+ t of dry solids per annum).
- Three year payback period.
- Autonomous operation with no need for additional energy resources or raw materials.
- Automated process with no additional personnel required.
- Adapted even for 80% water content (high-moisture) sewage sludge utilisation.
- Compact 20 and 40-foot containers allocation.
- Advanced flue gas treatment system.
- Integration into existing treatment process.





MARKET SEGMENTS

Bioenergy & waste to energy

District heating grid · Municipality · Non-residential building

A

Ingelia · Spain

Jaime Roig 19
46010 Valencia
Spain

marisa.hernandez@ingelia.com
www.ingelia.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

CPL Industries Ltd.

PRODUCT

Hydrothermal Carbonization Industrial Plant

Turning biowaste into biomaterials using HTC technology

THE NEED.

Organic waste is usually composted or digested, these processes imply high operating expenses (opex) and the compost produced does not comply with EU specifications in most cases. There is a need of new processes to deal with organic waste products.

THE SOLUTION.

Ingelia's hydrothermal carbonisation (HTC) plants are able to treat organic waste and turn it into hydrochar, reducing opex and greenhouse gas emissions. Organic waste is transformed into hydrochar for further applications in the bioeconomy. Ingelia provides HTC technology (engineering and equipment) to waste managers, municipalities and food and drink industries.

VALUE PROPOSITION.

- Advanced, developed technology to valorise organic waste.
- Automatised process, easy operation, odour free and low operating costs.
- Flexibility to operate and maintain plants.
- Reduction of waste transport.





MARKET SEGMENTS

Bioenergy & waste to energy

Industry · Municipality · Renewable gas & biofuels

A

Meva Energy · Sweden

Backa Bergögata 18
422 46 Hisingbacka
Sweden

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www.mevaenergy.com

✓ STARTING SALES

CUSTOMER REFERENCES

- Demo plant, industrial scale (1,2MWe, 2,4MWth) erected for Pite Energi (Sweden).
- CHP unit with 2,4MWe and 4,8MWth to be erected for furniture producer IKEA Industry (Poland) where waste MDF dust will be used as feedstock. Commissioning end 2023.
- Renewable gas unit of 4,2MWgas to be erected for tissue producer Sofidel (Sweden) replacing fossil LPG for tissue drying. Commissioning early 2023.

PRODUCT

Meva Power plant

Decentralised biomass cogeneration with 2nd generation biomass

THE NEED.

When addressing the need for industrial-sized cogeneration or combined heat and power (CHP) from solid biomass, today's paradigm is either to build large scale power plants (larger than 10 MWe) using steam turbine CHP technology, or to burn the feedstock in a boiler, which only produces heat.

THE SOLUTION.

Meva Energy's solution is to enable power and heat production in the range below the commercial feasibility of steam turbine technology. The plant is based on biomass gasification and in particular on the utilisation of fine fraction feedstock. The technology is suitable for industrial application, and can utilise feedstock residue from wood-based manufacturing or agriculture to create a local, circular energy system with minimised transportation and distribution losses.

VALUE PROPOSITION.

- Acceptance of fine fraction, low cost feedstock.
- Highly controllable power source able to balance power grids due to intermittency of solar and heat.
- Low cost, high efficiency production of renewable, decentralised power and heat.
- Production of even gas quality with high energetic content, suitable for a high efficiency lean-burn gas engine.
- Relatively non-complex system layout, low pressure and temperature.





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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Bioenergy & waste to energy

District heating grid · Industry

A

Phoenix BioPower · Sweden

PRODUCT BTC - Biomass Fired TopCycle

Doubling the efficiency of power production from biomass

THE NEED.

The rapid shift towards renewable energy has led to massive investments in intermittent renewables while base load fossil and nuclear are being phased out. This has led to an increased demand for dispatchable renewable power: renewable whenever and wherever you need it.

THE SOLUTION.

BTC offers new cutting-edge technology that can produce twice the power from biomass than traditional technologies. The BTC plant and its core gas turbine system is capable of 100% H₂ operation with ultra-low NO_x emissions for zero emissions power. With waste heat available, bio-energy with carbon capture and storage (BECCS) is possible at twice the electrical net efficiency compared to steam cycle plants.

VALUE PROPOSITION.

- On-demand renewable power at utility scale.
- Plant cost from 1.5 to 5.5M€/MWh electricity (10 and 100 MWe scale respectively).
- High efficiency renewable biopower.
- Superior BECCS capability.
- 100% H₂ combustion capacity.
- In targeting residue waste streams from forest and agriculture sectors, the technology is part of the circular energy system.
- Power efficiency of 40-55%.
- Total efficiency of 80-100% (LHV).
- Marginal cost <50€/MWh without subsidies.
- Positive NPV without subsidies.





MARKET SEGMENTS

Hydrogen & e-fuels

Industry · Transport & mobility · Renewable gas & biofuels

A

Athena · France

Rue Henri Perret 3
49170 Saint Georges sur Loire
France

contact@athena-recherche.fr
www.athena-recherche.fr

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT Hydrogen New Version

Hydrogen derived from a waste-to-power solution

THE NEED.

Sewage water must be cleaned in order to protect rivers and oceans. However, both chemicals and energy are required to do so. Organic materials contained in sewage water provide a source of energy for microorganisms, and a source of inspiration.

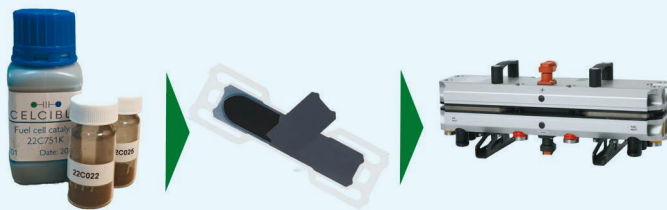
THE SOLUTION.

An innovative solution aimed at sewage water producers, especially those in the food and drinks industry, transforms waste into hydrogen. It does so via a dedicated bacterium that is capable of growing in sewage water and quickly producing high-quality hydrogen, cleaning the water. No longer a waste product, sewage water can be a source of local, clean, renewable and carbon-free energy.

VALUE PROPOSITION.

- A solution capable of creating local hydrogen ecosystems based on a circular economy.
- Lower natural gas consumption for processing and transportation of raw materials (milk, cereals, etc).
- At least 60% reduction of energy required to clean sewage water.
- At least 1,5 litres of hydrogen produced per litre of sewage water.
- Hydrogen produced at a competitive price compared to fossil fuel energy (less than 5€/kg).
- Provides a green image and brand for companies.





MARKET SEGMENTS

Hydrogen & e-fuels

Industry · Transport & mobility · Non Residential building

A

Celcibus · Sweden

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421 30 Västra Frölunda
Sweden

patric.stafshede@celcibus.com
www.celcibus.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT

Non-PGM catalyst and MEA for PEM fuel cells

A durable nobel metal-free catalyst for next generation fuel cells

THE NEED.

Current proton-exchange membrane (PEM) fuel cells rely on noble metals like platinum for their performance. Pt is a critical raw material making up over 50% of the fuel cell stack cost, but is limited in supply and with a volatile cost. Supply is concentrated in South Africa, Zimbabwe and Russia.

THE SOLUTION.

The Celcibus catalyst can lower the cost for the fuel cell stack by up to 30% with a more sustainable footprint. It is based on transition metals, much cheaper than noble metals, in the active sites. While traditional fuel cells require the recovery of noble metals, a process creating poisonous by-products, fuel cells using the Celcibus catalyst can be handled in the regular metal recycling process.

VALUE PROPOSITION.

- Elimination of the dependence on critical raw materials.
- Up to 30% lower fuel cell stack cost.
- More sustainable life cycle process.
- Control over supply chain (no conflict minerals issues).





MARKET SEGMENTS

Hydrogen & e-fuels

Off-grid · Transport & mobility

A

HSL Technologies · France

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✓ PILOT

CUSTOMER REFERENCES

Partnerships and projects:
Port of Anvers-Bruges, Rotterdam,
Toyota Start-Up Accelerator, PRIO
Jump Start, Sun-to-X, etc

PRODUCT Hydrosil

The first liquid inorganic hydrogen carrier that makes hydrogen easy to deliver

THE NEED.

Hydrogen is a clean alternative to fossil fuels. However, it is difficult to transport and store. It requires either very high pressure, or very low temperatures, and is also limited by strict regulations. A new way of transporting and storing the promising energy carrier needs to be deployed.

THE SOLUTION.

Hydrosil is the first liquid inorganic hydrogen carrier that can transport and store the molecule at ambient temperature and pressure, via the existing infrastructures and for long periods of time. In addition, there's energy input needed at the moment of unloading the hydrogen from the carrier, so the energy can be transported from wherever it's available. This carrier is environmentally-friendly, as Hydrosil is silicon-based, amounting to the first completely zero-carbon value chain.

VALUE PROPOSITION.

- Liquid hydrogen carrier, stable at ambient temperature and pressure.
- Non-organic (silicon-based).
- High hydrogen density (8.7% by weight).
- Possible to transport and store it in the existing infrastructures (similar to gasoline on handling).
- Recommended for: massive amounts of hydrogen, long-distance transport.
- Release process with no energy input required.





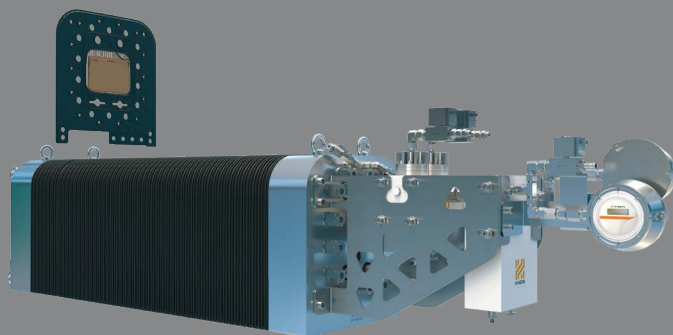
Maskinvej 5
2860 Søborg,
Denmark

mb@hymeth.com
www.hymeth.com

✓ EARLY STAGE

CUSTOMER REFERENCES

Strategic partnership
with Alpha Laval



MARKET SEGMENTS

Hydrogen & e-fuels

Off-grid · Power TSO · Residential building

A

Hymeth · Denmark

PRODUCT Hyaeon

The world's first electromagnetic alkaline electrolyser

THE NEED.

Green Hydrogen production is very expensive (as electrolyzers require a platinum or Iridium-based catalyst), energy inefficient, large in size and they only compress hydrogen gas up to 35 bar.

THE SOLUTION.

A low-temperature alkaline electrolyser that is compact, lightweight and that supports high-pressure electrolysis. It includes radical innovations: a new non-precious alloy electrocatalyst, is capable of delivering highly compressed gas and its lightweight and compact electrolyser reduces the space required.

VALUE PROPOSITION.

- Expected to produce hydrogen at a cost reduction of up to 40% compared to existing alkaline electrolyzers.
- A state-of-the-art system for FC vehicle refilling stations, sustainable steel production, bio oil refinery, energy storage, etc.
- Lower capital expenses (capex) and operating expenses (opex).
- Highly efficient.





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lklaue@phynix-energy.eu
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✓ **EARLY STAGE**

CUSTOMER REFERENCES

There are two commercial green hydrogen projects currently ongoing: the Vitale plant with an electrolyser capacity of 10MW, and the Barataria plant with an electrolyser capacity of 70 MW. In addition, pHYnix and Hydrogen Refueling Solutions (HRS) have signed a framework agreement for the deployment of European hydrogen mobility projects.

EGHAC

European Green Hydrogen
Acceleration Center



MARKET SEGMENTS

Hydrogen & e-fuels

Industry

A

Phynix · Spain

PRODUCT Green Hydrogen Production

Decarbonise your company with green hydrogen

THE NEED.

A wide range of industries, including mobility and transportation, logistics, cement, pharmaceutical, chemical, automotive and steel all need to decarbonise production while remaining competitive.

THE SOLUTION.

As the first independent producer of green hydrogen in Europe, pHYnix can supply all the above industries simply and competitively. The company has a vertically integrated business model that covers everything from the design, construction, operation and maintenance of hydrogen plants, to its supply to customers through a long-term contract known as an HPA (Hydrogen Purchase Agreement). Plants are planned that have an electrolysis capacity of more than 1 GW by 2030.

VALUE PROPOSITION.

- Independent of energy oligopolies.
- Develops green hydrogen projects from concept to construction, operation and maintenance.
- Accelerates the rapid migration of industry and transport to renewable hydrogen through design and financing.





MARKET SEGMENTS

Renewable gas & biofuels

A

Camelina Company · Spain

Avenida Somosierra 12
Nave 19
28703 San Sebastian de los Reyes
Spain

yhy@camelinacompany.es
www.camelinacompany.es

✓ STARTING SALES

CUSTOMER REFERENCES

Samples provided to several reference companies in Europe, including:

Semences de France and Limagrain in France, DSV in Germany, Saatbau Linz in Austria

PRODUCT

Camelina planting seed

Sustainable ILUC feedstock grown in fallow land in Europe

THE NEED.

Feedstock for biofuel production needs to comply with strict environmental requirements and economic and social concerns.

THE SOLUTION.

Camelina crop is a oil crop feedstock that can be cultivated in marginal or fallow land in arid dry land regions. It achieves greenhouse gas emission reductions of over 60%, does not compete on land with food production and has already been employed by the biofuel (road transportation) and bio-jet fuel (aeroplane) industry. It implies no land use change (LUC) and has a low indirect land use change (ILUC) impact. It is cost competitive with feedstock employed for biofuel production.

VALUE PROPOSITION.

- Can be cultivated in marginal or fallow land in arid dry land regions.
- Full service, with combined sales of the seeds and guaranteed off-take agreement, reducing risk for farmers.





MARKET SEGMENTS

Renewable gas & biofuels

A

Deltalys · *France*

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69100 Villeurbanne
France

nicolas.astier@deltalys.com
www.deltalys.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Landfill operators producing biogas:
Suez Environnement, Veolia, Paprec ...

PRODUCT Ecolys

Turnkey, innovative, eco-efficient solutions for renewable gas treatment

THE NEED.

As renewable gases are produced from organic material, they naturally contain high levels of contaminants that need to be removed from raw gas for optimal valorisation. The decontamination process is complex, costly and has a high carbon footprint.

THE SOLUTION.

Deltalys has developed turnkey biogas processing solutions to replace the use of activated carbons in the process of biogas filtration. Instead of activated carbons, they propose an innovative material issued of circular economy that is extremely cost-competitive and environmentally friendly. They also propose a performance-based innovative business model to their customers.

VALUE PROPOSITION.

- Enhanced environmental performance, as they propose a substitute to activated carbons.
- Cost-competitiveness as their material is made from a waste.
- The solution is sold as a service, with a performance based invoicing system.





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www.enosir-energies.com

✓ STARTING SALES

CUSTOMER REFERENCES

SUEZ Water France: waste water management (Sète and Toulouse plants). SUEZ RVE (Recycling Value Energy): domestic and industrial waste management (Bordeaux Astria plant). SERGIES: gas and electricity supply. CALCIA CEMENTS: cement industry (CO₂ recycling).

ENGIE: WOODHY gasification project. SECHE ENVIRONNEMENT (project under investigation – R&D joint activities under completion): waste management. Communauté de Communes des Landes d'Armagnac: public authority.



MARKET SEGMENTS

Renewable gas & biofuels

Industry · Municipality

A

Enosir · France

PRODUCT ENOBIO (biomethanation reactor)

CO₂ biogas/syngas conversion solutions to produce renewable and low carbon gas

THE NEED.

Renewable gases need to be upgraded in order to be injected into the gas grid. Biomethanation makes it possible to increase methane content by converting CO₂, CO and H₂ into methane and by achieving grid specifications.

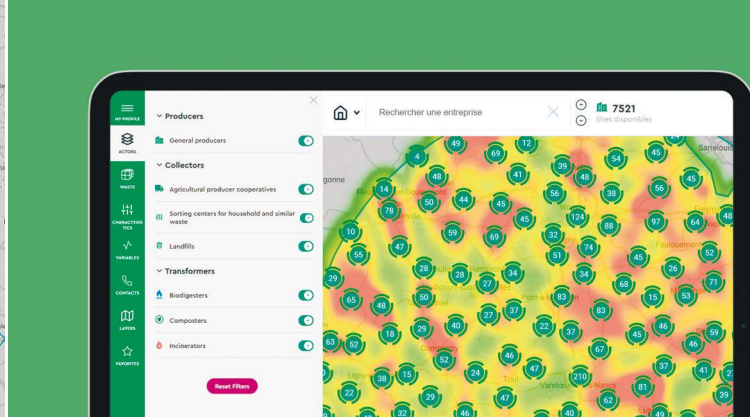
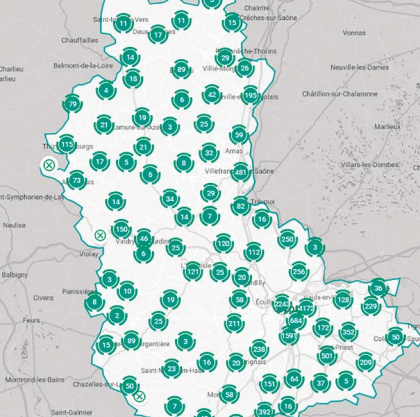
THE SOLUTION.

Enosir's product is a methanation unit comprising of a reactor, which is inoculated with methanogenic microorganisms, and its control command. Enosir also provides maintenance services linked to its methanation reactor, and sells specifically developed methanogenic consortiums.

VALUE PROPOSITION.

- Increased turnover for biogas and syngas plants, with no additional feedstock.
- Recycles CO₂ and avoid CO₂ emissions.
- Stores renewable electricity surplus.
- Low capital expenditure (CAPEX).
- Low operating expenditure (OPEX).





iNex

MARKET SEGMENTS

Renewable gas & biofuels

Bioenergy & waste to energy

A

iNex Circular · France

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France

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sourcing.inex-circular.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

TotalEnergies, Engie, GRDF, Terega, Colas, Lafarge, Veolia, Arcelor Mittal, Holcim, Refashion, Ecomobilier, Saabic...

ENGIE : Detection of 300kt of co-substrates for several anaerobic digestion units in France

TotalEnergies : Analysis of biogas potential and investment advice in Europe

Eco-Mobilier: Support for the implementation of a territorial network in New Aquitaine to meet the requirements of the EPR for buildings

PRODUCT iNex Sourcing

For all companies looking for industrial and agricultural waste deposits

THE NEED.

To confront the climate crisis, some actors are investing in recycling and in the production of green energy. To do so, they need to locate recyclable waste as well as usable land and roofs for renewable power plants.

THE SOLUTION.

Using open-data and data-mining, the iNex Sourcing tool provides environmental, energy and administrative data for clients. AI browse and aggregate relevant data available online from open data sources or satellite images. This method guarantees a permanent and automated update of data. What's more, data produced by iNex can be added: this may include the quantity, quality and type of waste emitted by each company in Europe or the calculation of the solar potential of a roof.

VALUE PROPOSITION.

- Time-saving: 3 clicks replace a study that lasts several months, the end of ratio calculations by hand in Excel, no more intermediary (firms, traders...).
- Economies: 30% time saving to make a sale, 80% reduction of targeting errors, 75% faster acquisition of deposits.
- Securing investments: accurate and up-to-date data in real-time, comprehensive business analysis, data verified by a data team.
- Benefit for the customer: instant access to data, increase in prospects and contracts, ROI within 3 months.





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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Renewable gas & biofuels

Gas DSO · Gas TSO · Industry · Hydrogen & e-fuels

A

Orchestra Scientific · Spain

PRODUCT Adsorption Technology for CO₂ Capture

Green and affordable solutions for CO₂ capture, and more

THE NEED.

More CO₂ is produced than any other greenhouse gas, but there is still no affordable technology to prevent its emission.

THE SOLUTION.

This innovative system provides selective CO₂ separation with a range of advantages: outstanding CO₂ uptake and selectivity with respect to other gases, including CH₄, N₂, O₂, H₂, CO and in dynamic breakthrough conditions; complete retainment of dynamic CO₂ uptake capacity in the presence of a gas mixture with a different composition; the ability to work in a wide CO₂ concentration range (1% - 99%); the ability to work in mild conditions, ambient pressure and wide temperature range (RT - 80°C).

VALUE PROPOSITION.

- High yield (up to 99%) recovery of other gases with a high degree of purity (≥ 99.5 %).
- Advanced working capacity (up to 99%): easy and quick regeneration with vacuum and or gas flow (Air, N₂, CH₄ etc).
- Possibility of high purity CO₂ recovery (≥ 99.5 %).
- High stability: 7 months working so far with no sign of degradation.





METHAPLANET

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www.methaplanet.com

✓ PILOT

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Renewable gas & biofuels

A

Methaplanet · *The Netherlands*

PRODUCT Methaplanet's Maximizer

Prepare your biomass and increase your biogas production

THE NEED.

The world needs cleaner sources of energy. One way to achieve this is to help existing biogas plants boost their biogas production. This can be achieved through optimal preparation of input streams.

THE SOLUTION.

Methaplanet does not build more biogas plants. Instead, it optimises existing plants by supplying a patented energy pellet production unit – the Maximizer. By adding a Maximizer to installations, biogas plants can start producing their own high-yield energy pellets immediately. This generates much more biogas per ton input materials, and optimises the production of biogas.

VALUE PROPOSITION.

- Produces own energy pellets for higher performance of existing biogas plants.
- Much more revenue per ton input.
- Fast ROI: about 3 years on average.
- Biogas production maximised.
- Helps to make business operations circular.
- Contributes to a cleaner world.





Nesetten

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Germany

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nesetten.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Ongoing LOI and MOU for collaborations with Eurotec Engineering Corporation Pvt. Ltd. (India), Crowley LNG, Inc (USA), Timex S.A. (Poland), Polaris Marine and Offshore Support Services Limited (Nigeria), Rural Electrification Agency (Nigeria), and Viessmann (Germany). These agreements form the basis for our joint "go-to-market" strategy and collaborative projects aimed at testing and validating our products and solutions.



MARKET SEGMENTS

Renewable gas & biofuels

A

Nesetten · *Germany*

PRODUCT Nesetten Cryo-bulk

Nano-scale cryogenic bulk: game-changer for (bio-) LNG

THE NEED.

The lack of suitable technology to unlock the untapped potential of the nano-scale (bio-)LNG market presents a significant barrier to its ability to offer an eco-friendly and cost-effective alternative, ensuring energy access, e.g. in off-grid areas. This often leads to reduced economic growth.

THE SOLUTION.

Nesetten's products are dedicated to unlocking solutions for the use of bio-LNG and LNG on a micro- and nano-scale, offering eco-friendly alternatives for decentralised energy supply systems. Nesetten's primary focus is on the cutting-edge manufacturing of 2nd-generation cryogenic micro bulks, capable of storing liquids at temperatures as low as -196 °C. Its revolutionary construction allows the company to pioneer steel- and vacuum-less bulks, enhancing safety and design flexibility.

VALUE PROPOSITION.

- Redefines the energy paradigm with groundbreaking nano-scale technology.
- Focused on LNG and bio-LNG, this innovative system empowers energy access in off-grid regions and emergencies.
- Users effortlessly meet lower energy demands through flexible storage and distribution solutions.
- Promotes sustainability and long-term growth with green-ready technology adaptable to various cryogenic liquid fuels.
- Ensures energy independence and fosters economic growth.





The background is a dark blue field filled with a complex network of glowing lines. These lines, in shades of bright blue and vibrant red, resemble circuit traces or data pathways, crisscrossing the frame in various directions. Some lines are thicker and more prominent, while others are thin and delicate. The overall effect is one of high-tech connectivity and digital infrastructure. In the upper right corner, a large, bold, yellow letter 'B' is superimposed over the circuitry.

B

Grid and
infrastructure



MARKET SEGMENTS

Gas TSO

Gas DSO

B

Vira Gas Imaging · Spain

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28919 Leganes
Spain

info@viragasimaging.com
www.viragasimaging.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Enagas, Gas Natural,
Sensit Technologies

PRODUCT Optical Gas Imaging Julieta

An OGI instrument to visualise natural gas and hydrocarbons

THE NEED.

Avoiding methane and greenhouse gas emissions from the oil and gas sector is key to reducing the global carbon footprint.

THE SOLUTION.

A flexible and cost-effective optical gas imaging instrument for monitoring the fugitive emissions of natural gas based on new spectrally-adapted, high-sensitivity, uncooled infrared technology.

VALUE PROPOSITION.

- Cost-effective.
- Maintenance free.
- Portability and flexibility.
- State of the art solution.
- Sustainable in time.





Expektra · Sweden

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Sweden

info@expektra.se
expektra.se

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Vattenfall, Sandvik, Ustekveikja,
Storuman Energi, Kalmar Energi,
Hydro

PRODUCT

Expektra Predict

Enabling efficient short-term power trading and improved balance management

THE NEED.

Renewable power generation increases the costs of balancing the grid. Predicting near future electricity consumption or production is a large part of utilities' daily operations, striking directly at operating costs.

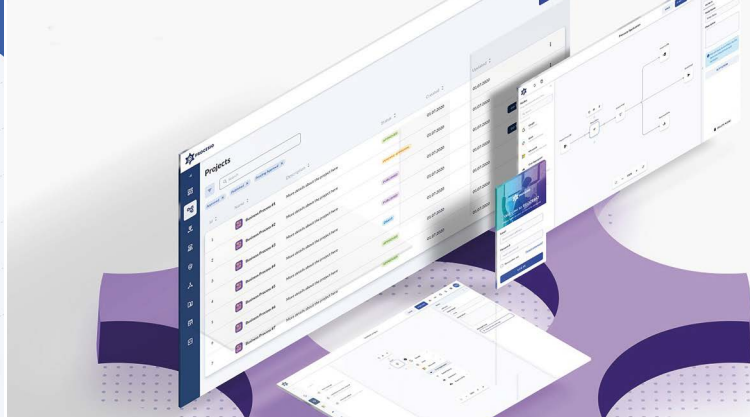
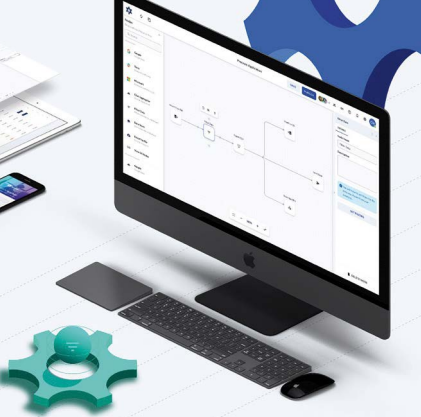
THE SOLUTION.

Expektra Predict is a forecasting tool for short-term energy generation and consumption that has 10 to 20% better accuracy than conventional methods. A unique implementation of artificial neural networks, it is able to detect complex patterns in input data. It includes an app for monitoring, back up power and over-the-air wireless updates. Provided as software as a service, non-linear relations between input and output data can be recognised. Remote maintenance is also available.

VALUE PROPOSITION.

- 100% capacity guarantee.
- All-in-one system.
- Fully recyclable.





MARKET SEGMENTS

Power DSO

Gas DSO · Gas TSO · Power TSO

B

Ringhel · Romania

Geniului Boulevard 14
060117 Bucharest, 6th District
Romania

mihai.darzan@ringhel.com
www.ringhel.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Engie, E.ON, CEZ, Veolia, MET, EFT,
Monsson, Restart Energy, Lukoil

Case studies for big clients here:
<https://www.ringhel.com/clientsringhel>

Case-study. Head of ETS, ENGIE
Romania: "Throughout the
development of the GEFEER BRP
platform, we have had the opening
and involvement of all Ringhel
team members in order to obtain a
solution that is as easy as possible
to adapt to the changing market
demands.

PRODUCT Ringhel

End-to-end software solutions for power and gas companies

THE NEED.

Energy companies need to design and manage a wide variety of processes and have a hard time keeping pace with technological developments (including IT). They also lose money due to the slow response of the market and regulatory changes.

THE SOLUTION.

Ringhel offers minimal code software: visual software development tooling and standardised, reusable building-blocks, instead of the traditional form of handwriting and re-writing code. Developed by people with business acumen, not programmers, the company is a market leader in Romania (over 50% of market) and has already scaled abroad.

VALUE PROPOSITION.

- Accelerated results - proven 50-70% faster deployment (average 3-6 months).
- Integration with other technologies.
- Adaptable tech, built especially for energy markets and market specific - worked out with local integrators and partners.





MARKET SEGMENTS

Power DSO

Energy Storage Sol. · Power TSO · Residential building

BOOTH NO.

01 B

Bamboo Energy · Spain

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08930 Sant Adrià de Besòs
Barcelona, Spain

msanmarti@bamboenergy.tech
www.bamboenergy.tech

✓ **STARTING SALES**

CUSTOMER REFERENCES

TotalEnergies, Nexus Energia,
ElectraCeldense, Atlas Energia,
Agrienergia, Peusa, Trebol Energia,
Grupo Enhol, Grupo Cuerva,
Schneider Electric

PRODUCT

Bamboo Energy

Empowering your flexibility

THE NEED.

While energy markets are being opened up to demand, energy consumers are not able to profit from this. Access to cleaner and cheaper energy should be democratised by providing ways to monetise the flexibility of energy assets and integrate renewable energy sources.

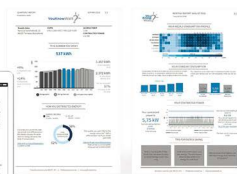
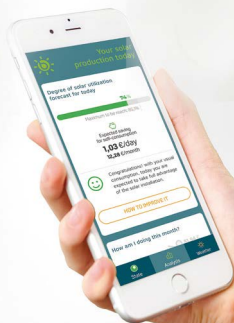
THE SOLUTION.

A platform for retailers that manages the flexible energy markets on both the supply and demand side. The software platform of choice for demand aggregation, it offers both modular architecture and a versatile platform and is able to adapt to customer requirements and regulations. The technology has an artificial intelligence core that enables tailored solutions while reducing operating costs.

VALUE PROPOSITION.

- Modular architecture.
- Versatile platform.
- AI core allows for tailored solutions and reduced operating costs.
- Can manage all types of demand flexibility.





User engagement tools and business intelligence

beedata

MARKET SEGMENTS

Power DSO

District heating grid · Gas DSO

BOOTH NO.

02 **B**

Beedata Analytics · *Spain*

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Som Energia (Spain)
Bassols Energia (Spain)
Peusa (Spain)
UTE (Uruguay)
Estabanell Energia (Spain)
Alperia (Italy)
PEUSA (Spain)
Enercoop (France)

PRODUCT

Beedata services

We empower your customers with big-data driven digital energy solutions

THE NEED.

There is a requirement to offer a point of differentiation that allows end users to add value to their energy consumption. New products must be developed in a way that meets customers' specific needs.

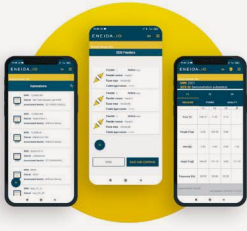
THE SOLUTION.

Beedata Analytics offers an open, cost effective, flexible and easy to integrate solution that is able to work with all granularity and types of data, from monthly to real time data. An omnichannel integrated system, it offers step-by-step implementation that is adapted to all types of small and medium companies. This solution provides useful information exactly when it is required.

VALUE PROPOSITION.

- Big data and massive treatment of all type of clients, granularity and different nature of data (scalability).
- Company, user and client-friendly approach.





ENEIDA.IO

MARKET SEGMENTS

Power DSO

Power TSO

BOOTH NO.

03 B

Eneida · *Portugal*

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

SSEN, UKPN (UK),
Powerco (New Zealand),
E-redes (Portugal),
Enexis (Netherlands)

PRODUCT eneida DeepGrid®

Welcome to our Operational Analytics Platform for managing LV networks

THE NEED.

The use of renewables, electric vehicles, growing energy demand, regulation and an ageing infrastructure requires that distribution system operators (DSOs) search for new optimisation solutions.

THE SOLUTION.

On the road to ZEN. For everyone, now. Eneida.io offers the Operational Analytics platform, eneida DeepGrid®. An open, modular, collaborative platform, that combines smart sensor networks with data analytics. It allows the distribution operators, and their operational teams, to better manage their Low Voltage network. Eneida.io's flagship products: an Operational Analytics platform, eneida DeepGrid®, a smart sensor EdgeSense, mobile application EdgeForce, and an interactive platform Discovery.

VALUE PROPOSITION.

- Allows for a higher penetration of renewables, electric vehicles and distributed energy resources.
- Optimises photovoltaic hosting capacity.
- Improves reliability and quality of service for distribution system operators.
- Provides explicit learning mechanisms for continuously improved recommendations.
- Improves asset productivity: does more with less.
- Increases efficiency, security and safety, reducing risk.
- Reduces capital expenditures and operating expenses (CAPEX and OPEX).





MARKET SEGMENTS

Power DSO

Power TSO

BOOTH NO.

04 B

Energiot · Spain

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pablo.ribeiro@energiot.com
www.energiot.com

✓ **PILOT**

CUSTOMER REFERENCES

IBERDROLA, 2021, Spain. Use Case: IoT devices for smart monitoring and bird protection for power grids. Impact: Data to improve DSO operation. Reduction of accidents caused by birdlife.

EDP, 2022, Spain. Use Case: IoT devices for smart monitoring and bird protection for power grids. Impact: Data to improve DSO operation. Reduction of accidents caused by birdlife.

ENERCAL, 2022, New Caledonia. Use case: IoT device for Dynamic Line Rating (DLR) and fault detection. Impact: Increasing capacity of power lines, improvement of integration with renewable sources, and reduction of time to detect power fault.



PRODUCT

Global battery-free IoT network for a smarter grid

IoT devices for grids that enhance energy efficiency, reduce costs and boost renewables

THE NEED.

The maintenance and operation of the power grid remains dangerous, inefficient, expensive and slow. Issues of energy loss, power outages, accidents, integration with renewable sources and redundant maintenance to assure power reliability must be addressed.

THE SOLUTION.

End-to-end IoT deployment into the grid for 24/7 intelligent monitoring plus battery-free IoT devices with integrated sensors that monitor any asset of the grid: conductor, transformer, substation or tower. Data gathered and grid analytics allow grid operators to avoid accidents, increase renewable energy dispatching and reduce costs. Devices use a patented piezoelectric energy harvesting technology

VALUE PROPOSITION.

- Maintenance and operation cost reduction.
- Autonomous intelligence for a smarter grid.
- Predictable maintenance.
- Dynamic line rating (DLR) and renewable sources integration.
- Detection and avoidance of accidents and fraud.
- Detection and avoidance of power cuts, improving reliability as per SAIDI index.





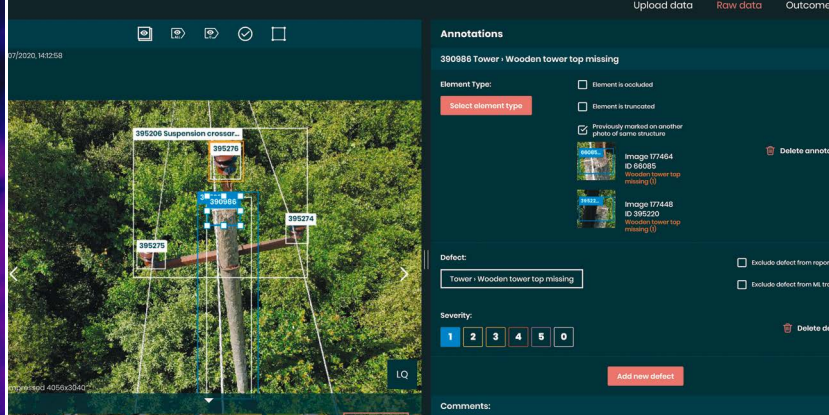
Paju 2
50603 Tartu, Tartumaa
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heptaairborne.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

E-REDES (EDP Group, Portuguese DSO)
Saesa (Chilean DSO)
Transener (Argentinian TSO)
Transelec (Chilean TSO)
KEDS (Kosovan DSO)
Electricidade de Madeira (Portuguese DSO)
Enefit Connect (Estonian DSO)
Elering (Estonian TSO)
Sadalec tikls (Latvian DSO)
Kungälv Energi (Swedish DSO)
Lerum Energi (Swedish DSO)
Imatra Elekter (Estonian DSO)
Kymenlaakson Sähkö (Finnish DSO)
Fingrid (Finnish TSO)
DTEK (Ukrainian DSO)
and others



MARKET SEGMENTS

Power DSO

Power TSO

BOOTH NO.

05 B

Hepta Airborne · Estonia

PRODUCT Hepta Airborne

Bringing automated airborne analysis to power lines, while saving time, costs and the environment

THE NEED.

The EU has over 11 million kilometres of power transmission and distribution lines. Currently 90% of the critical infrastructure inspections are made by on-foot patrols, but these manual inspections are demanding on resources and prone to error.

THE SOLUTION.

The solution is an AI-driven power line analysis platform that identifies defects from photos. Hepta's platform allows infrastructure owners to have up to 250% faster inspection cycles while getting a full overview of their assets. Deploying continuous machine learning allows automating up to 90% of the photo analysis work, thus analysing a vast amount of images at a rapid pace. With automated defect reports and vegetation analysis, our customers can make better and less error-prone decisions.

VALUE PROPOSITION.

- AI-driven automation.
- Comprehensive service.
- Cost-effectiveness.
- Digitalisation.
- Turnkey project development.
- Ever-improving detection models.





TOK|wise

MARKET SEGMENTS

Power DSO

BOOTH NO.

06 B

TokWise · Bulgaria

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1606 Sofia
Bulgaria

office@tokwise.com
www.tokwise.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Energy Service Companies
- BayWa r.e. / Germany
- Sunnic GmbH / Germany & Austria
- Total Energies / France

IPPs
- Encavis / Germany
- Enery / Austria, Romania & Bulgaria
- Elnova JSC / Bulgaria
- EON Bulgaria 1 / Bulgaria

C&I Prosumers
- AGC Glass Europe / Belgium

PRODUCT TokWise

Transforming renewable energy trading

THE NEED.

The transition to renewable energy presents a number of challenges: intermittent production causes higher imbalance deviations; markets shift towards real-time and a merchant model; and there is increased price volatility and pressure on profit margin.

THE SOLUTION.

TokWise software solution provides the instruments for renewable energy players to become active market participants. AI-powered SaaS optimises market decisions and manages renewable portfolios efficiently, bridging the gap between physical assets and complex electricity markets, and centralising the management of renewable portfolios. The AI-native SaaS trading engine harnesses the power of proprietary models customised to each client's portfolio, risk parameters and market trends.

VALUE PROPOSITION.

- AI technology to trade renewable energy on various markets.
- Advanced automation for short time-to-market operations.
- Centralised SaaS to keep full control.
- Allows customers to benefit from faster insights and data-driven trading.
- Increased responsiveness to remain competitive in a dynamic market.
- Transparent and open AI models optimises trading decisions.





MARKET SEGMENTS

Power TSO

BOOTH NO.

07 B

Enline · Portugal

Combatentes da Grande Guerra, 14
5370-468, Mirandela
Portugal

info@enline-transmission.com
www.enline-transmission.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Red Eléctrica de España, Celepsa,
ISA REP, State Grid, ElectraNet,
Electricidade de Moçambique,
50Hz, REN

PRODUCT

Digital twin technologies for power grids

Monitoring system combining enhanced power, fault location and optimised engineering

THE NEED.

With the increased deployment of renewable energy, traditional power grids face the strain of rising demand and integrating fluctuating renewable sources. There's an urgent need for real-time grid insights and improved power management.

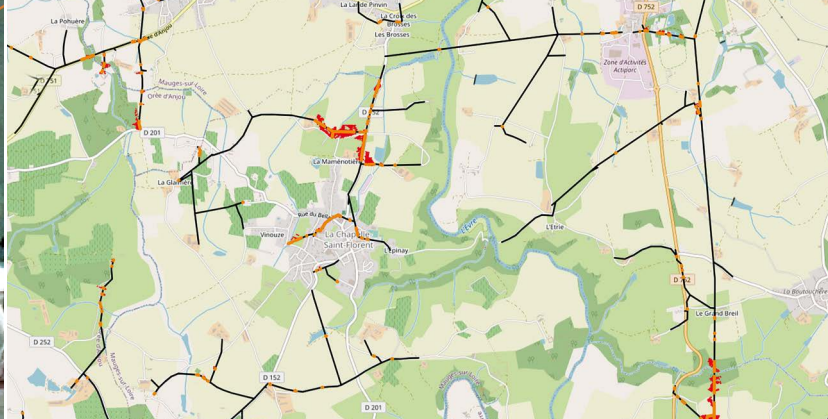
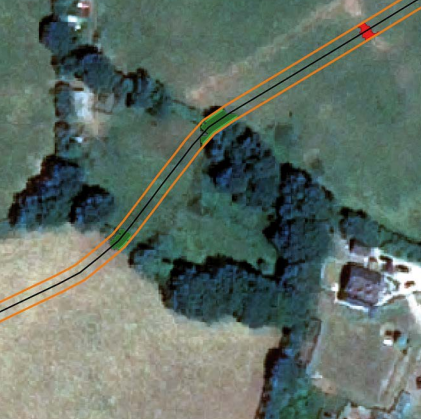
THE SOLUTION.

Enline presents a groundbreaking solution leveraging proprietary virtual-sensor technology and predictive analytics. It offers real-time grid monitoring, creating a digital twin of the infrastructure. The solution also incorporates dynamic line rating technology, enhancing the capacity of existing transmission lines.

VALUE PROPOSITION.

- Technology facilitates proactive grid management via real-time monitoring and advanced analytics.
- Empowers utilities to optimise existing infrastructure and integrate renewable energy more safely and efficiently, saving billions and unblocking transmission capacity.
- Result is greater grid control, enhanced reliability, and significant contribution to a sustainable, electric future.





MARKET SEGMENTS

Power TSO

Gas DSO · Power DSO · Gas TSO

BOOTH NO.

08 **B**

Spottitt · *United Kingdom*

Electron Building, Fermi Ave
OX11 0QR Harwell, Oxford
United Kingdom

lucy.kennedy@spottitt.com
www.spottitt.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Equinor, PS Gaz, National Grid,
SP Energy Networks, Warwickshire
County Council, RES.

PRODUCT

Asset monitoring from space

Self-service satellite analytics for energy, environment and infrastructure

THE NEED.

Power and gas TSOs and DSOs grapple with monitoring external risks to their assets cost-effectively and at scale while meeting stringent pipeline safety and environmental regulations. Operators in the renewable energy industry are also searching for efficient solutions for optimal site selection.

THE SOLUTION.

Spottitt supplies ready-to-use geospatial analytics utilising satellite data and machine learning algorithms. With Spottitt Metrics Factory (Spottitt MF), a cloud-based platform, users can effortlessly monitor risk metrics tailored to their specific use case or operational model. Metrics encompass vegetation risks, pipeline leakage, third-party interventions, land and asset motion, climate conditions, and more. The analysis is accessible via user-friendly heat maps and numeric tables.

VALUE PROPOSITION.

- Allows operators to enhance asset integrity, climate resiliency, and performance, efficiently, cost-effectively, and sustainably.
- Provides scalable monitoring, irrespective of the asset's location, length, or environmental conditions.
- Offers fully digital, standardised data that seamlessly integrates with internal GIS and asset management systems.
- With analysis delivered in 48 hours, users experience zero hassle, as only asset location details are required.





MARKET SEGMENTS

District heating grid

Municipality · Hydropower · Power DSO · Power TSO

BOOTH NO.

09 **B**

ConnectPoint · Poland

Zagadki 21
02-227 Warsaw
Poland

agnieszka.szlemiska@connectpoint.pl
connectpoint.pl

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

ConnectPoint delivers solutions to leaders in Utilities, Power and Manufacturing such as E.On, RWE, PGE, Twinings, Veolia, Stadtwerke Leipzig.

PRODUCT NEXO

Platform to create new business models and reduce operating costs based on IoT solutions

THE NEED.

The energy and utilities industry needs a prime quality of meter data for its operations, especially for billing purposes.

THE SOLUTION.

NEXO is a platform for meter data validation (VEE) and analysis that solves the issues of data quality assurance for billing purposes, anomalies detection and consumption forecasting. NEXO takes an innovative approach to VEE process and meter data insights - data quality assurance as a service. NEXO combines hands-on industry expertise and exceptional user experience with timelinebased data processing management.

VALUE PROPOSITION.

- Flexible and efficient data framework.
- Higher accuracy of demand and consumption forecasting.
- Higher efficiency of accounting processes (meter-to-bill).
- Lower number of frauds and losses.





Stenograaf 1
6921 EX Duiven
The Netherlands
info@solabcool.com
www.solabcool.com

✓ STARTING SALES

CUSTOMER REFERENCES

Pilot projects in houses (SolabCool) and pilot project in office building connected to the Nuon distribution network in Duiven (SolabCascade) in development phase.

Commercial products sold to companies in Quatar, Canada and Germany.



MARKET SEGMENTS

District heating grid

Municipality · Non-residential building · Residential

B

SolabCool · *The Netherlands*

PRODUCT

SolabChiller and SolabCascade

Maximum comfort with pure energy

THE NEED.

An increasing need for summer cooling has been observed in parts of Europe that previously did not need it, especially in the residential sector. This product can provide an alternative to electrical air conditioning.

THE SOLUTION.

SolabCool products use heat: waste heat, district heating, solar thermal etc., to provide cooling for a house or a small office. They use a benign refrigerant (no global warming potential), can use various sources of heat and have an easy working mechanism and robust design.

VALUE PROPOSITION.

- Can use the existing district heating network in summer (extra revenue stream).
- Combined with standard solar thermal.





Hohlstrasse 176
8004 Zurich
Switzerland

info@mpower.africa
www.mpower.africa

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

MPower approaches 3 different type of partners:

- 1) distribution partner
(e.g. Climate Management Ltd. in Zambia or S2 Services in Cameroon)
- 2) financing partners
(e.g. Madison Insurance in Zambia, Crowd4Climate)
- 3) corporate partnership
(e.g. Barry-Callebaut).



MARKET SEGMENTS

Off-grid
Solar PV

BOOTH NO.

10 B

MPower · *Switzerland*

PRODUCT MPowering the Future

A B2B2C platform supplying and financing small-scale solar infrastructure in emerging markets

THE NEED.

Currently, 1 billion people live without access to electricity, and millions more suffer from unreliable grid connections that fail for hours each day. They then use expensive, dangerous and unreliable fossil fuel-based products. The majority are considered unbanked and without any credit history.

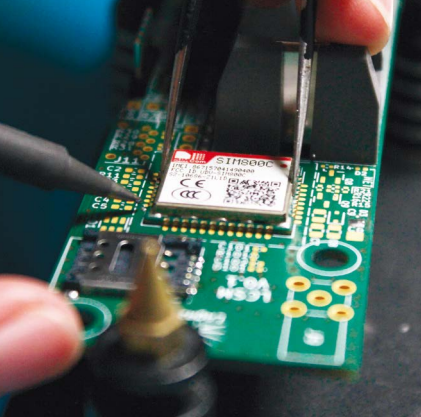
THE SOLUTION.

MPower is a fintech and impact start-up confronting the challenges of energy access and financial inclusion in emerging markets. Through a highly scalable B2B2C partnership model, it enters into agreements with local resellers with existing distribution networks by providing them with (1) plug & play, affordable solar bundles, (2) access to financing solutions, and (3) smart software and a data platform. It digitises operations and collects data on end-users, building them credit profiles.

VALUE PROPOSITION.

- Hardware offers mobile, high-quality clean energy products.
- Financing solutions give access to capital, reducing working capital needs for partners and offering affordable monthly payments for end-users.
- An in-house developed software platform digitises partners' operations and tracks products and payments. It collects data on end-users, enabling the development of credit profiles and rating schemes, which gives a credit history to unbanked end-users and mitigates risks.





MARKET SEGMENTS

Off-grid

Solar PV

BOOTH NO.

11 B

Solaris Offgrid · Spain

The Nest
Paseo de las facultades 3
46021 Valencia
Spain

Siten@solarisoffgrid.com
www.solarisoffgrid.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

100 approx clients in 40 countries.
Name of customer: One Acre Fund.
Date of Sale: November 2020.
Country of Sale: Kenya. Object of the Sale: PaygOps Software Services.
Benefit: Improve leasing and loan management operations.

Name of customer: Access to Energy gmbH (A2EI). Date of Sale: July 2022. Country of Sale: Nigeria.
Object of the Sale: PaygOps Software Services and product integration Services. Benefit: Improve leasing and loan management operations and connectivity of their devices.

Strategic Partnerships: GOGLA, EnAccess, SPARK, Victron Energy, Biolite...

PRODUCT Solaris Offgrid

Solutions to support companies delivering essential services to the BoP

THE NEED.

Life-changing technology must be made affordable for people in developing countries. Solaris Offgrid is extending the model to a wide range of essential products and services in need through innovative technology and solutions.

THE SOLUTION.

Through software solutions (PaygOps) and product design services (SolarisLab), Solar Offgrid provides Paygo distributors with cloud IT infrastructure to connect energy and utility appliances (solar, water-pumps, stoves); payment methods (mobile money); and enterprise applications / application programming interface (API) services for the smooth management of Paygo lease and field operations. Product manufacturers are also supported in developing products that best meet market needs.

VALUE PROPOSITION.

- Interoperability: the development of open source technologies and the ability to adapt to distribution processes or ecosystems of products and apps. PaygOps facilitates the adoption of Paygo products and profitability for last-mile distributors.
- Flexibility: supporting the ecosystem of partners with customisable solutions and design processes aligned with the specifics of different business models.
- Bottom-up design: PaygOps software was created as a result of first-hand-experience with last-mile distribution of solar home system kits in Tanzania and Eastern Africa.





MARKET SEGMENTS

Off-grid

Power DSO · Solar PV

B

RVE Sol · Portugal

Rua da Granja N.10A
2420-397 Boa Vista Leiria
Portugal

info@rvesol.com
www.rvesol.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT KUDURA

The power to change

THE NEED.

Many people in remote areas still have no access to electricity and safe drinking water.

THE SOLUTION.

KUDURA is a green micro- or mini-grid-based solution (GMG – Green Mini-Grid) to sustainable rural development. It offers rural communities high-quality, sustainable and renewable energy and drinking water on an affordable pay-as-you-go (PAYG) basis. KUDURA is an integrated, containerised solution that is safe, reliable, weatherproof, designed and built to last 20+ years.

VALUE PROPOSITION.

- Electricity for productivity, communications and entertainment.
- Hybrid generation and distribution from any source: Solar, Biomass & diesel as backup.
- Clean, potable drinking water for health and wellbeing.
- Local water sources are purified through UV, ultra-filtration or desalination.





MARKET SEGMENTS

Off-grid

B

SolarWorX · *Germany*

Rohrdamm 88
13629 Berlin
Germany

felix.boldt@solarworx.io
solarworx.io

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Modular Solar Home and Business System

A modular solar system for off-grid villages that meets future and present electricity demands

THE NEED.

Around 22 million off-grid households in the East African community need electricity and are using fossil fuels. Kerosene used for lighting causes 2.4 billion kg of CO₂ p.a.

THE SOLUTION.

The solar systems provide electricity to off-grid villagers to cover their basic needs lighting, devices and appliances, and can also serve as an enabling tool for businesses (e.g. agricultural). They offer a high power outlet that enables them to run business appliances and stacks modules for power sharing; modularity, with easy upselling and after sales services the system adapts to customer needs; single wire communication allows for inter-module communication and smart appliances.

VALUE PROPOSITION.

- The system locks/unlocks via a pay-as-you-go token system entered by a mini USB keypad.
- Voice output, the system interacts with customers acoustically in case of illiteracy.
- Children can study at night and experience renewable energies at first hand.
- Customers can generate income by offering phone charger businesses or other productive uses.





The background is a dark, textured field of small, glowing particles. A prominent, vertical, grainy light trail runs through the center, transitioning from green at the top to yellow, then orange, red, and finally purple at the bottom. A large, solid pink letter 'C' is positioned in the upper right corner.

C

Energy
storage



MARKET SEGMENTS

Storage for buildings

Heating & Cooling · Hydrogen & e-fuels · Municipality



Sylfen · France

Avenue de Savoie 266
38570 Le Cheylas
Auvergne-Rhône-Alpes
France

caroline.rozain@sylfen.com
www.sylfen.com

✓ STARTING SALES

CUSTOMER REFERENCES

A first proof of concept of the Smart Energy Hub was delivered to Engie in 2018.

Improvements in the form of R&D projects (EU funded) are ongoing: one unit in Turin (Italy) in 2020, one in Procida (Italy) in 2021.

First commercial contracts are already signed: one unit in Turin (Italy) in 2022, one in Procida (Italy) in 2023, one unit in Somme (France) in 2022, one in Monaco in 2023.

PRODUCT Smart Energy Hub

A system of energy storage, cogeneration and smart energy

THE NEED.

Buildings now integrate local energy production, but they can not rely on this renewable supply, due to lack of energy storage and management solution.

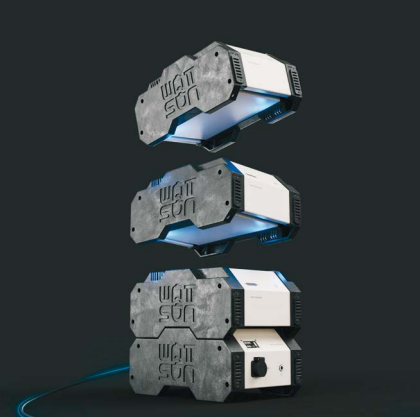
THE SOLUTION.

The Smart Energy Hub allows for the generation of electricity from previously-stored hydrogen (working as a fuel cell), or from methane or bio-methane. Heat cogeneration is also possible with a constant heat generation of up to 120°C. Hydrogen is created locally through the electrolysis of water with electricity (surplus from a renewable source), and electricity and heat provided through cogeneration.

VALUE PROPOSITION.

- Buying electricity when its cost is less and store it.
- Local high capacity energy storage (MWh of energy).
- Replacing electricity supply with gas when it is cheaper.
- Self-effacement from the network when there is tension in supply.
- Using the stored hydrogen to create electricity.





Westervoortsedijk 73
6827 AV Arnhem
The Netherlands

bart@wattsun.net
www.wattsun.net

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Rental: Boels Rental.

Construction: TBI, Van Gelder,
Dura Vermeer, Van Vulpen.

Events: ColdPlay World Tour 2022-
2023, The Power Shop, Event
Engineers, PlayGround.

Media / Broadcasting: NOS,
LocatieWerk, PuroCuento
Filmmaking Supplies.

MARKET SEGMENTS

Storage for off-grid

Storage for the industry · Off-grid



Wattsun · The Netherlands

PRODUCT

Wattsun Pop-Up Power

Green pop-up power for off-grid situations

THE NEED.

In off-grid situations it is common to use fuel generators as a power supply. These generators typically have low energy efficiency, emit excessive amounts of CO₂, smell and are noisy.

THE SOLUTION.

Wattsun provides a portable, easy-to-use, plug & play, off-grid power supply. Called 'The Wattsun One', it can be charged with renewable energy. It does not produce emissions (CO₂, NO_x) has no odour, and is completely silent.

VALUE PROPOSITION.

- Cost effective compared to traditional solutions like generators.
- Enables the use of green power.
- User friendly.
- Portable.





MARKET SEGMENTS

Storage for the grid

Battery industry · Energy Storage Solutions · Off-grid



Altris · Sweden

Kungsgatan 70b
753 18 Uppsala
Sweden

tim.nordh@altris.se
www.altris.se

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Fennac

Sustainable high energy density cathode material for stationary storage solutions

THE NEED.

The battery production industry has a need for low-cost, sustainable electrode materials that are free from nickel, cobalt and lithium. Furthermore, batteries capable of low temperature performance are in strong demand.

THE SOLUTION.

The solution is a practical cathode material for sodium batteries that is free from nickel, cobalt and lithium. Its elements – sodium, iron, carbon, nitrogen – are accessible, economical and pose no health or environmental hazard. The production process is cost competitive since it runs at low temperatures and pressures. Unlike li-ion batteries, it enables reliable sub-zero performance.

VALUE PROPOSITION.

- Can be transported and stored without risk of explosion.
- Cheapest battery chemistry in the long run.
- Good performance in below OC environment.
- High energy density and low investment needed to scale production.
- The most eco-friendly battery technology available.





MARKET SEGMENTS

Storage for the grid

Storage for off-grid · Off-grid



Elestor · *The Netherlands*

Westervoortsedijk, 73
(Building BF)
6827 AV Arnhem
The Netherlands

info@elestor.nl
www.elestor.nl

✓ STARTING SALES

CUSTOMER REFERENCES

In April 2021, Elestor signed an agreement with the Dutch corporate, Royal Vopak, the world's leading independent tank storage company on sea port terminals, for the installation of a 500kW/3MWh storage system. After initial test and validation of the business case, the system will be scaled to industrial size (10s of MW / 100s of MWh).

PRODUCT

Elestor – electricity storage

Revolutionary low-cost electricity storage in a hydrogen-bromine flow battery

THE NEED.

Given the unpredictability of renewable energy producers such as sun and wind, grid owners are looking for cost-effective means of storing electricity. This is essential to solve issues such as instability and overload of the electricity grid.

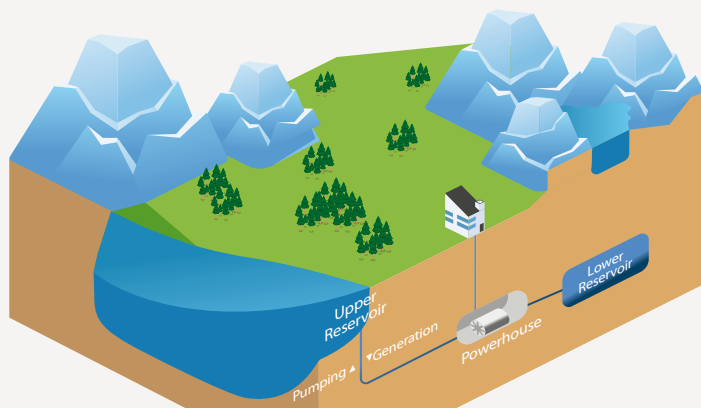
THE SOLUTION.

Elestor electricity storage systems are based on hydrogen bromine flow battery technology. Originally developed by NASA, Elestor has further engineered the concept to enable its use in a wide variety of grid and industrial applications.

VALUE PROPOSITION.

- Fast reaction kinetics, resulting in very short response times.
- High accessibility, enabling easy maintenance and updates.
- Independent configuration of storage power (mW) and capacity (mWh).
- Modular scalable, up to 10s of MW and 100s of MWh
- No self-discharge when system is idle.
- Storage costs per mWh 5-10 times lower than incumbent systems.





MARKET SEGMENTS

Storage for the grid

C



Mine Storage · Sweden

Torsgatan 11, 8tr
111 23 Stockholm
Sweden

thomas.johansson@minestorage.com
www.minestorage.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Strategic partnerships with Dairyland Power Cooperative (US market) and Mälarenergi (Swedish market).

PRODUCT Mine Storage

Enabling the sustainable energy transition

THE NEED.

The requirement to tackle the climate crisis and the volatile energy market has become urgent. In the move towards weather-dependent renewable production, there is increasingly dependency on energy storage to secure and balance the electricity supply.

THE SOLUTION.

Mine storage technology is a proven, scalable way to safely store and distribute energy and help balance transmission grids. Mine Storage develops grid-scale energy storage in underground mines using closed-loop pumped storage hydropower. By leveraging the height differences in mines, large quantities of energy are stored using water and gravity. The operational model for each mine storage facility is developed to optimise revenue streams from local markets.

VALUE PROPOSITION.

- Grid-scale energy storage that can be scaled globally.
- Proven technology applied in an innovative setting.
- Clean solution using water and gravity that does not rely on rare-earth minerals.
- High round-trip efficiency of 70-85 percent.
- Long lifecycle resulting in a low levelized cost of storage.
- Leveraging existing infrastructure by making closed mines a circular energy asset.
- Potential to scale globally as there are more than 1 million closed mines.
- Discreet once in operation, resulting in low negative local impact.





MARKET SEGMENTS

Storage for the grid

Power DSO · Power TSO

C

Rivus · Sweden

Sven Hultins Gata 5
41258 Göteborg
Sweden

andreas@rivus-batteries.com
www.rivus-batteries.com

✓ PILOT

CUSTOMER REFERENCES

Five customer LOIs signed to date!

PRODUCT

Rivus Batteries

Long duration energy storage using organic flow batteries

THE NEED.

Long duration energy storage is urgently needed to support renewable energy integration globally. Current battery technologies are unable to meet the rapidly growing demand as they are based on rare and costly metals and materials.

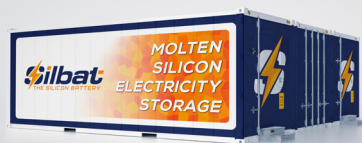
THE SOLUTION.

Rivus' organic flow batteries provide a cost-effective, eco-friendly and scalable solution for long duration energy storage, as they are based on abundant and accessible organic materials. Backed by EIT InnoEnergy, Rivus' breakthrough technology has been tested and verified over six years demonstrating superior cost savings and environmental benefits compared to current technologies, such as lithium-ion batteries and vanadium flow batteries.

VALUE PROPOSITION.

- Low cost - Electrolyte prices of €100/kWh are expected.
- Safe - Non-flammable, non-explosive, and non-toxic.
- Eco friendly - based on abundant organic materials.
- Close to market - Uses existing vanadium flow battery hardware.





MARKET SEGMENTS

Storage for the grid

Residential Building · Solar PV

C

Silbat · Spain

Avda. Dr. Federico Rubio y Galí 75
28040 Madrid
Spain

iluke@silbat.com
www.silbat.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT Silbat

Long duration electricity storage in melting silicon

THE NEED.

Cost-effective long duration stationary electricity storage is required to enable the predicted and necessary ramp-up of renewables to mitigate climate change. This currently relies on location constrained pumped hydro. Ultra-cheap, portable, fast to deploy technologies are urgently required.

THE SOLUTION.

Silbat has developed a silicon battery that is set to transform the landscape of long duration stationary storage. The solution is based on the latent heat of metal-grade silicon and its back-conversion to electricity using thermophotovoltaics. According to MIT research, cost-effectively turning renewables into dispatchable electricity sources requires long duration storage with capital expenses of less than \$20/kWh. Silbat's battery can do it for less than \$10/kWh.

VALUE PROPOSITION.

- The potential to be extremely cheap <\$10/kWh and enables a 100% RE supply paradigm.
- Highest energy density, only comparable to power-to-gas and superior to the best Li-ion batteries.
- 30 yr lifetime with low O&M (vs. Li-ion ~5yrs. lifetime).
- Highly abundant, widely found raw materials – 1000X than Li-Co-Ni-Mn in Li-ion batteries or Pt-Pd in electrolyser stacks.
- Silent operation and quick start – solid-state conversion, no moving parts.





suena

MARKET SEGMENTS

Storage for the grid

Energy Storage Solutions · Onshore Wind · Solar PV

C

Suena · *Germany*

Hoheluftchaussee 139
20253 Hamburg
Germany

lennard@suena.energy
suena.energy

✓ PILOT

CUSTOMER REFERENCES

TagEnergy, Vattenfall, Orsted,
AboWind, Encavis, FBS-Systems,
MaxSolar

PRODUCT Suena

Autopilot for energy storage

THE NEED.

Flexibility in the power grid is vital to cope with challenges of the energy transition, such as fluctuating supply, and volatile and highly regulated markets. To achieve the storage capacity required for the buildout of renewables, a solid business case around energy storage systems must be built.

THE SOLUTION.

The suena Autopilot is a cloud-hosted optimisation and multi-market trading software for energy storage assets, either stand-alone or co-located to renewable energy plants. Based on advanced optimisation algorithms, the Autopilot continuously seeks the best trading strategy by considering forecast data, asset information, and asset constraints.

VALUE PROPOSITION.

- The fully automated suena Autopilot enables multi-market trading, including different wholesale markets as well as diverse ancillary services. This reduces trading risks and increases revenues.
- Thanks to the software's modular design, it is quickly adaptable to diverse requirements, power plants, power markets, and regulations in different countries. This flexibility enables rapid scaling of operations.
- Software uses Digital Twin and AI to find the best trading strategy available considering the degradation of the energy storage.





MARKET SEGMENTS

Storage for the industry

Energy Storage Solutions · Industry · Municipality



BeePlanet Factory · Spain

Pol. Ind. Mocholí
Plaza CEIN 5 Oficina D5
31110 Noáin
Spain

alfonso.urrizburu@beeplanetfactory.com
beeplanetfactory.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Iberdrola: 440kWh for support to charging infrastructure.

Solarfam: 84kWh + PV installation for a farm.

Mercedes-Benz Vitoria factory: 42kWh + PV installation for support to charging infrastructure and self-consumption.

More available on request.

PRODUCT Power ESS & Home ESS

Sustainable energy storage solution based on 2nd life lithium-ion EV batteries

THE NEED.

There is an urgent requirement for access to lithium-ion (Li-ion) energy storage solutions that facilitate the implementation of greener ways of using energy.

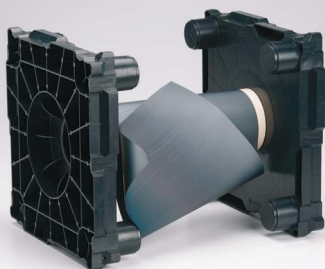
THE SOLUTION.

This solution provides a second life to electric vehicle batteries. EV batteries that are no longer used in the vehicle, either because the car is no longer in use or because the battery has been replaced, still have a 70-80% storage capacity. They can therefore be made useful for other less demanding purposes, such as stationary storage systems, domestic (5kWh-10kWh) and industrial systems (42kWh-1MWh).

VALUE PROPOSITION.

- Complete solution: from hardware to software.
- Modularity: capacity expandable from 5kWh up to 1MWh.
- Smart grids and energy efficiency: saving more than 70% of your energy bill.
- Increase self-consumption rate.
- End of life inverse logistic service.
- Involved with the client at every stage of the project





Luchthavenweg 10
5657 EB Eindhoven
Noord-Brabant
The Netherlands

rob.anstey@graphnx.com
www.graphnx.com

✓ PILOT

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Storage for the industry

Storage for the grid · Storage for transport & mobility



GDI · The Netherlands

PRODUCT 100% Silicon Anodes for Li-ion batteries

GDI's 100% silicon anodes enable longer-lasting, faster-charging batteries with a secure supply chain

THE NEED.

Electrification is creating a growing demand for batteries that offer higher energy density, faster charging, an excellent safety profile, a secure supply chain and low-carbon manufacturing.

THE SOLUTION.

GDI's 100% silicon anodes replace traditional graphite anodes in lithium-ion batteries, affording 30% higher energy density and 3x faster charging without sacrificing safety. The supply chain of copper foil and silane gas precursor is entirely EU/US-based, with manufacturing taking place in the Netherlands and Germany. Automated roll-to-roll production is highly efficient, leveraging industrial equipment and facilities that already operate at scale.

VALUE PROPOSITION.

- GDI supplies customers with rolls of finished anode and works with them to optimise battery cell architectures to meet differing needs.
- Higher-performing batteries for use across many industries.
- A fully EU/US supply chain and manufacturing operation mitigates global geopolitical and supply chain risk.
- Designed for safety, batteries with GDI anodes have passed extensive nail penetration safety testing.
- Unlike traditional graphite anodes, the production of GDI anodes is entirely carbon free.





MARKET SEGMENTS

Storage for the industry

Energy Storage Solutions



Mecaware · France

Boulevard Marcel Sembat 41
69200 Venissieux
France

remy.chaintreau@mecaware.com
www.mecaware.com

✓ PILOT

CUSTOMER REFERENCES

VERKOR (Manufacturer of EV Battery)
2023. Project of Pilote line in Dunkirk,
France. Budget : 15M€. Secure
strategic and sustainable metals by
recycling battery

PRODUCT Mecaware

Strategic raw materials produced by recycling end-of-life batteries and scraps

THE NEED.

The European battery manufacturing industry faces major challenges in terms of raw material supply and the recycling of production scraps, the process of which is consuming these very same raw materials.

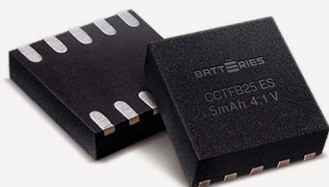
THE SOLUTION.

MECAWARE produces critical and strategic raw materials by recycling technological waste from end-of-life batteries and production scraps. The company designs and deploys in situ game-changing and disruptive eco² (ecologically and economically efficient) industrial solutions. This solution is an innovative technology based on synergistic CO₂ capture and critical metal recycling.

VALUE PROPOSITION.

- Secures 70-80 percent volume and price of total EV battery production costs.
- Reduces 30-50 percent of EV battery recycling costs vs conventional hydrometallurgy recycling processes.
- Delivers sustainable and recycled metals according to future EU regulations (Critical Raw Material Act).
- Allows us to develop the local industrial circular economy and secure the supply chain of critical and strategic metals.
- Competitive economic conditions.





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✓ PILOT

CUSTOMER REFERENCES

Several companies and institutions have been approached, incl. Phillips, Arrow Electronics, Aisense, Blinkee, Warsaw Institute of Aviation, ERElektronik, Ruuvi, Lilium, Neuro Device, Polimaster, PROMWAD, and Regula. Received feedback confirmed high business interest in The Batteries' products.



MARKET SEGMENTS

Storage for the industry

Industry

C

The Batteries · Poland

PRODUCT The Batteries

Thin-film lithium-ion batteries that outperform conventional lithium-ion batteries

THE NEED.

Currently, the demand for batteries is higher than the supply. Conventional lithium-ion battery producers are selling for future production. The Batteries has devised a method to produce thin-film lithium-ion batteries that is over ten times cheaper than competitive technologies.

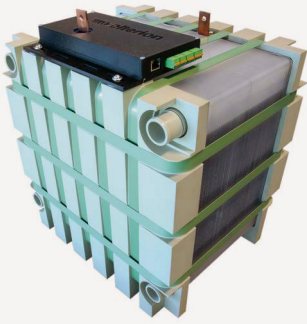
THE SOLUTION.

With a durability of approx. 500 cycles, conventional lithium-ion batteries are inferior to thin-film lithium-ion batteries, which can achieve an estimated lifetime of 10,000 cycles. Given that, and the above, 10 times cheaper production means that the unit price of The Batteries' batteries would be just 2-3 times higher than conventional lithium-ion batteries. Possible savings can also be made from fewer battery replacements over time.

VALUE PROPOSITION.

- Superior characteristics compared to conventional lithium-ion batteries in almost all technical aspects, which represents real market disruption potential.
- A simple and material-efficient production method, after an intensive R&D phase and a successful lab-scale validation, is now mature enough for a production-scale demonstration.





MARKET SEGMENTS

Storage for the industry

Storage for the grid · Storage for buildings



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✓ STARTING SALES

CUSTOMER REFERENCES

Stacks: VisBlue is a trusted, early stage customer that is continuously placing new orders. Several customers in the EU, Japan, Taiwan and Korean market are building systems with Volterion stacks.

Volterion VRFB Systems: a German Utility has bought a first medium VRFB System. Multiple VRFB Systems, varying from one to several modules, have been sold in the EU.

PRODUCT Flow Battery Modules

Scalable, industrial VRFB Modules, for kWh to MWh capacity systems

THE NEED.

Storing generated energy is a relatively new capability in the electricity industry. Energy storage solutions will eventually become a ubiquitous component of the electricity grid, yet many players lack in-house expertise.

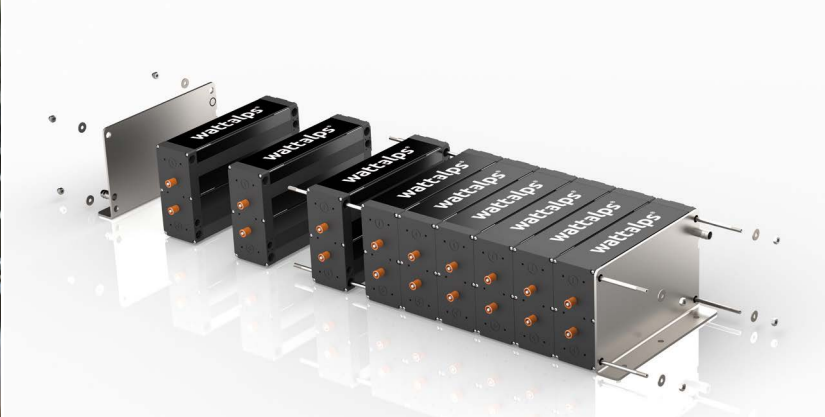
THE SOLUTION.

Compared to other battery technologies (Lead- Acid, Li-Ion, NaS, NaNiCl), the Vanadium Redox Flow Battery shows decisive advantages: the battery can be completely discharged and recharged for more than 20.000 cycles. There are no capacity losses, no overheating issues and power and capacity can be scaled independently. It offers deep discharging without any long term consequences. Volterion sells both welded VRFB stacks as complete, modular VRFB systems.

VALUE PROPOSITION.

- High tech performance stacks that last longer and don't leak.
- Industrialized VRFB modules to build a tailor-made energy storage system.





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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Oscaro, Iguana Yachts

MARKET SEGMENTS

Storage for the industry

Industry · Municipality · Transport & mobility



Wattalps · France

PRODUCT

Advanced Lithium Power Systems

Affordable high performance batteries for the industrial vehicle market

THE NEED.

There is a requirement to replace diesel engines with a battery in the construction, material handling and agricultural equipment markets.

THE SOLUTION.

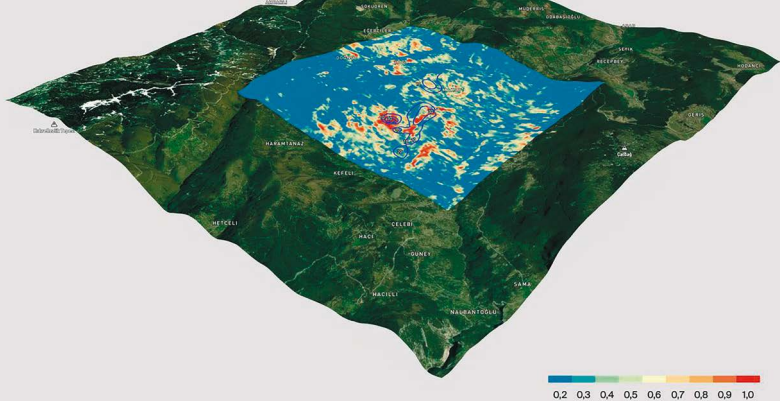
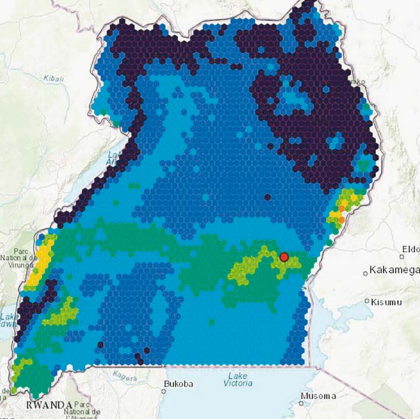
An innovative and patented thermal management system using immersion cooling to guarantee maximum productivity whatever the climate conditions.

A modular battery system designed for small and medium series vehicles and machines that is cost effective, flexible and fast to implement, requiring just a few weeks of engineering work. Batteries are connected, high energy and have liquid cooling and heating.

VALUE PROPOSITION.

- Full power in all conditions.
- Full range covered by the same technology.
- Full service with a set of tools to optimise life and productivity.
- Last a full day without charging.





MARKET SEGMENTS

Storage for the industry

Battery industry · Industry



Beholder · Estonia

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✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT AI for sustainable minerals exploration

Web GIS powered with AI for the exploration of critical minerals

THE NEED.

By 2050, some 3 billion electric vehicles will require trillions of batteries and the market for critical minerals to produce them is set to reach 12 trillion dollars. However, exploration of minerals takes 20 times more effort than it did 30 years ago, with only 2% of prospects becoming a mine.

THE SOLUTION.

Beholder has developed an AI for the quick, precise and sustainable exploration of critical mineral deposits, enabling geological research to be upscaled. This state of the art neural network combines 49 data inputs over 200 models to make efficient predictions of mineral deposits with an up to 96% accuracy rate.

VALUE PROPOSITION.

- Mining companies receive access to geological insights with a pricing model based on the size of the project.
- Investors and banks receive risk clarification and an efficient assessment before a decision is made. Prices are based on project schedule and loan duration.





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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

EUROPEAN
BATTERY
ALLIANCE

EBA250



MARKET SEGMENTS

Storage for the industry

Battery industry · Energy Storage Solutions

C

Euro Manganese · *Canada & Czech Rep.*

PRODUCT

Euro Manganese – Chvaletice Manganese Project

Recycling yesterday's waste to support Europe's e-mobility future

THE NEED.

High purity manganese offers the potential to make EVs more affordable. Volkswagen, Stellantis, Tesla, Renault, BMW, Mercedes Benz, Volvo, BASF, Umicore and many others have made commitments to use manganese in their battery chemistries. Europe imports virtually 100% of its manganese requirements for all industries. China controls over 90% of the world's battery grade manganese production capacity. Major manganese market deficits are appearing on the horizon, as the gap between supply and demand widens. A made-in-Europe solution is required.

THE SOLUTION.

Euro Manganese's Chvaletice Manganese Project is well positioned to help the European automotive and battery industry meet its rapidly growing need for high purity manganese. EMN's high-quality manganese products will be made starting in 2025 by recycling waste from a decommissioned mine in the Czech Republic, in the heart of Europe. The company is set to become one of the world's largest and the EU's only primary producer of battery grade manganese, with the potential to become a strategic element of Europe's emerging battery value chain.

VALUE PROPOSITION.

- High-purity manganese products are designed to deliver unique environmental, social and economic benefits to local communities, the environment and customers.
- By recycling historic mining waste, the Chvaletice Manganese Project will clean up a longstanding source of water pollution, create local jobs, and help the EU and its automotive industry to a greener, decarbonized future and to build a European battery supply chain.





MARKET SEGMENTS

Storage for the industry

Battery industry

C

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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT

San José Lithium Project

Integrated underground mine and battery grade lithium chemicals production facility

THE NEED.

In Europe, heavy investment in downstream activities in the lithium battery value chain has resulted in a critical shortfall in sustainably-sourced raw materials, including battery grade lithium chemicals.

THE SOLUTION.

The Extremadura New Energies' Project represents Europe's 2nd largest hard rock lithium deposit, with a fully integrated lithium chemical conversion plant on site. The mineral is completely processed in the adjacent site until converted into lithium hydroxide, an essential component in the manufacture of rechargeable lithium-ion batteries, particularly those used in electric vehicles.

VALUE PROPOSITION.

- Battery grade chemicals produced in Europe using sustainable processing techniques.
- Strategically located in southern Spain for the European market.
- Contributes 20,000ktpa (kilo-tonnes per annum) of battery grade lithium chemicals to the European market.





GEOMET

České Lithium pro Čistou Energií
Czech Lithium for Clean Energy

MARKET SEGMENTS

Storage for the industry

Battery industry

C

Geomet · Czech Republic

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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT

Cinovec Lithium

Production of battery-grade lithium chemicals

THE NEED.

Due to the significant boom in electro mobility and the urgent need to store energy, global demand for lithium is growing rapidly. However, this unique light metal is in very short supply.

THE SOLUTION.

Cinovec is a lithium and tin mining project in the Czech Republic. The country holds one of the most important deposits of the metal in Europe, with some 3% to 5% of the world's lithium reserves located below Cínovec in the Ore Mountains. Geomet's focus is primarily on the exploration of lithium as a strategic raw material for the production of car batteries, as well as its use as a critical component in the cycle of production and accumulation of electricity produced from alternative sources.

VALUE PROPOSITION.

- Demand for electric vehicle makers and firms involved in electricity storage systems.
- Job opportunities in the mine itself and also in related industries and services.
- Funds added to the budget of the city of Dubí from fees for extracted minerals.





+PURE
BATTERY
TECHNOLOGIES

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Storage for the industry

Battery industry

C

Pure Battery Tech · Australia

PRODUCT Pure Battery Technologies

Producers of superior pCAM products for EV batteries

THE NEED.

Common processes to produce battery materials are inefficient and result in excessive CO2 emissions. For battery and car manufacturers to meet their environmental obligations in line with legislation, an increased focus on ways to reduce emissions created through the battery supply chain is needed.

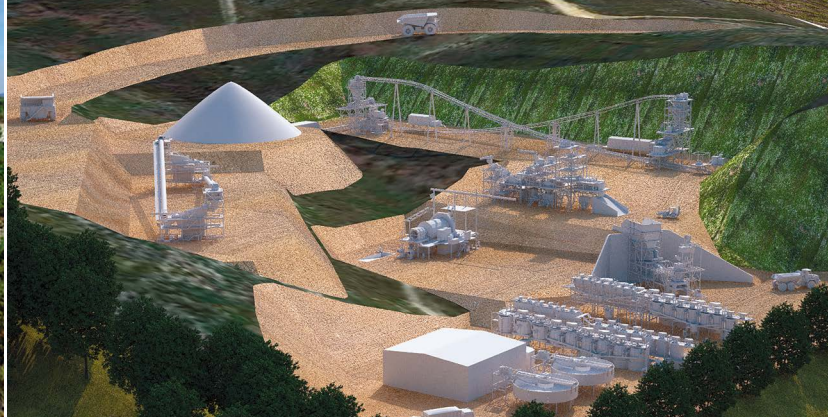
THE SOLUTION.

Pure Battery Technologies solves this problem through smarter and simpler technology, which refines intermediate products and black mass into precursor cathode-active material (pCAM) for EV batteries. This is done in a way which is more affordable and with superior environmental care. PBT's technology refines both raw material (intermediates such as MHP) as well as black mass, thereby closing the recycling loop and making the end products truly environmentally friendly.

VALUE PROPOSITION.

- To respond to the global demand for EVs, Pure Battery Technologies (PBT) has developed a smarter, simpler and greener technology to produce pCAM from either primary or recycled materials.
- As a global provider, PBT enables battery cell makers to obtain flexible, clean and cost-effective battery materials while improving their environmental credentials.
- Driven by excellence in technology and innovation, PBT continues to provide advanced solutions to the energy crisis.





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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request



MARKET SEGMENTS

Storage for the industry

Battery industry



Savannah · *United Kingdom & Portugal*

PRODUCT

Mina do Barroso Lithium

Europe's leading conventional lithium project

THE NEED.

Europe's demand for lithium is expected to grow 60x by 2050, but there is no domestic production of battery grade lithium raw material. With global competition set to grow significantly, the European Commission has identified the need to secure stable supplies of responsibly produced feedstocks.

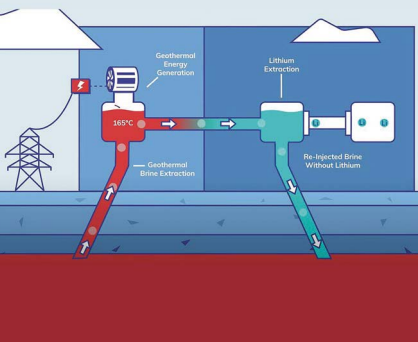
THE SOLUTION.

Mina do Barroso will produce enough lithium raw material for 0.5 million vehicle battery packs each year, could be in operation for over a decade, employ over 200 people, and create hundreds more indirect jobs. The high proportion of renewables in Portugal's energy mix, the location close to market, the electrification of an on-site mining fleet and the sole use of renewables means that power lithium from Mina do Barroso will have a low carbon footprint in the value chain.

VALUE PROPOSITION.

- A 'shovel ready', domestic solution to Europe's growing demand for lithium. In an economic scoping study completed in 2018, the project's after-tax net present value was estimated at US\$241m and its after-tax internal rate of return at 48.6%.
- A successful transition from the current development phase into production and cash flow should generate significant value accretion, not only for investors, but also for society with the creation of long term direct and indirect jobs and new demand for multiple goods and services.





MARKET SEGMENTS

Storage for the industry

Battery industry · Transport & mobility



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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Zero Carbon Lithium

Lithium extraction with a carbon-free footprint

THE NEED.

Lithium extraction harms the soil and causes air contamination. It can also contaminate water sources used by humans and livestock and for crop irrigation. Extraction with a carbon-free footprint is urgently required.

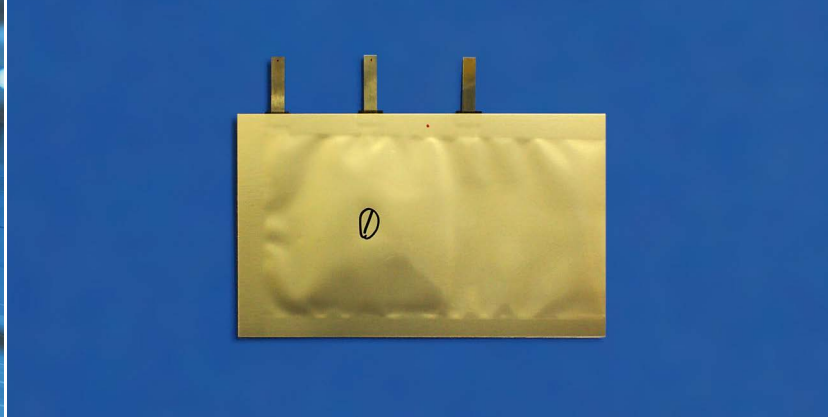
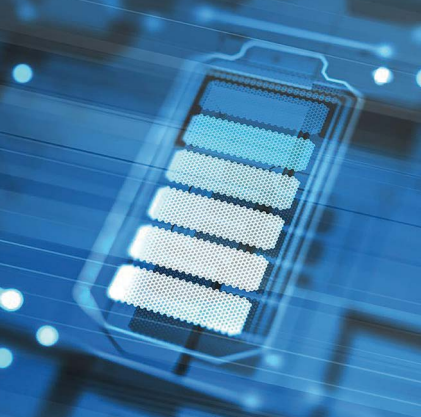
THE SOLUTION.

Backed by a team of world-renowned experts in chemistry, engineering and geology, Vulcan Energie aims to produce the world's first premium, battery-quality lithium chemicals with zero carbon footprint. It does so by harnessing renewable geothermal energy to drive lithium production without using evaporation ponds, mining or fossil fuels.

VALUE PROPOSITION.

- A world-first Zero Carbon Lithium™ business.
- Aims to decarbonise the transition to electric mobility.
- For use in electric vehicle batteries and renewable energy businesses.





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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Storage for transport & mobility

Transport & mobility

C

AC Biode · Luxembourg

PRODUCT

Standalone AC batteries

A new class of batteries for present and future industries to increase productivity

THE NEED.

Current batteries store energy in DC (direct current). However, over 90 percent of appliances use only AC (alternating current) power sources. Energy loss in conversions between AC and DC is unproductive.

THE SOLUTION.

The world's first standalone AC batteries and special electric circuits that are safer, 30 percent more compact and have double the usual life cycle. All the existing materials are utilised as well as battery production lines, and this idea can be applied not only to Li-ion batteries but to any other type. The system, including the Cockcroft-Walton Multiplier, is flexible and can be adapted to existing systems.

VALUE PROPOSITION.

- Safer than current DC Li-ion batteries.
- 15 percent higher capacity.
- Up to 30 percent more compact in terms of volume.
- Double the life cycle.
- All the existing materials and battery production lines utilised.





BASQUEVOLT

MARKET SEGMENTS

Storage for transport & mobility

Battery industry

C

Basquevolt · Spain

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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT Basquevolt

The safest and most competitive solid-state battery

THE NEED.

A major roadblock in the race to phase out fossil fuels is that lithium batteries currently do not meet customers' requirements in ensuring a complete transition in mobility and energy applications.

THE SOLUTION.

A new generation of solid polymer composite and semi-solid electrolytes has resulted from a decade of research by Prof. Michel Armand, one of the fathers of modern lithium battery development. The research team led by Professor Armand has been able to improve the composite polymer electrolytes (technology he discovered in 1978) and solve the main solid-state battery challenges. This unique technology brings lithium batteries beyond the state of the art in cost, safety and energy density.

VALUE PROPOSITION.

- Commitment to develop the highest quality battery materials and cells.
- Set to make possible the mass deployment of electric transportation, stationary energy storage and advanced portable devices.
- State of the art in terms of cost, safety and energy density.





MARKET SEGMENTS

Storage for transport & mobility

Transport & mobility



C2C New-Cap · Portugal

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✓ **STARTING SALES**

CUSTOMER REFERENCES

Galp

PRODUCT C2C Go-Start

Supercapacitor solution for sustainable mobility

THE NEED.

Trucks are responsible for moving at least 70 percent of goods in Europe. Although the battery has advanced in other applications, heavy vehicles still use the same lead-acid battery technology that causes dead-starts and excessive idling while the vehicle is stationary.

THE SOLUTION.

GO-START is a supercapacitor module especially made for EU trucks. Easy to install, GO-START is provided along with a deep-cycle battery, both of which are installed in the battery compartment as a plug and play solution. C2C is the first company to directly replace the original lead-acid batteries with a supercapacitor-based solution that does not require modifications to the vehicle.

VALUE PROPOSITION.

- €1500 fuel savings per year.
- Drastic reduction of lead - a highly toxic metal.
- Reduction of need to replace battery.
- Reduction of costly road problems related to batteries.





MARKET SEGMENTS

Storage for transport & mobility

Industry · Transport & mobility



ElevenEs · Serbia

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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT ElevenEs

Empowering the global battery market

THE NEED.

The global battery market is expected to reach 4500GWh by 2030. A key challenge of the storage industry is keep costs competitive despite the rapid increase in price of critical raw materials (cobalt, nickel, lithium), while also ensuring the sustainability of the battery production process.

THE SOLUTION.

ElevenEs has developed the first LFP (lithium iron phosphate) battery cell in Europe. An industrial spin-off of the AI Pack Group, the company is located in Serbia, the only European country with a sufficient resource of raw materials to support large-scale battery production. Giga-scale production is planned in 2025 based on local sourcing and 100% renewable energy. The factory is set to reach 64GWh capacity by 2029, including a fully integrated active materials production plant.

VALUE PROPOSITION.

- LFP is set to be the dominant battery chemistry by 2028.
- Safety advantages (3x less heat released).
- Possibility of replacing cobalt and nickel with easily accessible and lower-priced iron phosphate.
- Long lifecycle (up to 25 years).
- Lower costs (-15%), leading EV producers to accept the trade-off of lower energy density.
- LFP prismatic cell is an optimal choice for applications in industry, electric trucks or buses that require sustainable cells with long lifespans, high safety and affordable costs.





northvolt

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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request



MARKET SEGMENTS

Storage for transport & mobility

Battery industry · Industry · Transport & mobility

C

Northvolt · Sweden

PRODUCT Large scale battery factory

The next generation lithium-ion battery factory

THE NEED.

The need for batteries in the power, transport and industrial sectors is becoming increasingly urgent.

THE SOLUTION.

Northvolt is building the next generation li-ion battery factory with a new concept focusing on scale, vertical integration and highly controlled manufacturing. The execution is fundamentally different compared to current battery production facilities, with the aim of creating a circular supply system and using clean energy in production.

The factory has a capacity of 350 MWh/year (demo line and research facility) to 60 GWh/year (Northvolt Ett, Northvolt's first gigafactory in Sweden), with a high level of automation.

VALUE PROPOSITION.

- Ambitious and industrialised recycling process.
- Lower cost level.
- Supporting the transition to electrification.
- Sustainable: production close to zero carbon emission.





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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

The company is a fully operational ESS factory with a 200MWh production and 21mEURO revenues for 2023 and ~+70mEUR forecast for 2024.

Some of the clients are CEZ, Ingeteam, Monsson, Terberg.

MARKET SEGMENTS

Storage for transport and mobility

Industry · ESS

C

Prime Batteries · Romania

PRODUCT PRIME

European energy storage systems manufacturer delivers solutions both behind and after the meter

THE NEED.

The integration of renewable energy sources (RES), peak load control, the necessity for grid resilience and the increasing number of electric cars are all driving the need for energy storage systems (EES). As RES become more common, the demand for efficient ESS increases.

THE SOLUTION.

PRIME is a leading European ESS manufacturer that delivers solutions both behind and after the meter. ESS play a crucial role in enabling the transition from fossil fuels to renewable energies by solving issues of intermittency and grid balancing, improving the flexibility, reliability and sustainability of the energy system. Storage reduces greenhouse gas emissions by allowing more RES to be integrated into the grid to replace fossil fuels during peak demand periods.

VALUE PROPOSITION.

- Vertical integration ensures high quality at every stage of production, allowing for value-added, customisable energy storage solutions that stay ahead of the competition.
- Batteries have a capacity from several kWh that can be used by households, to 3.5MWh container solutions that can be merged and used on a utility-scale.
- 80% of value-added product is generated in-house.





skeleton⁺

MARKET SEGMENTS

Storage for transport & mobility

Storage for the industry · Storage for the grid · Onshore wind

C

Skeleton · Estonia

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Automotive: Honda Performance Development, BMW-Eberspächer

Transportation: Shell, Skoda Transportation, CAF Power & Automation; Grid: Hitachi Energy, Freqcon, GE Power Conversion

Industrial: GE Healthcare, Attabotics, Maja Stuwadoors.

PRODUCT Skeleton Supercapacitors

Next generation supercapacitors for energy storage

THE NEED.

The increasing electrification of a wide range of industries creates a demand for lightweight, cost-effective and powerful energy storage systems. The main industries requiring such solutions are the automotive, transportation, heavy industrial equipment and power grid industries.

THE SOLUTION.

Skeleton's supercapacitors stand out from others of their kind. Patented "curved graphene" holds significant advantages, but there are also major benefits offered by the cells. No other product on the market has as high power and energy density as Skeleton's supercapacitor cells, the building blocks for supercapacitor modules and energy storage systems.

VALUE PROPOSITION.

- High energy density.
- High power density.
- Low internal resistance means high efficiency and less need for cooling.
- Reliability and long lifetime.





MARKET SEGMENTS

Storage for transport & mobility

Battery industry · Transport & mobility

C

Verkor · France

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✓ PILOT

CUSTOMER REFERENCES

Renault Group and Vekor have entered a long-term partnership to supply 12 GWh per year of batteries for electric vehicles. These high-performance, low-carbon batteries will be produced in the future Vekor Gigafactory in Dunkirk, France.

PRODUCT

Battery-cell manufacturer for southern Europe

Batteries. Now. For the future

THE NEED.

The battery-driven electric vehicle market will expand significantly over the next few years given stricter EU legislation on CO₂/km emissions, lower total cost of ownership of EVs and improved customer experience. In southern Europe, some 100 to 170 GWh of battery cells will be required by 2030.

THE SOLUTION.

Founded in July 2020, Vekor is a French industrial company based in Grenoble. The company is accelerating the production of low-carbon batteries in France and Europe to meet the growing demand for electric vehicles, electric mobility in general, and stationary storage in Europe. Vekor will open its fully digital 4.0 pilot line in 2023. A model of excellence, competitiveness and resource efficiency, its innovation will be integrated into the Gigafactory planned for 2024.

VALUE PROPOSITION.

- An attractive business model in terms of agility, sustainability and governance.
- The best talent in the field; a strong, agile team grows to meet new challenges.
- Brings together the best partners to localise the entire value chain in Europe, ensuring optimal use of skills and resources.
- Vekor is supported by EIT InnoEnergy, IDEC Group, Schneider Electric, Capgemini, Renault Group, EQT Ventures, Arkema, Tokai COBEX, Demeter-managed FMET, Sibanye-Stillwater, Plastic Omnium and Bpifrance.





An aerial, high-angle photograph of a modern skyscraper at night. The building's facade is composed of a dense grid of windows, many of which are illuminated from within, creating a pattern of bright yellow and orange light against the dark exterior. The building's structure is visible, with dark vertical and horizontal lines forming a grid. The perspective is looking down at the building, which appears to be a large, multi-story structure. The overall color palette is dominated by the dark blues and blacks of the building's exterior, punctuated by the warm, glowing colors of the interior lights.

D

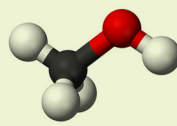
Energy
consumption.
End user



PET



+ Water
180°C



Methanol
(gas)



MARKET SEGMENTS

Industry

Renewable gas & biofuels

D

AC Biode · Luxembourg

PRODUCT

Plastalyst

Green, safe and efficient catalysts that make plastic recycling financially attractive

THE NEED.

According to the UN, only 9 percent of 8.3 billion tons of plastic waste have been recycled over the past 65 years. This is mainly because recycling is not economically feasible.

THE SOLUTION.

Plastalyst develops green, safe and efficient catalysts that make plastic recycling financially attractive. The first product for recycling plastic waste on an affordable small scale is already in the prototype phase: it is a state-of-the-art catalyst that depolymerises plastics at low temperatures, drastically reducing costs. Compared to current technologies, Plastalyst requires only 10 percent of the investment and 50 percent of the operating costs.

VALUE PROPOSITION.

- Decomposes plastics efficiently on site, from polymer to monomer, at a lower temperature (below 200°C) and pressure than competitors.
- Unlike current technologies, Plastalyst produces no dioxin, GHG emissions, or tar.
- Catalysts can be sold to chemical or waste management companies or licensing provided of the technology.

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tadashi.kubo@acbiode.com
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✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request





MARKET SEGMENTS

Industry

Power DSO · Transport & mobility

D

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✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT

HEAT-R Waste Heat Recovering Unit (WHRU)

Renewable energy from industrial waste heat using thermoelectric generators

THE NEED.

Industries are inefficient at using energy. More than 60% is wasted in the form of heat. Reducing the cost of the energy bill and lowering the environmental impact of energy are both essential.

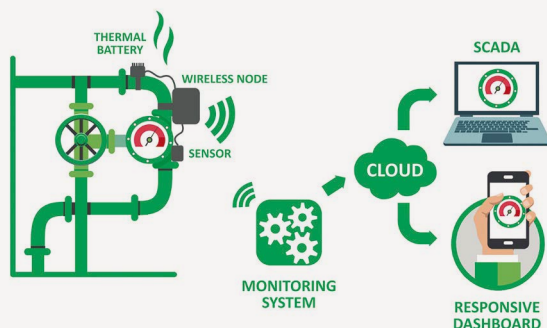
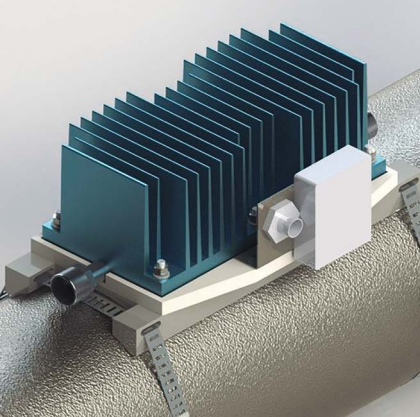
THE SOLUTION.

An initial solution provided is sustainable and eco-friendly energy production using a by-product of the industrial process itself: heat. Converting waste into usable energy reduces energy bills and lessens the environmental impact made in industry, aligning it with the requirements of new environmental rules.

VALUE PROPOSITION.

- Drastically reduces the cost of industrial monitoring.
- Estimated operative life of over 20 years.
- Flexible solution which can be easily installed in every industry.
- Plug and play.
- Scalable, modular and maintenance-free.
- The system can be upgraded with new technologies for higher performance.





MARKET SEGMENTS

Industry

Power DSO · Transport & mobility

D

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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT InduEye

Wireless long-range edge computing IoT architecture powered by waste heat

THE NEED.

Oil and gas, cement, iron and steel industries are highly intensive in energy consumption. Up to 65% of this energy is lost in waste heat in the process of heat conversion implying CO₂ and greenhouse gas emissions.

THE SOLUTION.

A battery-free Internet of things (IoT) device (hardware and software) that improves productivity due to the absence of a battery, maintenance and wires. It is based on a thermal converter and adaptable to any hot surface. From a few mW up to 700mW of power generation (50oC – 180oC). Suitable for different wireless long-range protocols. Up to 64 sensors: vibration, temperature and ultrasound.

VALUE PROPOSITION.

- Drastically reduces the costs of industrial monitoring.
- Estimated operative life of over 20 years.
- Flexible and plug and play.
- Maintenance free.
- Real time wireless.
- Edge computing IoT device based on a system on a chip (SoC).





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www.alentdynamic.se

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Industry

D

Alent Dynamic · Sweden

PRODUCT Alent Dynamic

Heat and electricity-saving wood drying solutions that produce higher quality wood faster

THE NEED.

Wood drying is the most critical activity for profitability in the wood industry. It represents a largely untapped opportunity for sawmills to increase production volumes and wood quality, while saving both heat and electricity.

THE SOLUTION.

Alent Dynamic is a wood drying process control system suitable for both new and existing wood drying kilns. It operates a patented drying method where the drying climate (temperature, air velocity and humidity) is alternated in cycles, dynamically adapted to the real-time measurement of the wood response. Alent Dynamic offers shorter drying times, heat / electricity savings and improved wood quality by continuously giving the wood time to rest.

VALUE PROPOSITION.

- Increased revenues from improved wood quality.
- 10% increase of produced volumes.
- Saves 10% of heat consumption.
- Saves up to 65% of electricity.



— RIGHT HERE —
RIGHT
SNOW !



ALPINOV X

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France

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www.alpinovx.com

✓ PILOT

CUSTOMER REFERENCES

Potential clients 2020 and 2021:
Le Lioran, Crans Montana Aminona,
Ax 3 Domaines (SAVASEM), Rustsu
Ski resort (Japan) Villard de Lans,
Chamrousse, Saetde & Secnoa
(Andorra), Morzine, Flaine.



MARKET SEGMENTS

Industry

Heating & Cooling · Municipality

D

Alpinov X · France

PRODUCT

Snow X

Highly efficient non weather dependent snowmaking machine

THE NEED.

Climatic changes demand a rethink on cold power generation. The requirement is to minimise energy consumption and its corresponding CO₂ footprint. One vital focus of improvement is to significantly increase the efficiency of thermal convertors.

THE SOLUTION.

SNOW X, developed and produced by ALPINOV X, is an artificial snowmachine that is highly efficient and has low weather dependency. Such equipment makes it possible for ski resort operators to run their activities without taking into account former weather restrictions, and to do so with reasonable costs (capital expenses and operating expenses).

VALUE PROPOSITION.

- A decreased CO₂ footprint linked to ski resort operations.
- Ski resort operations extended (opening days).
- Ski resort turnover consolidated.
- Better management of the water resources.
- Environmental integration.





ALPINOV X

MARKET SEGMENTS

Industry

Heating & Cooling · Municipality

D

Alpinov X · France

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✓ PILOT

CUSTOMER REFERENCES

Engie

PRODUCT Airco X

Highly efficient cold power generation

THE NEED.

Cold power generation needs to minimise energy consumption and its corresponding CO₂ footprint. One vital focus of improvement is to significantly increase the efficiency of thermal convertors.

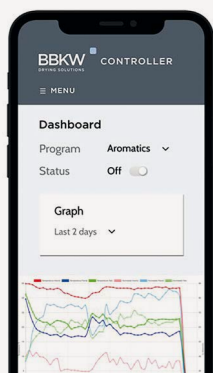
THE SOLUTION.

AIRCO X, developed and produced by ALPINOVX, is a brand new "green" cold generator. There are no use of chemicals or greenhouse gases and it is highly efficient. The promise of such equipment is to allow the global cold power industry, data centres, district cooling operators and the food industry for example, to run their activities with very reasonable costs (capital expenses (capex) and operating expenses (opex).

VALUE PROPOSITION.

- Decreased CO₂ footprint linked to cold chain industry operations.
- Data centres, district cooling operators turnover consolidated.





BBKW
DRYING SOLUTIONS

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bbkw.eu

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Go Natural, Tilray,
Santa Casa da Misericórdia Açores



MARKET SEGMENTS

Industry

Off-grid · Municipality

D

BBKW · Portugal

PRODUCT BBKW

Smart dryers for food that dehydrate at low temperatures with controlled humidity

THE NEED.

Agribusiness products have to be dried in a controlled environment to ensure a high quality product suitable for customers. The temperature and humidity parameters have to be strict and there is little technology capable of assuring the drying process correctly.

THE SOLUTION.

BBKW's dryer solution has been created for agribusiness products, such as aromatic herbs, cannabis, nuts, spirulina, seaweed, mushrooms, fruit and vegetables. All these products can be dried in this smart solution that allows the user to specify the temperature and humidity required to efficiently dehydrate the product.

VALUE PROPOSITION.

- Controlled dehydration environment.
- Drying factors adaptable for each product.
- Drying equipment (drying beds and trolley, ventilation towers) built to optimise the drying process.





MARKET SEGMENTS

Industry

D

Cascade Drives · *Sweden*

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192 70 Sollentuna, Stockholm
Sweden

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cascadedrives.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Electromechanical linear drives

Linear drives to electrify linear motion in heavy machines

THE NEED.

A transition to all-electric solutions for industry equipment is required. However, there is no substitute for hydraulic cylinders in large and heavy applications with higher forces, power and robustness requirements.

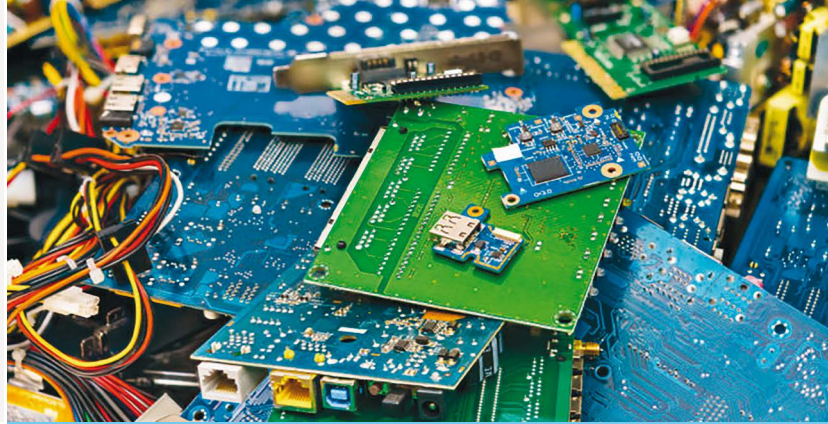
THE SOLUTION.

Cascade Drives' electromechanical linear drive utilises a unique gearbox technology which enables high performance capabilities of high load and high speed capacity as well as high energy efficiency. The high performance attributes achieved by Cascade Drives technology make it suitable for heavy-duty operations and enables all-electrification in heavy equipment, where it hasn't been possible before.

VALUE PROPOSITION.

- Combine both high load capacity and high speed.
- Lower life cycle costs .
- Maximises the productivity of customer equipment.
- Reduces emissions, fuel cost and environmental threat.





MARKET SEGMENTS

Industry

D

Circular Industries · *The Netherlands*

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2548 NL The Hague
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www.circular.industries

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT Circular Industries

Scaling the circular economy

THE NEED.

Electronic waste is the world's fastest growing waste stream. Nevertheless, in the EU less than 46% of e-waste is recycled. In order to achieve the recycling target of 65%, the collection and dismantling of low-grade e-waste must be made economically attractive.

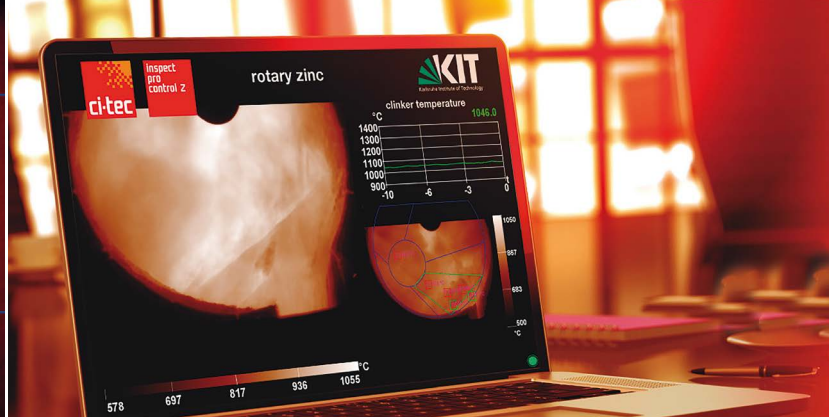
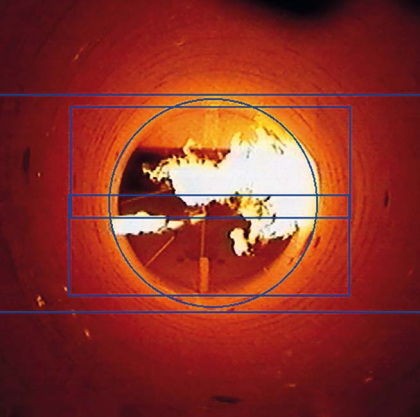
THE SOLUTION.

Circular Industries has developed a patented process for the recovery of raw materials present in low-grade waste printed circuit boards (WPCB). By offering suppliers the possibility of a higher payout, the collection, dismantling and trade of low-grade e-waste becomes economically appealing. The process generates no toxic emissions, polluted wastewater or unusable residues. The raw materials produced benefit the security of supply of raw materials to EU manufacturing industries.

VALUE PROPOSITION.

- Economic incentive for suppliers.
- Creates a new standard for responsible (urban) mining and production of raw materials.
- No toxic emissions, polluted wastewater or unusable residues.
- Facilitates the energy transition in Europe.





MARKET SEGMENTS

Industry

D

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www.ci-tec.de

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

www.ci-tec.de/en/references
More details available on request.

PRODUCT

Inspect Pro Control

Cement production with reduced CO₂ emissions and fuel costs

THE NEED.

There is a requirement to make cost savings and reduce CO₂ in cement production. While the use of low-rank fuels is a solution, varying fuel compositions require an appropriate process control for the permanent adjustment of burner parameters, since it directly impacts upon product quality.

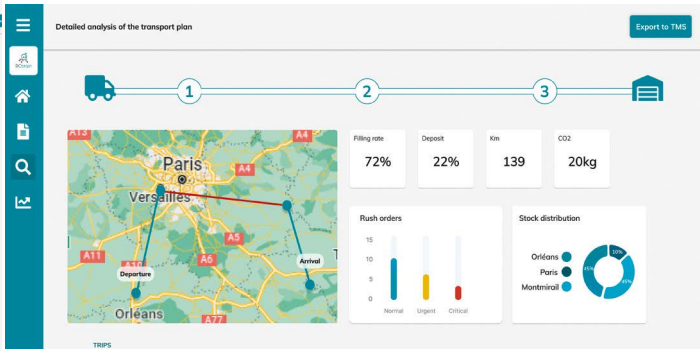
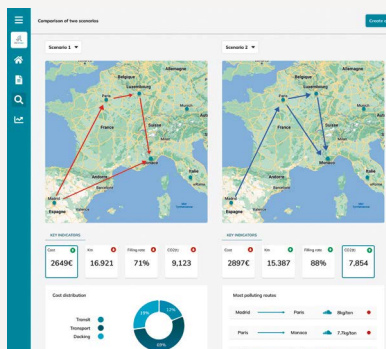
THE SOLUTION.

Inspect Pro Control (with the use of new camera systems in conjunction with powerful image processing systems) provides a solution with process optimisation taking place through the burner control. It maximises on the usage of alternative fuels by controlling the quality of the product (lime).

VALUE PROPOSITION.

- 10% reduction of CO₂ emissions and fuel costs; ROI in less than 1 year.
- Cement kiln operators will be able to recognise process problems earlier.
- Increased energy output, decreased emissions and stabilised combustion.
- Lower operational costs.





MARKET SEGMENTS

Industry

Gas DSO · Gas TSO

D

DCbrain · France

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Stef, Heppner, Redur, Lidl,
Ceva Logistics, Gefco, Daher,
Italgas, Regaz.

PRODUCT DCbrain AI

AI for a sustainable supply chain

THE NEED.

The supply chain is growing ever more complex. There is more and increasingly varied data to be processed, and decarbonisation faces rising costs and more challenging requirements.

THE SOLUTION.

DCbrain has developed a dedicated, engaged and sustainable AI solution aimed at supply chain planners. It offers significantly greater control in decarbonising and dynamically adapting the supply chain while also simplifying the routine daily work of planning.

VALUE PROPOSITION.

- Engaged and sustainable AI solution.
- A dedicated solution for logistics flow planning.
- A controlled and innovative solution that has demonstrated its value.
- Positively contributes to the economic and environmental performance of logistics operations.





MARKET SEGMENTS

Industry

Bioenergy & waste to energy

D

EcoBean · Poland

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www.ecobean.pl

✓ PILOT

CUSTOMER REFERENCES

Ongoing projects with Prio (Biodiesel),
Econti (Biodegradable flower Pots),
Starbucks, Delta Coffe and Vattenfall
(introduction of closed-loop coffee
grounds in the new premises).

PRODUCT EcoBean

Coffee waste transformed into sustainable chemicals

THE NEED.

In Europe, 9,000 tons of spent coffee grounds are wasted daily, while coffee is the fifth most CO₂ intensive food product. This huge volume is not yet processed in any smart or sustainable manner. For EcoBean it amounts to €45 million worth of valuable feedstock.

THE SOLUTION.

EcoBean turns spent coffee grounds into five fractions of sustainable chemicals: coffee oil, antioxidants, lactic acid (PLA), lignin, and protein additives. EcoBean is building a pioneering plant to process 100 percent of collected spent coffee grounds into raw materials. The company focuses on sustainable production and high-margin valorisation of waste.

VALUE PROPOSITION.

- Reduction of the overall environmental footprint of the coffee industry.
- Top quality sustainable chemicals with 50 percent lower carbon footprint on average in comparison to market alternatives: coffee oil, antioxidants, lactic acid (PLA), protein additives, coffee lignin.
- Green and economically-valuable way to collect vast amounts of dispersed biomass.





ecop

MARKET SEGMENTS

Industry

District Heating Grid · Heating & Cooling

D

ecop Technologies · Austria

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4531 Neuhausen an der Krems
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www.ecop.at/en

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT High Temperature Heat Pump

Efficient high temperature heat pump for industrial applications

THE NEED.

Process heat has a significant cost due to legislation and soaring gas prices. Few sustainable solutions are available in the 100-200°C range. There is an urgent need for heat pumps that remain efficient up to 150°C, are cost-effective, reliable and do not use fluorinated greenhouse gases (F-gases).

THE SOLUTION.

Ecop has developed a new heat pump that is extremely cost-effective and energy efficient. The same appliance has a broad area of application, from -20 °C to 150 °C. It requires no lubrication and all parts are low maintenance, as they are rotating, standard and industrial. The Ecop rotation heat pump can be used simultaneously in one machine to generate heat and cold, and also serves as a flywheel accumulator. No F-gases or flammable refrigerants are used.

VALUE PROPOSITION.

- Capable of attaining 100-150 °C efficiently over the whole temperature range, with long-term stability.
- No lubrication needed.
- High energy efficiency when used with significant temperature differences between the inlet and outlet in the heat exchangers, from 15 °C to 40°C.
- Practically no risk to the environment in contrast to other technologies (toxic and poisonous working media etc.).





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✓ PILOT

CUSTOMER REFERENCES

Tauron is a pilot customer in the project.



MARKET SEGMENTS

Industry

Municipality · Non-residential building · Power DSO

D

Elsta Elektronika · Poland

PRODUCT

Dynamic Voltage Restorer

Compact, low voltage, power electronics solution designed to improve power quality

THE NEED.

The preservation of adequate electrical quality has become a major problem. Industrial plants with highly automated production lines cannot operate properly without a sustainable power supply with precisely defined power quality parameters.

THE SOLUTION.

The innovative Dynamic Voltage Restorer offers a low reaction and quick response time due to the powerful control unit and implemented architecture. Appropriate voltage restoration leads to compensation of voltage sags and swells. It has a compact, lightweight architecture and flicker and voltage fluctuation mitigation.

VALUE PROPOSITION.

- Flicker mitigation.
- Increases the lifespan of many electronic and electrical devices.
- Increases the reliability of industrial processes.
- Prevention, turning off appliances at short power outages.





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✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Industry

Municipality · Off-grid

D

Elsta Elektronika · Poland

PRODUCT

Active Power Filter : APF-100 series

Intelligent power conditioning and monitoring interfaces for smart grid prosumers

THE NEED.

Non-linear loads such as power supplies, rectifiers and some light sources commonly used in both industrial and residential installation can produce a high level of harmonics and other potentially harmful distortions.

THE SOLUTION.

APF-100 is a compact, low voltage, power electronics solution designed to improve selected power quality factors, mostly caused by a non-linear loads in the electrical power grids. The device is able to dynamically compensate for higher harmonics, power factor and decrease current and energy consumption.

VALUE PROPOSITION.

- Energy efficiency improvement, energy saving.
- Increasing lifespan of many electronics devices and safety.
- Increasing the reliability of industrial processes.
- Simple operation and maintenance.





ENERGIENCY
ENERGY INTELLIGENCE FOR MANUFACTURING

MARKET SEGMENTS

Industry

D

Energiency · *France*

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

20 direct customers in various market segments (paper, food and beverages, chemistry, mineral and mining, automotive, water...).

PRODUCT Energiency

Decarbonising factories by leveraging human and artificial intelligence

THE NEED.

Industrial manufacturers lack energy competitiveness resulting in high energy bills. Although data is widely available, operational teams are unable to find solutions as they do not have the means to conduct key performance indicator (KPI) analysis.

THE SOLUTION.

Energiency is an industry 4.0 technology that supports manufacturers by rapidly detecting and achieving new sustainable energy and CO₂ savings. Energiency leverages existing data in real time through innovative analytics software that combines human and artificial intelligence. Data is available in relation to production, maintenance and weather conditions.

VALUE PROPOSITION.

- Energy and CO₂ savings of up to 15% in under a year.
- Competitive.
- Data available for production, maintenance and weather conditions.





MARKET SEGMENTS

Industry

D

FertigHy · Spain

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28046 Madrid
Spain

ja.delasheras@fertighy.com
fertighy.com

✓ EARLY STAGE

CUSTOMER REFERENCES

Available on request

PRODUCT FertigHy

Low-carbon fertiliser production to accelerate decarbonisation of food value chain

THE NEED.

There is a requirement to rebuild resilience against disrupted fertiliser supply chains, while also promoting sovereignty for the agriculture industry and security of supply. This can be achieved by accelerating the decarbonisation of the food value chain.

THE SOLUTION.

FertigHy plans to build and operate several large-scale low-carbon fertiliser projects around Europe, after building, owning and operating a first plant in Spain. With construction planned to start in 2025, this flagship plant will produce more than one million metric tonnes per year of low-carbon nitrogen-based fertilisers from 100 percent renewable electricity and green hydrogen. The objective is to reduce emissions by up to two million tonnes of CO₂ per plant per year.

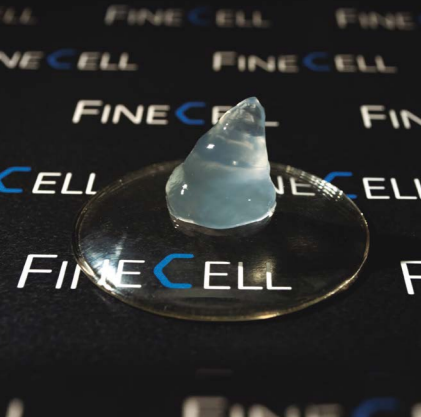
VALUE PROPOSITION.

- Affordable low-carbon fertiliser produced with 100% renewable energy.
- Produced in Europe using green hydrogen so no dependency on natural gas or imports.
- Strong consortium of shareholders covering the complete value chain: EIT InnoEnergy, RIC Energy, Siemens Financial Services, MAIRE, InVivo and Heineken.
- Supported by the European Green Hydrogen Acceleration Center (EGHAC).

EGHAC

European Green Hydrogen
Acceleration Center





MARKET SEGMENTS

Industry

Energy Storage Solutions · Residential Building · Solar PV

D

FineCell · Sweden

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583 30 Linköping
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finecell.se

✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT

Cellulose micro-/nanofibers

Cellulose micro-/nanofibers for enhanced product performances and reduced carbon footprint

THE NEED.

Plastic and composite manufacturers wish to reinforce plastic in order to reduce the weight and improve the mechanical performance and carbon footprint of their products.

THE SOLUTION.

FineCell has developed sustainable cellulose micro-/nanofibers as reinforcements to help plastic/composite manufacturers make stronger, lighter and more sustainable products, with reduced use of plastics. The solution enables the use of recycled and bioplastic to replace fossil, virgin plastic.

VALUE PROPOSITION.

- Improving sustainability, enabling the reduction of carbon footprint (-30-50%) of the product by improving the sustainable fractions (+30-50%) in it.
- Lightweight, reducing the material's weight (currently -45%, potentially -70%), without compromising its performance.
- Easy to use with existing infrastructure.
- Good compatibility with different types of plastics, the key to ensuring good performance of the product.
- Improves the performance of recycled and bio-based plastics to compete with fossil virgin plastic.



FlexiDAO · Spain

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Spain

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flexidao.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request.

PRODUCT FlexiDAO Academy

An actionable framework to confidently execute a 24/7 carbon-free energy strategy

THE NEED.

While companies are well aware that climate leadership can be a competitive advantage, most lack the time and the know-how to eliminate their energy-related emissions. A quick and tailored way to help professionals reach a 24/7 carbon-free energy target is required.

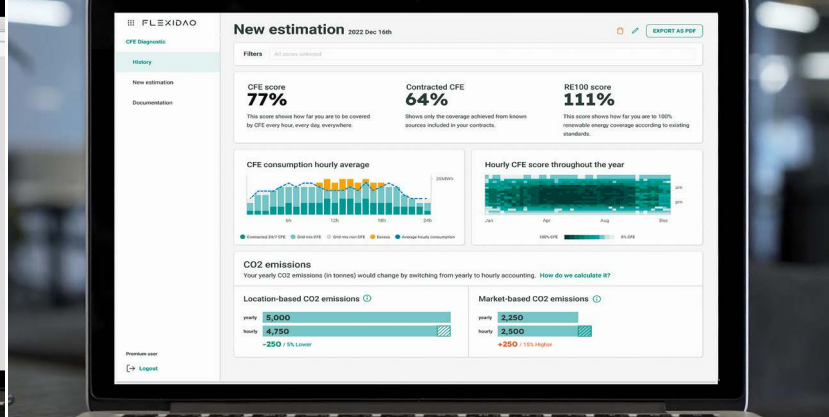
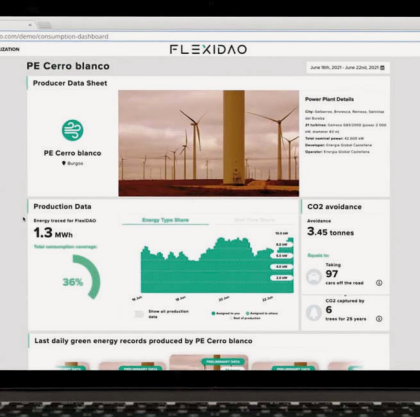
THE SOLUTION.

The 24/7 Academy is a tailored educational experience for professionals wanting to eliminate their energy-related emissions 24 hours a day, 7 days a week. Years of research, experience and interactive feedback from global partners and clients has informed succinct, easy-to-follow videos that help professionals evolve current energy-procurement practices and adopt a healthy carbon-aware approach. The Academy brings together a global ecosystem of experts and peers on the same journey.

VALUE PROPOSITION.

- Climate leadership as a competitive advantage.
- Helps companies get ahead of future carbon accounting and policy changes.
- Supports the total decarbonisation of the electricity grid and society.
- Attracts ESG investment, green loans and talent to businesses.
- Promotes an ecosystem of global experts and peers with the universal goal of eliminating energy-related emissions once and for all.





MARKET SEGMENTS

Industry

Power DSO · Power TSO

D

FlexiDAO · Spain

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✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Iron Mountain.
Google.
Microsoft.
Cellnex.
Vodafone.
Bekaert.
Veolia.

PRODUCT CFE Inventory

Software that makes scope 2 emissions reporting more efficient

THE NEED.

Companies struggle to obtain and manage credible data on the green energy they purchase and consume. There is a need to reduce the cost and time invested in energy and CO₂ data collection, consolidation and aggregation.

THE SOLUTION.

FlexiDAO offers an efficient way to view data and analytics on a consumer's renewable energy procurement to achieve better performance. The software collects energy certificates and related emissions, keeping track of where a consumer's energy comes from at each hour of the day. All renewable energy contracts are stored in one place, and information can be visualised via the FlexiDAO software, or fed into a consumer's personal energy or sustainability software in an automated way.

VALUE PROPOSITION.

- Saves time and costs on data collection.
- Consolidates global energy data and certificates.
- Avoids manual interactions with registries, suppliers, or third parties.
- Saves auditor costs by streamlining certificate validation.
- Simplifies scope 2 emissions reporting.
- Boosts credibility of green energy reporting.
- Tracks progress towards monthly renewable goals.
- Monitors cost vs. budget for each energy product.
- Monitors realise cost vs. budget for each renewable energy product.





MARKET SEGMENTS

Industry

Energy Storage Solutions · Offshore Wind · Transport & mobility

D

Graphmatech · Sweden

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✓ **STARTING SALES**

CUSTOMER REFERENCES

ABB, Eriksson, Sandvik,
Konsberg Automotive

PRODUCT Aros Graphene®

Graphene-based nanocomposites for enhanced energy efficiency and product performance

THE NEED.

More than 50% of all electronic failures are due to poor thermal management. Furthermore, around 33% of energy losses in cars are due to friction. Materials that combine high electrical/thermal conductivity with self-cooling and low friction are need.

THE SOLUTION.

GraphMaTech has developed graphene-based nanocomposites for many different applications, including thermal management, moving electrical contacts and tribology, energy storage and self-lubricating systems. The nanocomposites design make graphene technology easy to use in industrial applications.

VALUE PROPOSITION.

- World record thermal conductivity.
- Cost-effective and environmentally-friendly manufacturing.
- Easy to use for the industry, even 3D-printable.
- Low friction, electrical conductivity, hardness, corrosion barrier properties.





MARKET SEGMENTS

Industry

D

Gravithy · France

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gravithy.eu

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT Gravithy

A sustainable iron company to support the growing demand for zero carbon steel

THE NEED.

Steel is a strategic material in the transition to a low carbon economy, but the coal used for its production is responsible for 7 percent of global CO₂ emissions. Decarbonising the steel value chain is essential to achieving a C-neutral society. It can only be done by rethinking iron production.

THE SOLUTION.

Gravithy plans to create a low-CO₂ iron plant and to replicate its model outside France. Using hydrogen to react with iron ore avoids the high CO₂ emissions of traditional methods. The product is direct reduced iron (DRI), which can be used as feedstock for low-CO₂ steel production or can be traded in the form of hot briquetted iron (HBI). By decarbonising steel production, Gravithy supports the EU's pledge of carbon neutrality and responds to a growing demand for low-CO₂ steel products.

VALUE PROPOSITION.

- Brings together the commitment and competencies of best-in-class, purpose-led stakeholders to redefine the way iron and steel are produced and sold worldwide.
- Unites experienced professionals while attracting and forging young talents.
- Plant designed with best available technologies.
- Profitable business model based on cost competitiveness.
- Excellence in a superior product line.
- Works in close collaboration with players representing the entire value chain.





MARKET SEGMENTS

Industry

Non Residential building

D

Gulplug · France

Rue des Berges 32
38 000 Grenoble
France

contact@gulplug.com
www.gulplug.com

✓ PILOT

CUSTOMER REFERENCES

Renault, German car manufacturer,
Tier one.

PRODUCT SelfPlug

Automatic and hands-free electric vehicle charging

THE NEED.

There is still a requirement to find a better way of charging an EV on a daily basis easily, quickly and efficiently. SELFPLUG does everything automatically.

THE SOLUTION.

SELFPLUG is an easy, quick and safe solution to charge an electric vehicle automatically and hands-free. A dome is placed on the floor in advance and plugged into a normal household socket. An EV vehicle can simply park and recharge automatically in a hassle-free way.

VALUE PROPOSITION.

- 100% efficient.
- 50cm parking flexibility.
- No wave radiation.
- Plug and play.
- Portable.
- Reversible V2G.





H₂green steel

MARKET SEGMENTS

Industry

D

H2 Green Steel · Sweden

Riddargatan 23 A, 1 tr.
114 57 Stockholm
Sweden

sales@h2greensteel.com
www.h2greensteel.com

✓ EARLY STAGE

CUSTOMER REFERENCES

Available on request

PRODUCT H2 Green Steel

Accelerating the decarbonisation of steel production

THE NEED.

Steel production accounts for 25% of Europe's industrial CO₂ emissions. This amounts to more than the Nordics' total CO₂ emissions, and more than that caused by all flights departing from the EU. Decarbonisation is a must for the industry, and disruptive technology will be a key enabler.

THE SOLUTION.

H2 Green Steel plans to build a fully integrated, digitalised and automated greenfield steel plant. In bringing together raw materials, renewable energy, leading expertise and artificial intelligence, the aim is to bring emissions down to zero. It will be the first large-scale production site for fossil-free steel in collaboration with customers across multiple segments, including automotive, commercial vehicle, white goods, furniture and industrial equipment.

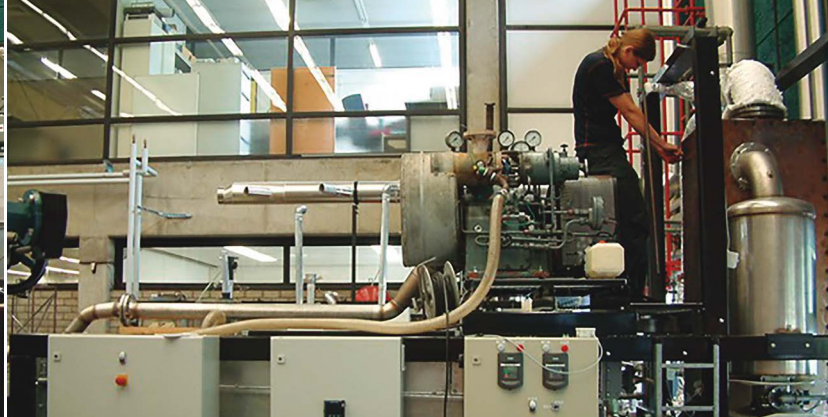
VALUE PROPOSITION.

- The latest technology is used every step of the way in a fully integrated large-scale production line for fossil-free steel production.
- A business model focused on a value chain approach: as the off-takers are already included, this provides an acceptable premium on the decarbonised end product produced of green steel.

EGHAC

European Green Hydrogen
Acceleration Center





MARKET SEGMENTS

Industry

D

Heat Power · *The Netherlands*

Saxofoonstraat 8
5702 KC Helmond
The Netherlands

henk@heatpower.nl
www.heatpower.nl

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT Heat Power

Supercharged steam turbine systems for industrial heat and power

THE NEED.

The competitiveness and environmental impact of heat intensive industrial processes can be much improved by reducing the use of energy.

THE SOLUTION.

A turbine capable of providing heat and power for industrial processes at a significantly reduced fuel cost and with minimum CO₂ emissions. The system is capable of providing both steam and power at fast response times. Its multi fuel capability can be applied to waste streams, enabling manufacturers to achieve higher resource utilisation, reduced cost of energy and green manufacturing. It acts as an add-on to boiler and furnace systems, has components with a track-record and is modular.

VALUE PROPOSITION.

- CO₂ emission reduction.
- Flexible decentralised energy supply.
- Multi fuel and crude biomass furnace compatibility.
- Power output boost of a steam cycle by 20%.
- Rapid response time (seconds) for peak shaving.
- Rigid industrial structure.





MARKET SEGMENTS

Industry

District heating grid · Residential building

D

HeatVentors · Hungary

Tancsics M. u. 15
5400 Mezotur
Hungary

hello@heatventors.com
www.heatventors.com

✓ STARTING SALES

CUSTOMER REFERENCES

MVM Net (Hungary): data centre cooling, installation: heatTank: 25 kWh, energy saving: 54%, payback: 4 years.

Antenna Hungary: data centre cooling, installation: heatTank: 50 kWh, energy saving: 41%, payback: 5 years.

E.ON Hungary: gas engine heat recovery, installation: heatTank: 50 kWh, energy saving: 20,6%, payback: 2 years.

Alperia SPA (Italy): improve district heating system, installation: heatTank: 50 kWh, energy

PRODUCT HeatTank

An intelligent thermal battery

THE NEED.

Energy is wasted in nearly every thermal energy system worldwide. €20 billion or 250 million metric tonnes of CO₂ equivalent greenhouse gases could be saved in Europe alone through optimal thermal energy storage.

THE SOLUTION.

Traditionally, heat is stored by changing the temperature of the water. Instead of water, HeatTank incorporates special biomaterials, called phase change materials (PCM). By melting and solidification it is possible to reduce storage size by almost 90%, saving at least 20-50% energy, with a total return on investment of between 3-5 years. Energy systems become more efficient and operational costs reduced.

VALUE PROPOSITION.

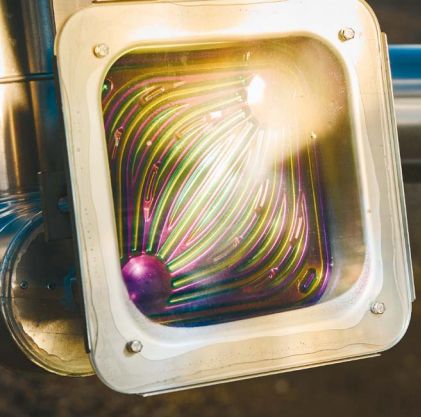
Efficient cooling solution for an existing system, with:

- Energy-saving of 20-50%.
- Cost reduction: 3-5 years of ROI.
- Operation security.
- 100% SLA.
- Easy integration

Additional benefits in case of a new system, include:

- Peak performance management -> acquisition cost reduction.
- Smaller cooling system, pipes and fittings.
- Easier electricity system
- Retail in higher price.
- Innovation means better certification.





heliac

MARKET SEGMENTS

Industry

District heating grid · Heating & Cooling · Municipality

D

Heliac · Denmark

Teglbuén 10
2990 Nivå, Copenhagen
Denmark

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www.heliac.dk

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

EON & Norfors (utility companies)

PRODUCT

Heliac solar collectors and thermal energy storage

CO₂-free heat for industries and district heating that is cheaper than fossil fuels

THE NEED.

There is currently no economical CO₂-free heat available for temperatures of over 80°C to 100°C that addresses >25 percent of all CO₂ emissions. Low cost, efficient and uncomplicated solutions must be found.

THE SOLUTION.

Heliac's delivers CO₂-free heat to industries and district heating systems. Concentrating solar collectors produce sustainable heat at a cost below that of fossil fuels; RockStore thermal energy storage enables low-cost, flexible large-scale energy storage offering both heat generation and power generation on demand. By providing clean energy solutions that address a third of all energy consumption, Heliac enables the transition to renewable heat, reduced carbon emissions and lower energy costs.

VALUE PROPOSITION.

Concentrating solar collectors:

- Flexible and versatile (can change the temperature as needed).
- Follows the sun to maximise output the entire day (+20-40%).
- Standardised design.
- Up to 95% can be locally produced and recycled.

RockStore thermal energy storage:

- Simple design resulting in low costs.
- Highly scalable.
- Using readily-available materials.
- Low skill requirements for operation and maintenance.





MARKET SEGMENTS

Industry

D

Hortilab · Croatia

Malogorička 3b
10410 Velika Gorica
Croatia

vilim@hortilab.hr
www.hortilab.hr

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Akvamex, Aquariumplants.com,
Fragaria (largest croatian plant
nursery), Intalmark, Moulis.

PRODUCT In-vitro aquarium plants and fruits

Virus-free plants and seedlings produced in-vitro with applied micro and biotechnology methods

THE NEED.

There is poor productivity per plant produced and crop yield per hectare for selected plants (fruits). With current productivity levels and conventional farming, it is impossible to meet the world demand for food.

THE SOLUTION.

By scaling a revolutionary bio-technology process, healthy plant clones have been produced through in-vitro methods. It involves growing and multiplying cells, tissues and organs on defined liquid/solid media under aseptic and controlled environments.

VALUE PROPOSITION.

- Under 5% mortality rate on current orders.
- 30% higher yield on fruit plants for end customers.
- 0% use of pesticides and no presence of viruses.
- 50% less expensive than conventional farming.





MARKET SEGMENTS

Industry

Energy Storage Solutions

D

Infinite Foundry · Portugal

Rua Paulo da Gama 629
4150-589 Porto
Portugal

agodinholuz@infinitefoundry.com
www.infinitefoundry.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Mercedes, Volkswagen

PRODUCT Infinite Foundry

3D Digital Plant Cloud

THE NEED.

IoT cloud platforms on the market simply digest big data without any 3D context. This significantly limits the accuracy of the predictions and does not include running what-if scenarios on new technologies used in the plant.

THE SOLUTION.

Infinite Foundry has developed a 3D cloud platform that hosts the 3D design of a plant and its equipment, receives real-time IoT data and uses a mixture of artificial intelligence and physics calculations to make predictions. The results can be output to VR and AR systems. This 3D approach enables more accurate maintenance prediction and is also unique in that it runs scenarios that impact on the implementation and productivity of new technologies.

VALUE PROPOSITION.

- Maintenance prediction
- What-if scenarios for new technologies
- Reverse engineer of current technologies
- Collaboration
- Fraud detection
- Crypto payment





MARKET SEGMENTS

Industry

Storage for the industry · Storage for municipalities

D

Instagrid · Germany

Hermann-Hagenmeyer-Strasse 1
71636 Ludwigsburg
Germany

hello@instagrid.co
instagrid.co

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Festool (private label product SYS Power Station), Hilti (white label product B230), Strabag, Skanska, Zeppelin, Hymer.

PRODUCT instagrid ONE

Portable power for professionals

THE NEED.

Professionals need a reliable mobile power supply, e.g. craftsmen, who need to operate large machinery on construction sites. The only available solution today is in the form of generators, which are noisy, heavy, emit toxic fumes and have high operational costs.

THE SOLUTION.

The instagrid portable power supply has grid-like power, creating mobile workplaces where any large machinery can be powered. It is portable, can be carried with one hand and powers most jobs for an entire workday. The instagrid ONE is also the most sustainable choice, built with recycled materials it has no local emissions and is designed for components to be easily recycled at the end of life.

VALUE PROPOSITION.

- Increased productivity
(cuts down installation and operation time by 400h per year).
- Cuts down operational costs
(saves more than €500 on fuel cost per year).
- No local emissions (silent, no exhaust)
with 85% lower emissions over lifecycle.
- Reduces hazard level for workers
(toxic fumes, noise, tripping on cables).
- Increases reliability and availability
(no servicing necessary).





iPoint

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72760 Reutlingen
Germany

contact@ipoint-systems.com
www.ipoint-systems.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Industry

Non-residential building · Transport & mobility

D

iPoint · *Germany*

PRODUCT Live LCA

A cloud-based software tool for LCA and MFCA, using real (live) data to automat the reports

THE NEED.

Climate change causes risks to economies. Stakeholders and investors increasingly demand sustainability in business models, processes and products before investing. Companies need simple software to transform their data into reports or declarations.

THE SOLUTION.

A cloud-based combination of life-cycle assessment (LCA) software and material flow cost accounting (MFCA) helps companies access sustainability information. Live data replaces generic data. Efficiency and risk assessment, internal collaboration, communication and product development are improved. A tool for sustainability and product managers as well as designers.

VALUE PROPOSITION.

- Combines product and production perspective.
- Cost savings by reducing energy and material use.
- Cost transparency.
- Develops a sustainability strategy.
- Environmental Product Declaration (EPD) costs go down to 10%.
- LCA driving innovation and profit.





Stenhuggarvagen 1
13238 Saltsjö-Boo
Sweden

christian@maqab.com
www.maqab.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Industry

Hydropower

D

MAQ · *Sweden*

PRODUCT

Self Tuning Mass Damper

Energy saving cutting tools

THE NEED.

By reducing the vibrations in a metal cutting process significant energy savings can be made. The machine can complete its work in a shorter time and in many cases a secondary operation can be avoided thanks to the superior surface finish achieved.

THE SOLUTION.

MAQ's innovative technology simplifies machining by eliminating costly vibration. Offering a high level of reliability and using standard clamping, it is a self-adjustable, low cost plug and play solution that removes vibrations in a wide frequency range.

VALUE PROPOSITION.

- Energy saving cutting tools.
- Increased productivity and less machine time.
- Extended lifetime of insert by x10.
- No need for tuning.
- Reduce scrap metal.
- Reduced operating expenses.





MARKET SEGMENTS

Industry

D

NitroCapt · Sweden

Enköpingsvägen 29
74960 Örsundsbro
Uppsala län, Sweden

gustaf.forsberg@nitrocapt.com
www.nitrocapt.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Strategic partnership with the
Swedish agricultural cooperative
Lantmännen

PRODUCT SUNIFIX®

A sustainable process for nitrogen fixation

THE NEED.

Key nitrogen compounds for industry are currently produced through the Haber Bosch process. This process requires a lot of energy from fossil raw materials and it is responsible for approximately 2% of global greenhouse gas emissions.

THE SOLUTION.

Sunifix is a fossil-free and energy efficient technology for the fixation of nitrogen from the air for industrial and agricultural purposes. The process can operate from intermittent renewable energy sources. It is applicable on a large as well as on a small distributed production scale.

VALUE PROPOSITION.

- The process offers the production of key nitrogen compounds with modest process investments and at an attractive energy cost.
- Responds to societal needs to cope with climate change by offering an emission-free process with only air as raw material.



Torsgatan, plan 8 11
11123 Stockholm
Sweden

elof.winroth@nordluft.se
www.nordluft.se

✓ EARLY STAGE

CUSTOMER REFERENCES

A range of high profile nordic forestry and bio energy companies have shown interest in the forest fertilisation and ash recirculation applications. Demonstration projects planned in collaboration with universities in Sweden and Canada. Funding of a demonstration project secured from Sweden's Energiforsk, SLU and Energimyndigheten.

Five Drones

- » Robust and energy efficient
- » Electric
- » 30 kg capacity each



Fully Automated Control

- » Autonomous Swarm control
- » Built in planning and flight safety
- » Patent pending

Vehicle Mounted Base Station

- » Adapted for standard chassis
- » Drones and material storage
- » Modular design



MARKET SEGMENTS

Industry

Bioenergy & waste to energy · Transport & mobility

D

Nordluft · Sweden

PRODUCT

High capacity drone-based spreading system

Efficient and high precision spreading in forestry and agriculture

THE NEED.

Forestry and agriculture currently use inefficient and expensive spreading activities for forest fertilisation, bio ash recirculation, seeding, and pesticide spraying. Methods currently employed are tractors, forest machines and helicopters.

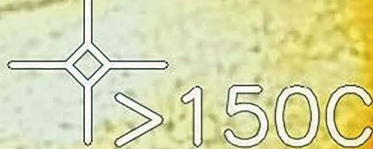
THE SOLUTION.

Nordluft's system is an alternative that offers cost-efficient flexible high precision spreading. A swarm of collaborating heavy lift electric multicopters together with smart software and a vehicle base station for a smooth and efficient integrated logistic solution.

VALUE PROPOSITION.

- Low cost, resource efficient, highly flexible aerial spreading of material in a range of applications.
- Lower CO₂ emissions compared to current spreading methods.
- High-precision, cost-efficient spreading where applicable.





MARKET SEGMENTS

Industry

D

Percy Roc · Sweden

Green Innovation Park
Ulls väg 29C
756 51 Uppsala
Sweden

dragos@percycroc.se
www.percycroc.se

✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT

Focused microwave power

Smartly focused microwave power for material processing

THE NEED.

A solution is required to make the microwave-based technology transition from Industry 3.0 to Industry 4.0, driven by intelligent and adaptive systems and integrating hardware, software and data.

THE SOLUTION.

A high power transistor-based microwave material processing technology platform, driven by machine learning algorithms. Applications can be found in the extractive, processing and mining industries.

VALUE PROPOSITION.

- Facilitates Industry 4.0 transition/adoption in industrial microwave material processing applications.
- Future-proof industrial equipment during technology transition.
- Intelligent and adaptive hardware, software and data offering for industrial microwave material processing applications.





MARKET SEGMENTS

Industry

D

Poly to Poly · France

Avenue du Champ de Mars 1
45100 Orléans
France

contact@polytopoly.com
www.polytopoly.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Polytopoly.com

An online platform that sources and analyses recycled polymers

THE NEED.

The purchase of the right recycled polymers is extremely challenging due to the large number of recyclers. Data is either too heterogenous, insufficient quality or simply unavailable. There are few places where homogenised data is published.

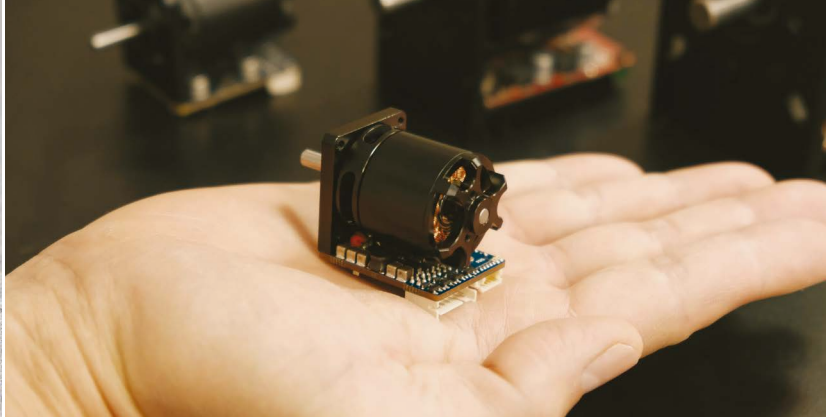
THE SOLUTION.

Through precise and homogenised processes of collecting data, Poly to Poly gives access to a new generation of information and shapes the digital passport for polymers. This is critical for the market fluidity of the recycled polymers. This innovation will boost the circular economy of polymers and energy savings in the field of chemicals production.

VALUE PROPOSITION.

- A circular economy.
- A digitised service.





MARKET SEGMENTS

Industry

D

Simplex Motion · Sweden

Banehagsleden 2
414 51 Gothenburg
Sweden

magnus.hildingsson@simplexmotion.com
www.simplexmotion.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

OEM Motor, Sweden
Mr Fredrik Olofsson
+46 752 424 425

PRODUCT Integrated compact servomotors

Half weight, double torque

THE NEED.

The industry is going through a transition with electrification as a driving force. This is leading to increased automation and an increased demand for integrated compact servomotors with built-in smart functions.

THE SOLUTION.

The smart integrated servomotor offers a powerful motion control capability yet has a size and weight half that of other integrated motors on the market. Reduced energy consumption is possible as the gearbox can be removed where the small servomotor can maintain required torque. In applications where gearboxes are required, 'motor drive units' with high efficiency gearboxes are offered. Accessories are available for easy programming and configuration for wireless control with Wi-Fi or Bluetooth.

VALUE PROPOSITION.

- Reduced cost due to cost effective production, installation and maintenance.
- Reduced size due to the patented sensor solution.
- Reduced weight due to the usage of outer runner motor.





swt-

Stockholmsvägen 116B
187 30 Täby, Stockholm
Sweden

info@stockholmwater.com
stockholmwater.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Barlingbo bryggeri, Visby, Gotland

MARKET SEGMENTS

Industry

Heating & Cooling · Non-residential building · Off-grid

D

Stockholm Water · Sweden

PRODUCT Fors & Ström

Smart, sustainable and custom-made water solutions

THE NEED.

Diminishing freshwater resources, increased pollution of existing sources and government water conservation policies have made global water treatment a €550 billion market, growing at a compound annual growth rate (CAGR) of 10%. A circular, sustainable and secure water economy is vital.

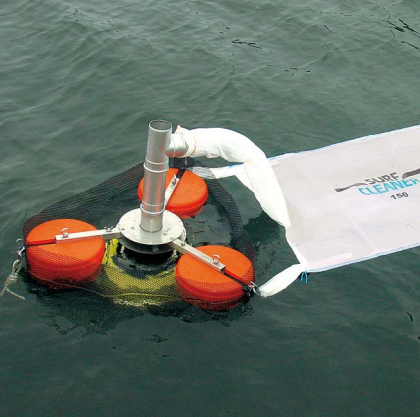
THE SOLUTION.

Chemical free, water and energy saving products that are designed to meet the goals of sustainability and a circular water economy. This unique electrochemical solution, based on capacitive deionization (CDI), removes a wide array of contaminants and is highly modular and scalable, and can be tailored to meet customer needs (water quality) of industrial, municipal and consumer applications.

VALUE PROPOSITION.

- Low, instantaneous and total power consumption.
- Chemical free, low operating expenses due to little or no need for pre- or post-treatment.
- Tailorable water quality, total ion content and water pH programmable.
- Performance irrelative to water temperature.
- Fouling resistant, reduced scaling and biofouling.
- Data storage and logging with intelligent and adaptive system operation.
- Integrated functioning of hardware, electronics and software for a total solution.





**SURF
CLEANER**

Karlsbodavägen 39
168 67 Stockholm
Sweden

mikael.andersson@surfcleaner.com
www.surfcleaner.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Sonatrach refinery in Italy, Exxon
Mobil, Ports of Stockholm, Swedish
Coastguards.

MARKET SEGMENTS

Industry
Municipality

D

SurfCleaner · Sweden

PRODUCT SurfCleaner

SurfCleaner removes, separates and recovers all floating pollutants from water surfaces

THE NEED.

Human society and industries generate immense amounts of pollution and waste that end up in nature and in the oceans. Clean water is becoming scarce and greenhouse gases need to be reduced, demanding highly efficient methods for cleaning polluted water urgently.

THE SOLUTION.

SurfCleaner designs, develops and manufactures the world's first skimmer separator hybrids for 100 percent removal, separation and recovery of contaminants floating on the water surface – oil, diesel, petrol, plastics, sludge, debris, microplastics, algae and more. The separation process is patented and energy efficient, improving the quality of the water and reducing greenhouse gas emissions considerably. The product can be powered by solar cells, batteries or via grid connection.

VALUE PROPOSITION.

- Automatic and continuous unmanned operation.
- Collects and separates multiple types of floating pollution.
- Very low water content in the recovered pollution – can be re-used.
- Energy efficient – off-grid operation possible.
- Low lifecycle cost due to minimal service and maintenance needs, including over long operation times.
- Very easy installation and deployment.





MARKET SEGMENTS

Industry

D

Tribonex · Sweden

Knivstagan 12
75323 Uppsala
Sweden

sales@tribonex.com
tribonex.com

✓ STARTING SALES

CUSTOMER REFERENCES

Available on request

PRODUCT Triboconditioning

Cost-efficient and scalable surface treatments for minimised friction and wear in various industrial applications

THE NEED.

More than 20% of all energy used globally is lost due to friction and wear in various applications, including vehicle transmissions, bearings, pumps, compressors etc. Friction results in energy losses, while wear limits the lifespan of vehicles, machines and equipment which then need replacing.

THE SOLUTION.

A patented mechano-chemical process creates durable low friction surfaces on components. The process is flexible and cost-efficient as it can be implemented using standard production machines, allowing for scalability and seamless integration in existing production lines. The process can replace current polishing steps, adding performance at low cost. The treatment can be applied on components made of steel or cast iron and of various shape and size, thus having very broad applicability.

VALUE PROPOSITION.

- Surface treatments have a direct impact on the performance of customers' products through the reduction of friction and wear.
- Energy consumption is lowered, operational and maintenance costs reduced and machine and system lives extended.
- Friction can be reduced by 50% and wear by 80% compared to current finishing processes, levels only achievable today using advanced and expensive coatings such as DLC. This can be done at a fraction of the cost and with much lower operational complexity.





trigger.
systems

Rua Dr. Joaquim Manso 12B
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Portugal

info@trigger.systems
trigger.systems

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

EDP Distribuição, Gulbenkian
Foundation, Sulregas, Municipality of
Lisbon, Municipality of Oeiras.

MARKET SEGMENTS

Industry

Municipality

D

Trigger Systems · Portugal

PRODUCT Trigger Systems

Intelligence and technology for efficiency and sustainability

THE NEED.

There is a need for irrigation automation and to find a solution for water and energy waste.

THE SOLUTION.

A portable web platform accessible on a number of devices that can be integrated with a wide range of equipment on the market. Rigger has also developed proprietary equipment for three types of automatic irrigation systems: central controllers, battery operated controllers and pivots. These products are connected to the platform and are highly efficient when compared with alternative commercial solutions.

VALUE PROPOSITION.

- Energy savings.
- More control.
- More production.
- Virtual sensors.
- Water savings.





MARKET SEGMENTS

Industry

D

Wupatec · *France*

Rue Atlantis 20
87068 Limoges
France

dellier@wupatec.com
www.wupatec.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT WETT

Envelope tracking technology

THE NEED.

The exponential expansion in mobile communications is causing a growing energy demand of more than 100TWh in order to power the radio transmitters of base stations.

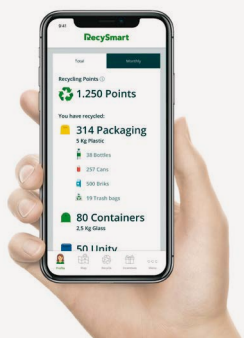
THE SOLUTION.

Wupatec's innovation comprises of electronic circuitry for implementing a patented version of an ET (envelope tracking) technique which, when applied to transmitters supporting 4G and 5G standards, reduces wasted energy by improving transmitter efficiency.

VALUE PROPOSITION.

- Reduces base-station's operating expenses (electricity bill) and capital expenses.
- Reduces the number of transmitters.
- Reduces the environmental loading of communication systems.





MARKET SEGMENTS

Municipality

D

Candam · Spain

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08030 Barcelona
Spain

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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Valoriza Sacyr, FCC,
PreZero, Saubermacher, Sotkon,
City Council of Madrid.

PRODUCT RecySmart

A unique cost-effective technology to increase packaging recovery rates

THE NEED.

Waste services need affordable and scalable technologies to apply the correct incentives policies and increase packaging recovery rates to comply with EU legislation.

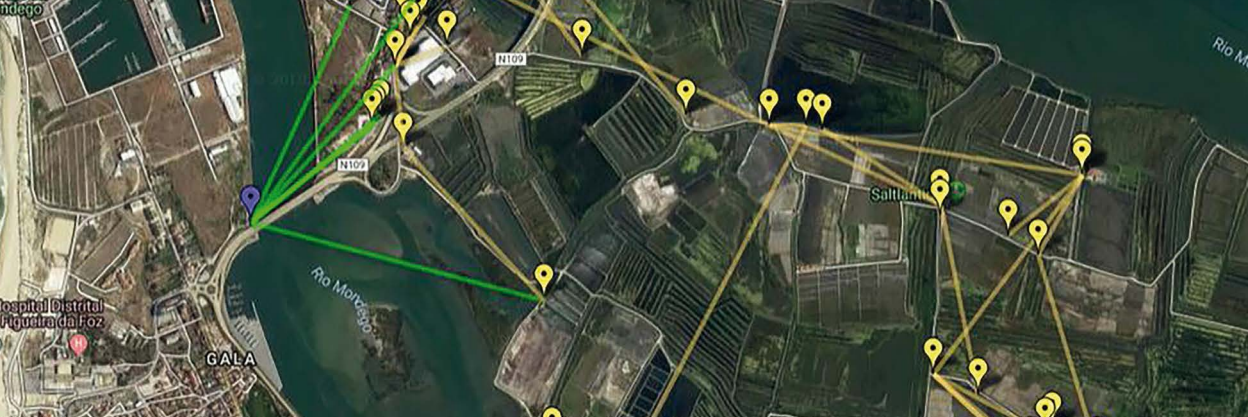
THE SOLUTION.

RecySmart offers a stand-alone IoT device with Europe-wide patented technology that turns any waste bin into a smart bin. Fully adaptable to existing bins, the patented Smart Ring system recognises all types of packaging material in real time thanks to acoustic techniques combined with AI algorithms. Packaging recovery rates are incentivised with easy and affordable Return and Earn schemes.

VALUE PROPOSITION.

- Increases packaging recovery rates.
- Digitises the waste cycle.
- Universal Scanning and AI characterisation enables double verification of the packaging material.





MARKET SEGMENTS

Municipality

D

CWJ · *Portugal*

Rua das Acácias lote 75
3090 Figueira da Foz
Zona Industrial da Figueira da Foz
Portugal

geral@cwj.pt
www.cwj-afe.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT CWJ - AfE-EA

Connecting everything in cities and facilities

THE NEED.

Reliable, energy aware IOT systems are required to continuously optimise and predict the performance and lifecycle of the whole network infrastructures, smart cities infrastructures, automated metering infrastructures (AMI) or professional buildings infrastructures.

THE SOLUTION.

CWJ have developed a highly efficient state-of-the art communications network protocol with a set of powerful and innovative features. It is aimed at low power wireless area networks (LPWAN) connecting cities and facilities. AfE-EA is the only meshed/ad-hoc communication network protocol that allows the continuous management of routing trees through optimal hop-constrained and energy resources of all the wireless sensor network (WSN).

VALUE PROPOSITION.

- Efficient integration in the same network infrastructure of communications battery-operated, energy-constrained, and mains power supplies operated devices/sensors.
- Flexible multi-infrastructure and bidirectional communication network protocols.
- Technology is energy aware, reliable, and easy to deploy.





MARKET SEGMENTS

Municipality

Industry · Non-residential building

D

Gradis · Poland

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30-392 Kraków
Poland

info@gradis.pl
www.gradis.pl

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

GE Lighting, Schreder,
Pabianice Municipality,
Tbilisi Master Plan

PRODUCT

g.Platform

End-to-end software platform covering all steps of outdoor lighting management for smart cities, utilities and fixture vendors

THE NEED.

Outdoor lighting requires a significant amount of energy at a high cost. A better way to manage lighting infrastructure as well as decrease light pollution, increase outdoor security and enhance user experience is needed.

THE SOLUTION.

Gradis has developed a unique platform for the design, control and management of outdoor lighting infrastructure. PhoCa uses state-of-the-art AI algorithms to obtain energy savings of over 70% for a single project. With the ability to calculate optimal parameters for existing and new lighting infrastructure, it offers a complete ecosystem for outdoor lighting installation – inventory, design and control.

VALUE PROPOSITION.

- Compliance with existing lighting standards and regulations.
- Control and maintenance of existing lighting infrastructure.
- Decrease in negative light pollution that impacts on health.
- Optimisation of energy usage (even 80% of energy consumption reduction for new installations).
- A better street and road lighting user experience.
- Dynamic management of street lights intensity.
- Investment payback shortened by 34%.





MARKET SEGMENTS

Municipality

Transport & mobility

D

Illicov · *France*

Avenue de l'Europe 34
38100 Grenoble
France

marie.martese@laroueverte.com
www.illicov.fr

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

1 open line Vercors / Grenoble;
1 open line Annecy Genève;
1 B2G customer: Département de l'Isère

PRODUCT Illicov

Commuters share their daily trip via carpooling lines and guaranteed travel

THE NEED.

The cost of commuting (in terms of price and stress levels) is a major concern for commuters. The supply of public transport is growing at a slower pace than demand, and there is no easy and reliable way to share a daily trip.

THE SOLUTION.

For commuters: illicov offers the ability to enjoy a smooth and reliable commute, save money, socialise or network, and take action against climate change.

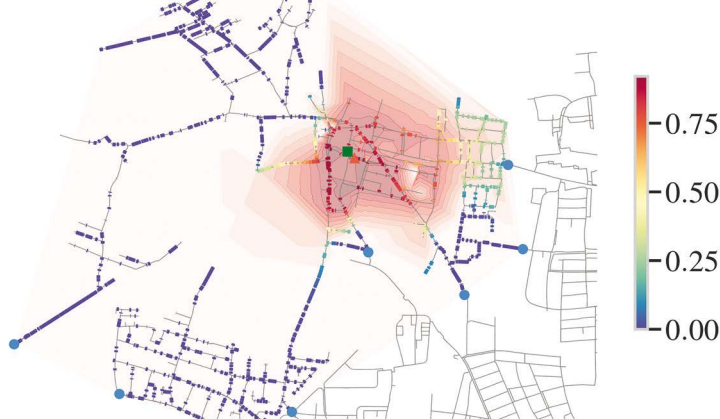
For public transportation authorities: illicov is the way to increase their public transport offer in a cost-efficient way.

For cities / territories: illicov enables city authorities to enhance the attractive qualities of urban settings and to tackle the problem of traffic jams and pollution (noise, air).

VALUE PROPOSITION.

- Drivers: carpool without the necessity for planning and easily earn up to 200 euros per month.
- Passengers: carpool without constraints or worries about possible cancellations.





MARKET SEGMENTS

Municipality

Hydropower · Municipality

D

OmegaLambdaTec · *Germany*

Parking 6
85748 Garching
Germany

manuela.pehle@olt-dss.com
omegalambdaTec.com

✓ **EARLY STAGE**

CUSTOMER REFERENCES

SWM München (testing phase)

PRODUCT

Datadriven Water Leakage Locator

A water leakage search the smart data way

THE NEED.

More than 5% of drinking water is often lost between the source and the consumer. Utility companies are officially required to reduce this percentage and must find a way to take immediate and efficient action.

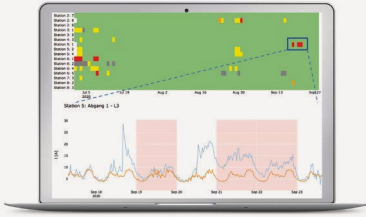
THE SOLUTION.

The solution is a physics-based digital twin simulation framework that makes use of the existing sensor infrastructure, offers a leakage localisation heat map with the optimal derived leak position indicated and that signals algorithms for the detection of water leakages.

VALUE PROPOSITION.

- Meets official requirements and those of water supplying cities.
- Minimises the time consuming efforts of repair teams
- Saves costs on the full detection and repair process.
- Saves natural resources.
- Significantly reduces the amount of wasted drinking water.





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omegalambdatec.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Stuttgart Netze



MARKET SEGMENTS

Municipality

Hydropower · Municipality

D

OmegaLambdaTec · *Germany*

PRODUCT OLT-SmartGrid-AI-Cockpit

Automatic detection of anomalies in smart low voltage networks

THE NEED.

The energy transition poses new challenges for LV distribution network operators due to increasing complexity and additional stress of decentralised PV systems and high peak EV charging stations. Faster data-driven insights are needed to improve grid maintenance and prevent blackouts.

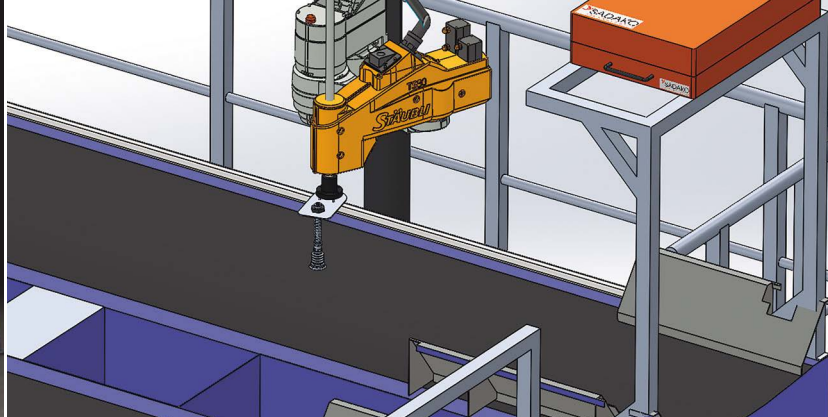
THE SOLUTION.

OmegaLambdaTec's SmartGrid-AI-Cockpit provides an integrated view in quasi real-time on network status and upcoming issues, including the automated detection and localisation of network anomalies and power line defects. In cooperation with sensor hardware partner SMIGHT the company offers a 3-months 'rent-a-smart-grid' all-inclusive starter package for network operators to test out the benefits and business cases of a smart low voltage grid in real-life operations.

VALUE PROPOSITION.

- Investment-optimised sensor positioning for smart grid roll-out.
- 24/7 monitoring of sensor data with automatic detection and localisation of anomalies and network defects.
- Prevention of blackouts via early identification of broken power lines and critical issues.
- Significant cost reductions for network maintenance and manual inspections.
- Identification of grid over-stressing and optimised network expansion requirements.





Av. Madrid 63, Esc. B 1º 5ª
08028 Barcelona
Spain

info@sadako.es
www.sadako.es

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

BHS (Bulk Handling Systems)

MARKET SEGMENTS

Municipality

D

Sadako · *Spain*

PRODUCT Max-AI TM

Innovating artificial intelligence and robotics for a better world

THE NEED.

Waste treatment plants are subject to the loss of huge amounts of valuable material (2M € per plant/per year on average) because current processes and technology are not able to recover them in a cost-efficient way.

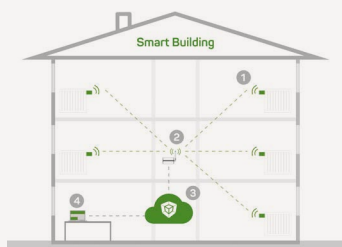
THE SOLUTION.

Max-AI is a waste robotic sorter (a product of the US company Bulk Handling Systems) powered by Sadako AI visual detection capabilities.

VALUE PROPOSITION.

- Increased waste recovery rate in waste treatment plants.
- Low operating and maintenance costs.
- No initial investment required.





beterspace

MARKET SEGMENTS

Non-residential building

Heating & Cooling · Municipality · Power DSO

D

Beterspace · Germany

Oberpörlitzer Straße 2
98693 Ilmenau, Thuringia
Germany

anfragen@beterspace360.com
www.beterspace360.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

More than 1600 customers, e. g.
Hotel chains like Best Western
and Plaza hotels, Boutique Hotels,
Conference Centers and many more.

PRODUCT better.energy

Intelligent room control for non-residential buildings

THE NEED.

Unoccupied rooms in hotels, nursing homes, schools, corporate buildings and many other types of non-residential buildings are often heated or cooled throughout the day. This leads to unnecessarily high energy consumption, carbon dioxide emissions and phenomenal heating bills.

THE SOLUTION.

Better.energy turns buildings into smart buildings, boosting their energy efficiency. The intelligent room control heats rooms automatically depending on the occupancy; only occupied rooms are heated. The system also detects open windows and adjusts heating behaviour automatically. This reduces energy consumption by up to 31 percent. State-of-the-art LoRaWAN technology creates a future-proof and scalable solution. better.energy is comfortably managed via web access.

VALUE PROPOSITION.

- Increases comfort.
- Lowers carbon emissions and protects the environment.
- Reduces energy consumption by up to 31 percent.
- Reduces operating costs.
- Future-proofed wireless communication via LoRaWAN.
- No construction measurements required.
- Quick and easy to install and manage.





MARKET SEGMENTS

Non-residential building

Municipality

D

Bin-e · Poland

Pasjonatów 9
62-069 Dąbrowa
Poland

contact@bine.world
www.bine.world

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Our customer base spans from global corporations, through facility management companies up to municipalities. Some of our notable clients are: Ambilamp (Spain), Kaufland (Romania), Evac (Finland), Dell (Poland), Accenture (Netherlands), Deutsche Bahn (Germany), Fujitsu (Poland), Danske Bank (Sweden), Sodexo (Sweden), ISS (Denmark), McDonald's (Poland), Power Bear (UAE), Żuromin Municipality (Poland), Saubermacher (Austria), Hido Tech (Israel)

PRODUCT Bin-e

The world's most advanced AI-based smart bin that recognises and sorts waste automatically

THE NEED.

In public areas an efficient waste sorting and management system is difficult to implement. "Traditional" sorting is inefficient and waste management is costly. A lack of digitalisation in this sector exacerbates the problem.

THE SOLUTION.

Designed for public places, Bin-e uses AI and other innovative technologies to optimise waste management, increasing the efficiency of recycling and encouraging better user behaviour towards waste disposal. It automatically recognises and segregates waste, achieving an accuracy of over 92%. It provides data on waste production, enabling the creation of detailed statistics that are an excellent tool for waste optimisation and CSR reporting, as well as optimising waste management operations.

VALUE PROPOSITION.

- Ensures that raw materials are sorted correctly, including such waste types as e-waste or lightbulbs.
- Packaging can go straight to recovery without having to be reprocessed in sorting plants, increasing the efficiency of the recycling chain.
- Optimises waste management, reducing costs for the infrastructure owner.
- Customised content can be displayed allowing businesses to make recycling more engaging and promoting corporate social responsibility (CSR) initiatives.





**ENERGY
FLOORS**

Directiekade 12
3089 JA Rotterdam
The Netherlands

roeland@energy-floors.com
www.energy-floors.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Interface, Dura Vermeer, Kerkebosch
Zeist, ABN Amro, Russian Railway
Research Institute, Coldplay concerts.



MARKET SEGMENTS

Non-residential building

Off-grid · Municipality · Transport & mobility

D

Energy Floors · *The Netherlands*

PRODUCT Energy Floors

Energy converting floor systems for high footfall areas

THE NEED.

In the fight against climate change, raising awareness about energy production and energy consumption is an important element. People need to be engaged and educated about the importance of renewable energy and how to reduce their carbon footprint.

THE SOLUTION.

Interactive smart floors that generate energy and make sustainability visible. They convert kinetic energy from human activity and solar energy to usable electricity. Multiple uses include generating power from dancing and data harvesting in public outdoor spaces.

VALUE PROPOSITION.

- Helps meet sustainability targets, while interactively teaching about renewable energy.
- Practical, educative and fun.





MARKET SEGMENTS

Non-residential building

Industry · Municipality

D

Heliup · France

Boulevard Mer Caspienne 19
73370 Le Bourget du Lac
France

contact@heliup.fr
www.heliup.fr

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT HELIUP Stykon

Light durable PV panels

THE NEED.

The solar potential contribution of rooftops in the total electricity mix is around 25%. However, over 80% of commercial and industrial buildings cannot carry the weight of standard solar panels. Current solutions are unsuitable due to the insufficient durability of polymer or its composites.

THE SOLUTION.

HELIUP produces a lightweight solar PV modules suitable for the large rooftops of commercial and industrial buildings. This innovative technology has been developed at CEA-LITEN and provides an insurable, reliable and efficient light solar PV solution compatible for buildings with load/structural limitations. The company also offers building owners and users means to better control their energy costs, bringing auto-consumption within reach.

VALUE PROPOSITION.

- Low weight thanks to thinner glass: 5kg/m² (i.e. 2 to 4 times lighter than standard panels at 12 to 20kg/m²).
- Long lifetime thanks to glass: equal to that of standard panels with 12 years of product warranty, 25 years of production warranty.
- Same total cost as standard panels (i.e. including mounting time).
- Quick and easy installation: at least twice as fast installation time (mounting of PV panel on top of the roof): <1 min/module.





MARKET SEGMENTS

Non-residential building

Municipality · Residential building

D

Lyv · The Netherlands

Binnendelta 7C
1261 WZ Blaricum
The Netherlands

brendan@getlyv.com
getlyv.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

Lyv Energy Management Solutions

Lyv is an expert in smart energy systems and supplies battery systems and energy management to companies and communities.

THE NEED.

Centralised fossil energy production is being transformed into decentralised sustainable energy production, which relies on sun and wind. Sustainable energy generation, however, does not match demand, creating imbalance and the overloading of the network.

THE SOLUTION.

An advanced energy supply system for monitoring, storing and optimising energy that enables customers to receive up-to-date consumption information and insights to reduce costs; increases the use of green energy; incorporates a battery system that reduces costs by peak shaving, maintains reliability and operates for hours without external power; and includes smart modules: custom AI-driven optimisers automated to maximise on energy efficiency.

VALUE PROPOSITION.

- LYV energy monitoring – insights on saving opportunities and reports on progress.
- Real-time monitoring – a real-time view on consumption recorded every 10 seconds.
- Standardised energy reporting – compliant reports generated every 15 minutes.
- Energy optimisation – based on data, Lyv optimises energy flows with an advanced energy management system.
- Energy storage – smarter use of energy is becoming increasingly important and batteries play a key role in this. Lyv's various battery systems for companies solve problems caused by grid congestion or provide a higher financial return.





MARKET SEGMENTS

Non-residential building

Heating & Cooling · Municipality

D

Qien · The Netherlands

Jan Tinbergenstraat 396
7559 ST Hengelo
The Netherlands
info@qien-online.com
qien-online.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

City Counsel Groesbeek,
Provincial house Overijssel,
Zwolle, Wehkamp, Zwolle.

PRODUCT Qien

Makes existing building management systems smart with artificial intelligence

THE NEED.

Building energy management systems (BEMS) has significant limitations. The cost to install, maintain and utilise them is high, and there should be smart building technologies in place to ensure that energy is being used efficiently in a building.

THE SOLUTION.

The Cloud Energy Optimizer (CEO) is a cloud based add-on to building energy management systems (BEMS), which, based on the weather forecast, predicts the energy needs of the building (zones). Easy to install, it leads to energy savings of 10% to 50% and cost reductions, as well as improved indoor comfort. Applicable to existing buildings.

VALUE PROPOSITION.

- Contribution to sustainability goals.
- Enhanced indoor comfort.
- Extends the lifespan of technical installations.
- Instant and significant energy and cost reduction by 10% to 40%.
- Use of the most sustainable and/or cheapest energy available.
- No adaptations required for heating, ventilation, and air conditioning (HVAC) system or building.





MARKET SEGMENTS

Non-residential building

D

Schneider Electric · *France*

31 Rue Pierre Mendès
38320 Eybens
France

Li-liza.sun@schneider-electric.com
www.schneider-electric.fr

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Rexel

PRODUCT

PowerTag NSX

Wireless energy meter for indoor circuit breaker

THE NEED.

Buildings have significant potential for progress in reducing energy consumption. Performance monitoring appears to be an attractive solution, but that currently on offer requires wiring and is expensive.

THE SOLUTION.

A compact, easy-to-install wireless energy sensor that simplifies the connectivity of individual breakers to a building management system (BMS). It can provide precise, real-time data to building owners and facility managers. Data transfer via ZigBee. No cables necessary for the communication of information inside the smart panels. High precision and stable technology and an optimised assembly process to reduce the cost and minimise assembly errors.

VALUE PROPOSITION.

- Ability to reduce electrical consumption by up to 30%
- Alarm sounds on abnormal behaviour of electrical installation.
- Class 1 energy measurement.





MARKET SEGMENTS

Non-residential building

Solar PV

D

VOLTARO

Voltaro · Germany

Karlstr. 12
80333 Munich
Germany
alessandro.Mauri@voltaro.de
www.voltaro.de

✓ **STARTING SALES**

CUSTOMER REFERENCES

Among others: BNP Paribas REIM, Wealthcap, alstria office REIT-AG, Savills Investment Management, DW Real Estate, Deutsche Konsum REIT-AG, Quantum Immobilien AG, Momeni Group.

PRODUCT Voltaro

The easiest way to commercial onsite solar - the digital one-stop shop connecting owners, tenants and installers

THE NEED.

Realising commercial onsite solar is a challenge for building owners and companies due to the current opaque and fragmented market of solutions and providers. Additionally, the bottleneck in craft capacity calls for a new approach aimed at significantly increasing the speed of the solar rollout.

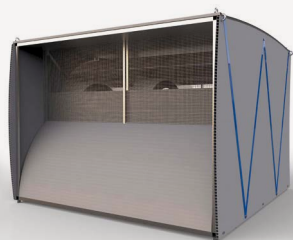
THE SOLUTION.

From planning to operation, Voltaro's digital end2end process provides onsite solar efficiently, creating a seamless customer experience. A projecting platform provides a simple and scalable way to connect all stakeholders, deliver transparency and build trust as well as the best and most cost-efficient offer. This makes commercial onsite solar implementation easy and reduces the craft bottleneck.

VALUE PROPOSITION.

- Commercial building owners and companies benefit by:
- Discovering the solar potential of buildings with an automated remote portfolio analysis of solar potential, impact and profitability.
- Obtaining the best offer for pre-qualified projects via digital feasibility studies and tenders with vetted partners.
- Outsourcing operational duties such as the energy management to Voltaro's software-enabled solar operations team.





MARKET SEGMENTS

Non-residential building

D

WIND my ROOF · France

Boulevard de Picpus 80
75012 Paris, île de France
France

juliette.fournand@windmyroof.com
www.windmyroof.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Municipality of Colombes, Public housing company Rouen Habitat, Luxembourg Airport, Vonovia Germany, Leclerc, FM Logistic, etc.

PRODUCT WindBox

WIND my ROOF brings local and renewable energy to buildings by combining rooftop wind turbines and solar panels

THE NEED.

Buildings account for 40% of total final energy consumption and 36% of CO₂ emissions in the EU alone. Each member state must meet the dual challenge of energy autonomy and reduction of carbon emissions generated by the sector.

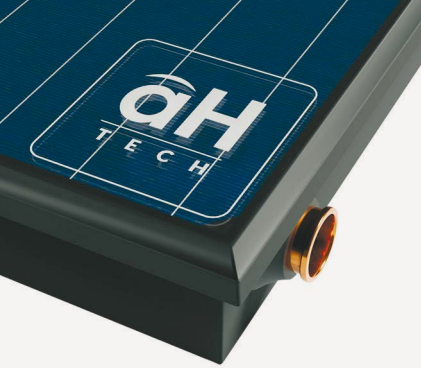
THE SOLUTION.

The WindBox is a compact module combining a shrouded turbine (4m², 1.60m high) with two photovoltaic solar panels on top. Positioned on the edge of buildings, the WindBox benefits from accelerated winds and good exposure to the sun. Installed power is 1,500 W for the wind turbines and 750 Wp for the solar panels. The technology is now patented (FR3100289).

VALUE PROPOSITION.

- Able to produce clean power on commercial and logistics buildings with roofs too fragile for solar panels.
- Can complete an existing solar panel installation to maximise the return on investment and bring energy generation at night.
- Exceptional carbon reduction: electricity produced through the Windbox has a lower carbon intensity than solar panels.
- Allows for clean electricity production on buildings in areas with little sunshine.
- A 5k€ wind study delivered by the company proves the profitability of a project using WindBox.





MARKET SEGMENTS

Residential building

Solar PV · Municipality

D

Abora · Spain

P.I. Malpica. Calle C- Parcela 102-B
50016 Zaragoza
Spain

info@abora-solar.com
www.abora-solar.com

✓ CONSOLIDATED SALES

Abora Solar now has over 30,000m² installed with its hybrid solar technology in more than 35 countries.

Many brands have chosen hybrid solar technology, including Iberostar (more than 8 installations with the hotel chain), hospitals, Arpa, municipality of San Cugat and others cities but also brand such as Engie, Naturgy or Melia.

PRODUCT Hybrid Solar Panel aH

The aH72SK is currently the most efficient solar panel in the world

THE NEED.

The continual annual price increase of different sources of energy causes a corresponding rise in both electricity and thermal energy prices.

THE SOLUTION.

Abora Energy has developed a product incorporating the latest solar technology that is both highly efficient and profitable, enabling significant energy and cost savings. The hybrid solar panel produces the same energy as four photovoltaic panels. Thermal collectors and photovoltaic solar cells allow for the production of electricity and heat simultaneously. In addition, the 'Hybrid Viewer' feature allows customers to monitor the consumption and savings of their installation in real time.

VALUE PROPOSITION.

- Competitive service.
- Cost effective.
- Enhanced design.
- High quality.
- Sustainable.





Rue Nicolas 11
L-2176 Luxembourg
Luxembourg

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www.acbiode.com

✓ PILOT

CUSTOMER REFERENCES

Revcell, Japan AirTech, and
Nihon Yamamura Glass



MARKET SEGMENTS

Residential building

Municipality

D

AC Biode · Luxembourg

PRODUCT Reco Glass

Brings the power of carbon capture to the people

THE NEED.

According to EU strategy, carbon capture has an important role to play to achieve net zero. However, carbon capture and storage are still expensive and inaccessible to most. RECO GLASS brings the power of carbon capture to the people, by implementing it in domestic air filters.

THE SOLUTION.

RECO GLASS is designed for use in homes, shopping malls, offices, airports and more. It absorbs not only CO₂, but also improves air quality by absorbing bacteria, viruses, dust, smog and allergens like pollen. The filters are transported back to a glass factory, where they are ground and mixed with the other raw materials in the glass-making process, reducing the CO₂ footprint of glass.

VALUE PROPOSITION.

- For the \$15 billion air filters market, air filters that can also absorb CO₂.
- Digital solutions allow users to track their carbon capture and unlock carbon credits.
- The filters are then sold to glass producers as low-carbon alternative raw material.





Zweedsestraat 1
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markdekker@nl.bosch.com
www.nefit-bosch.nl

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Residential building

D

Nefit-Bosch · *The Netherlands*

PRODUCT

Silent Heat Pump for Homes

A one-for-one heat pump replacement for gas boilers

THE NEED.

Houses are often poorly insulated, which wastes energy and raises costs. Traditional heat pump systems are noisy, prone to installation and setup errors, and larger than gas-fired appliances.

THE SOLUTION.

The solution is a heat pump system that directly replaces gas boilers. Suitable for existing buildings, the outdoor unit can be integrated into an indoor unit in a 'monoblock' configuration, without the need for separate internal and external units connected by tubes. It operates almost silently, is 'smart-grid-ready' and is equipped with an internet connection for remote monitoring.

VALUE PROPOSITION.

- Single day installation.
- High supply temperatures.
- Low noise operation.
- Remote monitoring.
- Can also provide hot water.





MARKET SEGMENTS

Residential building

Non-residential building

D

Busto · Lithuania

Zemaites 21
LT-03118 Vilnius
Lithuania

hi@busto.se
www.bustoautomatika.lt

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Lithuania: Danske Bank office, Vilnius Cathedral, Audi Sport showroom, EIKA Residential apartments, Toyota showroom, Vilnius Zoo, etc.

Sweden: a few private apartments, KONTIO - log houses producer (www.kontio.se)

PRODUCT

Smart house solution on KNX for end customer

Comfort and control delivered to smart home owners

THE NEED.

Some 30% of the world's smart homes run on KNX, technology which controls the automation of integral functions of a building. However, very few of them are really 'smart' homes, where you can manage the dwelling to maximise comfort.

THE SOLUTION.

Working on KNX protocol (30% of the smart house market in Europe), Busto helps home owners utilise KNX smart home features to achieve maximum comfort and control. The solution comprises of an easy-to-use smart home app; the integration of tested devices from different manufacturers, and simple and scalable smart home packages that offer solutions for apartments, private houses and commercial buildings.

VALUE PROPOSITION.

- Everything in one hand.
- Fast and flexible installation.
- Full smart home installation.
- Lower price.





MARKET SEGMENTS

Residential building

Non-residential building

D

Dom'Innov · *France*

Voie vasco de gama 251
73800 Sainte Hélène du Lac
France

info@blokiwood.fr
blokiwood.fr

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

More than 200 houses and renovation projects, one public high school's external insulation completed, a reseller/builder in the Netherlands conducting high-end construction work.

PRODUCT Blokiwood

The 3-in-1 building block

THE NEED.

The BlokiWood® modular wall system is specifically designed for the needs of extension and elevation, especially on sites that are difficult to access.

THE SOLUTION.

Blokiwood® features 30 standard modules making it suitable for each and every construction, even the most complex. Lightweight enough to be carried by hand, it can be used on every construction site. Buildings can be created quickly and provide high performance thermal insulation.

VALUE PROPOSITION.

- Answer to the construction industry's professional need for a high-performance, easy-to-use and lightweight solution.
- Blokiwood® breaks down load-bearing walls into 60-cm modules while virtually eliminating thermal bridges and air leaks.
- This standard product builds insulation and airtightness directly into a building's load-bearing walls.





MARKET SEGMENTS

Residential building

Non-residential building

D

Endef · *Spain*

Polígono Ciudad del Transporte 11
50820 Zaragoza
Spain

info@endef.com
www.ecomesh.es

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT ECOMESH

Hybrid technology to produce electricity and heat simultaneously in a single solar panel

THE NEED.

Hybrid solar panels are required with a reduced collector surface yet that offer increased energy savings.

THE SOLUTION.

ECOMESH hybrid solar panels combine electricity and heat production. They incorporate a front cover of innovative EndeF patented technology (CTA technology) that maximises their thermal output and makes them ideal for cold climates. The cooling produced by the water circuit improves photovoltaic performance, improving efficiency by up to 15% compared to the traditional photovoltaic panel.

VALUE PROPOSITION.

- Increased efficiency.
- Reduction of collector surface.
- Contributes to the protection of the environment.
- Energy savings.
- Reduction of payback period.
- Reduction of space needed for energy production in buildings.





MARKET SEGMENTS

Residential building

Municipality · Non-residential building · Solar PV

D

EnerBIM · France

Impasse des Acacias 2
31840 Seilh
France

philippe.alamy@enerbim.com
www.enerbim.com

✓ STARTING SALES

CUSTOMER REFERENCES

Over 50 users of the freeware.

Big players, first strong references include:

- BOUYGUES Innovation
- SUNSOAK design
- EMIRATES Insolaire
- SWISSINSOL

PRODUCT

BIMSOLAR eServices

Digital and expert services for solar simulation and energy modelling

THE NEED.

Digital innovation is required to boost the emerging building-integrated photovoltaic industry (BIPV). There is a need to connect the supply chain with designers and builders which provides a challenge.

THE SOLUTION.

A software as a service platform providing support to every stakeholder involved in a solar building design. Standard services (free) include a BIPV feasibility study in a 3D virtual workspace. Premium services (paid) embed expert features for BIPV calculation, virtual design facilities, products and projects showcasing. It offers 3D virtual workspaces, business networking facilities and connection to BIM (building information modelling) processes and real time simulation.

VALUE PROPOSITION.

- Much more accessible than traditional software.
- Showcases customer's innovations (projects, products), helps referencing.
- Instant results, intuitive, self learning.
- Cuts costs, saves efforts, accelerates design and decision processes.
- Customisable, online personal workspace, versatile services delivery.
- Freemium business strategy; flexible pricing.
- Expandable functionalities and models.





MARKET SEGMENTS

Residential building

Municipality · Non-residential building · Solar PV

D

EnerBIM · France

Impasse des Acacias 2
31840 Seilh
France

philippe.alamy@enerbim.com
www.enerbim.com

✓ STARTING SALES

CUSTOMER REFERENCES

Successful testing of the eCatalog concept with previous company (HPC-SA) and bioclimatic design solution ArchiWIZARD.
References with French suppliers for energy efficient buildings are available on request.

PRODUCT BIMSOLAR eCatalog

Supporting both architectural design and building-integrated photovoltaics (BIPV) product innovation

THE NEED.

Digital innovation is required to boost the emerging building-integrated photovoltaics industry (BIPV). There is a need to connect the supply chain with designers and builders.

THE SOLUTION.

A software as a service platform that provides support to every stakeholder involved in a solar building design. eCatalogs feed in solar PV simulation with specific BIPV parameters, enriching virtual design facilities and improving thermal and visual performance. Showcasing BIPV products inside virtual workspaces supports supply chain actors and designers, helping them start a direct relationship with commercial commitment.

VALUE PROPOSITION.

- Brand/Status: BIPV products showcasing + referencing.
- Cost reduction: less marketing efforts, boosting the commercial process.
- Contextual prescription (adequacy with the project issues).
- Direct connection to supplier.
- Expandable functionalities and technical and marketing features.
- Virtual libraries of BIPV objects (3D).





ferroamp



MARKET SEGMENTS

Residential building

Municipality · Non-residential building · Transport & mobility

D

Ferroamp · Sweden

Domnarvsgatan 16
16353 Spånga
Sweden

mats.karlstrom@ferroamp.com
www.ferroamp.se

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Vattenfall, Fortum, Riksbyggen,
Skanska, Vasakronan

PRODUCT EnergyHub

Power control by integrated and future proof DC nanogrids

THE NEED.

As a response to the increasing proportions of intermittent and low marginal cost electricity generated from renewable resources, future power markets will also price the capacity demand of consumers in addition to electricity consumption.

THE SOLUTION.

A DC nanogrid integrating - PV, storage and EV chargers - with the grid, optimised for medium-sized buildings and adapted to future needs. It enables increased self-production/consumption of electricity. The concept is expanded to connect different buildings with the DC net through a PowerShare concept.

VALUE PROPOSITION.

- Increased self-consumption from behind the meter storage and DC distribution.
- Life cycle cost efficient.
- Low conversion and transmission losses by only one inverter.
- Modular scalability and future proof - from 7 kW to MW range.
- Powerful DC charging of EVs.





heabor

MARKET SEGMENTS

Residential building

District heating grid · Municipality

D

Heaboo · Portugal

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TABPARK 27G
3800-055 Aveiro
Portugal

info@heaboo.com
hoterway.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT Hoterway

Thermal battery device that heats cold water in pipes to provide instant hot water with no energy wasted

THE NEED.

Waiting for water to heat results in some 15% of water wasted in buildings across Europe. Conventional solutions use recirculating pumps, which solves the problem but itself consumes excessive amounts of energy; continuous recirculation wastes up to 50% of energy used for heating water

THE SOLUTION.

Hoterway is a thermal battery based on phase-changing material that heats water in pipes instantly with no energy wasted. This patented technology delivers hot water immediately, recharging only as hot water is used without need for an electrical connection. The product range includes a solution for showers (less than one hour to install) and a solution that can be integrated during construction to supply instant hot water from every tap.

VALUE PROPOSITION.

- Instant hot water available in the entire building.
- Saves up to 15% of water consumption.
- Reduces more than 50% of the energy used for water heating with continuous recirculation loops.





MARKET SEGMENTS

Residential building

Hydrogen & e-fuels

D

HPS Home Power Solutions · Germany

Carl-Scheele-Str. 16
12489 Berlin
Germany

zeyad.abul-ella@
homepowersolutions.de
www.homepowersolutions.de

✓ STARTING SALES

CUSTOMER REFERENCES

Available on request

PRODUCT picea

Generate, store and use CO₂-free solar energy to power your building all year round – even in winter

THE NEED.

Increasing energy distribution costs and CO₂ emissions puts pressure on residential customers who need easy solutions to “go green”, and even completely autarkic.

THE SOLUTION.

HPS has developed a fully integrated system providing for all electricity and heat demand. Use of hydrogen storage and fuel cells allow for seasonal storage and a constant heat supply, with components such as battery, electrolyser and fuel cell all working together efficiently. Predictive energy management creates a sustainable, electrically self-sufficient and customisable house energy system.

VALUE PROPOSITION.

- CO₂-free and cheaper energy through self-generation: ROI of 7 years.
- Possibility to secure 100% energy needs starting from own PV system, and even go fully off-grid.
- Customer satisfaction in relying on self-generated green energy.





MARKET SEGMENTS

Residential building

D

iON Energy · *The Netherlands*

Industrieweg 30
6163 AH Geleen, Limburg
The Netherlands
jfellinger@fclaw.nl
www.ion-energy.nl

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Available on request

PRODUCT iON-Energy Box

Generating electricity from the Earth's atmosphere

THE NEED.

To complete the energy mix, solutions are required that are available 24/7 no matter the location, weather and temperature. The atmospheric energy of our planet offers just that; the challenge is to harness this potentially abundant electricity supply.

THE SOLUTION.

iON-ENERGY has developed a means of converting the endless energy of the Earth's atmosphere into electricity. The iON-Energy Box is a device that can deliver electricity to any home anywhere and at any time. Using patented technology, the planet's energy is harvested and transformed into usable electricity in a smooth and scalable way.

VALUE PROPOSITION.

- An abundant source of energy.
- Patented technology.
- Elegant and scalable.
- Electricity for everyone, everywhere and at anytime.





MARKET SEGMENTS

Residential building

D

Ngenic · Sweden

Kungsgatan 41
753 21 Uppsala
Sweden

info@ngenic.se
ngenic.se

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT Ngenic Tune

Increased comfort, consistent temperature and complete control

THE NEED.

The built environment accounts for 40% of the world's energy consumption. Efficient energy management in buildings is key to sustainable development.

THE SOLUTION.

Ngenic Tune is a smart thermostat that enables house and villa owners to save energy and money. Combining three small devices and a mobile app, it collects accessible data – indoor temperature, outdoor temperature, and weather – and allows the user to choose and control the desired indoor temperature, while keeping track of the heating patterns and following up on energy savings at the same time.

VALUE PROPOSITION.

- Easy to install: plug and play system sets up in just 20 minutes.
- Easy to use and control via a mobile app, regardless of where the user is.
- Environmentally aware heating: enables both energy savings and cost reductions.
- Increased comfort with a more uniform indoor temperature.
- Supports today's hydronic heating systems.





MARKET SEGMENTS

Residential building
Municipality

D

Ogga · France

Boulevard Vivier Merle 96
69003 Lyon
France

lfantino@ogga.fr
www.ogga.eu

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Altarea Cogedim, Eiffage, Marignan,
Action Logement Group, Les
Résidences Yvelines-Essonne, RIVP,
Villogia, Grand Lyon Habitat, Alliade
Habitat, Grand Dijon Habitat (H2020),
among others.

PRODUCT

Eco Touch & Smart Building

The most viable solutions for the intelligent energy management of housing

THE NEED.

There is a need to address high energy bills derived from overconsumption, a lack of vision of the current state and energy consumption of building stock and the fact that energy saving and home automation solutions are still too costly and difficult to use and install.

THE SOLUTION.

OGGA's connected solutions help actors of social housing face the challenges of energy performance, decarbonisation and remote device operation. The solutions enable energy sobriety while maintaining the comfort of tenants. They work on all scales: from heating rooms, to solar panels, individual flats to common areas. OGGA's expertise is based on its own technologies, which allow for the analysis of data to make accurate forecasts. OGGA's products are developed and manufactured in France.

VALUE PROPOSITION.

- Interoperability.
- Functional without internet.
- Automated energy savings.
- Fast installation, no need for configuration.
- Responsive to all buildings and users.





PIONIERKRAFT 

MARKET SEGMENTS

Residential building

Solar PV

D

Pionierkraft · *Germany*

Agnes-Pockels-Bogen 1
80992 Munich
Germany

n.schwaab@pionierkraft.de
pionierkraft.de

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT

PIONIERKRAFTwerk

Full service, hardware-based photovoltaic energy sharing for small apartment buildings

THE NEED.

Administrative rules and regulations for self-consumption in multi-apartment buildings severely complicate the implementation of rooftop PV systems. They are a major obstacle to a widespread uptake of PV-generated energy for onsite consumption.

THE SOLUTION.

Pionierkraft enables people to share self-generated renewable energy, which acts within and between multi-family homes and in smaller apartment buildings in an economical and operator-friendly manner. This fills the existing gap for economical PV solutions in smaller residential buildings. With its hardware and service-model, for the first time battery storage can be used collaboratively and tenant power projects can be implemented economically.

VALUE PROPOSITION.

- Increases the proportion of energy consumed and produced locally.
- More people gain access to affordable clean energy.
- Full service and hardware-based.





SAMSTER

MARKET SEGMENTS

Residential building

Non-residential building · Off-grid · Solar PV

D

Samster · *Sweden*

Faktorvägen 12
434 37 Kungsbacka
Sweden

oscar.skogsen@samster.se
www.samster.se

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Stena Fastigheter, Tornet, HSB,
Koppernaes fastighet AS,
a number of private persons

PRODUCT

Samster Solar Hybrid

Combining energy solutions

THE NEED.

Heat pump systems rely on geoenergy. Normally, the borehole in the ground becomes increasingly cold. With larger systems, where a lot of boreholes are present, there is an essential requirement for recharging.

THE SOLUTION.

Samster offers hybrids as a solution for recharging boreholes with thermal energy while producing electricity with solar panels. In this system, the panels are cooled which increases electricity production by 10 to 20 percent.

VALUE PROPOSITION.

- A pack of 10 hybrids with all required components can be offered to heat pump installers.
- Low-cost energy for developing countries.
- System annual performance (SCOP) exceeds 5 in large systems.
- Systems have an excellent performance and high ROI.
- The pack can be offered with 2 hybrids.





MARKET SEGMENTS

Residential building

Municipality · Non-residential building

D

Sunaitec · Portugal

Urbn Quinta da Gordalina, Lt 8
Lj D. Sismaria NA
2415-440 Leiria
Portugal

info@sunaitec.pt
www.sunaitec.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Bela Vista Hotel & Spa
Edifício República 37
NATO Portugal

PRODUCT Sunaitec - RTS Plus

Full architectural integrated solar receivers with increased energy production

THE NEED.

Current solar panel solutions have high maintenance costs and low profitability due to its fixed position during winter, as well as limited duration because of corrosion. They also lack a proper architectural integration.

THE SOLUTION.

Based on a concept that aims to harmonise renewable energy, technology and surrounding spaces, Sunaitec has developed products that enable the capturing of solar energy and its conversion into thermal energy and thermoelectricity, with full architectural integration in various frameworks and with high levels of energy efficiency.

VALUE PROPOSITION.

- 19X solar concentration.
- Energy bill reduction.
- More longevity.
- Reduction of thermal charge.





supersola

MARKET SEGMENTS

Residential building

Transport & mobility · Solar PV

D

Supersola · *The Netherlands*

Molengraaffsingel 12
2629JD Delft
The Netherlands

julius.smith@supersola.com
www.supersola.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

BCC (FNAC), Bohemia Energy, Ministry of Defence, Stedin, Engie, Sungevity, diverse utilities and consumers. (Also sales support material available in French, see commercial documentation)

PRODUCT Supersola

Plug in the sun!

THE NEED.

Solar panels are a big investment, yet it is not possible to test solar panels first or to start out with just a few; it's a complex process that involves choosing an installer, selecting solar panels, inverters, etc.

THE SOLUTION.

A modular solution that allows users to start with just one panel or interconnect a series. Supersolas are a plug and play solution that can be plugged in to a regular socket and do not require an installer or installation work. They are also portable and can be easily moved to a new home or location.

VALUE PROPOSITION.

- Just plug in to any normal socket.
- No large investment required.
- Return on investment (ROI) the same or better than traditional solar panels.





verv

3 Lower Thames Street
St Magnus House
EC3R 6HD London
United Kingdom

sales@verv.energy
www.verv.energy

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Residential building

Off-grid · Transport & mobility · Solar PV

D

Verv · *United Kingdom*

PRODUCT Verv Connect

Unlocking energy data with AI to create unique smart home experiences

THE NEED.

Utilities are struggling to acquire, engage and retain customers, while customers struggle to reduce their energy bills. Carbon emissions and energy bills are increasing and the removal of the UK's feed in tariff (FiT) scheme means longer ROI on domestic renewables.

THE SOLUTION.

Verv unlocks granular energy data providing unique real time insights at an appliance level to users, providing utilities with a competitive advantage and the ability to personalise their services. This solution offers blockchain-based renewable energy trading, a budgeting function, high-frequency appliance disaggregation in real time, individual appliance usage cost and usage activity and safety notifications if key heated appliances are left on.

VALUE PROPOSITION.

- Ability to acquire, engage and retain customers - utilities.
- Improved access to low carbon energy.
- Reduced energy bills - users.
- ROI for domestic renewable owners.





MARKET SEGMENTS

Residential building

Municipality

D

Watch-E · The Netherlands

Bovenover 23
6812 AT Arnhem
The Netherlands

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www.watch-e.nl

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Portaal, Lefier, Wold & Waard,
De Woonplaats, Ymere, EigenHaard,
BevelandWonen, Nijhuis, Plegt Vos,
Domijn, Wonen Limburg.

PRODUCT

MyEnergyBundle (Mijnenergiebundel)

Energy management on which you can build

THE NEED.

In targeted markets there is a need to strictly monitor several energy parameters for a long-term period. Customers need these insights to guarantee the sustainability of their homes and the correct function of building-related installations.

THE SOLUTION.

Watch-E's MyEnergyBundle provides insight into all energy parameters for both residents and managers of a sustainable housing project. Extra encouragement is provided by setting targets, with the highest privacy and security standards applied.

Independent, certified hardware, a separate platform for builders is provided for alerts, reporting, benchmarking and analyses. The application is user-friendly for end-users.

VALUE PROPOSITION.

- Communication tools for end-users.
- Opportunity for residents to receive personalised insight into their energy household.
- Reporting and alert features.





wohnwagon

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2770 Gutenstein
Austria

werkstatt@wohnwagon.at
www.wohnwagon.at

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

24 Wohnwagons sold in Austria, Germany, Switzerland and Belgium for individual use as well as hotel projects (eg. <http://kleine-heimat.de>)

MARKET SEGMENTS

Residential building

Transport & mobility

D

Wohnwagon · Austria

PRODUCT Wohnwagon

Independent and sustainable living – completely off the grid

THE NEED.

Customers are looking for innovative living solutions that meet their ecologic standards, that offer an independent supply of water, heat and electricity and that can be set up and dismantled easily, without connection to the grid.

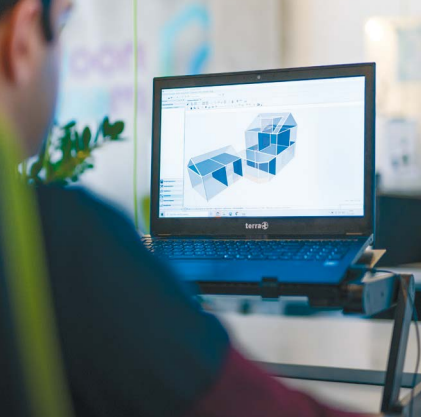
THE SOLUTION.

Wohnwagon offers, for €100.000 - €180.000, a 15 to 33 m2 natural space for outdoor living. It has an independent supply of water, heat and electricity and is mobile (can be uprooted and transported easily, if required). It is constructed out of natural building materials: wooden construction, sheep wool insulation, clay.

VALUE PROPOSITION.

- Can often be used as living space where normal buildings are prohibited.
- Independent supply of energy though PV and wind with large capacity for storage.
- Individualised to the needs of customers.
- Solar and wood heating system with intelligent heat control.
- Water circulating system with green filter on the roof of the wagon.





MARKET SEGMENTS

Residential building

Heating & Cooling

D

Woon Duurzaam · The Netherlands

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1032KE Amsterdam
Noord-Holland,
The Netherlands

ram@woonduurzaam.nl
www.woonduurzaam.nl

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

For details see:
<https://www.klantenvertellen.nl/reviews/1029660/woon-duurzaam>

PRODUCT

Woon Duurzaam

The end-to-end platform for homeowners wishing to achieve zero energy living

THE NEED.

European homeowners want to live sustainably in fossil free homes, be independent of Russian gas, and reduce their energy bill. However, they do not know how to achieve this. No all-in-one service exists to help them through the complicated process.

THE SOLUTION.

The first end-to-end platform offering a completely unburdened, efficient and effective way to achieve zero energy living. Homeowners are offered a tailored home energy plan, best buy of best offer, a professional installation service, plus an attractive as-a-service proposition. Installers gain entry to a huge market of individual homeowners, plus access to a training academy with technical support, online instruction and a guidance platform to achieve fast, efficient installation.

VALUE PROPOSITION.

- A good economic solution for homeowners.
- A positive contribution to the environment.
- Complete unburdening of the process involved.
- Attractive ROIs and financial propositions.
- More comfort and a safer home.
- Suppliers gain entry to a huge market without the hassle of finding leads through the sales pipeline, plus a training academy aimed at fast, efficient job execution.





MARKET SEGMENTS

Transport & mobility

Municipality · Non-residential building

D

Ataway · France

Avenue du Lac Léman 17
73370 Le Bourget du Lac
France

sales@ataway.com
www.ataway.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

28 hydrogen refuelling stations
commissioned.

Customers: HYmpulsion (2 hydrogen
refueling stations in operation, 3
in production). Morbihan Energies
(1 hydrogen refueling stations in
operation).

PRODUCT

Hydrogen Refueling Stations

Hydrogen refueling stations to fuel all types of vehicles when and where the user needs it

THE NEED.

For local authorities and companies across Europe, the development of recharging technologies is crucial to decarbonise mobility. This development requires easy access to hydrogen which must be available anywhere and at anytime.

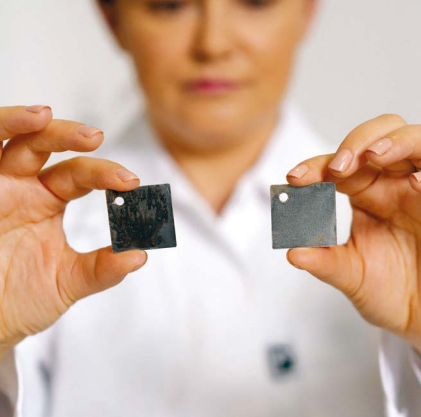
THE SOLUTION.

Since 2015, Ataway has designed, manufactured and distributed green hydrogen refuelling stations across Europe, contributing to the deployment of carbon-free hydrogen. Filling stations are suitable for recharging all types of vehicles whenever and wherever required. Compact, scalable and mobile, filling stations support the growing regional use of hydrogen and offer customised solutions adapted to each project – from the pilot project to the complete network.

VALUE PROPOSITION.

- Decentralised and autonomous solution.
- Legislation and administrative support.
- Partnership with major industrial companies for system operation.
- Turnkey solution.
- Low maintenance.
- CE certified.





MARKET SEGMENTS

Transport & mobility

D

Coat-it · Poland

ul. Mościckiego 1
24-110 Puławy
Poland
katarzyna@coat-it.pl
coat-it.pl

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

PRODUCT Coat-it

Nanomaterials-based coating additives that easily enhance any standard plating process

THE NEED.

The global cost of corrosion and wear is huge, over €2.3 trillion per year. Traditional protective coatings require the use of specific materials (nickel, zinc, chromium). They cause water and environmental pollution and generate significant CO₂ emissions.

THE SOLUTION.

Coat-it offers nanomaterials-based coating additives which can be easily added to a standard plating process, enabling the manufacture of nanocomposite coatings. Nanomaterials-based coatings are more durable, more resistant to corrosion and have new functionalities, such as additives for water dispersion and incorporated nanoparticles. No change to the coating process is required.

VALUE PROPOSITION.

- Reduces the corrosion rate of metal coatings by up to 2.5 times.
- Longer lifespan.
- Objects retain their value.
- Safer devices.
- Less frequent repairs and scrap metals.
- Material savings ~25%
- Low CO₂ emissions ~15%
- More plating cycles.





elaphe

Propulsion Technologies

MARKET SEGMENTS

Transport & mobility

D

Elaphe · Slovenia

Teslova 30
1000 Ljubljana, East Europe
Slovenia

customer@elaphe-ev.com
www.in-wheel.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Lordstown Motors Corp. – Lordstown
Endurance pickup truck (USA)

Moke International – Mini Moke
Electric Drive (Europe, UK, France)

Aptera Motors – The Aptera 3e
Performance and Standard edition
(USA)

PSA & Brembo - Development of
In-wheel motor, EU-LIVE project
(France, Italy)

Multiple other undisclosed
manufacturers (EU, US, China, South
Korea, Japan, Brasil)

PRODUCT Elaphe Propulsion Solution

A global leader in electric in-wheel propulsion solutions

THE NEED.

The propulsion architectures within current electric vehicles do not exploit the versatility and potential of electric motors.

THE SOLUTION.

Elaphe Propulsion Solution offers a superior design in a direct driven in-wheel motor placed inside the rim of a vehicle. Recent developments in electromagnetic research enables the use of direct driven electric motors for passenger vehicle operation, ensuring adoption in the largest segment of the automotive industry. A larger design space, a lower centre of gravity, and the reduction of required parts for any vehicle has cost reduction potential.

VALUE PROPOSITION.

- In-wheel architecture offers: integrated corner possibilities with benefits in agility and manoeuvrability.
- No gearbox or drive-shafts.
- Grip control.
- Safety benefits.
- SW upgradeable advanced functions add-ons.
- Direct-drive – avoiding mechanical losses.
- Front trunk possibility and minimal powertrain footprint – increased cabin space.
- Shorter assembly lines – less overheads.
- Advanced manoeuvring capabilities.





MARKET SEGMENTS

Transport & mobility

D

Hardt Hyperloop · *The Netherlands*

Hardt Hyperloop
Paardenmarkt 1
2611 PA Delft
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connect@hardt.global
hardt.global

✓ **EARLY STAGE**

CUSTOMER REFERENCES

Study for Schiphol airport on impact of Hyperloop.

Cargoloop initiative - consortium to use hyperloop for transport of fresh products and flowers in the west of the Netherlands

PRODUCT

Hardt Hyperloop

The future of transportation

THE NEED.

There is a requirement for efficient and economic transportation that improves connectivity between cities while also reducing emissions.

THE SOLUTION.

A new form of transportation suitable for large volumes of passengers or freight, which connects cities efficiently and reliably. It works by means of a linear electric engine that extends across the entire track. The pods are also equipped with a magnetic levitation system that, together with the electric engine, allows them to 'surf' a magnetic wave.

VALUE PROPOSITION.

- Up to 90% reduction in energy use compared to air travel.
- Scalable in speed and distance.
- No transfers: a network of cross-border cities, all connected in one network.
- CO₂ reductions.





HYGEN

MARKET SEGMENTS

Transport & mobility

Gas DSO · Renewable gas & biofuels

D

Hygen · Latvia

Vagonu st. 19
1009 Riga
Latvia

robert@hygengroup.com
www.hygengroup.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

GRDF, GasConnect Austria.
Available on request.

PRODUCT Hygen Plus

Superchargers that fuel Bio-CNG vehicles from small business fleets in just minutes

THE NEED.

There is a need to level the playing field for environmentally-friendly natural gas vehicles (Bio-NGVs), matching the common practice of EVs. This would enable a future alternative fuel transport mode where growth has been repressed due to a limited number of public gas refuelling stations.

THE SOLUTION.

By utilising existing grids, HYGEN solves a problem of the NGV market. In offering products with the unique freedom of refuelling, HYGEN transforms the outdated NGV image into an EV-like concept. Unlike large centralised public stations that require millions to build, HYGEN+ is a cost-effective decentralised system, dedicated to small business NGV owners. By providing convenient refuelling for commercial fleets, HYGEN+ removes the bottleneck of a limited centralised refuelling station network.

VALUE PROPOSITION.

- Faster refuelling (25 m3 in 7 min) than the competition and more convenient/practical than visiting a public Bio-CNG filling station.
- Some 35% fuel cost savings when using HYGEN+ Bio-CNG versus diesel.
- Low electrical consumption (0.45kWh/GLE) and noise levels (65dB).
- Allows end-user companies to "green" their fleet of vehicles, moving to G-Mobility without compromising on cost and vehicle range.





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✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Solaris - Poland,
Irizar - Spain,
Temsa - Turkey,
Vossloh Kiepe - Germany

MARKET SEGMENTS

Transport & mobility

D

Impact Clean Power · Poland

PRODUCT e-BUS Battery

Modular battery system for electric buses

THE NEED.

Battery systems for electric buses are too expensive to compete with diesel engines and do not respond to the wide range of requirements of bus operators.

THE SOLUTION.

This modular battery system consists of several battery modules with a capacity of 30 to 60 kWh. Basic battery blocks come in three versions and are based on cells with three different chemical compositions: NCM/HC (long life), NCM/Ni (low price) and LTO (high power, frequent/quick recharging). They all have the same casing and the same BMS (battery management system). Battery blocks are interchangeable.

VALUE PROPOSITION.

- Allows for the long term and broad collaboration with suppliers.
- Decreases costs by offering a standardised product.
- Fulfils different tender requirements.
- Provides flexibility to tailor the battery system to individual needs.





e surbaissée



MARKET SEGMENTS

Transport & mobility

Industry

D

Incitis · *France*

Cours Lafayette 92
69003 Lyon
France

betrand.vidal@incitis.com
incitis.com

✓ PILOT

CUSTOMER REFERENCES

Pre Orders: XPO, Bert And You,
Adam Boisson, Vandendriessche,
Transgourmet, Elis

Letters of intent: Fraikin, C10, Urby,
Cozigou

Interested: GT Solutions, Pedretti,
Intermarché, Leclerc, Dachser,
Stricher, Kuene & Nagel, STEF

PRODUCT H2Speed

A green revolution in urban freight distribution

THE NEED.

Around 70% of Europeans live in cities and rely on effective urban freight distribution. The challenges, however, are many. There is a necessity for efficient operation on zero emissions; safe and noiseless delivery; traffic jam avoidance; as well as fair and safe conditions for delivery drivers.

THE SOLUTION.

INCITIS reinvents urban truck architecture with H2SPEED, specifically designed for urban use and delivery drivers. H2SPEED introduces a pioneering truck that can be completely loaded/unloaded on "even footing", that is tailored to the variety and unpredictability of urban delivery, and that emits zero emissions and makes zero noise.

VALUE PROPOSITION.

- Zero emissions, zero CO₂, zero noise.
- Drastic reduction of delivery time.
- Two trucks can do the job of three.
- Total cost of ownership equivalent to diesel trucks, and much more economical than zero emission competitors.
- Much safer for drivers and citizens.





MARKET SEGMENTS

Transport & mobility

Non-residential building · Residential building

D

MOB Energy · France

Avenue Rockefeller 18
69008 Lyon
France

tresor.bapre@mob-energy.com
www.mob-energy.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Lyon Parc Auto, Parcus, Interparking, Enedis, Mercedes-Benz, Biomérieux, Veolia, Charier, French Army, Fournée Dorée, DHL, FM Logistic, City of Saint-Gervais

PRODUCT

Robot "Charles" and Evolutive Cube of Power "Eiko"

Charges all EVs parked in a parking lot with a single power supply and without civil works

THE NEED.

It is difficult for parking managers to easily and rapidly deploy EV charging infrastructure without having to upgrade the electrical infrastructure and without significantly affecting the parking lot's operation.

THE SOLUTION.

Mob-Energy offers turnkey solutions providing charging for any EV in any parking lot. They store energy from the grid and prioritise customers' orders via a dynamic scheduling algorithm.

- Charles Charging Robot moves autonomously towards the vehicles to be charged, electrifying all the spots in a parking lot and putting an end to monopolization.
- Eiko Power Cube electrifies up to 20 parking spots with the power of a single charging point and stores self-generated or off-peak hours energy."

VALUE PROPOSITION.

- Power input : 10 to 30kW
- Power output : up to 60kW
- AC or DC Charging
- Storage capacity: Charles 30kWh, Eiko 150kWh
- No civil works needed
- Up to 20 cars charged per day





Navlandis

MARKET SEGMENTS

Transport & mobility

D

Navlandis · Spain

Carrer Oriola 32
46210 Valencia
Spain

mnavalon@navlandis.com
www.navlandis.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Several routes with Marguisa Shipping Lines, the leading international container and project cargo line in Spain. A new route to transport plant-based oils from Northern Europe to South America, inside flexitanks for AAK Denmark A/S was launched in 2023.

PRODUCT Zbox

Foldable shipping containers that reduce transport costs and CO₂ emissions

THE NEED.

Innovation is required in the logistics sector as a means to reduce both operational costs and environmental impact. It is vital to prove that sustainability and profitability go hand in hand.

THE SOLUTION.

Zbox are foldable shipping containers that occupy 80% less space than traditional containers when travelling empty. Transport costs and CO₂ emissions can both be reduced. When travelling unfolded and full, they behave just like a traditional container.

VALUE PROPOSITION.

- Five containers can be shipped in the same space as one traditional one.
- 50% reduction in operational costs.
- Easy to fold and lighter in weight than standard containers.
- Lower production costs.
- Reduced CO₂ emissions.





NEVOMO

MARKET SEGMENTS

Transport & mobility

D

Nevomo · *Poland*

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Poland

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www.nevomo.tech

✓ **PILOT**

CUSTOMER REFERENCES

MoU or Cooperation Agreement-based collaboration to be actively involved in the product development, via feasibility studies, use cases, and specifications – with Tier 1 railways (SNCF, Renfe, RFI, DB.)

Pre-commercial pilots signed, expected to turn into commercial operations after homologation.

Partners & potential acquirers:
Alstom, Skoda, Siemens, Hitachi, Talgo, CAF, Arcelor Mittal, Stadler, Molinari.

PRODUCT Nevomo

MagRail technology boosts the hyperloop-inspired transport of the future

THE NEED.

Current railway infrastructure limits train speed to 100 to 330 kph on short, medium and long haul routes, owing to the physical characteristics of 190+ year-old technology principles. A rapid solution is needed that does not require building entirely new infrastructure.

THE SOLUTION.

MagRail is an innovative solution that transforms traditional analog railway lines into state-of-the-art magnetic railways, enabling trains to potentially travel at speeds of up to 550kph. This transformation, developed by Nevomo, involves implementing fully-digital contactless propulsion and suspension technology as the interface between the vehicles and infrastructure.

VALUE PROPOSITION.

- Increased capacity.
- Tech simplicity.
- Fast implementation, low TCO (total cost of ownership).
- Regains competitive edge.





NÜWIEL

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Germany

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nuwiel.com

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Bpost, UPS, IKEA,
City of Groningen, Dublin City Council,
MediaMarktSaturn

MARKET SEGMENTS

Transport & mobility

D

Nüwiel · Germany

PRODUCT Nüwiel E-Trailer

A smart electric trailer for bikes that accelerates the transition to sustainable urban mobility of goods

THE NEED.

Urbanisation and exponentially growing online sales pose massive challenges to the already complex urban ecosystem: some 80% of traffic jams are caused by delivery vans during rush hour; 21% of CO₂ is caused by road transport; there is a high demand for car-free and pedestrian only zones in cities.

THE SOLUTION.

Nüwiel has developed an innovative electric trailer (eTrailer) with patented technology which combines an auto-trail sensor, AI-based self-regulating algorithms and a 3-level braking system. The technology enables the eTrailer to automatically accelerate and brake, mimicking every movement of the bike. It can be connected to any (e) bike and used as an electric handcart inside buildings and pedestrian-only areas. Suitable for use by anyone, irrespective of age or build.

VALUE PROPOSITION.

- Offers the flexibility required to move around a city, fulfilling manoeuvrability and stringent safety requirements of urban ecosystems.
- Increased efficiency of existing bike fleet: 3x more payload.
- Time saving: 2x faster delivery time.
- User friendly: 95% recommendation rate by IKEA customers.
- Multi-modal: runs on bike lanes, roads, cobblestones, pedestrian zones and inside buildings.
- Enhanced safety: 3-level brake system (park, electric, overrun) to ensure safety of the rider.
- Low maintenance: robust design with 99% of automotive components.





MARKET SEGMENTS

Transport & mobility

D

OnoMotion · *Germany*

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12435 Berlin
Germany

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onomotion.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Hermes Germany, 2020, Berlin, Germany; 18 ONO PATs Vehicle-as-a Service (VaaS) Payments for monthly rental Tier Mobility, 2020, Berlin, Germany; 8 ONO PATs VaaS for 2020; Payments for monthly rental Rewe Digital, 2020, Berlin, Germany; 2 ONO PATs VaaS; Payments for monthly rental InFarm Urban Farming, 2020, Berlin, Germany; 5 ONO PATs VaaS APCOA Parking Deutschland in March 2022, UPS Germany in April 2022.

PRODUCT The Ono e-Cargo Bike

Creating transformative change in urban mobility, making cities cleaner and more enjoyable

THE NEED.

Air pollution, road congestion, lack of routing options and high costs are challenges for logistics operators striving to cope with the e-commerce boom. Compounded by the long-term effects of the Covid-19 pandemic, operators struggle to meet the vast and rapidly-changing demands of people worldwide.

THE SOLUTION.

The ONO E-Cargo Bike combines the ease of a bicycle with the cargo capacity of a van. A solution that protects the planet and improves the health of communities, it is emission-free, has a small physical footprint, an easy battery-swapping set-up, a smart electrical system made with Tier-1 quality components, and uses automotive production processes for safety and durability. It has been validated by major logistics players through every stage of its evolution.

VALUE PROPOSITION.

- Versatile modular platform allows for expanded uses and markets.
- Powered by green electricity and a 70% smaller physical footprint.
- Increased routing and delivery flexibility.
- Exceptional weather protection and safety, with a vehicle cabin floor.
- Targeted market segments: courier express and parcel delivery, micro-mobility, online retail, catering and passenger transport.
- Lower total cost of ownership (TCO) over time.
- Complete maintenance and service ecosystem.
- Outstanding payload mass and volume.
- Vehicle-as-a-Service (VaaS) model.





07.10.2015, 05:00 Uhr *
Abfahrt in Pforzheim

254.15 €
inkl. 19% MwSt.

Details und Buchung

DANK FRACHTENBÖRSE
30% MEHR AUSLASTUNG

1 Lieferstrecke wählen

START

Karlsruhe, 76133

ZIEL

Berlin, 12524

2 Transportstücke eingeben

Länge Breite Höhe Gewicht

120 cm 80 cm 125 cm 500 kg

oder

Europalette

Stapelbar

Paket 1

120.0x80.0x125.0

cm

200.0 kg

Nicht stapelbar

Paket 2

120.0x80.0x125.0

cm

200.0 kg

Nicht stapelbar

Lützner Str. 116
04177 Leipzig
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info@pamyra.de
www.pamyra.de

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Wholesalers and wood-makers.

PRODUCT pamyra.de

Find, compare and instruct transport companies in minutes

THE NEED.

In the transportation industry, a solution is required for a non-transparent market, high transport prices, the considerable effort required for booking transport, and the large number of empty trips made.

THE SOLUTION.

Pamyra offers an automatic distribution channel for hauliers with a single contact point for each delivery. Online booking is available and payments can be made by invoice, cash on delivery, credit card, PayPal or the German payment system Sofortueberweisung.

VALUE PROPOSITION.

- A one-off effort for participating hauliers.
- Compare prices, attributes, customer feedback and quality of all hauliers in one go.
- Direct booking process - no more waiting for offers and reactions.
- Innovative route-vicinity-algorithm.





MARKET SEGMENTS

Transport & mobility

D

Scoobic · Spain

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Spain

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scoobic.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

MISSION BOX - MOX = 5 vehicles
SCOOBIC LIGHT in renting (36
month) Jan-2020 in Spain (Madrid,
Zaragoza); FIRST STOP = 2 vehicles
SCOOBIC LIGHT in renting (36
month) Jan-2020 in Spain (Madrid);
LA POSTE = 12 SCOOBIC LIGHT in
renting (6 month) Oct-2020 Rennes &
Nantes; CORREOS: 6 SCOOBIC LIGHT,
VECTALIA: 4 SCOOBIC LIGHT delivered
Oct-2020 Pamplona, Alicante, Murcia,
Teruel; LOGISTICS HOLLAND = 1
SCOOBIC MINI sold Nov-2019 NL.
GAS2MOVE = 5 vehicles SCOOBIC
LIGHT sold March-2020 Spain;
AMAZON Italy = 8 SCOOBIC LIGHT in
renting (3 months) delivered in Nov-
2020 Italy.



PRODUCT

Scoobic Hi-cargo

The ultimate way to deliver goods in urban centres, solving last mile problems

THE NEED.

The last-mile delivery sector needs a new category of vehicles that are electric, able to reduce CO2 emissions, fast and agile in traffic in an urban environment, easy to park with access to pedestrian areas, but also offering as large a loading capacity as possible.

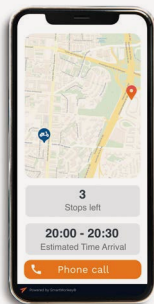
THE SOLUTION.

Scoobic's vehicles are a new category of fully-electric vehicles with a range of autonomy of up to 100km and beyond in some of its upcoming models, which will also include an innovative removable battery system. Three-wheeled vehicles have the same loading capacity as vans (up to 750kg. / 1.400 litres).

VALUE PROPOSITION.

- A new category of vehicle.
- Ability to transport as high a volume and payload as possible (up to 750kg / 1.400 litres).
- Three-wheelers make for safer driving than a motorcycle, while maintaining agility in traffic.
- Can access the city centre with ease and find parking space.
- Can access pedestrian areas legally.





MARKET SEGMENTS

Transport & mobility

Industry · Municipality · Residential building

D

SmartMonkey · Spain

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Spain

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www.smartmonkey.io

✓ CONSOLIDATED SALES

CUSTOMER REFERENCES

Field Maintenance:

Customers: Suez, Agbar, Aigües de Barcelona, Global Omnium, Ienova.
Savings over 20% efficiency increment. Benefits improved service, reduced management time and process standarization.

Industrial distribution:

Clients: Volkswagen, Autosolar, Daimler
Savings: Over 25% cost reduction on last-mile distribution. Benefits: Performance improvement, total control of the supply chain, service improved with more customer retention.

PRODUCT

Smart Monkey

Improving the entire delivery experience

THE NEED.

Last mile operations are crucial for logistics, distribution, maintenance, energy and transport. Efficient planning cuts costs, enhances service and boosts profit. Tech is vital for efficient, risk-free operations, optimising service quality. However, most companies still manage operations manually.

THE SOLUTION.

SmartMonkey optimises last mile ops for companies. It streamlines route planning, real-time operations management and driver monitoring, cutting planning time and risk by 90%. The service notifies customers of arrival time, boosting service and reducing failed visits by over 50%. An easy-to-use interface achieves efficiency, service improvement and detailed monitoring. A last mile delivery can be up and running in under 24 hours.

VALUE PROPOSITION.

- User-friendly platform (production in 24h).
- Standardisation of last-mile processes (logistics, maintenance, sales, etc.).
- Improves service quality and enhances customer perception.
- Customisable to any kind of company (logistics, utility, maintenance, etc.).
- Reduction of 90% of planning time.
- Reduced operational costs by over 30%.





MARKET SEGMENTS

Transport & mobility

D

Swobbee · Germany

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swobbee.de

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Tier mobility, 2021, Berlin, Germany, 6 stations in CaaS contract;

Onomotion, 2021, Berlin, Germany, 100 batteries in BaaS contract;

Avocargo, 2022, Berlin, Germany, 100 batteries in BaaS contract.

Voi Germany, 2023: 7 stations.

PRODUCT Swobbee

The "gas station" for e-micromobility through battery swapping infrastructure

THE NEED.

Operators of light electric vehicle fleets need a secure charging infrastructure. Fully charged batteries should be available all times throughout the fleet's operational area. Batteries are an expensive asset with high investment costs. Battery populations must be monitored and managed very well.

THE SOLUTION.

Swobbee offers an infrastructure of decentralised battery swapping stations with 24/7 battery monitoring and safe and gentle charging. Swapping the battery only takes a few seconds. Swobbee offers two business models: with Battery-as-a-Service, Swobbee offers fleet operators the opportunity to cap the high investment costs and distribute them as operating costs; with Charging-as-a-Service, Swobbee offers sharing fleets a central charging solution for swapping operations.

VALUE PROPOSITION.

- A decentralised, safe charging solution from a single source.
- A software dashboard and app provides the possibility of managing large battery populations with batteries from different manufacturers and designs.
- The BaaS approach offers relief for initial investments in batteries.





MARKET SEGMENTS

Transport & mobility

Municipality · Residential building

D

the eCloudcompany

eCloudCompany · Belgium

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Belgium

patrick@ecloudcompany.eu
www.ecloudcompany.eu

✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT eCloud Plugo

Charge your car everywhere with a unique mobile charging station

THE NEED.

There is a lack of available charging points, this fuels EV drivers' "range anxiety," the inability of corporate fleets to efficiently cover home charging. Companies lack solutions to reimburse employees who are using EV cars for home charging.

THE SOLUTION.

eCloud has developed a patented system enabling the authentication of an EV-vehicle and a standard power outlet. It incorporates this system in an adaptor, including metering of electricity consumed and communication with the eCloud software platform. Any EV user can charge a vehicle by plugging the adaptor into a standard power socket equipped with a RFID sticker. Automatic billing reconciliation is done by software.

VALUE PROPOSITION.

- Adaptor with metering.
- Communication through WIFI, 4G, Bluetooth, SYSFOX, etc.
- RFID sticker.
- Fee on the consumption of electricity.
- Monthly subscription.





volytica diagnostics

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Germany

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www.volytica.com

✓ **STARTING SALES**

CUSTOMER REFERENCES

Available on request

MARKET SEGMENTS

Transport & mobility

D

Volytica Diagnostics · Germany

PRODUCT

VDX battery diagnostics engine

Battery diagnosis as a service

THE NEED.

Batteries degrade – but the extremely complex interactions between chemistry and external influences result in a huge variability of expectable end of life criteria. System & Vehicle manufacturers and end users alike are not readily able to determine the most economical replacement time, to quantify optimization measures or to measure the degradation state at all, resulting in a potential waste of productivity, usable lifetime and material of 30bn € annually from 2025.

THE SOLUTION.

A software solution that makes degradation effects transparent and optimises the replacement schedule. Ten years of research forged into a scalable cloud platform. By utilising signals that every modern battery system provides, a vdx engine calculates stress levels, replacement times and proposes mitigation strategies, offering a lifecycle management tool for battery assets, accessible for a broad range of industries. With volytica, battery diagnostics becomes an industrial commodity!

VALUE PROPOSITION.

- Battery diagnostics accessible for a broad range of industries.
- Easy to integrate into existing processes and tools.
- Minimal entry barriers and applicable to a vast range of applications.
- By making use of our services, at least 10% usable lifetime can be extracted from one and the same battery.





Waybler
Rethinking charging

MARKET SEGMENTS

Transport & mobility

Municipality · Residential Building

D

Waybler · Sweden

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waybler.com

✓ **CONSOLIDATED SALES**

CUSTOMER REFERENCES

Fabege AB, Newsec, Platzer, Bonava

PRODUCT Waybler

EV charging solutions for housing, business and street

THE NEED.

There is a need to develop a mass market for EVs by providing a cost-efficient charging solution that is profitable for both real estate and parking lot owners.

THE SOLUTION.

Waybler has developed a complete system based on a unique business model that enables clients to charge electric vehicles in parking lots located at home or at work. The solution includes an AI cloud charging service, a mobile app and a charging box and uses the entire time that a vehicle is parked to efficiently distribute power between cars. As a result, many cars can be charged without expensive load peaks.

VALUE PROPOSITION.

- Efficient: cars are charged efficiently based on user needs and available electrical power capacity.
- Profitable: a unique business model that makes the initial investment required low, and enables energy costs to be cut.
- Scalable: new stations can be easily added.
- Simple: cars are charged wherever they are parked, at home or at work.





MARKET SEGMENTS

Transport & mobility

Industry

D

Zeleros · Spain

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✓ PILOT

CUSTOMER REFERENCES

Available on request

PRODUCT Zeleros Hyperloop

Zeleros is a leading European deep-tech company bringing to the market hyperloop technologies that boost sustainable mobility

THE NEED.

Current transport technology cannot achieve intercity mobility sustainability goals. Today's transport is responsible for more than 25% of global GHG emissions. An alternative fast, sustainable, automated intercity transportation method is required.

THE SOLUTION.

Zeleros is developing core hyperloop technologies that will revolutionise the current transport portfolio, representing a massive market opportunity in the decades to come. Such technologies can also be exploited in the shorter term in more mature markets demanding hyperloop-inspired solutions, such as in port electrification. A cooperative approach sees solid industrial players working with hyperloop technicians and developers, strengthening the ecosystem.

VALUE PROPOSITION.

- Zero emission.
- Transports from 50 to 200 passengers per vehicle.
- Speeds of up to 1,000 km/h.
- Scalable.
- Cooperative approach.





MARKET SEGMENTS

Transport & mobility

D

Zparq · Sweden

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www.zparq.se

✓ PILOT

CUSTOMER REFERENCES

Strategic partnerships:
CPAC-Volvo Penta
Swedish sea rescue society
SSPA (now RISE)
Micropower Group
Aston Harald
KTH

PRODUCT Zparq

Making marine propulsion sustainable

THE NEED.

New and improved electric drivetrain technology for propeller-driven watercraft is required to meet a growing demand for fossil-free marine transportation. Currently, no cost-effective submerged electric motor system on the market can offer both high power and high efficiency.

THE SOLUTION.

Zparq vastly improves marine electric propulsion with a compact and scalable direct-drive system for propeller-driven watercraft, which solves fundamental limitations of current market offerings. Technology is based on a novel motor design that specifically adapts to submersible applications. A patented passive cooling system allows the motor to be up to 10 times smaller in volume than motors with equal power.

VALUE PROPOSITION.

- Small volume – minimal underwater drag.
- Few parts - low production cost and fewer failure points.
- High efficiency - longer range.
- Submerged - low noise and compact.





Bringing innovation to market

To advance the energy transition, innovative solutions are needed at scale. In the last 13 years, InnoEnergy has supported start-ups to accelerate and de-risk their solutions and bring them successfully to market. Through our innovation ecosystem we reduce time to market, de-risk innovation and create commercially attractive solutions to empower a sustainable energy future. By bringing our network of over 1,200 stakeholders together with our more than 200 portfolio companies, we are turning opportunity into impact.

Major corporate players are forging partnerships with our portfolio companies to address challenges in their operations and realise gains in efficiency, costs and CO₂ savings. The customer case studies on the following pages illustrate just how big companies and entrepreneurs are collaborating to make industry more sustainable and deliver impact.

Energy storage system for industrial self-consumption installation on a farm.

The need.

The facility manager of a large industrial farm in Murillo el Cuende (Spain) was looking to lower the electricity bill associated with internal processes (heating and cooling in animal environments).

Additionally, there was a need to avoid expenditure on an additional power supply, and be able to store excess energy generated on site through a photovoltaic system.

The project.

Beeplanet's sustainable storage unit is integrated into an internal microgrid that also includes photovoltaic generation. All of this is monitored and controlled by an energy management system, which maximises on self-consumption and increases the ROI of the entire project. The storage installation, with a 84kWh capacity, consists of a DC subsystem of second-life automotive batteries, and an inverter to connect the subsystem to the internal electrical grid. The timeframe of the project was 1 month.

Why Murillo's Farm chose to work with Beeplanet Factory

Beeplanet is a leader in second-life batteries and is involved in every stage of a project, including commissioning. In addition, batteries have advantages that convinced the facility management.

- **Modularity:** batteries are expandable and scalable, and future needs of the project can easily be covered.
- **Life extension and performance:** Beeplanet's batteries have optimal performance thanks to its automotive origins. Moreover, whenever they detect, via remote maintenance, that a battery module has reached its capacity limit, they take charge of replacing and recycling it.



Benefits for the customer.

Cost of industrial storage (<1MWh)
<320€/kWh

+200
tons CO₂ saved compared to a first life industrial battery

>70%
saving on the energy bill

ROI
3-5
years

Ezzing Solar platform for MVM.

Helping a utility company develop a distributed generation offering for their customers

The problem

The energy system is transiting to a distributed generation system with energy generated from decentralised renewable sources and consumers taking a more active role. A good relationship between utilities and customers will be key in the years to come, with revenues derived mainly from services and retail.

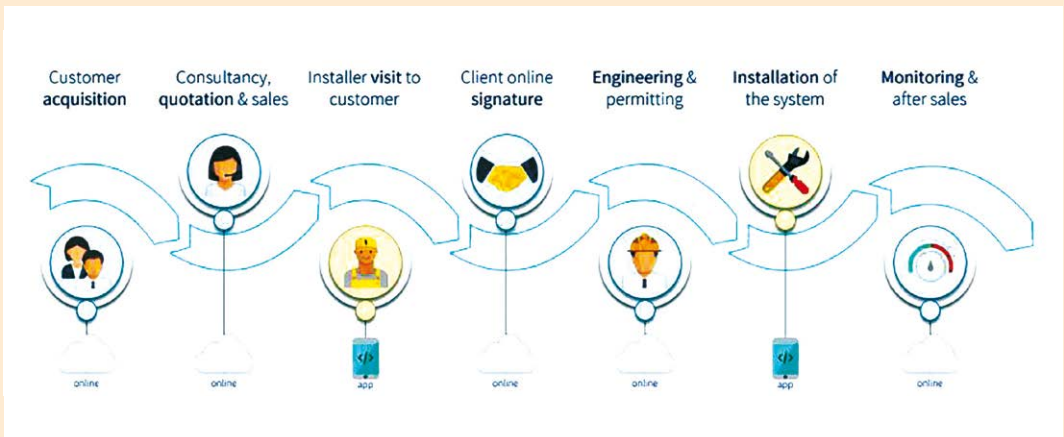
MVM needs to **develop a distributed generation offering** that is user-centric and that provides a high quality experience with minimal hassle for potential customers.

Why MVM chose Ezzing Solar solution

Ezzing's platform covers the whole value chain, from acquiring the customer to formalising contracts through the web. The smooth user experience facilitates the closure of deals quickly and easily.

The platform has been adapted to MVM's brand. It supports MVM in:

- Acquiring new customers.
- Sizing and pricing each customer's need.
- Contracting and signing the offer.
- Managing the logistics of the installation.
- After-sales service.



Benefits for MVM

- Allows for engagement with the end customer during and after sales, while offering a means to cross-sell other energy products.
- Interconnects everyone in the value chain to reduce overhead costs.
- Customer acquisition costs are reduced to a minimum.

Heliac 1.5 MW solar field for an E.ON Denmark district heating plant Lendemarke, Denmark

The challenge

Heat represents more than 50% of total energy consumption in the world but traditional methods of generating heat are highly polluting.

E.ON has ambitious sustainability targets and has put a roadmap in place to reduce GHG emissions and to become carbon-neutral by 2040.

To do so they are actively looking for sustainable solutions with no CO₂ emissions because the transition needs to happen fast. For the city of Lendemarke in Denmark, they were looking to provide sustainable heating to a small community of 335 households.

The installation

A full-scale solar field installation covering 1 hectare of land with 144 energy-efficient solar collectors. Heliac's transparent foil lenses work like giant magnifying glasses. Panels are 4 meters high and rotate on a base so they are always perpendicular to the sun.

Insulated district heating pipes stretching to 13 kilometres in length connect 335 local households, and heat tanks ensure no interruption to supply 24/7.

Heliac's lenses can be mass-produced, reducing the cost of solar systems long term.



1,500
MWh of district
heat annually
produced,
CO₂-free

24/7
heat supply

335
local households
covered

Heliac's
solution requires
25% less
surface area than
traditional flat solar
thermal panels

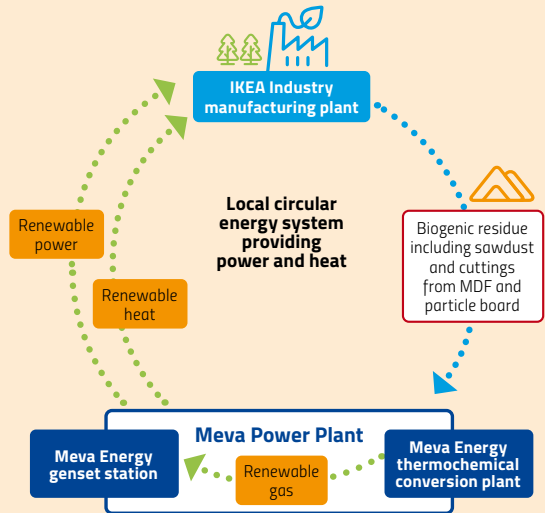
Customer case study



Producing long-term renewable power from low-value feedstocks for IKEA Industry

The problem.

IKEA Industry's largest manufacturing unit, located in Zbaszynek, Poland, produces wooden furniture for IKEA. Power and heat consumption represent the plant's most significant sources of CO₂ emissions. IKEA Industry's goal is to reduce its carbon footprint by 80% by 2025 compared to the level in 2016, and a key step towards achieving this is utilising renewable power in its manufacturing plants.



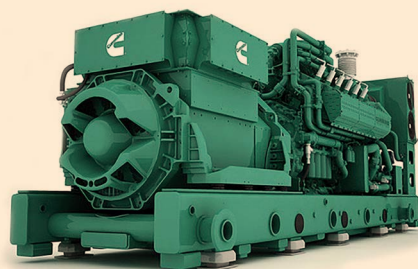
Why IKEA Industry chose Meva Energy solution.

Meva Energy's thermochemical conversion technology provides a way for the IKEA Industry manufacturing plant to utilise its vast quantities of low value feedstock (wood residue), transforming it into high-efficiency renewable power production.

- 2.4 MW power station to be fueled by renewable gas obtained from wood residue feedstock.
- 19 GWh produced every year.
- 10-year contract whereby Meva Energy delivers and sells power and wood residue reception services to IKEA Industry.
- 16,000 tons of waste wood, contaminated with glue, up-cycled to renewable energy per year.

Expected benefits for IKEA Industry.

- CO₂ savings: 14,000 tons per year
- Wood residue transportation savings: 300 truck journeys per year
- Fully circular and decentralised energy system created on-site
- Reduction in air pollution compared with previous wood combustion methods.



Customer case study



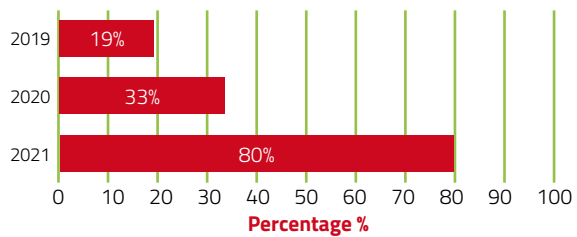
Energy monitoring software for Vodafone Increasing efficiency and credibility of Vodafone's environmental reporting through digitalisation

The problem.

Vodafone is transitioning to 100% renewable energy. However, Vodafone Spain's energy team lacks access to transparent data on the green energy they bought for environmental reporting. Too much administrative work is needed to collect proof of energy certificate cancellation to report with confidence.

Vodafone Spain's energy team needed to invest more than 100 hours to manually obtain this data, process it and get auditor approval. They had to call their local energy supplier to get a confirmation of the volume and type of energy certificates that were cancelled for Vodafone. Moreover, Vodafone Spain has 13,000 energy consumption sites (e.g. antennas), making data collection especially time consuming and prone to errors.

Purchased electricity from renewable sources (Europe)



Choosing FlexiDAO solution.

Vodafone implemented FlexiDAO's software solution, REspring, in 2020. As REspring is directly integrated with the national energy certificate registry, Vodafone can now automatically collect a list of all Guarantees of Origin that are officially cancelled by their energy supplier. REspring scans 13,000 consumption sites, that account for more than 500 GWh, and provides the emission calculation and the exact plant of origin of each certificate, as well as other data to assess the real environmental impact of the procurement strategy (e.g., age, technology and location of the sourcing renewable energy plant).

With FlexiDAO, Vodafone's energy team can now

- Check the volume of their energy consumption for each consumption site, what percentage of that consumption is actually covered with green energy certificates and calculate emissions for Scope 2 reporting, everything in one place.
- Filter, visualise and monitor KPIs to take future energy procurement decisions.
- Generate automatic reports of Vodafone's renewable energy certificate portfolio.
- In the future, feed the data into their Energy or Sustainability software thanks to FlexiDAO's APIs.
- All the collected and consolidated data is notarised onto the Energy Web Blockchain in order to provide with the ultimate trust and digital trail to third-parties that might want to further verify Vodafone's sustainability claims with assurance. (e.g. external auditors, for the application process to carbon disclosure initiatives, such as CDP).

Carmelha Tower, Monaco. An innovative sustainable building 100% autonomous.

The customer and the challenge

The Principality of Monaco is committed to a smart and efficient energy transition policy. This has had an impact on the construction of new buildings in the city.

The Carmelha Tower is an innovative residential building currently under construction. It combines a wooden frame with solar thermal and solar photovoltaic installations on the terrace. However, this alone is not enough to earn the **E+C- label**, a French certification required by the customer that approves **positive energy and low carbon buildings**.



The solution proposed by Sylfen

Responding to a request by the engineering company EGIS, Sylfen proposed the addition of a Smart Energy Hub, comprising a **battery module and a reversible electrolyser module** able to store up to 3kg of hydrogen.

The Smart Energy Hub boosts the environmental performance of the building, and allows for the solar installation to cover 100% of energy consumption (electricity and heat) in the communal areas of the building. Whenever there is an excess of production in the solar installation, it is stored in the form of hydrogen and restored as electricity later on, at night, for example, or in poor weather conditions. The Smart Energy Hub covers not only the electricity needs of the building but also heating and hot water requirements.

If the stored hydrogen is insufficient to cover demand, the Smart Energy Hub has the capability to combine hydrogen with natural gas (progressively greened by biomethane) to generate electricity and effectively replace the grid supply in winter.

The building now fully complies with **E+C- label** criteria and achieves the highest levels of certification.

Key figures and facts

47

metres high
residential tower

8

storey building

25

homes

4,130

m² surface area

2022

delivery date

Certifications NF Habitat niveau Exceptionnel, BDM Gold Level, démarche E+C-, label Bepos Effinergie niveau E3C2, label OTIMU niveau 3 étoiles

Clean and reliable energy for e.Leclerc stores. The *Wind my Roof* solution

The Customer.

E.Leclerc is a major supermarket chain headquartered in Ivry-sur-Seine, France. It has more than 720 locations nationally plus 85 international stores which provide a wide assortment of products, daily fresh foods and a sophisticated shopping environment. This requires a significant and 100% reliable energy supply. Already a pioneer in eco-friendly products and recycling, E.Leclerc was looking for an effective way to improve energy efficiency in all its French stores, reflecting customer awareness and meeting EU and national energy consumption targets. The solution had to work in any location, in all seasons and at all hours of the day.

Up to
23%
of French
market share

720
stores
in France

Covers
62%
of the French
population

€45
billion turnover

The WindBox: a compact and versatile clean energy solution.

French start up Wind my Roof impressed E.Leclerc with its WindBox, a 4m by 1.6m module that uses both sun and wind to boost the energy autonomy of buildings. Placed on any high and flat roof, the WindBox can generate the same amount of electricity 24/7 all year round.

- **Renewable:** each WindBox can provide 2800 kWh/year wind + solar power.
- **Reliable:** produces as much energy as 10m² solar panels without peaks and dips.
- **Versatile:** installed on any exposed flat roof.
- **Climate resistant:** can withstand winds up to 180 km/h and temperatures of -15°C.
- **Local:** 92% made in France with a low carbon footprint.

Benefits for E.Leclerc.

E.Leclerc has ordered ten WindBoxes for installation and testing on the roof of a French store. Wind my Roof has already launched industrial production of its WindBoxes.

Expectations are high as Wind my Roof's solution could be exactly what E.Leclerc needs to provide clean reliable energy for all its French stores.



Six months ago we started to work with EIT InnoEnergy to find energy efficient solutions for the French stores. Wind my Roof interested us with their new kind of wind turbine that fits on the top of the stores, which combines solar power during the day and wind through the night."

Vincent Muller. *Director of Prospects and Innovation, E.Leclerc Energies*

Accelerating sustainable energy innovations
Innovative energy solutions for your business
Edition 2023

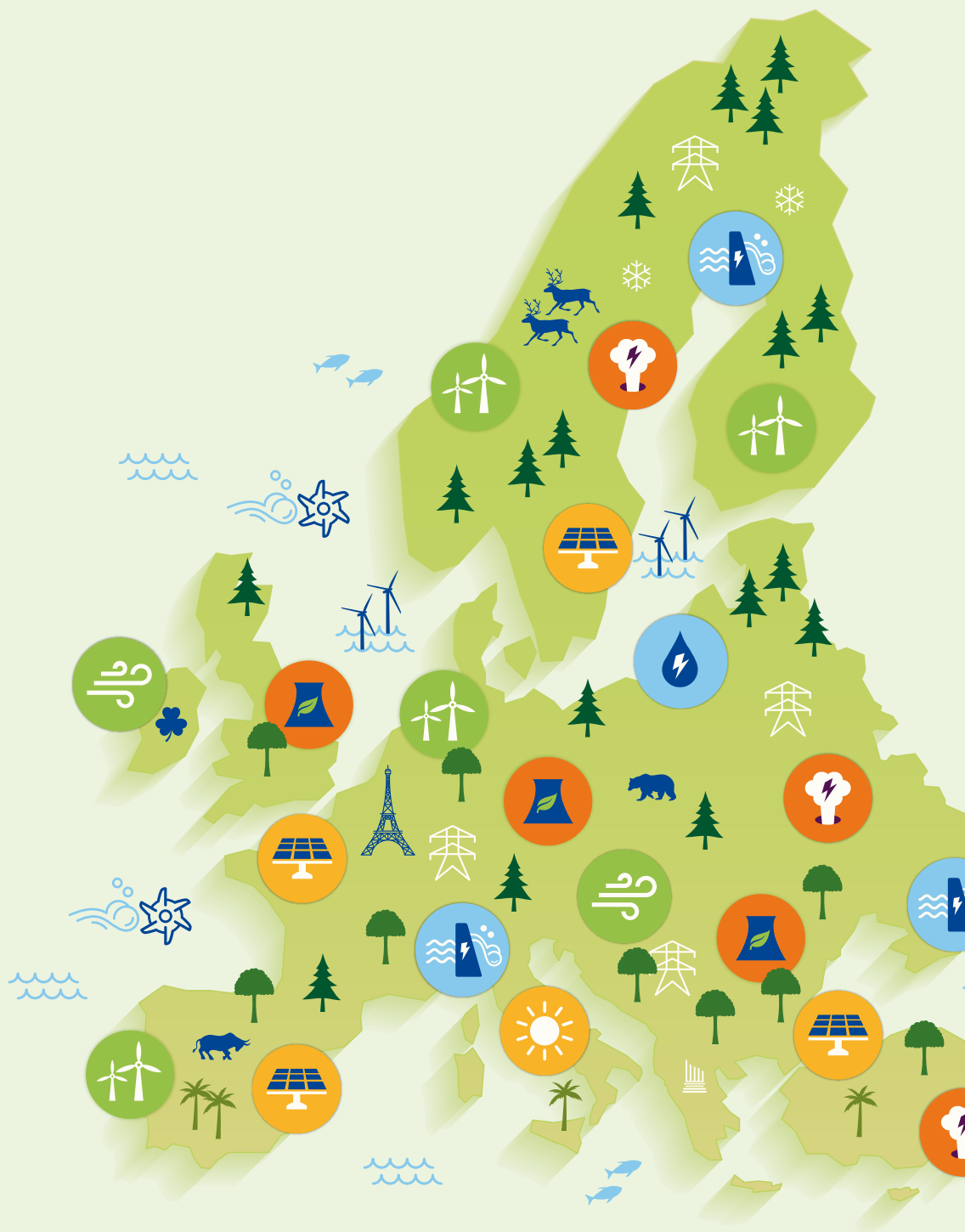
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